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STI, SureFire, Monkey Edge, Crossbreed, First Tactical, Safariland, PG. 16

HILL & MAC GUNWORKS

GET ME A VINTAGE-INSPIRED DIY RIFLE

PG. 60

PG. 50

MINIGUN MOTORCYCLE

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ISSUE 30

STI

DUTY-READY RACE GUN

PG. 110

STI

CARRY COMP

- ▶ REMINGTON'S RP9 POLYSTRIKER PISTOL
- ▶ STINGERWORX EMPEROR: MODULAR MULTI-CALIBER CAN
- ▶ SUB 6-POUND AR-10 FROM 2A ARMAMENT
- ▶ SHOOT-AND-MOVE DRILL
- ▶ HUNTING IN THE MONTANA OUTBACK WITH BERGARA'S NEW BOLT GUN
- ▶ THE FUTURE OF POLICE DOG GEAR
- ▶ AFTERMARKET GLOCK BARREL TESTING
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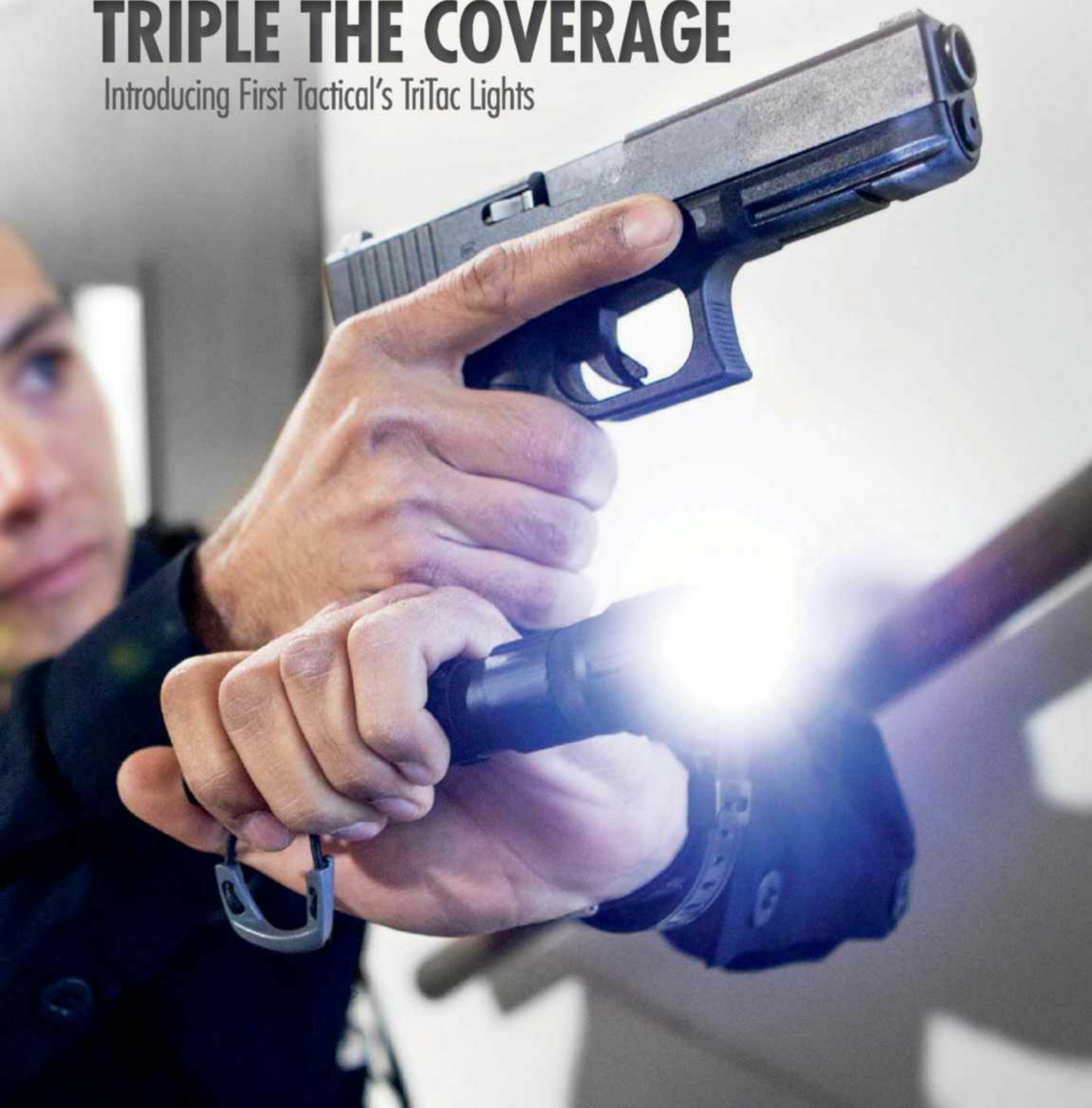
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RECOIL

ISSUE 30

DEPARTMENTS

16 ON THE COVER

22 DOWNRANGE

Editor's Letter

28 INCOMING

New Gear

36 VISIT

Saint-Étienne Museum of Science and Industry

46 TRANSPORT

Minigun Motorcycle

56 UNUSUAL SUSPECTS

Big Folding Knives

170 ZEROED IN

Matt Griffin

184 OLD SCHOOL

1919

194 PT

Strength Training in Your Running Program

204 SHOW US YOUR TATS

210 GOING HOT

FIREARM SAFETY IS TOP PRIORITY

RECOIL reminds you to be safe and always obey firearms safety rules:

1. Treat every gun as if it were loaded.
 2. Always keep the gun pointed in a safe direction.
 3. Keep your finger off the trigger until ready to fire.
 4. Be aware of your target's foreground and background.
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FEATURES

60 CETME-L
Hill & Mac Gunworks Shows Off its DIY Vintage-Inspired Rifle

72 AFTERMARKET GLOCK BARREL TESTING
Match Grade it Might Not Be. Or is it?

84 THE ENEMY OF MY ENEMY IS MY FRIEND
How to Put Together a Lightweight .308 From South of the Equator

96 PDW STOCK BUYER'S GUIDE
The Long and the Short of it

110 COMPTUS LUDUS
Costa Ludus and STI Make Race Guns Ready for Duty

122 SMOOTH MOVE
Shooting and Moving Looks Easy, But Takes Finesse to Master. Here's Where to Start

130 REMINGTON'S RP9: AN EXERCISE IN COMPROMISE
Just Because You Can, Doesn't Mean You Should

144 STINGERWORK EMPEROR SERIES SUPPRESSOR
The Emperor Does Have Clothes

148 DEAR MONTANA
Taking a Meal Out of the Montana Range With Bergara's Latest Creation

158 CANINE TECHNOLOGY
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ON THE COVER



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1 PISTOL

MAKE:

STI

MODEL:

Carry Comp

MSRP:

\$3,699

URL:

www.stiguns.com

2 LIGHT

MAKE:

SureFire

MODEL:

XC2 weapon light and laser

MSRP:

\$443

URL:

www.surefire.com

3 MAGAZINE

MAKE:

STI

MODEL:

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MSRP:

\$144

URL:

www.stiguns.com

OFF THE COVER

4 HOLSTER

MAKE:

Safariland

MODEL:

Model 18 IWB

MSRP:

\$54

URL:

www.safariland.com

5 KNIFE

MAKE:

Microtech Custom

MODEL:

Borka Blades SBK Assassin

MSRP:

\$1,199

URL:

www.monkeyedge.com





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Curby Puncher

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2 CUFF LINKS

MAKE:
Starlingear Cufflinks

MODEL:
Maltese Cross w/Slickster

MSRP:
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URL:
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3 WATCH

MAKE:
First Tactical

MODEL:
Fathom Dive Watch

MSRP:
\$250

URL:
www.firsttactical.com

OFF THE COVER

4 BELT

MAKE:
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MODEL:
Executive gun belt

MSRP:
\$75

URL:
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Ah, spring. While those in northern climes are still suffering the last frigid blasts from Mother Nature, the rest of us are blowing the dust off guns and gear that have been underused these past few months. I'm gearing up for the first major match of the three-gun season, (and using some interesting guns — watch this space for details) staffers are heading off to test night vision and suppressors in Wyoming, we've got a new RECOIL vehicle build in the works, and there's exciting events afoot in both CONCEALMENT and RECOIL OFFGRID. Looking a little further down the road for 2017, we're scheduling wilderness trips for the fall, which should give you an idea of what's next in the pipe for our little media empire.

As this issue hits the shelves, our team will be headed to the NRA annual meetings in Atlanta to bring you news from the convention. If you're attending, then please say hi if you see any of us wandering the aisles, and if you can't make the trip this year, well there'll be plenty of coverage from the show floor on our social media and video platforms. Oh, and if you haven't already, please consider supporting Adam Kraut, our pick for the NRA board.

Thanks to your guys' support, we're going to continue to push the boundaries of firearms publishing. While we may not always get it right, the alternative of playing it safe and doing the same old thing that everyone else does ain't going to fly. We'll count on you to call us out when we get it wrong, and we'll always look for new and creative ways to screw up. See you on the range.

Adam Henson





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6. PLAN-B Front/Back Slim-Sling
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


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1 Camelbak's Urban Assault is an OCD sufferer's wet dream. Pockets for days. There's an admin pocket with sleeves for pens, a mesh-backed stash pocket up front, a slash pocket, water bottle pocket, and two full-size compartments with more internal organizers and padding to protect a 15-inch laptop and a tablet. There's even a hidden security pocket for a wallet or passport. Plus, there's a small laser-cut PALS field across the front for more pouches. The back panel has a removable stiffening insert and there're external cinch straps. Our favorite feature, though, is the bright interior that makes it easy to see what's going on in the depths of the bag's nylon innards. It's perfect for the hardscape crowd who can't bring themselves to run a messenger bag or a briefcase.

MAKE:	Camelbak
MODEL:	Urban Assault
CAPACITY:	1,950 cubic inches (32 liters)
WEIGHT:	2.7 pounds
MSRP:	\$189
URL:	www.camelbak.com

2 If you've got a vehicle, you've got a reason to run one of Dark Angel Medical's new Vehicular Individual Safety Rigs (or VISR). It stows a basic gunshot treatment kit in the empty space that once held your Metallica CDs. Pull the red handle and you're holding a trauma pack that includes hemostatic gauze, nitrile gloves, a mini compression bandage, a set of HALO chest seals, compressed gauze, an eye shield, a nasopharyngeal airway, Mylar blanket, a tourniquet, and mini-trauma shears. There's enough gear to maintain an airway, stabilize a penetrating chest injury, and pack a wound while providing protection from infection for the responder. The VISR is ideal for any patrol vehicle and also a great way to keep life-saving equipment on-hand for those of us who spend time at the range.

MAKE:	Dark Angel Medical
MODEL:	Vehicular Individual Safety Rig (VISR)
WEIGHT:	3 pounds
COLORS:	Black, brown, grey
MSRP:	\$157
URL:	www.darkangelmedical.com

3 Marking cleared rooms is a basic tenet of military and law enforcement door-kicking operations. Assaulters drop break-and-shake-style chemlights in rooms they've cleared so teams moving behind them know it's safe to bypass the space. Preparing the dozens of chemlights needed for a hit can take 20 to 40 minutes the night before. Units can save time by using BFG's MARCO preloaded chemlight dispenser. With the magazine-looking device in an accessory belt-mount, guys can crack and drop 2-inch chemlights effortlessly. And the cost is about the same as a bundle of slower deploying, heavier, 4-inch chemlights. Final pricing is not yet set, but BFG says the loaded dispensers will be about \$40, and the accessory belt mount will be another \$40.

MAKE:	Blue Force Gear
MODEL:	MARCO - Marking and Recognition Chemstick Organizer Dispenser
CAPACITY:	30 2-inch Cyalume ChemLights
MSRP:	\$80 (estimated)
URL:	www.blueforcegear.com

4 Troy's Special Operations Compatible Carabines (SOCC) product line is based on the company's new SOCC CQB-optimized AR rifle and includes a few, new matching accessories. Most interesting is the SOCC transparent BattleMag. The magazine is identical to the standard Troy BattleMag in nearly every way except for its translucent body. This makes it easy to get a round count at a glance, and you can even see enough to know what kind of rounds are loaded. It's got the same texturing as the original BattleMag for positive grip, but the SOCC mags don't come with the shock-absorbing extended floor plates. Instead, they'll ship with standard flush-fit floor plates. The BattleMag's polymer is resistant to biological, chemical, and impact exposure.

MAKE:	Troy Industries
MODEL:	SOCC BattleMag
COMPATIBILITY:	AR/M4/M16, HK 416, FN SCAR
MSRP:	\$15 each
URL:	www.troyind.com



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5 It's an AR-15 world and the guys at S2 have had enough of those cross-bolt safeties found on shotguns. They figured out a way to adapt an AR-style rotating fire control selector to work on Remington 870/1100 series (shown) and Benelli shotguns. S2 says it should be installed by a licensed gunsmith or armorer, but we swapped the push-button safety on our 870 with the rotating selector in about 10 minutes. The idea is sound; using the same muscle memory imprinted by thousands of firing sequences on an AR to get things going when switching over to a scattergun makes sense. Just be aware the new selector only works with pistol-gripped shotguns, and the ergos are better with some grip shapes and angles than they are with others.

MAKE: Signature Solutions (S2-USA)
MODEL: Remington Safety Selector Switch
COMPATIBILITY: Only works with pistol grip-equipped shotguns
MSRP: \$48
URL: www.s2-usa.com



6 Budget AR shooters should check out ALG Defense's latest addition to its Ergonomic Modular Rail family: the austere VO-E. This handguard combines the simple lines of an unperforated 6061-T6 aluminum grip surface with a set of short Pic rail mounting points up front. The result is a no-frills setup that really doesn't give up much in the way of functionality when compared to its highly sculpted peers. There are built-in QD sling swivel sockets and accommodation for an iron-sight-friendly, co-witness top rail section. The handguard is held in place with a 2-inch 7075-T6 aluminum barrel nut that's installed without the need for a torque wrench. The VO's value comes from the reduced machine time used to make it. The VO omits the venting and lightening slots we're used to seeing on most handguards, resulting in a bit of added heft. That's a worthy tradeoff for shooters who value the weight of their wallet over the weight of their rifle.

MAKE: ALG Defense
MODEL: Ergonomic Modular Rail VO-E
AVAILABLE LENGTHS: 10, 13, 15 inches
MSRP: \$80 to \$90
URL: www.algdefense.com

7 VZ Grips is one of the first names to come to mind when people talk about upgrading their handgun's factory pistol grips to something more stylish, functional, or comfortable — or all three combined. The company recently released a lineup of AR accessories, from rails and hand-stops to — you guessed it — pistol grips. The grips are made out of a solid piece of G-10 with an ergonomic 17-degree angle and are offered in five different textures and four colors. Comes with stainless steel hardware. Made in the USA.

MAKE: VZ Grips
MODEL: AR Grips
LENGTHS: Standard (4 inches) and shorty (3.75 inches)
MSRP: \$95
URL: www.vzgrips.com



8 Grey Ghost Precision continues to expand its reach into the firearm market with its own house-branded Glock barrels for the G17 and G19. The 416r steel, broach-cut barrels are double honed and nitride finished for easy care. They have SAAMI spec 9mm NATO chambers, have a constant diameter, and use a 1:10-inch twist rate that's close to Glock's own 1:9.84-inch twist rate. GGP says it'll have threaded versions shortly, and to keep an eye out for its drop-in custom Glock slides that should be on the shelves by the time you're reading this.

MAKE: Grey Ghost Precision
MODEL: 9mm Barrels for Glock 17
TWIST RATE: 1:10-inch right-hand twist
MSRP: \$180
URL: www.greyghostprecision.com



9 Got the urge to add a G34 to the collection, but space in the safe getting a little tight? Why not upgrade your G17 with a KE Arms KE34 Echo slide and save a little room. CNC'd from stainless bar stock, a complete slide plus RMR weighs in at 12.4 ounces, which is a hair less than the stock slide on our Gen 2 Glock 17. By hogging out a bunch of weight up front, recoil management is made easier and your factory recoil springs work just fine. At a recent range session, we were making consistent 100-yard head shots with match ammo, so this dog will hunt.

MAKE: KE Arms
MODEL: KE34 Echo Slide
MSRP: \$739
URL: www.kearms.com



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tread pattern is known for rock solid traction and high round count shooting comfort. Coupled with performance options like our reload-enhancing one-piece Bullet Proof® Magwell and carry options like the concealment hammer and grip safety, the X-TAC Elite has all the right custom features and striking good looks.

10 If you teach, you've no doubt wasted time doing mental gymnastics trying to align POAs with POIs as students waited not-so-patiently to get to the good stuff. The Simple Marksman Adjustment Reference Table (S.M.A.R.T.) card is a simple, durable tool that answers that one oft-heard question, "OK. And that's how many clicks on this optic?" It's a slide rule that almost eliminates the math involved in getting guys zeroed at distances from pistolwork to 400 meters. Dial up the distance and the window tells you what fraction of an inch you get per click for popular sight systems including M4/M16 irons, commercial BUIS, Delta-points, RMRs, Aimpoints, EOTechs, ACOGs, and more. To further simplify things, the fractions are rounded up to finger-friendly numbers.

MAKE:
Zero Bravo

MODEL:
S.M.A.R.T. Card

MATERIAL:
Die Cut PVC (made in the USA)

MSRP:
\$15

URL:
www.zero Bravo.com

11 HoneyBadger ammo features a non-expanding, auger-tipped pistol projectile that Black Hills developed with Lehigh Defense. Black Hills says the bullets cut through barriers that plug most hollowpoints, while creating larger, deeper wound channels. Available previously in .380 and .38 Special, the all-new HoneyBadger 9mm and .45 ACP rounds were designed to provide optimum performance in ballistic gelatin while avoiding over-penetration, and the .44 Magnum is an ideal hunting round. We're told by Black Hills the rounds are not only capable of producing outsized wound channels, they are also practically barrier-blind. We'll be evaluating the 9mm 125-grain loads in gel as soon as we get a chance.

MAKE:
Black Hills Ammunition

MODEL:
HoneyBadger Ammunition

CALIBERS:
.380 auto 60 grain, 9 mm 125 grain subsonic, .38 Special 100 grain +P, .45 Auto 135 grain, .44 Magnum 160 grain

MSRP:
Not available at press time

URL:
www.black-hills.com

12 This bottle opener will take your tactical tailgating game to the pro level. Pop-tops are no match for the AR.5 and its mil-spec 6061 aluminum body, even if you're consuming them at a rapid rate. These mini AR receivers are made in-house by Nelson Precision Manufacturing according to a shelved technical data package the government bought by accident while developing the M134 Minigun. Silver lining. Anyway, we can't think of a better way to safely combine your love of America's rifle with your love of a cold one.

MAKE:
Nelson Precision Manufacturing

MODEL:
AR.5 Bottle Opener

MATERIAL:
Type III Hard Anodized 6061 Aluminum

MSRP:
\$30

URL:
www.nelsonprecisionmfg.com

13 W.R. Case & Sons Cutlery Co. has a storied history — thanks in part to its V-42, which is so timeless that the company is now reproducing this dagger. Why so enduring? The stiletto was issued to the 1st Special Service Force, aka The Devil's Brigade, an elite American-Canadian commando unit formed during World War II. So, it's fitting that the company has released the Case BESH Wedge, a dagger inspired by the V-42 and designed by Brent "Besh" Beshara, a custom knife-maker and a veteran of the Canadian special forces. It features two diagonally opposite chisel-ground bevels that meet at the tip to form a third edge, giving it more strength than a typical dagger point. Comes with G-10 scales and a Blade-Tech sheath. (The Case BESH Wedge shown here with the V-42, top.)

MAKE:
W.R. Case & Sons Cutlery Co.

MODEL:
Case BESH Wedge

LOA:
12 inches

MSRP:
\$390

URL:
www.wrcase.com



11

12

13



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18, 19, 26, and 34

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SAINT-ÉTIENNE

MUSEUM OF SCIENCE AND INDUSTRY

FRANCE'S STATE ARSENAL

STORY BY IAIN HARRISON
PHOTOS BY KENDA LENSEIGNE

Last year marked the fifth consecutive year I've visited France, but this time, the mood was markedly different. Terrorist attacks had changed both the topics and the nature of civil discourse, and there was a dramatic increase in physical security around all public events. It was noticeable as soon as I stepped off the plane.

In years past, you'd see pairs of uniformed soldiers of various noncombat arms strolling around Charles de Gaulle Airport in Paris looking bored, checking out the

young women, and trying to feign interest in a largely symbolic duty. In contrast, last summer I saw squads of jocked-up infantry veterans deployed to even second-string airports, where they were actually patrolling and even — horror of horrors — had magazines in their weapons.

The rifle they carried was the FAMAS, the iconic “Bugle” and the last service weapon to be produced in a nation that at one time led the world in firearms innovation. In 2016, France was in the process of select-

ing a replacement, which would come from either Belgium, on whose soil hundreds of thousands of French servicemen died, or from Germany, whose conscripts faced them across artillery-scarred mud and from behind the sights of K98 Mausers. France wound up choosing the HK version of America's service rifle. But hey, we're all Europeans now

It seemed appropriate, therefore, to visit the city in which France produced the millions of rifles, bayonets, machine guns, and pistols needed to equip their armed forces,



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who just 100 years ago were locked in a bloody, existential battle for their nation's survival. The factory where thousands of workers toiled in a desperate race to put weapons in the hands of those who were battling the Teutonic hordes had been shuttered and bulldozed in the 2000s, but their remarkable product line had been placed behind glass for visitors to gawk at.

Saint-Étienne was, during the latter part of the Industrial Revolution, one of the most important manufacturing centers in Europe, producing textiles, machine tools, bicycles, and farm equipment, but its history as an arms maker dates to the Middle Ages. Swords and armor were manufactured for French kings and emperors to equip their armies, and as edged weapons transitioned to powder, the musket of 1777 became the most prolific firearm ever produced until the advent of WWI.

Over 7 million examples were made (though not all by Saint-Étienne), and troops so equipped faced off against those armed with the Brown Bess in Europe and Asia. French firearms featured prominently in the early days of American history too. Although the famed Charleville musket of the Revolutionary War was named after the eponymous state arsenal in the Ardennes, many were produced in Saint-Étienne and made their way across the Atlantic. Later, in the Civil War, France supplied cannons, Minie rifles, pistols, submarines, and ironclads to both sides.

While the history of French firearms development in Saint-Étienne could easily fill its own building, the collection shares space with other notable local trades and is housed almost entirely on the upper floor of the Musée d'Science et Industrie. The building itself is reached by crossing a small town square that's quintessentially French; while we were there, the weekly market was well underway and townsfolk were stocking up on locally

grown produce, meat, and cheese. Climbing a few limestone steps to the entrance, the ballistic pilgrim enters the usual foyer-slash-gift-shop, ponies up their entrance fee, and then climbs the stairs past displays of glass and lace.

Examples of medieval armor, swords, and halberds greet the museum's visitors as they enter the third floor space of the Museum of Science and Industry. Inside, displays cover both combat and jousting, with examples of both highly decorated plate armor and mail in evidence, along with the lances and shields every well-equipped nobleman needed in order to win the heart of a fair maiden.

The period where armor was being supplanted due to the ability of commoners to punch big frickin' holes in it with their comparatively cheap matchlocks overlaps the birth of several of the most notable area workshops. Locks from this time are displayed in wall-mounted cases and some are quite stunning in both design and execution. The earliest service firearms on display are a pair of wheel-lock cavalry pistols dating from 1550, while a suit of Maximilian armor dates all the way back to 1415.

Although Alexandre Dumas' characters were fictitious, his father was an honest-to-God general in the French



1. Seventeenth century armor from both France and Germany is on display. Much of the museum's Medieval collection is in the open, outside of glass cases.

2. This dude listened to way too much Iron Maiden as a teenager.

3. French cuisine is rightly famous worldwide. A couple of meat tenderizers illustrate why.



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revolutionary wars, and there really were two companies of Musketeers who served as the king's bodyguard. The only remaining example of a Musketeer pistol is on display in the MSI, along with corresponding Mousquetons, or cavalry carbines.

At around the same time, an enterprising gunsmith by the name of Nicholas Boutet was hiring the best artisans he could find to produce what could be fairly considered some of the finest guns the world has ever seen. As *arquebusier*, or gunsmith to the court of Louis XVI, he was given free reign to create extraordinary works of art, such as the pair of cased pistols shown here.

As the industrial age progressed, cartridge arms replaced flintlocks in a process familiar to amateur historians on both sides of the pond. Production became both codified and centralized, with Saint-Étienne's place as a strategic asset to the French Empire cemented in place with every one of the bricks laid to enclose the new factory. Revolvers from the 1870s are showcased and demonstrate just how advanced their designs were in comparison to contemporaries on the world stage.

While we were taming the west with Colt single-actions, the French were fielding their first sophisticated D/A revolver, which for a military pistol was exquisitely made (in the officer's variant anyway — rank has its privileges). The 11mm 1873 Chamelot-Delvigne was made until 1886 and continued in service until well into the Second World War. Civilian versions were widely distributed, with Belgian copies hitting the market soon after the military adopted the pistol; we encountered examples of both at a local flea market, where, due to being over 100 years old with no currently manufactured ammunition, they're freely traded.

The MSI has numerous, well-preserved samples of drop-dead gorgeous French sporting arms from the golden



1. Carbide-powered sporting rifle from the 19th century

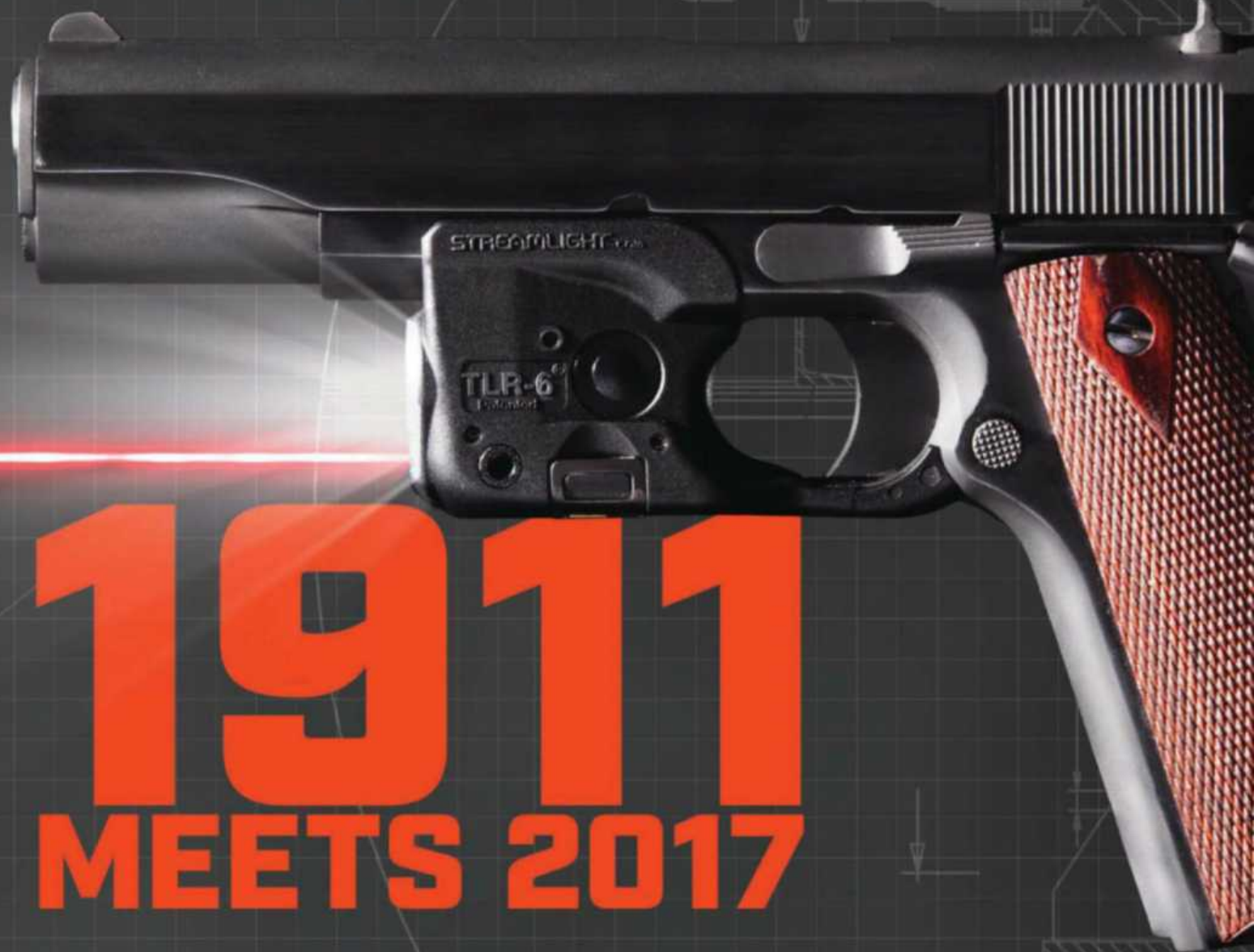
2. Gallic Buntline Special. Revolving carbines were developed around the same time on both sides of the Atlantic.

3. Exquisitely engraved sporting rifle from the golden age of French gunsmithing

4. Pair of presentation pistols from the workshop of *maître* Nicholas Boutet

5-6. An 1873 Chamelot-Delvigne cutaway next to its replacement, the Model of 1887.

7. Early breech-loading percussion pistol



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age of gun making, but it's the oddballs and one-offs that are particularly eye-catching. Such as the carbide-powered rifles and the high-powered airguns, along with early semi-auto shotguns that show a level of development that surpass their American counterparts. This is, after all, the country that was the first to field a self-loading service rifle, over 20 years before the Garand stepped onto the stage.

As visitors make their way past case after case of well-preserved and displayed products of the gunmakers' craft, they eventually fetch up at the usual Euro-bullshit display of modern art, the message being, of course, that guns are bad m'kay? It's ironic then that the last exhibit before having to suffer the artists' smug self-righteousness is of the final products of the Saint-Étienne factory, which is, of course, where our story started. We can only hope that the gamble of neglecting and then destroying the remnants of their domestic arms industry doesn't come back to bite them. History's a bitch, ain't it? ■

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www.musee-art-industrie.saint-etienne.fr



1. Fusil d'Assaut de la Manufacture d'Armes de Saint-Étienne

2. Eighty years of French service rifles: MAS-36, MAS-49/56, and FAMAS

3. Case showing the progressive development of the French service revolver. They were replaced in general service in 1935 by the forerunner to the SIG P210.



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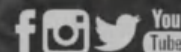
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A minigun is shown firing in a desert landscape. The gun is on the left, and a large, bright orange and yellow explosion of fire and smoke is in the center. The background shows rolling desert hills under a clear sky.

THE WORLD'S FASTEST MINIGUN

3,000 ROUNDS PER MINUTE ON TWO WHEELS?
WE FEEL A SPELL OF INCONTINENCE COMING ON

STORY BY JOHN SCHWARTZE
PHOTOS BY STRAIGHT 8

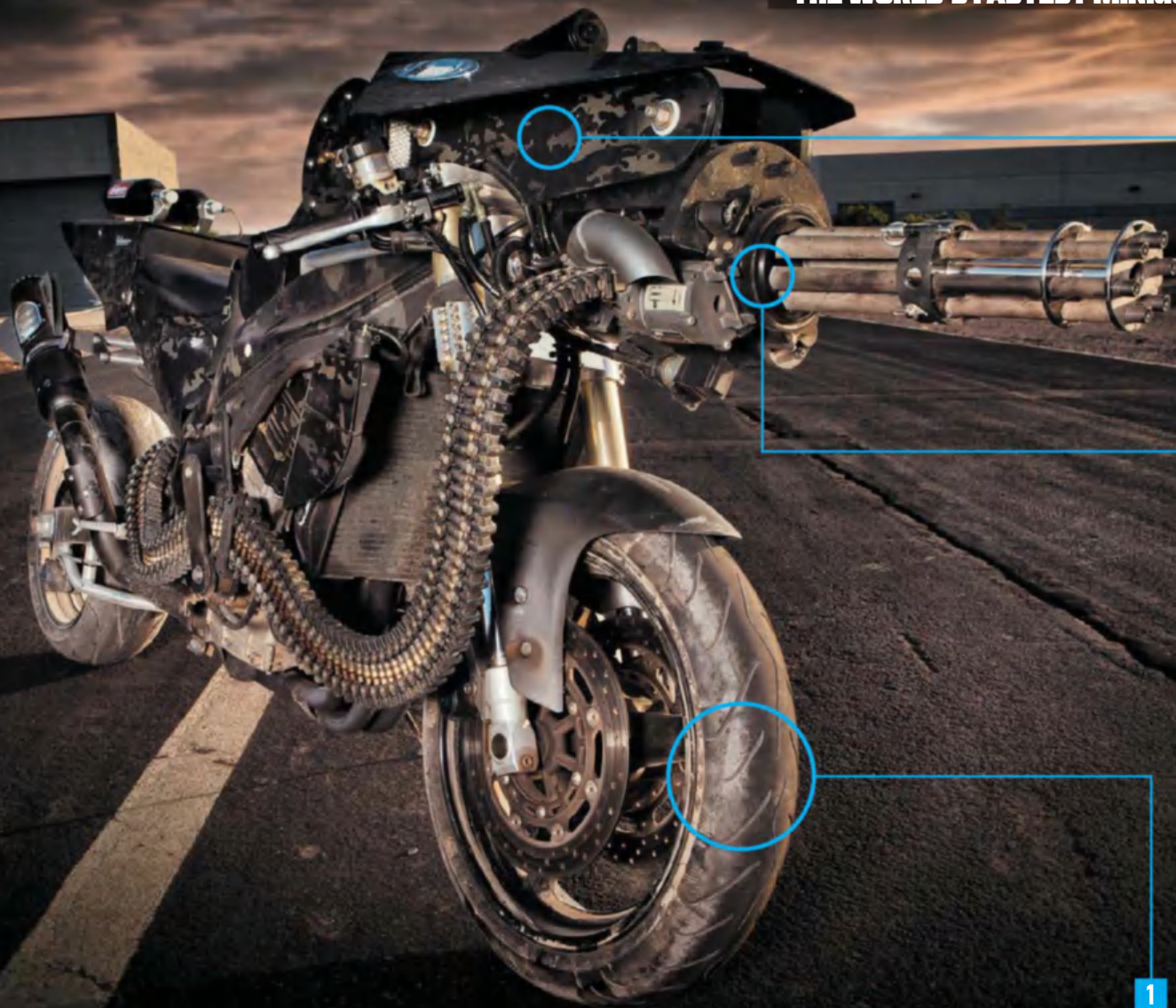
We would've loved to have been a fly on the wall when someone walked into a room and said, "You know what the world needs more of? Motorcycles with miniguns on them!" Did the people blessed with this kind of wisdom previously work as Sonny Barger's life coach? It certainly seems like every 1-percenter's wet dream. Were they perhaps former department of corrections employees who were fired over suggesting that electric chairs

be replaced with electric bleachers? Perhaps they once pitched an ad-campaign slogan to Honda along the lines of, "You meet the nicest people on a motorcycle with a cannon."

Wherever the idea came from, it apparently didn't fall on deaf ears. What was once only possible in movies has finally been brought to life, and RECOIL was privileged to see it in action. Lane splitting just took on a whole new meaning.

Brainstorming sessions between Dillon Aero and Tailgunner Exhaust led to something that looks like the bastard son of Blue Thunder. The Tailgunner Dillon Aero M134X Interceptor, as it's called, found its way to our email inbox — so we sent our editor, Iain Knievel, out to investigate the situation further. We were all curious to see if this thing was intended for anything other than a potential reboot of *Street Hawk* (congrats if you even remember that show).

THE WORLD'S FASTEST MINIGUN



1 2 3

Our research revealed that the M134X was truly an engineering masterpiece. That's because the brains behind it really know their craft. You may have seen the work of brothers Cal and Charlie Giordano, proprietors of Tailgunner Exhaust, not only in their Gatling gun-inspired exhaust systems, but creations such as a handmade submarine that have appeared in episodes of *Modern Marvels*. They decided to approach the minigun gurus at Dillon Aero about creating a promotional conceptual bike. Unlike many concept vehicles that are all show and no go, this one was engineered to be fully functional and designed for the average rider to operate.

To our knowledge, mounting a functioning minigun to a motorcycle chassis was never attempted until now. The 300 pounds of recoil generated by the 7.62 NATO-caliber M134 was enough to make people believe that such a feat defied the laws of physics and begged too many unanswerable questions. Even if it could be fired while riding, how long would it take before the frame began to tear? Could it be aimed with any degree of accuracy? Was the driver guaranteed a Darwin Award?

The bike was built not only to defy the naysayers of minigun versatility, but also as a way to deploy the weapon system to the field quickly or to catch a fast-moving vehicle. In order to create

a bike that drove and handled well enough to do all this, they chose the proven Yamaha R1 Superbike chassis as the platform. Its aluminum frame and high power-to-weight ratio enables the package to be light on its feet.

To disperse the load, Tailgunner created an aluminum cantilever mount for the gun that attaches where the custom extended swingarm connects. The linear actuator enables the gun to be moved up and down by a switch located where the turn signal formerly resided. The custom fuel tanks were moved to the rear of the bike for better balance. Heavy-duty billet aluminum steering yokes were also specially made for the project. Body panels

1 TIRES

MAKE:
Metzeler

MODEL:
120/70-ZR17, front;
190/50-ZR17, back

URL:
www.metzeler.com/site/us/

2 MINIGUN

MAKE:
Dillon Aero

MODEL:
M134D, 7.62x51mm NATO

URL:
www.dillonaero.com

3 VINYL WRAP

MAKE:
Crye Precision

MODEL:
Multicam

URL:
www.cryeprecision.com



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MODEL:

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URL:www.tailgunnerexhaust.com

are all fabricated from aircraft-grade aluminum and covered in MultiCam wrap by Crye Precision. Believe it or not, the whole bike only weighs about 500 pounds.

An air intake was built into the mount and two external air filters were mounted up high to allow for better filtration and easy maintenance. The bike is powered by a Yamaha 1,000cc inline-four with a twin nitrous oxide system. It's all mated to the six-speed Yamaha transmission. The electronics are powered by a 12-volt battery that runs the motorcycle, with a separate 24-volt battery mounted inside the swingarm to operate the gun. A large Samsung smartphone in front of the driver serves as instrumentation to keep it simple.

The motorcycle doesn't have to be running to fire. The gun can be armed with a switch on the console in front of the driver. The trigger is very appropriately located where the horn

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- Leather & synthetic back



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Style
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button was. Aiming is accomplished by moving the cantilever up or down and steering the bike right or left. Although that's really dead reckoning in terms of accuracy, a laser sight and gun-mounted camera may be added in the future, with reticles appearing on the smartphone.

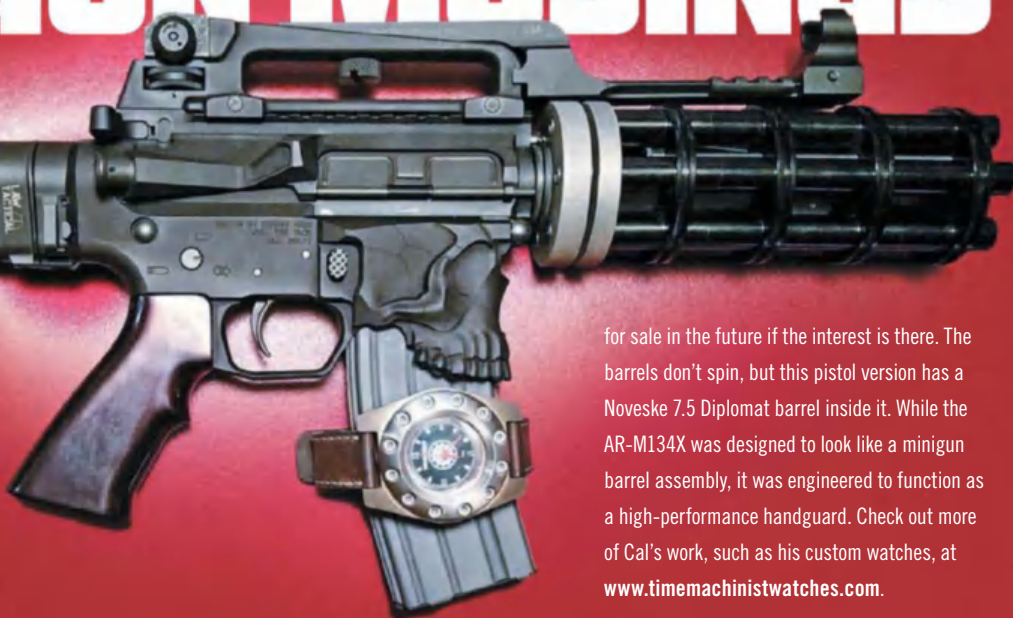
After two years of trial and error, a finished bike finally met the standards of all parties involved. The M134X will be put up for sale when its promotional duties are completed, and it is, in fact, street legal (without the gun, of course, unless you have the proper permits). Tailgunner could even create a replica if the money's there. Civilian

and law enforcement versions are already in the works.

Not only have the minds involved disproven the notion that mounting a minigun on a motorcycle was impossible, but they showed that it could be done in a practical way. Who knows, maybe we'll see M134Xs roaming the battlefield one day with additions such as smoke screens, oil slicks, or caltrops. It seems the fellas at Tailgunner figured out a way to channel the spirits of Richard Gatling and Burt Munro. Nice to know guys who can come up with things like this are on our side. Check out the full videos on RECOILtv at www.recoilweb.com to see the M134X in action. ■

MINIGUN MUSINGS

Don't think the fun stops there. Cal made this super shorty Timemachinist AR-M134X to complement the Tailgunner Dillon Aero M134X project. It's an all-billet build based on a Sharps lower and a custom-made Timemachinist/Tailgunner Gatling-style upper. Since the motorcycle itself and miniguns are nearly unobtainable to the public, you might be seeing AR Gatling Gun-inspired full-float tubes



for sale in the future if the interest is there. The barrels don't spin, but this pistol version has a Noveske 7.5 Diplomat barrel inside it. While the AR-M134X was designed to look like a minigun barrel assembly, it was engineered to function as a high-performance handguard. Check out more of Cal's work, such as his custom watches, at www.timemachinistwatches.com.

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Our EDC gear tends to be as compact and discreet as possible. But every once in a while, we like to get our gigantism on. Whether it's an iPhone 7 Plus in your pants or a Ford Super Duty in the garage, having big powerful tools is indispensable.

So, we're taking a stab at large folding knives. We don't always carry them daily, but in certain circumstances they offer benefits that other knives can't.

First is range. The longer the weapon the more reach and the less distance to cover in a self-defense situation. Second, longer blade means more cutting surface — whether that's for harvesting game, batoning firewood, or intercepting a bad guy's attack. And for those with big hands (insert joke here), a bigger overall length (insert second joke here) means there's more leverage.

Of course, there are drawbacks. Bigger folders are heavier and take up more pocket real estate. And there may be legal ramifications for carrying them in nanny states and regions with tight knife restrictions.

As always, do your research and figure out which giant knife is right for your loadout. After all, it's practically un-American not to have Supersize Me options.

1 MAKE: Black Label
MODEL: Wihongi Signature Folder
OAL: 8.6 inches
BLADE LENGTH: 3.6 inches
BLADE MATERIAL: 7Cr17MoV stainless steel
WEIGHT: 7 ounces
MSRP: \$40
URL: www.browning.com

2 MAKE: Emerson Knives
MODEL: Big Bulldog
OAL: 8.9 inches
BLADE LENGTH: 3.7 inches
BLADE MATERIAL: 154CM stainless steel
WEIGHT: 6.5 ounces
MSRP: \$260
URL: www.emersonknives.com

3 MAKE: Camillus Cutlery
MODEL: 9" Cuda
OAL: 9 inches
BLADE LENGTH: 3.75 inches
BLADE MATERIAL: AUS-8 stainless steel
WEIGHT: 5.1 ounces
MSRP: \$58
URL: www.camillusknives.com

4 MAKE: Coast Products
MODEL: TX399
OAL: 9 inches
BLADE LENGTH: 3.9 inches
BLADE MATERIAL: 9Cr18MoV stainless steel
WEIGHT: 3.7 ounces
MSRP: \$50
URL: www.coastportland.com

5 MAKE: Steel Will Knives
MODEL: Bruiser 500
OAL: 9.53 inches
BLADE LENGTH: 4.02 inches
BLADE MATERIAL: K110 tool steel
WEIGHT: 9.13 ounces
MSRP: \$300
URL: www.steelwillknives.com

6 MAKE: Ruger Knives
MODEL: All-Cylinders +P
OAL: 11.25 inches
BLADE LENGTH: 5 inches
BLADE MATERIAL: 8Cr13MoV stainless steel
WEIGHT: 11.6 ounces
MSRP: \$75
URL: www.ruger.com/crkt

7 MAKE: Spyderco
MODEL: Tatanka G-10 Black
OAL: 11.55 inches
BLADE LENGTH: 5.05 inches
BLADE MATERIAL: VG-10 stainless steel
WEIGHT: 9.2 ounces
MSRP: \$330
URL: www.spyderco.com



FLIP THE PAGE FOR MORE DETAILS ON EACH KNIFE.



10"

9"

8"

7"

6"

5"

4"

3"

2"

1"



INTERROGATING THE UNUSUAL SUSPECTS

BROWNING WIHONGI SIGNATURE FOLDER



411: As the eponymous co-designer, Jared Wihongi teamed up with award-winning knifemaker Russ Kommer to create a whole lineup of tactical blades that combines his Maori warrior heritage, Filipino kali mastery, and hands-on SWAT experience. The results are eye-catching. Though it's the smallest in this buyer's guide, his folder is by no means the runt of the litter and can more than hold its own as an EDC or fighting knife.

PROS:

- From the large thumb-studs and comfortable G-10 scales to the ergonomic finger groves and excellent grip (both forward or reverse), there's a lot of little details that equal big benefits.
- The modified Wharncliffe blade slices and punctures cardboard like it's loose-leaf.
- Surprisingly, it retails for only 40 bucks.

CONS:

- Unfortunately, to keep those costs down, the blade's made from Chinese stainless steel.
- Tip-up-only pocket clip means you'll have to re-grip the handle before opening the blade, slowing deployment slightly.

EMERSON BIG BULLDOG



411: Emerson Knives has built its reputation by arming first-responders and the military (notably Navy SEALs) with hard-core knives that can thrive anywhere — this model's no exception. Anyone who's ever owned any breed of bulldog knows what to expect from this knife: strength, toughness, dependability, and a fierce bite should the need arise. Blade available with stonewash or black-coat finish. Made in the USA.

PROS:

- The blade's chisel grind and 154CM stainless steel translates into insane cutting and stabbing power.
- Top-of-the-line craftsmanship and durability — and made stateside
- Lightening fast deployment, thanks to Emerson's patented wave-shaped feature that opens the blade as you draw from your pocket

CONS:

- With a chopped tanto profile, the blade doesn't have a belly, lowering its versatility a bit.
- Lefties will have to pay an extra \$25 for "wrong-handed" carry

CAMILLUS 9" CUD



411: Camillus has been around since 1876, so it knows a thing or two about knife-making. But it doesn't churn out the same old same old. Case in point: There's no thumb-stud on the side of the Cuda's blade or a flipper tab on its spine. Instead, it has a thumb-button that you push along a curved track in the bolster, which in turn drives the blade out. Unfortunately, it's awkwardly slow, but Camillus gets kudos for taking design risks.

PROS:

- With a carbonitride titanium coating and a hollow grind, the AUS-8 blade slashes and penetrates cleanly.
- Simple G-10 handle feels secure and comfy in hand.
- Won't break the bank.
- Lightweight for its length

CONS:

- Marketed as having a "quick-action blade release," but quick compared to what? A geriatric Scottish knight unsheathing his claymore sword?
- Carried only with the tip up on the right side.

COAST TX399



411: While Coast is known for its lights, it does make solid yet affordable knives. The TX399 is the biggest entry in its most recent tactical knives lineup. This one's based on parameters from former special-operations members and features Coast's Double Lock technology, which prevents the blade from accidentally closing by jamming the liner locker open (and reminds us a bit of CRKT's Automated Liner Safety system).

PROS:

- Pocket clip can be switched for righties or lefties.
- A budget buy that you won't be afraid to beat up or lose in the field.
- At 3.7 ounces, this is the lightest knife of the bunch.

CONS:

- The weight savings comes mostly from the fiberglass-reinforced nylon handle, which is strong but gets slick when wet.
- The Chinese construction is questionable; we can wiggle the blade laterally by a couple of millimeters with our thumb and index finger.

STEEL WILL BRUISER 500



411: With its distinct lines, aggressive texturing, and thick components, it looks like the kind of knife an assassin droid would use. Conversely, this beefy Bruiser is the kind of knife you'd need to shank said assassin droid should you drop your lightsaber (tsk, tsk). The PVD-coated blade is 0.16-inch thick while the G-10 handle (not counting the pocket clip) is almost ¾-inch thick. Beefy like marbled wagyu. Made in Italy.

PROS:

- Comes with Cordura sheath if you don't want to pocket carry
- Integrated glass-breaker at the bottom of the handle
- Pocket clip can be positioned for tip up or tip down and for both right-handed and left-handed users.

CONS:

- Not the smoothest of openings; requires a wrist flick to generate enough momentum to open via flipper tab.
- Takes up a lot of space and tips the scales at more than a ½ pound.

RUGER ALL-CYLINDERS +P



411: At first glance, we thought this was comically huge, a novelty at best and a clunky space-waster at worst. But after fondling it for some time, we quickly realized that it feels and operates much like its more compact brethren with suitable craftsmanship and good ergonomics. No surprise, though, since it was designed by iconic knife-smith Bill Harsey and manufactured by CRKT.

PROS:

- Despite its Chinese origins, the blade cuts, slices, stabs, and hacks with authority.
- Smooth deployment and tight lockup
- Feels good in hand, thanks to well-shaped G-10 scales
- Inexpensive for the amount of knife you're getting, and that's without searching for cheaper online prices.

CONS:

- Big and heavy, unless you're Brock Lesnar or Steve "Yeti" Fisher, carrying this would be like EDCing a machete.
- Though adjustable for righties and lefties, there are only tip-down pocket clip positions.

SPYDERCO TATANKA G-10 BLACK



411: Tatanka isn't just the name of a pro wrestler or the Lakota word for "bull buffalo." It's also the moniker for this big honking knife. It features Spyderco's Power-Lock, a souped-up lock-back that applies additional wedging to prevent any accidental closing when it's open. It has a saber profile, but the blade geometry and the handle's finger groove allow for everything from slashing to fine detail work.

PROS:

- Though no longer the flavor of the month, the blade's VG-10 steel still cuts like a laser sword.
- Gargantuan handle with G-10 scales feels surprisingly comfortable in our medium-sized hands.
- Adjustable four-way pocket clip

CONS:

- At nearly a foot long overall, this is getting close to pocket wakizashi territory here. Great for a samurai, not so much for the grayman.



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M-LOK™ COMPATIBLE!

MI Gen2 Extended Universal AK Handguard

- ◆ M-LOK™ compatible design includes one five slot picatinny rail section
- ◆ Four anti-rotation QD sockets for QD sling swivels
- ◆ Supplied MI gas tube with proper internal geometry
- ◆ 11.5 inches in length, weighs only 16 ounces!
- ◆ **Requirements for fit:** Barrel diameter of .700 under lower handguard; Lower furniture length of 6", not counting mounting surface; Will not fit Yugo pattern rifles.

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 With MRO Optic Specific Topcover .. #MI-AKXG2-UMMRO Retail **\$244.95**

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CETME-L

HILL & MAC GUNWORKS SHOWS OFF ITS DIY VINTAGE-INSPIRED RIFLE

STORY BY IAIN HARRISON
PHOTOS BY KENDA LENSEIGNE

In the 1970s, most NATO countries saw the writing on the wall and started the process of converting their armed forces' main small arms over to the 5.56 cartridge. This must have been particularly galling for many, as they were originally forced to adopt the 7.62 NATO round by the U.S., despite several of them coming up with smaller, better, general-purpose designs. After being in service for less than a decade, America then did an about face and introduced the .22 caliber as its main infantry round, while keeping the 7.62 for crew-served weapons.

As part of the switch to the lighter caliber, Spain looked at its successful CETME 58 battle rifle and used it as a basis for a smaller version. If you think the CETME looks like an HK, well there's a very good reason for that. Ludwig Vorgrimmler designed the CETME in the early 1950s, in a career path that took him full circle from Mauser during WWII, to France in the immediate post-war years, to Spain, and finally back to Mauser in 1956. During his time in Santa Barbara, the West German government adopted

and adapted the design of the CETME 58, producing it under license as the G3 in the factories of Rheinmettal and Heckler & Koch. HK then used it as the basis of an entire line of some of the most iconic 20th-century firearms.

The CETME-L then, while it isn't an HK design, certainly shares some DNA, and is an interesting side note in small-arms development. Due to asinine federal legislation, we mere serfs aren't able to own a real CETME-L, though Hill & Mac Gunworks has an interesting workaround that allows us to own a semi-auto version of the original. It's also a cool project to show off to your friends at the range, as you'll create a fully functioning rifle from a collection of scrap metal.

H&M CETME-L KIT

You'll need to get your hands dirty for this one, but isn't that part of the fun? The H&M non-rifle arrives as several bags of parts, some of which are recognizable as bits of a weapon. There's also a big, honkin' shiny steel assembly used to form the included stamped sheetmetal flat into a working receiver — but for now, resist the urge to just jump in and start screwing things together. Before you go any further, it's time to bust out the Dremel.





Chopped up bag o'bits. How the parts kit looks when it arrives — don't worry, we'll soon have this thing up and running.

STEP 1

In order to import the CETME-L kit, it first has to be chopped up so that it's no longer a firearm. Sad, but blame those paragons of virtue in Washington.

The various destroyed chunks still have usable components welded to them, so you'll need to separate them from the remaining scrap. Using a rotary tool fitted with a fiber-reinforced cutting wheel, carefully cut the welds securing the rearsight assembly, cocking tube, and trunnion to the remains of the butchered receiver. Remember to cut on the waste side of the line, so that you don't remove steel from the components you want to save. Once

the welds have been cut, you'll need to peel away the scrap receiver from them. We used a set of Vise Grips and a small prybar to do this, but there are many ways to skin this cat.

Once you've delivered up the usable components from the old gun's carcass, dress up their rough edges using a file or abrasive of your choice. We used a square to ensure the cocking tube would mate up with the forward edge of the new receiver.

SEMI-AUTO CONVERSION

As the original CETME-L was a select-fire weapon, you'll need to ensure that your newly built rifle won't land you a stay in Club Fed. This means you'll convert it to semi-auto only by removing a portion of the bolt carrier that trips the auto sear and grinding away a portion of the trigger group, so that it clears the denial block that you'll then weld into the new receiver. The latter ensures that you can't insert an original, unmodified trigger pack into the gun, keeping you nice and legal-like.

As a final measure, you'll also completely destroy the auto sear by cutting off its actuator arm, while retaining the sleeve that fits over the trigger pin. By completing these three steps, you remove any possibility of the rifle ever firing in rock-'n'-roll mode. Final legal niceties are addressed by H&M's including the requisite U.S.-made parts to ensure compliance with 922(r).

PRESS THE BARREL

Unlike in comparable HK designs, slapping the new, U.S.-made barrel into the trunnion is a fairly painless process. While a hydraulic press makes life easier, you can accomplish the same result with nothing more than a vise and a hammer, with the vise being optional. Simply coat the chamber area of the barrel with anti-seize grease, insert it into the trunnion you peeled out of the old receiver and, using what-

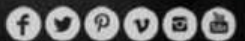
Separating the good stuff from the crap. Note material removed from bolt carrier where it trips the auto sear.

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ever method you favor, press it until the shoulder is fully seated against the trunnion's inner lip.

At this stage you can do a confidence check to ensure correct headspace. Using a 5.56 "Go" gauge, insert it into the chamber and close the bolt carrier group behind it. Check the gap between the bolt and carrier with feeler gauges — if you see a value of between 15 and 25 thousandths of an inch, congratulations, you're in spec. As your bolt and trunnion both came from the same functioning gun, the chances are that this step will be redundant, but a little caution never goes amiss when dealing with 65,000-psi pressure events, right in front of your face.

Once the barrel is seated to your satisfaction, it then needs to be secured in place with a 3/16 pin. A drill press is recommended for this procedure, but you may be able to get away with a hand drill if you're very patient and drill from both sides of the trunnion.

FORM THE RECEIVER

That honkin' chunk of steel you first found when unpacking your kit is the receiver forming die. Unlike most die sets, this one doesn't require the use of a hydraulic press, though if you have one handy, there's nothing to prevent you from using it. Instead, once you've welded in your denial bar, the receiver is folded by tightening down two bolts on either end of the die, also serving to locate the flat.

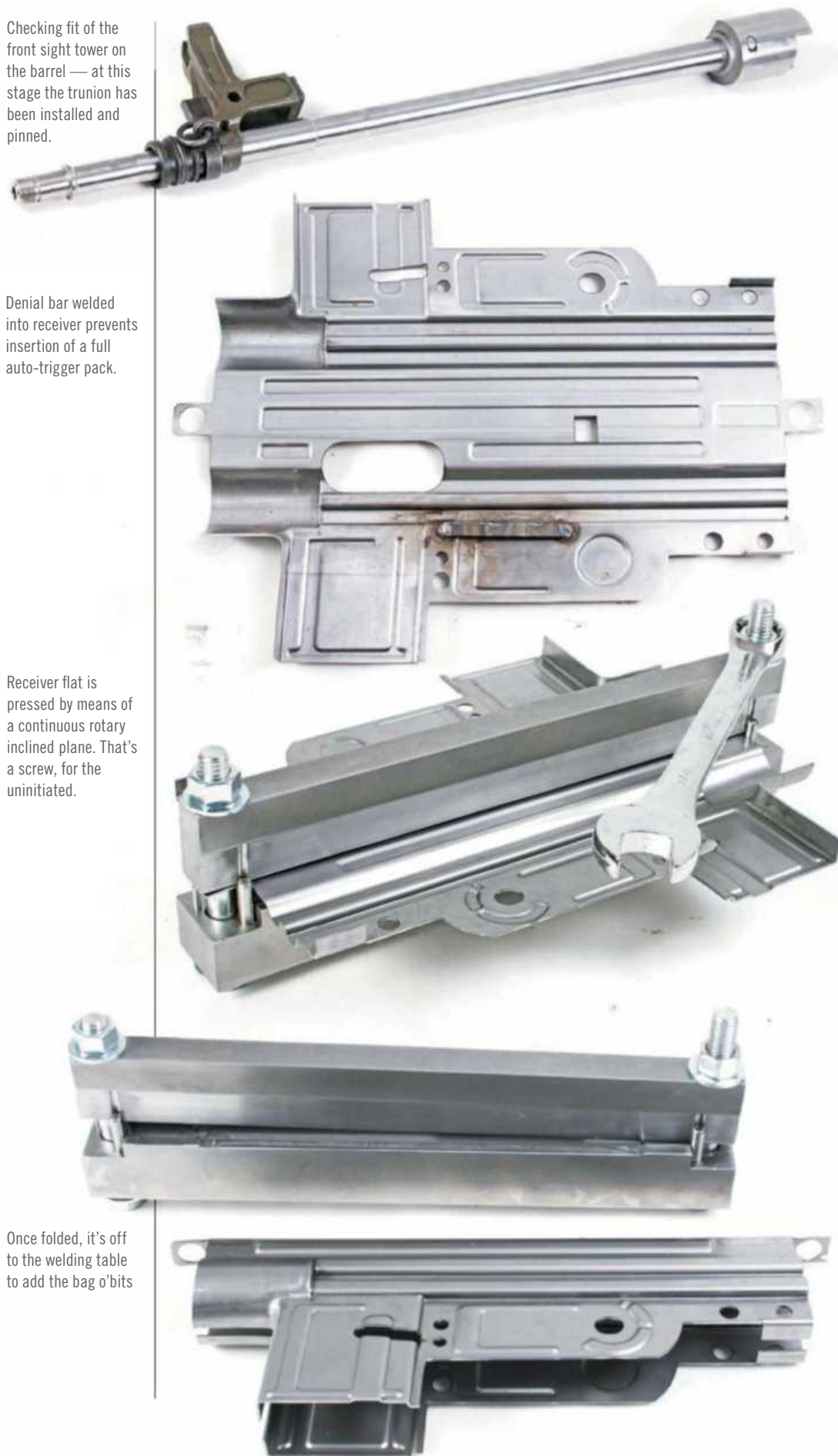
It's brilliantly simple and effective, and there's a locating pin to ensure you don't accidentally put the flat in the wrong way round. As with most important areas of human endeavor, a little lubrication on the important bits goes a long way to achieving a perfect result, so slap a little high-pressure grease on the die and flat where they meet. Once you've formed the receiver, you can remove the locating tabs on either end.

Checking fit of the front sight tower on the barrel — at this stage the trunnion has been installed and pinned.

Denial bar welded into receiver prevents insertion of a full auto-trigger pack.

Receiver flat is pressed by means of a continuous rotary inclined plane. That's a screw, for the uninitiated.

Once folded, it's off to the welding table to add the bag o'bits



Angry Little Bastard.



The new BRZ trigger assembly by Overwatch Precision is a practical and effective solution to a perpetual problem. Can a small, carryable frame deliver the same control and performance as a standard-sized handgun? It can now.

PERFECT WHERE IT COUNTS.



BURN, BABY, BURN

Once you've formed the receiver, it's time to again fire up the welding gear. This is the most intimidating part of the build, especially if you've never welded before, but due to the design of the CETME-L, you can do a fairly crappy job and still end up with a working rifle. If, like us, your practice welds look like they were done by Michael J. Fox using a glue gun, then it might be a good idea to enlist the help of a competent friend, once you've tacked everything in place.

Note that due to the legalities of homebuilt firearms, you and only you must form and tack the receiver. Once it's capable of firing a round, you can then get help to dress the welds up and make them look pretty. If you're happy with your abilities to melt steel, then just remember to take it slowly, use short beads, and don't concentrate heat in small areas — otherwise you run the risk of warping your receiver. Welding in the magazine guide and rear trunnion are fairly straightforward, so don't sweat it.

Once the receiver is looking like, well, a receiver, you can then make it look like a rifle by seating the barrel, complete with the trunnion you assembled earlier. In order to ensure it stays put, plug weld it by drilling a

hole or two and welding through them. We placed ours under the handguard to keep things neat and tidy, then dressed them up with a grinding wheel.

Installing the cocking tube is a little more involved, as it must be correctly aligned in order to function. As luck would have it, the rifle can serve as its own alignment jig, so long as you do your part by ensuring the cut end of the tube you separated from the original receiver is neat and square. Tap the front sight tower into position on the barrel and use this to locate the forward end of the cocking tube while you use the cocking lever assembly to line up the rear.

SIGHTS

You'll want to add some means of sighting this baby, and, unfortunately, the CETME-L was devised in an era that predated widespread optics use — its as-issued iron sights leave much to be desired, being on par with those found on an M16A1. The bad news is that while it's hard to make them any better, if you don't pay attention to their installation, it's easy to make them worse. Starting with the front sight, tap it into place on the barrel and reach into the toolkit for a finely calibrated Mk1 eyeball. Once aligned,

We probably won't win any prizes for our welding abilities, unless there's a category for "welds that look like animal feces."

Use the front sight tower to locate and secure the cocking tube while it's tacked in place.



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take a 3/16-inch drill bit and run it into the cross pinhole in the sight tower. A drill press is advised, but we wanted to make sure this build could be done with a minimum of tools, so we opted to grab the cordless DeWalt and carefully drill from both sides. Once you've created a slot in the barrel, drive in the supplied pin, and call it good.

The rear sight assembly also houses the CETME's bolt hold-open, and you'll use this to locate its position on the receiver. Once eyeballed in place and clamped, a couple of welds secure it in place.

Before investing in coating, we took the rifle in the white to test-fire it. It proved to be surprisingly soft-shooting, and, unlike an HK, brass didn't land in the next county.

TWEAKS

You're attempting to resurrect in your garage a piece of technology that took teams of professional engineers and craftsmen years to develop. There are going to be hiccups. We hit the following snags and worked through them to get the gun functioning, so don't freak out if you find the same problems — they're all fixable.

1. Denial block. This interfered with the trigger pack and hammer, requiring hand-fitting in order to allow the pack to seat and hammer to strike with enough force to light off a round.

2. Bolt hold-open. Our cocking lever didn't have quite enough throw to allow the bolt carrier's slot to align with the BHO. A couple of file strokes were necessary to open the BCG's slot.

3. Stock pinholes didn't align with the receiver. We wound up clamping the stock in place and using the steel-reinforced stock pinholes to ream out the ones in the receiver. It's a kluge, but it works.

4. Our build's selector lever didn't quite line up with the corresponding hole in the receiver's flank. A little judicious grinding solved this.



"I AM THE SWORD OF MY NATION, THE SHIELD OF MY FAMILY.

IF SENT, I WILL CRUSH EVERYTHING THAT YOU HAVE BUILT,
BURN ALL THAT YOU LOVE,
AND KILL EVERY ONE OF YOU!"



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FINISHING

We took the completed build, still in the white, out to Cowtown Range for its initial test firing. Once we'd proven that it cycled with SIG's 77-grain OTM loads, it was packed off to our local Cerakote guys for finishing in their newest coating,

As seen on objectives throughout Iraq, though ours is in better shape. Our local Cerakote guys did a great job with the finish.

Cerakote Elite, covered in our last edition on page 92.

As the original kit was showing signs of hard use, rather than try to make the finished product look like it just rolled off the factory floor we opted for a battle-worn look. We Plead The 2nd worked its magic, and the results are

on display here. So there you have it. An afternoon's work will give you a rifle sure to elicit inquiring looks from your shooting buddies. And if they echo our 44th president's words to the effect that, "You didn't do that," you can tell them that legally and practically, you did. So pound sand. ■



SPEC BOX

YOU, DEAR READER CETME-L SEMI AUTO



CALIBER
5.56 NATO



BARREL LENGTH
16 inches



OVERALL LENGTH
31 inches



WEIGHT (UNLOADED)
8 pounds, 3 ounces



MAGAZINE CAPACITY
30 rounds



MSRP
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URL
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AFTERMARKET GLOCK BARREL TESTING

MATCH GRADE IT MIGHT NOT BE. OR IS IT?

STORY BY DAVID MERRILL
PHOTOS BY DAVID MERRILL AND
FIRE-4-EFFECT

Scientifically determining which barrel is the most accurate is harder than you may think. No doubt the best tests are performed by engineers under lock and key at large pistol manufacturers and not found on some random internet blog or shade-tree YouTube video performed by an enthusiast. Recently, we received something different: an extensively written white paper from an accuracy test performed at the Proving Grounds of Fire-4-Effect in El Paso, Texas, to evaluate for ourselves.

In these initial tests, Fire-4-Effect sought to test just one variable: the accuracy potential of aftermarket threaded Glock 17 barrels. And indeed as stated above, this is harder to properly perform than it initially

sounds. In this article, we'll brief you on their equipment, testing procedures, and some limitations of the testing itself. As with many such controlled tests, the results ultimately raise more questions than conclusions — we view this as a positive, because it means there's some more work to do.

Though several different brands of barrels were used in this test, given that there are a scant few (under a half dozen, to our knowledge) aftermarket Glock barrel manufacturers in the United States, there's bound to be some overlap. With that said, we would be remiss if we didn't mention that there can still be significant differences between barrels, even those produced at the same facility.

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Firstly, many of these OEM manufacturers will build barrels to different specifications as designated by the reseller. This may be something as simple as a different coating, or as extensive as proprietary chamber dimensions. Secondly, some final fitting, machining, and coating may ultimately take place at the reseller before hitting the market, which may or may not have an effect on accuracy once that barrel is sitting in a slide.

There are seemingly endless variables that all have an effect on repeatable accuracy. When shooting a handgun at the range, accuracy is determined by a combination of ammunition, all aspects of the firearm such as lockup and how the barrel is constricted by the slide, and the shooter — with the shooter bringing the greatest amount of variability to the table. The shooter is the biggest wildcard by a very large margin.

THE BARRELS

Fire-4-Effect bought 15 barrels off the shelf from eight different identifying brands; the plan was to have at

The barrel is secured in the rear of the fixture, and the front tensioning knob is to simulate it being inside a slide.



least two barrels from each brand to help reduce any outliers. They purchased the barrels “blind” from assorted distributors without disclosing their intentions. This was to ensure they would receive a “typical” barrel just like any other customer. Though each barrel is threaded, no silencers or other muzzle devices were used during the testing itself.

If you’ve done the math, you’ll quickly realize that it doesn’t add up; this is because only one OEM threaded Glock barrel could be obtained for this test. For this reason, we excluded the performance of the factory threaded Glock barrel from the results.

THE AMMUNITION

For ammunition Fire-4-Effect selected three different types to test in each barrel:

CONTROL:	DEFENSIVE:	PRACTICE:
Atlanta Arms	Federal	Remington
115-grain	147-grain JHP	UMC
FMJ Match	(manuf- turer SKU	115-grain
AMU (all from the same lot, 629165)	9MS)	FMJ



TAKING THE MAN AND THE GUN OUT OF THE EQUATION

In order to isolate the test to the barrel itself, Fire-4-Effect designed and manufactured a custom firing fixture. It’s based on a design used by the Army Marksmanship Unit (AMU), no surprise given the senior gunsmith at Fire-4-Effect is Matt Haidu, a recently retired Army soldier who spent more than a decade in the AMU custom shop building and using fixtures like this one.

The testing base itself weighs more than 10 pounds. In order to reduce environmental vibrations, the crew at Fire-4-Effect bolted the entire device to a solid platform with ¾-inch bolts, rooting the legs of the platform several feet



The barrels tested.

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The fixture partially disassembled.



The open-firing mechanism can be seen on the right-hand side of this photo.



"Our fixture gives the barrel every opportunity to perform at its very best with minimal outside influence," William Wingfield of Fire-4-Effect explained.

TESTING PROCEDURE

The target for each test was set at 20 yards. Each barrel was placed and secured into the test fixture. A single "spotter round" was fired using the Remington UMC 115-grain ammunition to determine the rough point-of-impact area, and a fresh target was placed there.

Next a string of 10 rounds of the control ammunition (Atlanta Arms 115-grain FMJ Match AMU) was fired. If the shot group of the control ammunition was considered too large or seemed characteristic of improper barrel mounting, the barrel was removed and remounted into the fixture according to procedure and a control group was fired again.

If the barrel passed the grouping test with the control ammunition, the same shot sequences were performed with both the defensive (Federal 147-grain JHP) and practice (Remington UMC 115-grain FMJ).

Every round fired was chronographed and logged, and every group was measured for horizontal, vertical, and extreme spread using a Mitutoyo dial caliper.

CHRONOGRAPH RESULTS

It shouldn't be a surprise that none of the ammunition supplied had exactly matching advertised and measured speeds, though they were similar. While variations in velocity can be observed within the same lot or even in the same box of ammunition, Fire-4-Effect found the barrels themselves to be the largest determining factor. They theorize chamber size, throat depths, and internal finishes make large contributions to the final velocity of each round tested. However, variability in velocity appeared to have little or no relationship to the accuracy of a given barrel when fired from the testing fixture.

LIMITATIONS

Before delving into the actual results of this test, we should discuss its limitations. When we asked Wingfield of Fire-4-Effect, the very first thing he pointed out was the extremely small sample size. While two barrels from each named brand is certainly better than one, increasing that number would provide more statistically significant results. The same goes for the types and number of rounds fired. Put another way, the results of this test would hold significantly more statistical weight if larger sample sizes were tested.

into a concrete foundation. While an earthquake or a fleet of Abrams driving by could introduce stray tremors, not much more could.

Not only is the human element eliminated from the equation, but so was particular barrel/slide fitment. The fixture also sports an adjustable support intended to mimic the interference between the slide and the barrel. The test was performed indoors in a climate-controlled environment to eliminate variations in temperature or humidity.

The least fun part of any real test: data input and collation



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RECOIL reached out to a number of unaffiliated subject-matter experts on accuracy testing and asked them to evaluate both the test and the fixture itself. Mark Hammond, VP of project engineering at Atlas Development Group, is an engineer who has been in firearms development since 2004, with nine of those years spent performing R&D for Remington. He had this to say:

"If you're testing intrinsic accuracy of the barrel itself, what they're doing does seem like a good way to isolate out exterior geometry. But as for exactly how it's going to perform in the gun there are several other variables that contribute to accuracy."

Hammond further stated, "What's open to debate in my mind is what percentage of exterior dimensions affect accuracy since there is some slide movement [when fired] before the bullet exits. From an engineering perspective I would use a test like this to determine a desired type of rifling, but if I were really testing accuracy I would move toward testing the barrels in full-on firearms."

Ethan Lessard, current VP of engineering at Q, longtime engineer with SIG SAUER, and former head of engineering at AAC, also had some input on the testing and fixture.

"The thing you care about is how the barrel changes accuracy in any way

The indoor range at Fire-4-Effect's Proving Grounds



[relative to an OEM barrel]. If you want to find that out, you have to actually put it [the aftermarket barrel] in the gun."

"Without seeing it disassembled and knowing exactly what knobs are turned down, I would say it looks far overconstrained. I can tell you for sure the barrel is not being constrained the same way that it would be in the gun."

Lessard continued, "Your best shooting barrel out of this fixture could be your worst shooting barrel out of the gun. The way a pistol barrel is constrained in the gun when your gun is in battery is one thing; upon firing, when the bullet makes the jump to the rifling, the barrel, and slide will begin to move before the bullet exits ... I've found that changing things on the outside of the barrel affected accuracy and precision far more than what was on the inside of the barrel, provided concentricity of the chamber and bore is consistent."

Because there's some contention regarding the sample size and methodology of this particular test, RECOIL

didn't feel it prudent to list the individual brand names alongside the results. However, even if you do, take note that on face value even the worst performing barrel with the most inconsistent ammunition in this test will outperform most shooters at 20 yards.

With a MagnetoSpeed chronographed installed, the test fixture would look right at home at a steampunk convention.



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This has not, however, stopped Fire-4-Effect from developing a new testing protocol, to account for the actual barrel/slide treatment and its overall effect on accuracy. They'll share these results with us, and we'll share them with you on March 23, the day that this issue hits the shelves. We'll also be publishing the full, non-redacted white paper that inspired this article along with it on www.recoilweb.com.

We look forward to seeing the results of the new set of tests, and if they match up with the accuracy results born from this testing fixture. Remember: Real testing is long, boring, expensive, and makes for a terrible YouTube video. Stay tuned. 📺

CHRONOGRAPH VARIABILITY VERSUS GROUP AVERAGE

IDENTIFICATION	VARIABILITY	GRP AVG
BRAND A BARREL 1	671.51	1.05
BRAND A BARREL 2	174.54	0.87
BRAND B BARREL 1	356.54	0.73
BRAND B BARREL 2	256.06	0.99
BRAND C BARREL 1	410.40	1.13
BRAND C BARREL 2	305.88	1.49
BRAND D BARREL 1	158.46	0.72
BRAND D BARREL 2	168.01	0.96
BRAND E BARREL 1	298.32	0.85
BRAND E BARREL 2	333.79	0.68
BRAND F BARREL 1	264.54	0.92
BRAND F BARREL 2	384.68	0.82
BRAND G BARREL 1	670.84	1.21
BRAND G BARREL 2	806.68	1.38

ACCURACY CHARTS

BRAND	BARREL 1			BARREL 2		
A	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.785	0.600	1.490	0.930	0.978	1.565
HORIZ SPREAD	1.175	1.080	2.050	0.740	0.740	2.751
EXTREME SPREAD	1.175	1.080	2.050	0.930	1.170	2.751
CUMULATIVE AVG	1.045	0.920	1.863	0.867	0.963	2.356
B	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.715	0.770	1.510	0.910	1.080	1.920
HORIZ SPREAD	0.580	0.870	1.375	0.950	1.585	1.110
EXTREME SPREAD	0.908	0.900	1.790	1.103	1.763	2.203
CUMULATIVE AVG	0.734	0.847	1.558	0.988	1.476	1.744
C	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.690	0.665	1.630	1.610	0.750	1.455
HORIZ SPREAD	1.260	0.740	1.680	1.214	0.745	1.890
EXTREME SPREAD	1.430	0.740	1.975	1.650	0.810	2.020
CUMULATIVE AVG	1.127	0.715	1.762	1.491	0.768	1.788
D	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.675	0.860	1.260	0.625	1.230	1.062
HORIZ SPREAD	0.680	0.790	1.030	1.120	0.815	1.092
EXTREME SPREAD	0.790	0.860	1.465	1.120	1.420	1.270
CUMULATIVE AVG	0.715	0.837	1.252	0.955	1.155	1.141
E	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.670	1.130	0.130	0.580	0.515	1.470
HORIZ SPREAD	0.890	0.608	1.080	0.630	0.760	0.688
EXTREME SPREAD	0.983	1.151	1.250	0.840	0.765	1.470
CUMULATIVE AVG	0.848	0.963	0.820	0.683	0.680	1.209
F	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	0.780	0.580	0.750	0.885	0.650	1.693
HORIZ SPREAD	0.930	0.826	1.021	0.570	0.920	1.820
EXTREME SPREAD	1.060	0.919	1.081	0.990	0.935	2.180
CUMULATIVE AVG	0.923	0.775	0.951	0.815	0.835	1.898
G	ATL ARMS	FEDERAL	UMC	ATL ARMS	FEDERAL	UMC
VERT SPREAD	1.335	1.135	1.640	1.040	0.740	1.370
HORIZ SPREAD	0.866	0.960	1.760	1.490	0.850	1.963
EXTREME SPREAD	1.420	1.408	2.220	1.610	1.020	2.070
CUMULATIVE AVG	1.207	1.168	1.873	1.380	0.870	1.801

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THE ENEMY OF MY ENEMY IS MY FRIEND

HOW TO PUT TOGETHER A
LIGHTWEIGHT .308 FROM
SOUTH OF THE EQUATOR

STORY BY ZERO ONE FACTUAL
PHOTOS BY STRAIGHT 8 AND JENN CADY

We've all been fortunate enough to be part of the firearms community over the last several years, which has given us the opportunity to bear witness to some pretty cool technological innovations. Not quite at the level of the self-contained metallic cartridge, but significant nonetheless.

Some of these advancements are huge and everyone takes notice, others more subtle, and then some go totally unnoticed. Similar to a new release of a popular smartphone or

video game console, the firearms industry seems to release new products every few months that makes the same make and model you just waited months to order feel obsolete.

As an individual this can lead to jealousy, online hate and envy (thanks, Instagram!), and confusion based on which company is making "the best" product you happen to desire, such as an aftermarket Glock barrel. See our feature, "Aftermarket Glock Barrel Testing" elsewhere in this issue to see what I mean.

One noticeable trend in the last few years that continues to appeal to all of us who work on a two-way range is the reduction of weight. This is nothing new. I'm even willing to put my career on the line and state that weight reduction has been an ongoing battle since the adoption of the scutum and pilum by the Romans. Given the option, we humans just don't like to carry heavy loads (the 0331 MOS is considered superhuman, so they don't count).



We obsess over pounds here and ounces there in order to save us pain while hunting, on the range, or on a patrol. No matter what genre of the shooting sports you love, you probably want something lighter and usually you want the same or more performance out of your kit. This could be a search for more lumens from a flashlight that weighs less than last year's model, or it could be a new release of running shoes that weigh grams less than a model from a few months ago. Either way, we always want and always pursue light weight for our comfort, while still demanding the same performance, accuracy, and dependability from previous generations of the same item.

I recently experienced this demand while my neck, upper back, and bulging biceps were humping a .308 battle rifle across the eastern part of Africa. We all know and love (or hate) certain .308 platforms from all parts of the world to include the FN FAL, the FN SCAR 17, the LaRue OBR, the MK-14, the L1A1, and the HK-417, as well as the AR-10 variants that are out there today, just to name a few. Why the f*ck are they all so heavy?

Why can't we have a lighter rifle with the same power? Why, why, why ... oh wait, it's 2017, so I know there has to be a rifle out there that is half the weight of the traditional .308 battle rifles, while being more accurate at the same time. I scoured the Internet from camp (which, surprisingly worked rather well given the conditions) and rediscovered 2A Armament out of Boise, Idaho.

The folks there informed me that they had just released their .308 XLR-18 rifle that weighed in at 6.75 pounds and was priced around the \$3,000 range. This compared favorably to other, similar AR-10 variants that also

happened to be much heavier, but may have had an edge in accuracy. I spoke with their staff via satellite phone and relayed my ideas. I wanted to make an even lighter rifle, but to do so would mean using parts from industry competitors to make it happen. Without any hesitation, they signed up for the project, so the quest was on.

During down time, I contacted the companies I felt would help turn my notebook scribbles into reality, in a process no doubt familiar to anyone who's ever bolted together an AR. The problem, of course, with an AR-10 is the lack of standardization, so it's a tribute to the various companies involved that they patiently answered my questions regarding whether their products would work with somebody else's.

Lancer's A7 AWM mags feature translucent bodies and steel feed lips. While more expensive than other polymer alternatives, the author thinks you get what you pay for.

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V7 Weapon Systems, SLR Rifleworks, Proof Research, JP Enterprises, Geissele triggers, Mission First Tactical, and Lancer Systems were read into the project. To my disbelief, every single company was onboard with this project. I figured that there would be some industrial infighting

The two most significant weight-saving areas of this build were JP's low mass carrier group and Proof's 18-inch barrel.

or unwillingness to cooperate, since some of these guys offer very similar products and have to stay competitive. All the parts were ordered and sent to 2A Armament via phone calls and emails from east Africa, and the build commenced without me ever touching a component.

Finally, after several months of my deployment, I was able to return home and see and touch this unicorn and finally take it to the range for testing. I've been in this game long enough to have experienced many times the anticipation then disappointment cycle that comes with unrealistic expectations. It probably started right around the time I got that Red Ryder BB gun for Christmas. This time, however, the result was just short of amazing. A sub 6-pound .308 battle rifle. Read it again and take it in. A sub 6-pound, 18-inch barreled, .308 AR that not only was sub MOA, but reliable to boot.



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Atlas bipod and Vortex scope allow the user to exploit the gun's accuracy at distance. It was swapped for a Leupold Mk6 for closer work, though if truth be told, the 1-6 variable offers enough magnification to make hits out to 800m.

Teaming a Proof Research barrel with a Geissele trigger produced consistent sub-inch 100-yard groups using Federal 168- and 175-grain Gold Medal Match ammunition. I was only able to shoot out to 400 yards due to time and range availability, but was quite happy with 2 MOA at that distance, as I know the main factor for the day was me as the shooter. A more talented long-gunner would produce much tighter groups at 400 yards and beyond, but as I'm not a designated marksman, I'll take it.

Switching to transition and speed drills, the combination of Leupold Mark 6 and a Vortex Venom on an offset mount made for easy target acquisitions. Recoil was controlled by

means of a JP Enterprises Low Mass Operating System, which reduces sight disturbance caused by the usually heavy AR-10 BCG slamming back and forth — with 147-grain Armscor ammunition, close in targets got hosed down PDQ.

From prone to kneeling, to standing and back down, through barricade and transition drills, the rifle seemed to glide through the air like a Katana blade. A loud and angry Katana blade. The grin on my face rivaled the Joker's, as did my teammates there with me. The beast was real. It was light. It was delight.

The end result was a 5.9-pound collaboration that could be made even lighter through skeletonization. It was never my intention to make the



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lightest rifle ever built, but to build a dependable, reliable, and accurate .308 that could be used for hunting, 3-Gun Heavy Metal division, or for defensive purposes and even sniper/counter-sniper operations for LEO and military personnel. In short, it should be a “do anything” rifle, capable of reliably taking care of targets from contact distance out to 800 meters.

I didn't want severe modifications made to the rifle, just for the sake of shaving a few grams here and there. Nor did I want to use unobtainium components — just stuff that could be ordered off the shelf by some guy with questionable hygiene and a dodgy sat phone connection.

I'm sure by the time this article is released, the 4.9-pound .308 will be being developed for SHOT Show 2018, announced in flurry of publicity, and then not be available for a couple of years. Until then, we'll continue to use what we have now and strive as individuals to make the end user's experi-

ence incrementally better. With weight being the enemy of us all, it's nice to know that within this small industry, there are plenty of guys willing to join together to combat it for all of us. ■

Lightening up the gun means we can add more ounces to the glass.



ABOUT THE AUTHOR

Zero One Factual is currently employed by a U.S. agency to disrupt the efforts of non-government actors in various sh*tholes around the world. He enjoys long walks in the brush, the feel of kittens' noses, and dropping JDAMs on fools.

SPEC BOX 2A ARMAMENT HYBRID XLR-18

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 OVERALL LENGTH 40.5 inches	 URL 2a-arms.com	
 WEIGHT (UNLOADED W/ SCOPE) 34 ounces		
 MAGAZINE CAPACITY 20		

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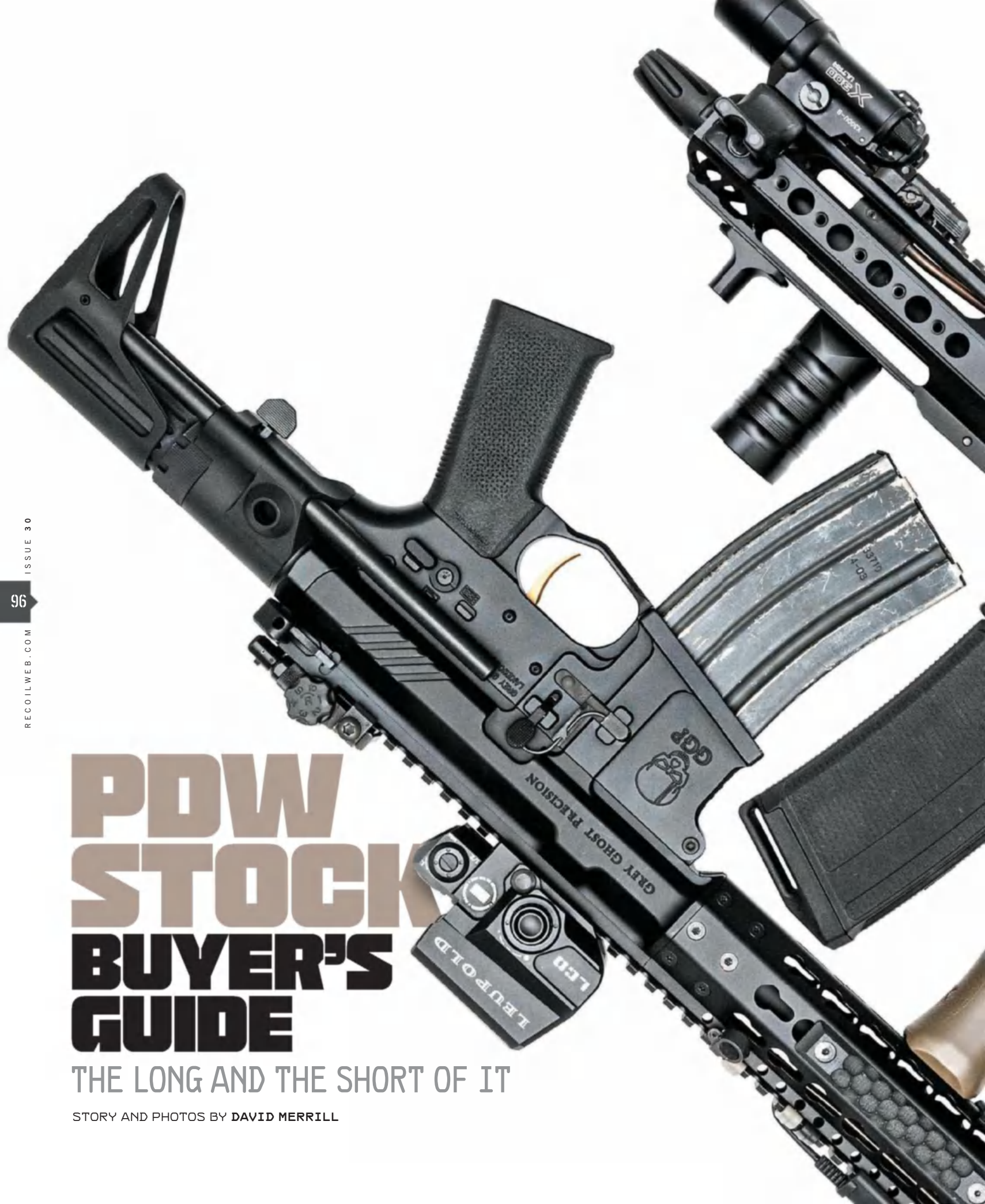


DESIGNED BY MIKE HATCHER • artofrebellion.com

PDW STOCK BUYER'S GUIDE

THE LONG AND THE SHORT OF IT

STORY AND PHOTOS BY DAVID MERRILL



We've heard it said, "The shorter and more useless a rifle is, the more a soldier wants it." To some extent, it's true that an extremely short rifle will always hold some appeal; we'll readdress the "useless" portion later in this piece.

While, no doubt, someone has built a stubby version of just about any rifle ever made (to include the archaic Mosin-Nagant), we're going to specifi-

cally focus on the AR-series of rifles. One of the easiest ways to reduce the overall length (OAL) of an AR is to simply shorten the barrel. And indeed, legally registered short-barreled rifles (SBRs) have gained in popularity over the years — with barrel lengths getting smaller and smaller as time goes on. However, there's still more that can be done on the buttstock end of things, but herein is where the AR-15 presents some unique challenges.

As you no doubt already know, the operating mechanism of a standard AR involves the inclusion of a receiver extension (more commonly known as the "buffer tube") and the requisite buffer and spring housed inside it. This adds a considerable amount of length to the overall system. There are some modified rifles on the market that don't utilize a receiver extension, but they're outside the realm and scope of this buyer's guide.

Though variations have existed for decades, the personal defense weapon (PDW) stock for the AR-15 is now more desirable than ever. Unfortunately, not all of them are created equally. In order to reduce the OAL, some changes have to be made to the rifle's operation. This can be accomplished in a few different ways, with some even requiring proprietary bolt carrier groups. Every PDW stock, sans one, in this buyer's guide necessitates, at minimum, an atypical buffer, spring, and receiver extension.

Some stocks trade a little extra length for more flexibility, while others strive for the shortest, stubbiest rifle possible. If a proprietary bolt carrier is used, changing calibers or using it in a non-DI-operated AR may be troublesome, and even without adding special carriers, running alternate calibers may not be possible with every PDW shown.

If one is considering a PDW project, it should be done with eyes wide open. Due to the unique nature of the buffer/spring combinations used by PDW stocks, fine-tuning of the action almost always takes place on the front end. Usually this comes down to gas adjustment or specific load development; though sometimes gas boosters, such as the Noveske KX5, come into play. As mentioned, swapping calibers can also add a layer of complexity — once we start severely reducing the gas system length, your options get limited quickly. As such, a PDW project can be a joy or an exercise in frustration.



PISTOLS

If you're running a pistol instead of a legally registered short-barreled rifle, that doesn't mean you're completely out of the PDW game. You still have a couple of options from Maxim Defense. The first is their CQB Pistol PDW Brace. The PDW Brace has all of the same features as the Maxim Defense CQB stock except that it sports a rubberized arm brace in place of their PDW butt piece.

Another option is the Pistol EXC, also by Maxim Defense. Instead of a rubber brace or their PDW stock, the Pistol EXC includes just the cheek-piece portion of the stock.

Both are currently OEM options from different manufacturers, and either can be swapped out for any Maxim Defense stock assembly once your Form 1 clears, assuming you're going the SBR route in the first place.

One absolutely could finagle a PDW stock on a 16-inch barreled AR-15, but it would look weird as hell. PDW stocks are typically considered for barrels shorter than 10.3 inches, with some even less than 7.5 inches.

Regarding the useless aspect: Speaking specifically of 5.56 NATO, it's indeed true that traditional loads require high velocities to achieve primary wounding mechanics. However, advances in powder and projectile technology have resulted in loads that provide decent performance even in the [sometimes severely] reduced velocity environment of a short-barreled rifle.

The TL/DR version is this: A PDW is all about compromise and bargaining. The shorter the barrel, the more considerate one has to be regarding ammunition selection.

USING THIS BUYER'S GUIDE:

Not every PDW stock on the market is represented in this buyer's guide. There are new examples produced on a regular basis and likely some updated versions of what you see here. But they're all based on the same theme. Use this guide to determine the most important aspects for you and compare any new options in the future to these established PDW stocks.

When assessing overall weights of a system, take note whether a proprietary bolt-carrier group (BCG) is included. Those that don't include specialized BCGs may appear lighter in the specs, but weights usually even out when this necessary part is added. Some of the stocks have different buffer/spring options, and these will also be noted. All of the lengths and weights provided result from our own measurements not from the manufacturer's spec sheet.

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MAGPUL

NORTH EASTERN ARMS COMPACT CARBINE STOCK (NEA CSS)

OAL OPEN
8.75 inches
OAL CLOSED
4.4 inches
WEIGHT
31.7 ounces
STOCK POSITIONS
2

SLING ATTACHMENT POINTS
1 (QD-type)

PROPRIETARY BCG (V/N)
Yes

MSRP
\$319

URL
www.northeasternarms.com

NOTES:

While the NEA CSS certainly wasn't the first PDW stock for the AR-15, it could safely be considered the one that started the modern AR-15 PDW stock craze. Instead of a separate buffer system, the CSS utilizes a special bolt carrier with an integral buffer. This makes the package smaller, but also means assembly and separation of lowers can be a bear. Both takedown pins on the lower receiver must be removed, and there's no mechanism to retain the spring since no buffer retainer spring or pin can be used.

Because there's no castle nut to stake, one has to rely on a thread-locking compound or simple hand-tightening to ensure the receiver extension stays in place. The buffer weight can be changed in order to balance the system, but it has to be physically disassembled to do so — a level of difficulty higher than simply throwing an H buffer in a regular carbine.



SAFETY HARBOR FIREARMS COMPACT ENTRY STOCK (KES)

OAL OPEN
10.25 inches
OAL CLOSED
4.5 inches
WEIGHT
30.3 ounces
STOCK POSITIONS
2

SLING ATTACHMENT POINTS
2 (slot-type)

PROPRIETARY BCG (V/N)
Yes

MSRP
\$260

URL
www.safetyharborfirearms.com

NOTES:

The Safety Harbor KES is a different take on the proprietary bolt carrier/buffer. Unlike other one-piece units, the specialized buffer can be removed from the rear of the BCG. The special receiver extension is torqued in place with a very large hex wrench (included), rather than being secured with a castle nut.

We found assembly of the receiver halves to be relatively straightforward; push the separate buffer back into the receiver extension while shotgunning the receivers together. But disassembly requires the removal of both pins.

Safety Harbor currently has variations with or without QD mounts, and specific versions for the SIG MPX and MCX.





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TROY PDW STOCK KIT

OAL OPEN
8.75 inches

OAL CLOSED
4 inches

WEIGHT
29 ounces

STOCK POSITIONS
6

SLING ATTACHMENT POINTS
2 (QD-type)

PROPRIETARY BCG (V/N)
Yes

MSRP
\$499

URL
troyind.com

NOTES:

The Troy PDW Stock kit is very similar to the NEA CSS, but with some improvements. Though it maintains the BCG/buffer combination with similar assembly/disassembly procedure, there are many more stock positions available and the receiver extension can be locked down using a hex nut.

The Troy PDW stock kit is also noteworthy because it includes a complete BCG instead of a stripped one, and the stock adjustment button is ambidextrous.



MAXIM DEFENSE CQB STOCK

OAL OPEN
10 inches

OAL CLOSED
5.5 inches

WEIGHT
23.2 ounces

STOCK POSITIONS
4

SLING ATTACHMENT POINTS
2 (QD-type)

PROPRIETARY BCG (V/N)
No

MSRP
\$395

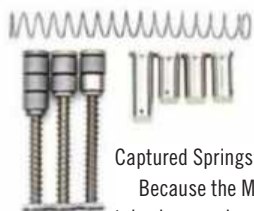
URL
www.maximdefense.com

NOTES:

The Maxim Defense CQB stock is the first PDW stock in the round-up that doesn't require a proprietary bolt carrier; it also provides the most buffer weight options. Maxim Defense stocks are available with seven different buffer configurations to accommodate a myriad of calibers and cyclic rates: three using shortened JP Enterprises Silent Captured Springs, and four using special short buffers of different weights.

Because the Maxim Defense CQB stock doesn't use a proprietary BCG, take down and assembly is the same as a standard AR-15, though the buffer retention pin and spring aren't required if using one of the modified JP Enterprises captured springs. There's no provision for a castle nut, but a standard stock wrench works to tighten the receiver extension.

Though two QD-type sling attachment points are standard, the company has additional QD points and positions available as add-on accessories. It's with noting the LOP is preset with a hex screw and repositioned by pushing a button.





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**MVB INDUSTRIES
ORIGINAL ARC STOCK**

OAL OPEN
8.75 inches
OAL CLOSED
5 inches
WEIGHT
28.4 ounces
STOCK POSITIONS
2

SLING ATTACHMENT POINTS
1 (QD-type)

PROPRIETARY BCG (V/N)

No

MSRP
\$355

URL
mvbindustries.com

NOTES:

The MVB Industries ARC stock definitely has some unique features. First, it features a two-piece receiver extension with dual nesting buffer springs. Though it doesn't have a proprietary carrier group, the MVB ARC has a buffer that tucks into the rear end of a standard BCG. The receiver extension can be torqued in place with a standard carbine buffer tube wrench.

The ARC stock also features a buffer lock button, allowing for standard separation and reattachment of the receivers though disassembly using the buffer lock takes a little practice to master. The example we have is only two-position, but a multi-position version is available. Currently, MVB offers five different buffer weights for the MVB ARC, and specific stock versions for both 9mm and 7.62NATO.


**BATTLE ARMS DEVELOPMENT
VERT STOCK SYSTEM**

OAL OPEN
8.5 inches
OAL CLOSED
4.75 inches
WEIGHT
19.5 ounces
STOCK POSITIONS
5

SLING ATTACHMENT POINTS
2 (QD-type)

PROPRIETARY BCG (V/N)

No

MSRP
\$425

URL
www.battlearmsdevelopment.com

NOTES:

The Battle Arms Development VERT stock achieves the shortest OAL of any PDW stock tested that doesn't require a proprietary BCG. Battle Arms Development accomplished this by using a special short buffer that the carrier collapses into during recoil, allowing that extra little bit of throw needed for complete cycling.

The weight is kept down using a composite interchangeable cheek-piece that can be swapped out. Though a standard carbine wrench cannot be used on the VERT receiver extension, Battle Arms Development provides a wrench in the kit.

Due to the peculiar buffer design, slightly more of a push is needed to shotgun the receivers open or closed; otherwise, it's a normal assembly. Though the VERT can be used with a standard BCG, Battle Arms warns not to use the stock with a nickel boron-coated carrier because the coating's thickness takes up room in the extension tube and could cause damage.





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REDEFINED

FALKOR DEFENSE
OPTIMUS

OAL OPEN
10.25 inches
OAL CLOSED
5.25 inches
WEIGHT
18.29 ounces
STOCK POSITIONS
4

SLING ATTACHMENT POINTS
2 (QD-type)

PROPRIETARY BCG (V/N)

No

MSRP
\$450

URL
www.falkordefense.com

NOTES:

The Falkor Defense Optimus is appropriately named — this is definitely a Transformer. The example we have on-hand is a preproduction prototype so some parts of it are “in the white,” and there may be some slight differences on production models. The Optimus features a grooved receiver extension tube and a lower support with the same corresponding grooves. Each groove serves as a locking position for the stock. We found some lower receivers experienced interference from the integral QD points, but once again this is a pre-production model.

One unique feature of the Optimus is that after the stock is fully extended, a hinged piece can be flipped out to give you an extra inch of LOP — and the stock can then be collapsed again, if required. However, in order to bring the Optimus back to its shortest state, the stock must first be extended, and the same hinged piece must be locked back under before fully collapsing the stock.

ARMASPEC
XPDW

OAL OPEN
10.25 inches
OAL CLOSED
7 inches
WEIGHT
23 ounces
STOCK POSITIONS
5

SLING ATTACHMENT POINTS
1 (QD-type)

PROPRIETARY BCG (V/N)

No

MSRP
\$179

URL
armaspec.com

NOTES:

The Armaspec XPDW is the only product in our roundup that doesn't require either a proprietary carrier or buffer/spring system. Hell, it doesn't even require a special receiver extension. That's because the XPDW bolts right to your existing setup. Simply remove your current buttstock (assuming that you're running a Mil-spec six-position tube), slide on the XPDW, and bolt it into place. It doesn't make the rifle any shorter than a normal buttstock, but instead just provides the look and styling of a PDW.



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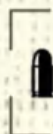
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.40 cal.
.45 cal.



.17 cal.
.22/.223 cal./5.56mm
.243 cal.

.257 cal.
.264 cal.
.270 cal./6.8mm

.308 cal./7.62mm
.338 cal.
.50 cal.



20 ga.
12 ga.

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COMPTUS LUDUS

COSTA LUDUS AND STI MAKE RACE GUNS READY FOR DUTY

STORY BY **TOM MARSHALL**
PHOTOS BY **IAIN HARRISON** AND **KENDA LENSEIGNE**

The pistol-carrying community is on the verge of something theoretical physicists might call a convergence.

Previously, the two primary disciplines of pistolero — the competitor and the tactician, walked distinctly different roads. Each gave the other a wide berth and rarely did they see eye to eye on anything hardware related. But just like the economy, the presidency, and trending hashtags ... times change.

Many lessons that have been hard-earned on the tournament circuit are now being seriously considered as force-multipliers for the professional

gunfighter. A decade ago, most race-gun upgrades were quickly dismissed with the age-old “that sh*t’ll get you killed on the street!” Many of these upgrades are now widely accepted by those who use lead and brass to save lives. First it was extended mags and floorplates that added capacity. Then came the spread of red-dots on duty and carry guns. Another, creeping in more slowly, is the addition of compensators to defensive guns.

Compensators are ported devices specifically designed to combat muzzle rise. Conventional wisdom has long held

that common defensive pistols don’t generate enough muzzle rise to require compensation. It was thought that the right training was all one required to properly drive the duty gun. It was also rigidly espoused that putting a compensator on a handgun would not only give away your position in a fight, but would also blind you after the first shot — both things that could, as they say, “get you killed on the street.” A number of smaller companies are putting these paradigms on notice as they innovate pistols that are both compensated, and purpose-built for defensive use.



Chris Costa is a name that needs no preamble. Most came to know him through the groundbreaking Magpul Dynamics training videos, which fundamentally altered how the industry views training films altogether. Since then, he has continued to evolve as a trainer and product consultant through his firm, Costa Ludus.

Likewise, the STI brand is almost universally recognized among those who ring steel for pride and glory. They built their success on the highly innovative 2011 pistol frame, which brought the concepts of light weight and high capacity to the trophy-winning disciples of John Browning's master work.

These two companies have teamed up to release the Costa Carry Comp — a pistol that pushes the traditional boundaries of what most consider a defensive handgun.

FIRST IMPRESSIONS

Hard as we try to look at this pistol purely from a conceptual standpoint, the bottom line is not lost on us. That bottom line is 3,000 little green pictures of George Washington. Such a hefty price tag is not unheard of in the 1911 world, or in the race gun realm. But the Carry Comp is being billed as a defensive pistol. Is the juice going to be worth the squeeze for those in search of an EDC piece?

Aesthetically, the Costa Carry Comp is absolutely striking. The smooth black slide on a matte tan frame seems to hold our gaze a little bit longer every time we look at it. The slide cuts are subtle and elegant. The full-length Picatinny rail and Liberty Bell mag funnel give the whole package a sort of 1980s sci-fi feel. The overall visual is just about perfectly executed.

Then there's the stippling. The entire grip is 360 stippled in a semi-reptilian texture that left us scratching our heads. To be frank, the pattern looks like it was beaten into the frame with a mallet and steel punch while the gun was benched on a coffee table. Functionally, it works like a charm!

We're constantly banging on about having a ledge on carry gun sights, to assist with one-handed manipulation. The Carry Comp's are as good as it gets.



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That captive, dual-rate recoil spring goes a long way to keeping the muzzle flat, especially when teamed with a single-port comp.

It's aggressive without being painful and, once you close your hand around it, the gun's not going anywhere. We picked it up with a palm full of dish soap and still managed a working grip. If this were a DIY stipple job on a \$500 factory gun, it wouldn't even be worth mentioning. But on a piece that

costs three G's, we'd like to see more refinement. Now that we've aired our big gripe, there's plenty to love about the Costa Carry Comp.

The trigger is everything you'd expect from a well-tuned 1911. We ran two test guns — one in 9mm and the other in .45 ACP. The 9mm trigger broke between 3 pounds, 8 ounces and 3 pounds, 12 ounces. The .45 sample snapped at a pleasingly uniform 4 pounds, 10 ounces on the digital gauge. Each had 1 or 2 millimeters of take-up and stopped dead at the break. The rear sight is a serrated black Heine ledge, the front a red fiber-optic tube. This configuration is becoming increasingly popular on defensive pistols, with this author being a recent convert himself.

ROUNDS DOWNRANGE

As stated, we had two test guns. We were able to squeeze a couple hundred

rounds through each with a variety of FMJ and JHP ammo. As tends to be the norm around here, we really didn't give much thought to cleaning or proper lubrication. Regardless, both Carry Comps ran without a hitch. In .45, we ran 185- and 230-grain rounds. In 9mm, we covered it all from 115 to 147. We even ran an extended stick of hand-loaded JHP rounds that were loaded to meet 9mm Major power factor. These were Nosler slugs loaded over 7.2 grains of autocomp powder. These were Nosler slugs loaded over 7.2 grains of Autocomp powder. The resulting 115-grain JHPs clocked about 1,540 fps at the muzzle, for 605 ft-lb of energy, getting well into 357 Magnum territory. Oh, and the 170mm double-stack STI magazine gives you 29 rounds if you stick a TTI baseplate on it. Take that, pistol-caliber carbines.

We can tell you that, beyond any shadow of a doubt, the compensators do make a difference. Duty-rated





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.45 ACP loads pushed back on us like target 9mm. Factory 9mm rounds gave our wrists a gentle nudge that's more reminiscent of shooting .380. The Major loads, obviously, gave us a little more kick but the Carry Comp makes it highly manageable for even smaller framed or less-experienced shooters. Shooting standard-pressure 115-grain FMJ target loads felt a whole lot like .22 magnum. I had shooters with arthritis and neurological issues tell me that the Carry Comps allowed them to shoot more with less discomfort.

While we did not have the opportunity to execute a proper night shoot, we did run both these guns at an indoor range with reduced lighting conditions. The muzzle flash is noticeable. However, we had absolutely no problems with being

blinded or recovering sight picture. It's not the quietest gun you'll ever shoot, but we don't think it's much louder than non-comp'd pistols in the same calibers.

Speaking of recovering sight picture, the front sight of the Carry Comp is hard mounted to the barrel, with the slide cut around the front sight base. In our humble opinion, this may be the single best feature on the entire gun. The front sight doesn't reciprocate, meaning only half your sight picture is disturbed during the recoil cycle. Combined with the decreased muzzle rise, courtesy of the namesake muzzle device, shot-to-shot recovery is accelerated greatly. This is where compensators can be directly shown to leverage your abilities in a fight.

During our T&E range days, it seemed

that the faster we fired the more noticeable this rapid recovery became. The Costa Carry Comp allowed us to print more rounds on target more quickly than most of the carry guns that have passed through our hands recently. The barrel-mount base still features a proper dovetail and allows front sight swaps if that's desired, or necessary.

SIZE MATTERS?

As a duty gun, the Carry Comp offers a ton of potential to those organizations progressive enough to give it a chance. Smooth trigger, incredibly stable sight picture and double-stack capacity in both 9mm and .45 ACP variants. Not to mention that the underslung Pic rail runs clean out to the muzzle, leaving plenty of room for a

Barrel, compensator, and front sight base are all machined out of one piece of steel. It's expensive, but it's never going to shoot loose.



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As a carry gun ... we're not a 100-percent sure. It's not that the pistol isn't capable. Its numerous enhancements and high-level craftsmanship squeeze every ounce of performance out of the handheld autoloader. But there's just no escaping the fact that it's a big gun. In 1911 parlance, the barrel is Commander-length, but the muzzle device makes it Government-sized from muzzle to hammer.

We took some frame measurements side by side with a single-stack 1911 for comparison. The standard gun was 1.15 inches wide, while the Carry Comp was 1.31 inches — make that 1.52 if

you measure at the magwell. The Carry Comp is also slightly deeper, front strap to back strap and wider at the muzzle. While we needed digital calipers to measure some of these differences, the non-standard dimensions, combined with a full-length rail, will make finding a holster somewhat difficult.

In the age of Kydex, this should hardly be a deal breaker. There is now an extensive, cottage industry of custom holster makers — most of them turning out high-quality stuff. Find one you can ship your gun to, wait a couple of weeks, and you'll have a gun glove that will hold your Carry Comp in any position your wardrobe allows. Spare mags are also



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large, and not cheap, but if you carry a single, 140mm race mag as your reload, which is only about 2 inches longer than a flush-fit — you'll have just under 40 rounds at your disposal in 9mm. If you need more than that, bring a carbine. Or a belt-fed.

We like the STI/Costa Carry Comp. In fact, this author downright loves it. But that's not the same as saying it's the best choice for a concealed carry pistol. Your size, shape, wardrobe, and preferred carry position will have to line up just right for most people to cover it.

Your budget will have to line up just right for most to afford it. But, if the stars align, this may be the one gun for you. The Costa Carry Comp offers best-in-class capacity, balance, and ergonomics regardless of whether your opponents are shooting next to you or at you. ■





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SMOOTH MOVE

SHOOTING AND MOVING LOOKS EASY BUT TAKES FINESSE TO MASTER. HERE'S WHERE TO START

STORY BY NICK SAITI
PHOTOS BY IAIN HARRISON

Watching my daughter take her first steps, I knew some people were not meant to move gracefully. She had so many bumps and bruises I was sure Child Protective Services would be visiting us. She learned how to move on her own and even started to climb. Waking up to a small child standing above you on the nightstand will clinch your cheeks more than any bump in the night ever will.

Soon brainwork won't be needed to walk. Eventually, she'll add the dynamics of walking and chewing gum at the same time (a task her father has yet to master). In the end, the conscious process of walking isn't thought about again and gets filed in the back of the brain, along with breathing, driving, and reloading. At least until the next pub visit.

Shooting on the move is a shooter's version of walking and chewing gum at the same time. Just like in your childhood, the separate parts must be learned before you can do them at the same time. If you have trouble hitting a target at 7 yards, or walking for that matter, you aren't ready for this drill. Keep working on the basics, but this is definitely something to strive for.

Before we get into the process, we must first determine if shooting on the move is a viable technique in a

particular situation. The difficulty of the shot is the first determinant to consider on the feasibility of shooting on the move. Other issues include the distance to the target, the surrounding targets, and the presence of anything that shouldn't get shot (e.g. penalty targets, your dog, or a favorite family member).

The other determining factor is the terrain you're dealing with. If there's loose gravel or anything you can slip on, shooting on the move probably isn't the best course of action. Moonwalking or doing the splits unintentionally isn't pretty when a loaded firearm is in the mix. If you feel like you can't effectively hit the target while moving, then you should make the decision to shoot from a static position.

In the competitive world, shooting on the move is considered part of the shooter's repertoire, along with the draw and reload, but in defensive applications the consensus is often to move to cover then shoot if needed. The point of this article is not to debate the validity of shooting on the move as a defensive tactic, but simply to instruct on the process involved.

WARNING!

The concepts shown here are for illustrative purposes only. Seek professional training from a reputable instructor before attempting any techniques discussed or shown in this story.



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
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
7075 BILLET CONSTRUCTION


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Yes, your friends are going to think you're a tool if they see you walking around like this. When you smoke them by placing rounds center mass on the move, they're going to look like tools, too.

THE PROCESS

Shooting on the move requires a revisiting of your “walking files.” Basically, the process breaks down to figuring out how to get from point A to B smoothly and without disturbing the sights. First, knees must be bent a little to act as shock absorbers — this is important to avoid jostling the sights. Frankenstein's monster walking without bending his knees is a prime example of what not to do. He definitely needs to work on his technique if he wants to hit targets on the move.

When moving forward or laterally, move your feet in a heel-toe motion. “Rolling” your foot is imperative in

smoothly traversing ground. Hitting the ground flat-footed isn't the way to go and is definitely hard on the knees. Who walks like that anyway? Taking little steps versus big strides helps the process along. Conversely, when going backward, move your feet in a toe-heel motion. As you're moving in the opposite direction it only makes sense to do the opposite with your feet. To simplify things, keep your feet in contact with the ground as much as possible.

Putting one foot in front of the other in a straight line as if walking on a tight rope helps keep the sights in line. Wider body types might have trouble

with this part. Step with your feet as close to your centerline as possible to minimize side-to-side motion when moving. Oompa loompas wouldn't be good at shooting on the move.

Feet should be pointed in the direction of travel, while the upper body acts as a “tank turret” pointing toward the target. The lower body does all the work, while keeping your upper body in a good shooting platform. Essentially, treat your upper body in the same manner as if you were shooting from a static position. The only difference is your feet are moving the entire time.

A point of interest when you get further along is to fire the shot while your feet are in motion, not when your foot hits the ground. The impact of your foot hitting the ground definitely has an effect on the muzzle. This can be a difficult concept to grasp as it requires timing your shots to correspond with your footwork.

Walking and chewing gum at the same time is hard enough, but now you have to remember to only chew when your foot is in the air. This technique can make a difference when you attain higher skill levels; until then focus on smoothing things out. How these parts are put together isn't as important as the end result — moving smoothly and getting hits on target.

An easy way to test your “smooth-ity” is an old trick I learned along my many travels to distant and exotic shooting ranges. Take a bottle of water and hold it in your hands like you're gripping a firearm. Now, begin walking around with the bottle of water using the techniques mentioned above. Move it in different directions mimicking the act of engaging targets. Try to ignore the looks of bewilderment from anyone who sees you and focus on not disturbing the waterline. Once this can be accomplished on command, you're ready for the box drill.



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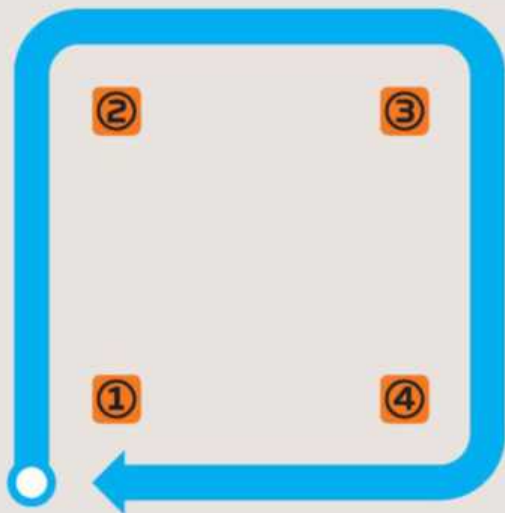
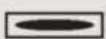
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TARGET



TARGET



BOX DRILL

THE DRILL

The box or square drill is another exercise that has been on the range forever, and no one truly knows where it came from. I like to make up my own versions that involve odd handshakes, random passwords, and secret societies. This drill is the best way to shape up your shooting on the move skills and get feedback on where adjustments need to be made.

The exact specifications of the setup can be tweaked to your liking or skill level. Distance and/or speed can be added (or subtracted) as your skill set progresses. A minimum of two targets are needed; I usually use at least three. Traffic cones work great to mark the corners of the square, but the stools at the shooting range also suffice in a pinch. Use something big enough to see easily so you don't lose focus on the task at hand.

You're basically laying down physical markers to circumnavigate and not trip over in the process. A shot timer can be used to measure and then push your speed, but work on proper techniques before adding the element of speed.

Use the cones/markers to create a 5x5-yard square on the range floor. Start by placing the targets at 7 yards from the markers furthest downrange. Depending on your skill level, the targets further downrange or further apart. For the sake of easy identification, number the markers — the first marker is the left side up-range corner, following from one to four clockwise.

EXECUTION

The point of the drill is to hit the targets while moving in different directions. The square on the ground acts like road lines. In the first iteration, start at the back left corner (#1). Move forward to the marker #2 while at the same time engaging the targets with two rounds each. This covers moving in a forward direction while shooting, and is probably the easiest. On a side note, always engage the targets with more than one round. You can get lucky with one round, but the likelihood of being lucky with multiple rounds is slim. This is the way to consistency.



Once you can move swiftly without sloshing water around, it's time to graduate to your pistol.



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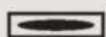


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②

③



ALTERNATIVE DRILL

body needs to turn to the left. At this point you'll feel like a Vaudeville contortionist, but please refrain from taking a bow — you're only halfway there.

Next, move from #3 to #4. During this backward/retreat movement, your toe-heel footwork is important (remember to be smooth). At this point you'll definitely second-guess your ability to walk in a straight line, but have confidence that you made it this far. Lastly, move from #4 back to #1 and finish where you started. As many things in practical shooting, the drill is simple — but not easy to master.

This is just a basic framework of the drill. You can break up the drill in sections by moving from one corner to the other or treating the entire square as one run. Creativity can get you further once you get the hang of things. For example, diagonal movements can be made from #1 to #3, or you can circle around #1 and #4 in a figure-eight pattern. All these movements are done while engaging the targets downrange.

There are a few pitfalls with this drill. The most common mistake made is to stop or post up in the middle of the movements. This is counter-productive to the goal at hand. Force

yourself to keep moving through to the next position while still making the shots on target. At first, it's more important that you get acclimated with breaking the shot and keeping your feet moving than trying to hit the center of the target.

It's also important to pay attention to your sights. A hard focus on the sights is required, as they'll be moving around more than usual. After you get the hang of chewing gum and walking at the same time, pay close attention to the notchy posty things.

I have accomplished many goals in developing my shooting skill set that at one point or another I considered impossible. The secret is not to treat them as unattainable, and just give them a shot. As with many things in life, the first step is both the most important and the most difficult.

You probably won't get things correct the first time, but don't back down until you get there. If you're serious about getting better and progressing, don't be afraid to leave your comfort zone behind, even when all of your senses say you can't. It's a proven fact that if you want something bad enough, nothing is out of reach. Just ask my wife. ■

Next, move from marker #2 to #3 while engaging the targets. This is where things can get a little tricky, especially for right-handed shooters. When moving from left to right, your feet are moving to the right but your



ABOUT THE AUTHOR

Nick Saiti has been a world-class competitive shooter for over 10 years and is a four-division USPSA grand master. As impressive as he is to watch behind an Open Division pistol, he's currently third in the nation in the sport of three-gun. Considering himself a professional gunslinger, he happily imparts his unique perspective and knowledge teaching at

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REMINGTON'S RP9: AN EXERCISE IN COMPROMISE

JUST BECAUSE YOU CAN, DOESN'T MEAN YOU SHOULD

STORY AND PHOTOS BY ROB CURTIS

Remington's reboot of its pistol division has been nothing if not colorful.

The R51 won't win awards for reliability, but it was an ambitious project that sought to update the historic Pedersen action and bring a pistol to market with an unmistakable charm. The tiny RM380 translated a winning combination of reliability, unique features, and a dash of boutique allure to a much larger audience in the pocket pistol market.

But, the Remington RP9 looks and feels like something you get when a board of directors tells its executives to tell its managers to tell its engineers that the company needs to produce a line of polymer striker-fired pistols. Because profits.

We're not saying the RP9 is uninspired; rather that its designers' inspiration appears in the wrong places.

DESIGN

The action is a striker-fired affair using a stainless steel chassis mod-

ule more-or-less similar to the SIG P250/P320 family. We'll explain why we used the "more-or-less" qualifier down below.

The elephant in the room is the size of the gun. The components are conspicuously large and overbuilt for the 9mm role. The reason, Remington tells us, is the RP9 and the forthcoming .45 ACP-chambered RP45 will use the same grip housing and share the same slide dimensions.

It's an idea that must've sounded great in a boardroom. Can you hear it? "One holster mold for both guns; the holster guys will love us!" and "Think of the money we'll save on manufacturing!" Heck, we'll wager Remington's product team was excited at the prospect of tackling such an ambitious project.

While parts commonality appeals to bean counters, Remington still had to come up with a way to attract attention at the gun store counter.

According to Mike Keeney, Remington's director of handgun development, the company knew it was entering a crowded polystriker market and saw three areas where it could differentiate the RP series from its competitors: trigger, grip ergonomics, and magazine capacity.

"We wanted a trigger that was going to have a crisp break on it and really feel good to the end-user," said Keeney. To get there, Remington's engineers used a fully cocked striker mechanism (as opposed to the partially cocked striker found on a Glock pistol). The difference in feel is akin to the way a double action feels compared to a single action. Pulling the RP9's trigger just drops the sear, while the trigger pull in a partially cocked striker configuration does double duty, pulling the striker back before letting the sear surfaces disengage.

The benefit of the fully cocked striker is the single-action feel; the tradeoff is the slightly reduced safety







The RP9 comes with a few options for its interchangeable backstrap. The small option feels great to us. The medium and large increase the grip volume with a rearward bulge we found uncomfortable.

The RP's frame holds the action's pins in place. As soon as the chassis is out of the gun, it begins self-disassembly. While Remington's customer service hotline might sweat at seeing this, the gun actually goes back together easily.

margin when it comes to inertia-driven negligent discharges (NDs). However, the RP9 does feature a negative sear angle, and the plethora of fully cocked striker-fired guns on the market (Springfield XD series, anyone?) tell us it's a plenty safe way of doing things.

While we're talking about the trigger and safety, we'll mention Remington's trigger bar moves forward when the trigger's pulled. Combine this with the trigger safety tab and you have a system that has to move in opposition to work, adding further margin against an inertia-driven ND. There's also a

plunger safety in the striker channel in case things get really exciting. In this regard, the engineers seem to have covered all the bases.

When it comes to the grip, Keeny said the engineers worked hard on the feel. By the numbers, it's not the thinnest, but it's pretty short, front to back. This reduces the reach for the trigger finger and gives a great feeling of control over the pistol. The grip isn't a complex shape. It's smooth, without finger grooves, which typically fit about 50 percent of the population and leave the rest to feel unloved, and has a gentle palm bulge in the small-sized backstrap. The undercut trigger guard and beaver tail further enhance the feeling of control by offering a highly choked-up grip.

"The platform lends itself very well to customization," says Jeremy Keys, lead design engineer, "if you want to add grip tape or stippling, you've even got style lines to help guide changes in stippling texture."

The RP9 comes with three interchangeable backstraps to size the

pistol to hands ranging from dainty to almost-mongo. Remington says the RP9 will accommodate 95 percent of all shooters; we began fact checking this claim and made it through approximately 0.0000000002 percent of the shooting public and realized we had better things to do.

The third area Remington decided to differentiate itself was in mag capacity. The RP9's 18-round mag places it anywhere from one to three rounds ahead of its polymer 9mm competitors. We say polymer because the CZ 75 also stores 18 tokens in its 1UP slot. But, the CZ is a 2+ pound metal beast, and in a class of its own. We give Remington's engineers props for upping the round count while adding barely a ¼ inch to the height of the RP9's mag.

Beyond the three major design considerations, there's a host of welcome features to get excited about, with just as many attributes that leave us scratching our heads. First up, what we like.



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Sensor, resolution	384 x 288	384 x 288	384 x 288	640 x 480	640 x 480
Pixel pitch, μm	17	17	17	17	17
Frame rate, Hz	50	50	50	50	50
Magnification	1.6 ... 6.4	2.1 ... 8.4	2.7 ... 10.8	1.2 ... 9.6	1.6 ... 12.8
Field of view, deg	12.4	9.8	2.7	16.3	12.4
Range of detection, yd	985	1475	2000	1475	2000
Dimensions, in	11.3 x 2.8 x 2.6	11.2 x 2.8 x 2.6	11.5 x 2.8 x 2.6	11.2 x 2.8 x 2.6	11.5 x 2.8 x 2.6
Weight, oz	16.9	18.3	19.7	21.1	21.8

NICETIES

Evaluating Remington's three key areas of effort is simple. The trigger is darn good. It's no 1911, but it's as clean and almost as crisp as a custom trigger on one of its competitors. The grip with small backstrap fits our dainty dick beaters perfectly, and that beavertail feels great at the gun store counter. And we won't complain about having 18+1 rounds to work with.

The big slide offers a lot of surface to grip, and racking it is easy with gloves; even mittens, too. The cocking serrations are simple and effective. The stock sights are decent, if a bit small. Both sights are dovetailed and can be drifted, and the rear sight is slightly hooked so it can be used to rack the slide one handed.

Continuing from the top down, the big extractor looks capable of extracting a molar from a crocodile. The ambi slide lock is good in theory, but ours only released using the left

The RP chassis design is set up to support both 9mm and .45 ACP. Check out those beefy slide rails. And that floating ejector is easily replaced if it wears or is damaged by a drop while the slide is off the gun for cleaning.

side. Takedown is a breeze, even if we have to pull the trigger to release the slide.

We like the real Pic rail. There's none of that abominable Weaver rail stuff. The mag catch is positive and won't dump a mag when snatched from a table. Swapping the mag catch from right to wrong-handed takes a flat bladed screwdriver and a couple of minutes (though there's no mention of the process in the manual). The backstraps change with a hammer and punch, which is very secure.

Looking inside the RP9, we dig the way the floating ejector is designed for durability. Remington's engineers learned quite a bit in the time they spent working on the R51 ejector. "Sometimes you're better off without a rigid system," said Keeney, "that dynamic impulse in allowing components to move independently reduces the stress and, ultimately, the fatigue on the component."

There's that, plus it's an easily replaceable part. We're not shocked to hear Remington say a lot of their component replacement isn't a result of shooting as much as it is from mishandling and accidental drops.

ODDITIES

We referred to the modular frame earlier as more-or-less modular because Remington didn't design the RP9's frame to move between different-sized grip housings at the end-user level as the SIG P320 was. The grip has its own interchangeable backstraps for sizing, so the only two reasons to design the gun this way is: one, if you're going to have a short slide and compact grip available as an end-user conversion or, two, the modularity reduces the assembly time and parts count for manufacturing — ultimately reducing the production costs of the combined 9mm and .45 ACP platform.





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Want to have fun with your LGS? Ask to look at the RP9 and tell them the set screw fell out of the rear sight.



An unwelcome sight. The slide on our T&E RP9 regularly failed to load Speer Lawman 124-grain TMJ rounds. The expedient fix was a tap on the slide.



The slide lock lever works fine to lock the slide from either side, but the right arm doesn't have enough rigidity to unlock the slide.

Since Remington doesn't even want to tell end-users how to switch the mag catch, let alone pulling the frame assembly from the gun, we won't get our hopes up for a compact conversion kit. No, it looks like Remington's using the modular frame design to reduce costs rather than add features. It seems odd to bypass such a beneficial feature when everything needed to make it happen is within easy reach. We'd like Remington to prove us wrong on this point, though.

This brings us to the next oddity, the slide. As noted earlier, it's a bit ... girthy.

At first, we thought it looked big, but not that much bigger than other full-size 9mm slides, right? Well, upon closer inspection, it's the same length as a Glock 17 slide, but it's wider, taller, and the walls are thicker. Twice as thick in some places. To say this slide is overbuilt is like saying Bill Gates is well off. A beefy slide, alone, isn't an issue. But when it's part of a larger geometric proof, Sir Isaac Newton gets his say.

The gun, with its 1911 grip angle, feels great at the counter, but the grip location combined with the slide travel exaggerates the weight of the slide during recoil. In our physics demonstration, the slide is the lever and your hand at the top of the grip is the fulcrum point; when the slide hits the end of its travel, the mass is extended over the wrist and forces the slide to break rearward and downward.

With such a heavy slide, the effect is amplified, making that recoil impulse feel slow and long. The recoil impulse feels a bit like a 1911 running dry. That's to say, it's not a harsh, snappy feeling. Strong shooters will find the recoil manageable, but heavy.

While we aren't going to argue the value of tactile reset and limited trigger over-travel, we'll let you know there's some of the former and a ton of the latter. If that bugs you, you've

been warned. We needn't ride reset and we'll take a bit of over-travel if it means the gun goes off every time we pull the trigger.

As mentioned earlier, the slide stop won't release the slide using the right side lever (for left-handed shooters). The lever has too much flex; perhaps owing to the fact it's folded horizontally, stealing rigidity from the part. Sure, you can slingshot the slide, but why not let left-handers make their own choice?

If that wasn't enough intellectual animus directed at lefties, as we mentioned Remington also can't be bothered to explain how to swap the mag release in the manual. We'll assume that's an oversight, though, since they also don't show you how to change the backstraps. Hmm ... this might be a gun review first: criticizing the owner's manual.

The last oddity we'll point out is the not-missing set screw. Guys working gun counters will curse the green gods every time a customer asks about the unfilled screw hole staring up at them on the rear sight.

According to Keys, "When we designed the rear sight, we wanted to provide the opportunity to add a screw if we ran into the need for it. As provided and as designed, the screw is not required."

ON THE RANGE

First, we'll tell you the pistol is accurate. We averaged 2-inch groups with a few sub 1.5-inch groups logged with Hornady Critical Defense 115-grain FTX.

Pistol accuracy is reliant on precise barrel lockup. Remington knows this, and beefs up the barrel diameter at the critical points at both the muzzle and just in front of the chamber. Those two areas contact the slide and control barrel position at lockup. As long as those surfaces are held tight, the barrel returns to the same position relative to the slide every single time.

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All told, the RP9 digested a decent meal of brass and lead, with a little polymer for dessert. It munched on Hornady Critical Defense 115-grain FTX, Hornady Critical Duty 135-grain FlexLock, SIG SAUER 124-grain JHP, Speer Lawman 124-grain TMJ, Military Ballistic Industries 124-grain FMJ (factory reloads), Winchester Target FMJ 115-grain, and Polycase Inceptor 74-grain ARX.

We were surprised the pistol had no problems with hollow points — even that polytipped Hornady Critical Duty went down the pipe without a hitch. The cheap factory reloads plugged away, bag after bag.

BATTERY REQUIRED

For as many funky hollow points as the RP9 ran, it didn't like Speer Lawman 124-grain TMJ, with the slide failing to close completely on about one out of 10 Lawman rounds. The tap-the-slide routine got pretty tiring after 250 shells, but we persevered.

The RP9 ate almost everything we fed it, but choked on the tastiest morsels. It ran hollow points like a champ, but didn't like one popular type of ball ammo.

When asked, Remington had no explanation. And, yep, these rounds function without issue in a SIG P320, Glock 19, and Walther PPQ M2.

It looks like the new cartridge gets hung up as it's fed from the mag. It slides 95 percent of the way up the breech face, comfortably under the extractor claw. But it hangs up before the last few millimeters of upward travel.

Instead of tapping the back of the slide, we found depressing the rear of the extractor arm with a punch releases the tension and allows the slide to snap shut. Maybe it's the geometry of the extractor, or the size of the extractor lip. It's huge; 0.30 of an inch from top to bottom, compared to about 0.17 of an inch on a Glock and 0.16 of an inch on a SIG P320 and the Walther PPQ M2. With all that surface area, perhaps it's stalling the case rim. What's even more odd is how this tiny hitch can hold up that huge, heavy slide.

We also noticed the top round in the mag likes to creep forward during the

operating cycle. Maybe the mag spring isn't applying enough tension, maybe too much. Hell, we don't know. Magazine spring rates are the hardest thing to figure out in a pistol, and we barely have our multiplication tables down. So, we'll just leave this as an observation worth noting in the hope it explains something to one of you, someday.

A BIT OF POLISH

The RP9 trigger is a crisp 5.8 pounds out of the box, but it can be improved with a little work. The easiest and cheapest way to clean up a trigger is to simulate wear-in by polishing any moving parts. We caressed a few parts of the trigger pack with a bit of Flitz polishing compound and gentle pressure with a slow-moving felt wheel on a Dremel. We were careful to polish the parts without removing any material.

We hit the area on the trigger bar where it contacts the frame, where the trigger bar hook contacts the sear, and where the sear contacts the trigger bar



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hook. We also paid attention to the fit between the trigger shoe and the trigger bar. We touched up the slot on the top of the trigger shoe and the area of the trigger bar it touches, making sure the parts slide as freely as possible.

We looked at the spring arrangement to see if we could make any gains there, but there's no adjusting the main coil spring, and the torsion springs controlling the sear seem a bit too delicate to mess with without a few spares on hand. We also got the sense that bending the torsion springs to reduce the stack at the end of the trigger pull might reduce sear engagement and leave us without a drop-safety. We left the springs alone and were content with the improved feel after polishing.

The RP9 is an RP45 in waiting.

WRAP-UP

We won't mince words. In its 9mm guise, we don't like the RP. Despite its accuracy, it's filled with too many compromises that suit the manufacturer instead of the customer.

That huge slide brings too much weight and volume to the 9mm platform with zero benefit to the end user. It's larger and heavier than the competition.

At 4 ounces heavier than the Glock 19, Walther PPQ, and SIG P320, why would any LE officer want the added weight on their hip, unless they want the pistol to double as a stubby baton? Concealing a full-size pistol is hard enough, but that huge slide and slightly extended 18-round mag make it even harder.

The gun is filled with too many odd choices. If we bought one, we'd be filled with wonder and regret when we see someone using one of its competitors.

"Why do SIG guys get interchangeable slides and frames? I wish I held out for the PPQ trigger. How does that Glock 17 shoot Speer Lawman so reliably? Why does this CZ feel so light?"

The thing is that any one of those attributes is more important than having a pistol in two calibers that fit the same holster. Even with a sub \$500 price tag, it's worth it dip into your piggy bank and get a better \$550 pistol. The .45, however, when it's eventually released, seems to be the gun the RP9 was meant to be. And with 16 rounds on tap, we might be inclined to overlook some of its other failings. In 9mm, not so much. ■



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STORY BY IAIN HARRISON
PHOTOS BY KENDA LENSEIGNE

At RECOIL, we're always on the lookout for product innovations from the little guy. Let's face it — if all we ever wrote about were the top-selling guns from industry leaders, you'd get pretty tired of reading Glock 19 articles. Likewise with suppressors. Sure, SIG and Silencerco have great and extensive product lines, but there are many ways to skin a cat, some of which are developed in garages and small shops all over this great land.

Stingerworx is a small startup company with big ideas, and we went to the range with Dave Anderson, its founder and chief engineer, for a look at what they've been working on.

EMPEROR SERIES SUPPRESSOR

Due to our country's onerous and utterly illogical suppressor laws, there's a very real benefit to cans that fill as many roles as possible. With the ATF taking up to a year to process a simple transfer and the attendant \$200 fee, we want our silencers to work on as many different guns as their materials and engineering will permit. Which is why there's a tendency to overbuild everything here — quite the opposite of countries in which they're treated the same way as the firearms they're mounted upon.

Even in the U.K., which has some of the most draconian infringements of civil liberties imaginable, you can get a \$35 disposable .22 suppressor

or an 11-ounce carbon-fiber centerfire can for less than five Benjamins. For U.S. shooters who need the same suppressor to work on a 24-inch barreled .308 hunting rifle as well as a 7.5-inch barreled SBR, there's going to be a significant weight penalty imposed on the resulting design.

Manufacturers attempt to address some of the issues involved in creating a can for all seasons by offering modular suppressors that can be tailored to the job at hand. We covered Rugged Suppressors' offerings in RECOIL Issue 23, and the grandly titled Emperor is Stingerworx' solution to the same problem. Instead of adding or subtracting additional baffles to the front of the stack, the Emperor adds them to the rear, in the form of a removable over-barrel chamber. Reflex designs aren't anything new, but the combination of increased chamber volume and a novel blast baffle design derived using gas-flow dynamics modeling add up to a significant reduction in noise. How much? According to Anderson, they're seeing an additional 2 to 3dB reduction, depending on caliber.

There's a perennial debate among suppressor nerds, along the lines of Glock versus 1911 or 9mm versus .45, centering on the question of whether rifle cans should be welded or threaded together. There are strong arguments on both sides; Stingerworx went the threaded route. "We wanted the ability





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to tailor the suppressor for its intended use and use different materials where it made the most sense,” Anderson says.

While the standard Emperor uses titanium throughout, there’s nothing preventing the addition of an Inconel blast baffle (at a cost of additional weight) for use on particularly ablative guns — this is very tricky to pull off in a welded design, as anyone who’s tried sticking together metals from different parts of the periodic table will attest.

It also means that in the event of a baffle strike, the end cap can be quickly unscrewed at the factory and it, or the rest of the stack, replaced at no cost to the customer. Of course, it would be even more convenient if we as end users could be trusted to have spare parts on hand, but according to the regulations as currently interpreted by unaccountable bureaucrats, that would land you a stretch in Club Fed.

MAKE:
Stingerworx
MODEL:
Emperor Series 30-L2
CALIBER:
Up to .300 Win Mag
MATERIAL:
Titanium
DIAMETER:
1.75 inches
WEIGHT:
13.1 ounces; 17
ounces (with addi-
tional blast chamber)
MSRP:
\$975
URL:
www.stingerworx.com



We shot the 30-L2 on a variety of firearms, from a JP Rifles CTR1 in 6.5 Creedmoor to a Century Arms AK, and while we don’t have access to sound measuring equipment, the end result was pleasing to our uncalibrated ear. It looked right at home on the AK, where its large-diameter blast chamber was reminiscent of an original Soviet PBS-1, receiving admiring glances from fellow shooters on an adjacent bay.

However, perhaps the most remarkable feature of the Emperor isn’t its looks, but rather its weight or lack thereof. At only 13 ounces for a full-auto-rated, multi-caliber suppressor, it’s a noteworthy addition to a crowded field. **R**



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DEAR MONTANA

TAKING A MEAL OUT OF THE MONTANA RANGE WITH BEGARA'S LATEST CREATION

STORY AND PHOTOS BY KEITH WOOD

We dove down the gully at the dirt road's edge and launched ourselves without grace through the barbed wire cattle fence. As luck would have it, some unseen bull had been kind enough to break the bottom strand of wire so that we didn't become hopelessly tangled in the barbs. The khaki-colored native grasses were tall enough to conceal most of our

movement as we high-crawled toward the cottonwood-choked creek bottom where the buck was tending his small harem.

At just over 100 yards, we'd come far enough — any closer and we'd chance spooking him or his paranoid lady friends. Our plan assumed he'd vacate his current hide within our field of view, offering us a shot.

We just didn't know whether that opportunity would come in the next few seconds or before darkness fell. I cycled the bolt to put a .308 round in the chamber, wrapped my left arm into a hasty sling, settled into my best sitting position, and studied the tangled tree line in my scope. If he emerged at anything but a dead sprint, I'd be ready.



Ordinarily, preparation for a hunt like this would involve agonizing over load development, confirming the rifle's DOPE at real-world distances, and an obscene amount of dry- and live-fire practice. This hunt was different, since the purpose of the trip was to test out the prototype HMR (Hunting and Match Rifle) from Bergara Rifles. I never so much as laid eyes on the rifle until after I stepped off the plane. You may not be familiar with the Bergara name, but you've probably used one or more of their OEM barrels, which are used by a significant segment of the industry.

Bergara is a gunmaking town in Spain's Basque country, an area with one of the proudest firearm traditions in the world. Many of Bergara's products

Shooting prone is a great ego boost on the range but is rarely practical in the hunting world. The author used a hasty sling and a seated position to shoot over the high grass, a position that he's found useful for the vast majority of hunting situations.

are still produced in the area, though their custom rifle shop is outside of Atlanta and staffed by former military armorers, including the retired production chief of the famed Marine Corps Precision Weapons Section at Quantico.

The HMR is half hunting rifle, half long-range precision rig with a hybrid stock design, center-feed detachable box magazine, and a threaded barrel ready for a suppressor. Ours, the first one to leave the factory, was chambered in .308 Winchester, though, the 6.5 Creedmoor offering may turn out to be a bigger hit with the shooting and hunting public. At just over 9 pounds, this rifle is light enough to hump in steep terrain (under protest), but heavy enough to provide a solid shooting platform when the shots get tricky.

GREAT FALLS OF FIRE

Great Falls, Montana, is so-named because of the five massive waterfalls that cascaded eastward on the path of the Missouri River for millennia. Though these falls required the Lewis and Clark Expedition to portage their canoes over rocky ground to avoid the punishing rapids, they've since been tamed in the name of hydroelectric power. Nearby Belt, Montana, is a town of far less than 1,000 residents, sitting in the shadow of the Rockies to the west and the Little Belt Mountains to the south. The terrain is mostly rolling open country, broken by the occasional rise that, in most other states, would be called a mountain. The seemingly endless seas of grass and grain, broken by steep coulees and canyons providing a break

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from the howling winds, are home to the only tree life within miles.

This is primarily cattle ranching country; the black dots scattering the endless horizon in every direction are angus cows grazing on both private and public lands. To the untrained eye, this is purely domestic ground — settled, fenced, and devoid of wildlife. To the hunter, though, this is an outdoor paradise, home to elk, both mule and whitetail deer, and pronghorn antelope.

Ducks congregate anyplace wet enough to land, and pheasants and Hungarian Partridge flush from the grasses and planted fields. The wildlife couldn't care less about the cows, fences, or ranchers, and the agriculture provides more than ample supplemental feed during the crucial months. Edge, the habitat between cultivated crops and true wilderness, is a boon for fauna.

A Montana general deer tag is good for either species: whitetail or mule deer, so long as it's a buck. As a guy surrounded by whitetail deer at home, I was far more interested in hunting mule deer. Mule deer are, on average, larger in both body and antler, with the reputation of being less skittish than white-tails. While this may be true in general

Get on your knees: staying low means staying out of sight of game. The author used the terrain and vegetation to crawl within 100 yards of a buck and his doe.

A mule deer duck chases a group of does through one of the area's many draws. These areas provide cover from central Montana's harsh elements and are often crowded with deer.

Frontier homesteads like this one can be found throughout the area, often located in the same areas where deer congregate for protection from the harsh winds. It took some hard people to endure the brutal winters; their descendants aren't much softer.

terms, big old deer of either species don't get to be that way because of carelessness. Our hunt fell right smack dab in the middle of the rut, the breeding season that falls in mid-November in this particular area. Like humans, otherwise smart and reclusive male deer lose IQ points when they have mating on the brain, making them easier to both spot and kill.

Though bucks get a bit stupid during the rut, they also become unpredictable. During earlier months, bucks maintain a fairly small range unless they're pressured. You hunt early season bucks by studying their behavior and movement patterns and setting up an ambush at their most vulnerable mo-

ments. During the rut, it's impossible to pattern a buck, especially a mule deer.

Ninety percent of whitetail deer only breed one or two bucks per season, making them pretty monogamous. Once a whitetail is locked-down with a doe, he may stay put for a while. A mule deer, on the other hand, runs from one group of does to another, frantically searching for a mate like a frat boy at last call. A mule deer buck spotted in a valley at dawn may be miles away chasing tail by noon.

Central Montana is big country, and to find the right deer, you have to look at a ton of bucks. Due to the population density, in order to see a lot of deer one needs to cover a lot of ground, especially



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during the rut. For the hunter, this means lots of time in a vehicle, traveling from one vantage point to another.

As our hunt began, wind gusts topped 30 mph and presented a real challenge. Mule deer stay alive due to their fantastic hearing and sense of smell, and strong winds deprive them of those key senses. The high winds had the mulies spooked, and what deer we saw were huddled together in canyons and other breaks in the rolling terrain. Many of these areas were sites of crumbling frontier homesteads, the deer seeking the same protection from the winds that kept the settlers alive during the brutal Montana winters.

As far as sheer numbers of animals observed, this area rivals anywhere I've ever seen with the exception of Africa. We looked over hundreds of mule deer with a scattering of whitetails, antelope, and a handful of elk for good measure. This area has been described in a historical context as America's Serengeti and, at least as far as the abundance of game, the name still fits.

PATIENCE IS KEY

Still, after glassing herd after herd of mule deer, we hadn't seen anything that got our hearts racing. My focus on mulies led me to pass on the biggest

whitetail I'd ever seen on the hoof, late on the second morning of the hunt. I'm in it for the hunt, not for the record book, and jumping out of the truck to shoot a monster buck just wasn't what I was here for. Yes, I have trophies on my walls, but they're to remind me of a difficult physical challenge or a memorable stalk. This would have been neither.

As the hours began to close on day three, the temptation of a bird in the hand became too strong. We spied a mature whitetail buck in a thick creek bottom with a pair of does that were ready and willing to accept his biological advances. The chance to put a sneak on a deer in his own territory was too much to pass on, mule deer be damned. We crawled into position and waited, me on the gun and Bergara's Chad Schearer glassing the thick cover with his binos. Chad is one of those guys who knows what the deer will do before they do, and he called this one exactly the way it went down. After 10 tense minutes of staring

intently through the scope, I spotted movement as the buck's high rack emerged from the thicket.

I was determined to take the shot before he moved fully from his cover, afraid that once he did he'd break into a trot, if not a dead run. As soon as his front shoulder cleared the thickest of the branches, I began pressing the trigger. The 165-grain bonded Federal Fusion bullet found his heart, and he died where he stood; I saw him drop as the reticle recovered from the rifle's mild recoil. Long-range accuracy, drop charts, and ballistic turrets are great tools, but there's no substitute for stalking close enough for none of those to be necessary.

Within minutes, the buck was field dressed and loaded for travel. The family came out to see him in the barn, as Montana families do, and one of Chad's sons went to work with a skinning knife to remove the hide. Within days, the enzymatic process of aging in the cool air would tenderize him — butchering right away is what gives many the impression

The author field-dresses the deer by headlamp, removing the guts and organs to allow the meat to cool quickly.

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that venison is tough or gamey. How you handle meat depends on climate and logistics, but five to seven days in a cold barn, refrigerator, or on ice in a well-drained cooler makes for a good start.

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The backstraps and the loins that flank a deer's spine are considered the finest meat on the animal, they're usually gone first. They're removed by cutting along the spine across the tops of the ribs. Acid is a natural tenderizer, while salt flavors meat and helps moisturize down to a cellular level. A daylong soak in a brine of apple cider vinegar and salt is a good post-aging step for our straps, particularly for a rutting buck.

Grilling is among the simplest and fastest methods of cooking backstrap,

MAKE:
Bergara
MODEL:
HMR (Hunting Match Rifle)
CALIBER:
.308 Winchester
(6.5 Creedmoor also available)
BARREL LENGTH:
20 inches (22 inches on the 6.5)
OVERALL LENGTH:
39.5 inches
TWIST:
1:10 (1:8 on the 6.5)
WEIGHT:
9.25 pounds
MAGAZINE:
Magpul PMAG ACIS
SCOPE:
Konuspro M-30
4.5-16x40mm
MSRP:
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especially since we'll cook it hot. A Mediterranean garlic herb paste of pureed fresh herbs (rosemary, basil, whatever's in season), garlic, red pepper flakes, peppercorns, salt, and olive oil is hard to beat. The meat marinates, refrigerated in this paste for up to 24 hours, then the entire loin goes on the grill on high heat.

Venison is very lean and is best cooked rare or medium-rare. If you cook it any longer than 10 minutes, you've probably ruined it. Let it rest for a few minutes and slice it into ½-inch medallions. Serve it with your favorite full-bodied red or porter alongside simple grilled or roasted vegetables basted in olive oil, salt, and pepper. If you're expecting the homogenized taste of domestic meat,

you're in for a pleasant surprise of complex flavors.

I grew up in the suburbs eating trash disguised as food, totally disconnected from what was on my plate, but for the rare meal that came out of the nearby Atlantic — I want better for my kids. It doesn't take a nutritionist to know that eating lean free-range game meat is better for you than a steady diet of corn-fed animals that lived and died in the confines of a feed lot somewhere. I'll gladly debate the ethics of it, but unless you're a vegan who steps over ants on the sidewalk, spare me your opinion. If eating a piece of meat you stalked, killed, cleaned, and cooked yourself doesn't throw a switch somewhere in the back of your brain, what can we say — maybe you're a gatherer? **R**





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CANINE TECHNOLOGY

A FORCE MULTIPLIER IN THE POLICE K9 WORLD

STORY AND PHOTOS BY RICHARD KING

In police work, canines are hugely significant force multipliers — and the numbers don't lie. The Lansing Building Search study in Michigan showed that a building search for two bad guys with two-man teams of patrol officers recorded a 59-percent success rate in locating the individuals. Compare that to a K9 unit, boasting a 93-percent success rate and requiring a fraction of the time to conduct the search.

While there's little doubt about a dog's utility, they're only an extension of their handler and his or her limitations. Technology can help handlers overcome these shortcomings and create a more effective K9 unit.

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CQB MODEL SHOWN



Two deficiencies addressed by technical solutions are night vision and communication. Night vision goggles (NVG) have been available to civilian law enforcement agencies in SWAT applications for decades, but they're often overlooked for canine handlers. While early adopters certainly had difficulty with depth perception when using NVGs, that was then. Now, a good quality, dual-tube setup and proper training erase any comparisons to the early days of tanker goggles.

TRIPPING ALONG WITHOUT LIGHT IS NOT FANTASTIC

Generally speaking, a dog is much more accustomed to working in the dark; paired with their excellent sense of smell, it isn't hard to see how nighttime operations can lead to a canine being hindered by the handler. The best-case scenario has a handler fumbling through the dark and slowing down his dog. The worst-case finds the disoriented handler initiating unintentional corrections through the leash or harness that distract or prevent the dog from finding its intended target.

A dog can only go as far and as fast as his human. This is especially true in thicker woodland terrain where the handler often has to stop the dog to get his bearings. Utilizing night vision

Night vision allows handlers to observe non verbal cues from their K9 partner.

Handheld thermal units allow the scanning of areas that are shielded by tree canopy from overhead observation.

devices provides the handler with some degree of parity with his or her dog's heightened senses. This allows the handler to work in the darkness, which is a great tactical benefit.

Randy Roy, of Guardian Point, is a former police officer and canine handler, and was a canine trainer for U.S. Special Operations Command on Fort Bragg for nine years. "With night vision goggles," says Roy, "a handler is able to utilize much better tactics and have white light discipline while on the track of a bad guy who doesn't want to be found."

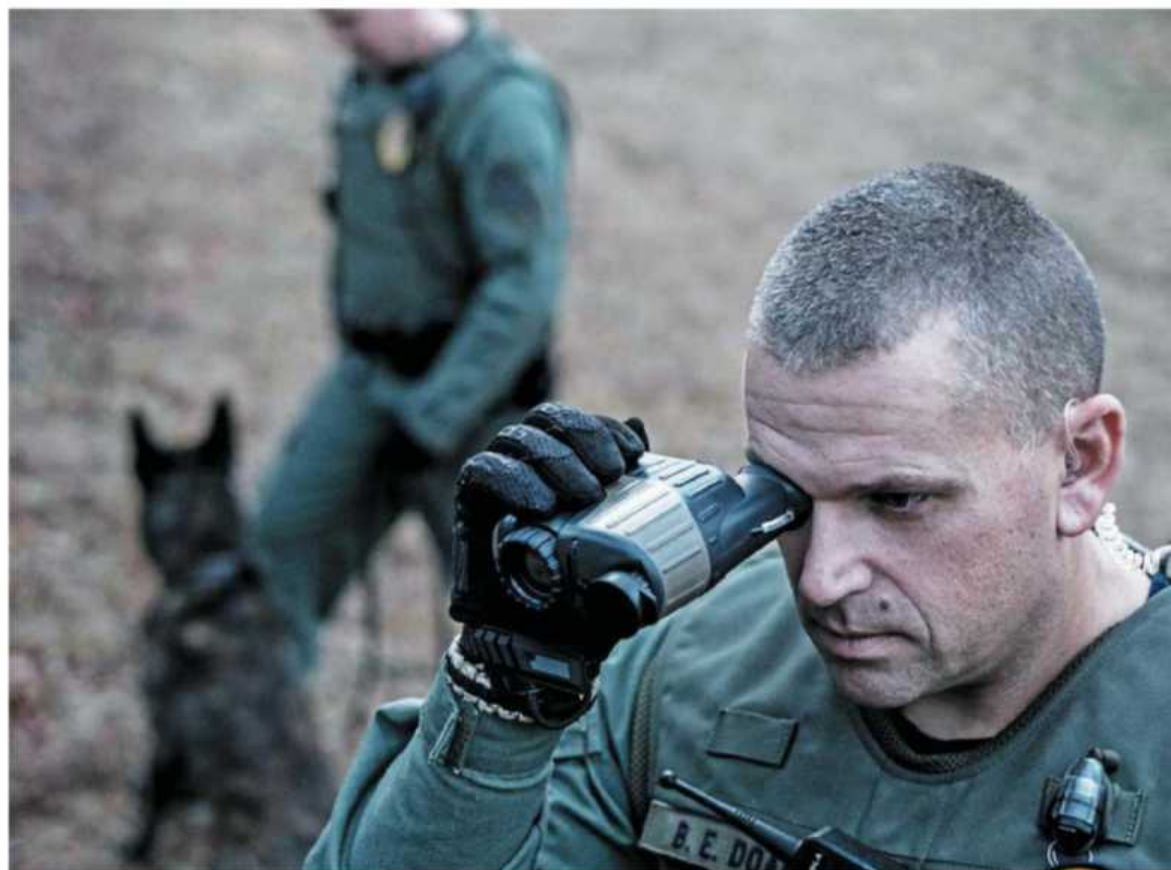
Not looking like the night watchman traipsing through the woods is a good thing and ultimately increases your likelihood of success and, more importantly, safety.

Anecdotes are far from established scientific fact, but in my seven years of running canine calls, I've had the opportunity to interview several arrestees after the fact who admitted to seeing my team and our flashlights as

we were approaching. Luckily, those guys also admitted that seeing the lights — accompanied with a canine — is what forced them to show themselves and surrender.

While night vision goggles are great for getting you on the level with your dog, Forward Looking Infrared (FLIR) is another tool in use by some forward-looking agencies. A thermal camera is something the law enforcement community has come to expect on helicopters, but handheld infrared units like the EOTech x640 are easy to procure and even easier to use.

Thanks to thick tree canopies and manmade obstacles, airborne units are often hampered in their ability to provide heat signature based intelligence to officers on the ground. Handheld units can be a valuable tool for a backup officer to have on hand. They allow an officer to scout a potentially dangerous area that might not be accessible to a FLIR unit from the air.



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A well outfitted NVG rig can cost more than a good used car, but only one will help you find bad guys in the woods.

Another deficiency that technology addresses is communication. Those two are inextricably linked, as your dog can be considered for all practical purposes, nonverbal. Since the dog can't speak to his handler, it's up to the handler to read body language to find out on what's going through the dog's head. Without night vision goggles, it's difficult to read a dog at night without using light, something we already identified as being potentially dangerous in the vicinity of a bad guy. Since NVGs provide the ability to see what a dog is doing during the night, so-equipped handlers can see how they're responding when they're on a track.

With night vision allowing handlers to see the world around them and read their dogs nonverbal cues, the next bit of helpful canine tech helps handlers communicate commands to the dog. One of the best devices for doing that is the electronic training collar, e-collar for short.

Note: There are plenty of ways to utilize this piece of equipment improperly and do far more harm than good. As with everything, seek out good training from reputable sources. Don't rely on a piece of equipment as a substitute for mastering the basics.

Properly utilizing an e-collar is a great way for a handler to stay in control of a canine while working off-leash.

E-COLLAR

Today's electronic collars are adjustable for a variety of stimulation settings to allow the handler or trainer to get their dog's attention in many situations. Think about it this way — if you're trying to get someone's attention during a church service, you'd lightly tap them on the shoulder or speak very softly to get their attention. This is the equivalent of a low level of stimulation with an electronic training collar.

Conversely, if you were trying to get a person's attention at a rock concert, that same soft tap on the shoulder won't work. You may have to yell or slap that person on the shoulder to get their attention because the environment around them prohibits them from hearing or feeling you. This is the equivalent of a higher level of stimulation from an electronic training collar.

"An e-collar allows a handler to dial a necessary level of stimulation based

on the requirements of the environment and its associated distractions," says our former cop and canine handler. "Being able to get a dog's attention at distance, untethered from a leash is a huge advantage in progressing a dog's training."

Beyond training applications, the e-collar is great for deployment scenarios because the dog is allowed to work unhindered by a leash while the handler and backup officers can remain safe, behind cover, if the situation dictates.

Keep in mind that the e-collar isn't just for training. It can also allow canine handlers to work more effectively in large structure or area searches. With an electronic collar, the handler can send the dog out on a search, and without having to make any loud verbal commands, place the dog in a down via the collar to perform a secondary sweep while clearing all the way to the canine's location.





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Similarly, an e-collar allows a handler to release the dog on a large area search more efficiently. There's no leash for the dog to get tangled, and if the suspect is dangerous, the canine can assume the risk for the officers on scene. That assumption of risk gives the officers the ability to go home to their family at the end of the shift.

Most modern e-collars have a vibrate feature that can tell the dog to return to the handler without any verbal commands. Without the need to talk, patrol officers have one more way to avoid giving away their position to a bad guy, increasing their power in the situation at hand.

DRONE DOGS

One of the more interesting technologies shaping the world of military and law enforcement canine use involves what the folks over at CQB K9 are doing. The owner, Alex Dunbar, told us about some of the advancements that he's making with dogs on the ground and incorporating UAS, or "drone" technology.

First, a dog is equipped with a head-mounted camera system and transmitter linked to a monitor at the handler's station. Once the dog is sent out on a search, the handler observes through the monitor what the dog is seeing up to 10 kilometers away. Simultaneously, an overhead drone



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observes the canine working with either a daylight or infrared camera. The information is overlaid on a Google map, giving the team a unique view of the search that shows the locations where the canine has been, and areas that need further investigation.

"Discrete communication with the canine is also incorporated to the system," says Dunbar, "so the handler is able to send commands to the dog such as 'search,' 'down,' and 'return to the handler.' While this might not be practical for urban or suburban street cops, this could be a boon for anyone in a search and rescue role in rural or mountainous terrain where it's not always practical to run a tethered dog.

INDOOR GPS

Another intriguing technology is Priority One Canine's GPS-like indoor tracking device. Wade Morrell, a former marine, police officer, and CEO


An e-collar allows you to reach out and touch your fur-missile once he's been sent down range while maintaining your position of safety or cover.

E-collars and bite work can go together, but only after mastering the basics first.



of Priority One Canine says, "We are able to equip canines with a GPS-like tracking device that works inside of buildings. Once a canine is sent into

a building search, the footprint of that dog's search is then transmitted on a visible display back at the handler's position."



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- WILLIAM WALLACE

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This head-mounted camera rig from Mohoc allows you to review events from the canine's perspective.

The handler can determine exactly what was searched by the K9 unit, and what wasn't. This tech gives incident commanders a greater understanding

of what's happening in the field. It gives handlers a way to relay real-time information to a command post in a developing, complex situation. And we know that better intel leads to better decisions. Usually.

SEEING IS BELIEVING

Filming an exercise or operation from an aircraft or drone allows handlers to see how they did and learn what they can do to improve their searches on their next call out. Additionally, a ruggedized camera, such as the tactical Mohoc Camera system, which uses a proprietary canine head harness, can capture additional footage from the dog's point of view for AAR use, or possibly as evidence.

Technology is ever advancing; the pace of developments of new gear and the associated tactics show no sign of slowing. Military units and federal and local law enforcement agencies risk relegating their canine units to antiquity, lest they invest in newer tools and training that allow them to stay efficient, effective, and most importantly, safer as they work to protect the masses from harm. ■

SOURCE

CQB K9: www.cqbk9.com

Dogtra: www.dogtra.com

EoTech: www.eotechinc.com

Guardian Point: guardian-point.com

Priority One Canine: www.priority1canine.com





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HEARTS, MINDS, AND FEET

THE STORY BEHIND A VETERAN'S MISSION TO DEFEAT TERRORISM ONE FLIP-FLOP AT A TIME

STORY BY **ROB CURTIS**

PHOTOS BY **ROY LIN** AND COURTESY OF **MATTHEW GRIFFIN**

Maybe you've heard of Combat Flip Flops (CFF), the company whose footwear is "Bad for Running, Worse for Fighting." Turns out the flip-flops — and the scarves and sarongs CFF sells — are also surprisingly good at challenging conventional thinking about how to win wars.

When a business model can be summed up by the phrase, "We make cool stuff in dangerous places," you know you're dealing with a different kind of company. CFF is gritty, scrappy, and socially conscious with a sly sense of humor. But its slogan also begs the question: Why choose a dangerous place when a safer one would do?

To get that answer, you need to get to know veteran, Flip-Flopreneur, and CFF CEO Matthew "Griff" Griffin.

In 1997, as a plebe at the U.S. Military Academy (USMA) at West Point, Griff saw the Army Rangers stage a mock hostage rescue during halftime at a football game. Black Hawk helicopters dropped hot brass from miniguns and Rangers from fast ropes, while ground elements assaulted the field in RSOV gun-trucks. It made quite an impression.

"It was coordinated, controlled violence," says Griffin, "I thought to myself, Well, sh*t. I want to go hang out with those guys."

Griff worked his way through the USMA, became an Army artillery fire support officer, and was assigned to the 5th Battalion, 20th Infantry Regiment, which explored the capabilities of the Army's first 14 Stryker infantry fighting vehicles before they entered service in the Army and combat in Iraq.

In 2003, Griff completed the Ranger Orientation Program. A brand-new lieutenant assigned to Alpha Company, Second Ranger Battalion, he showed up just as his privates were returning from the Iraq invasion. By late 2003, they were deploying together to Afghanistan for Operation Winter Strike.



Over five years, Griff completed four deployments: Winter Strike, Afghanistan (spring and summer '04), and summer '05 to Iraq. Post-Army, he's worked in construction, on a fishing boat, and later, for a remote medical services company.

Eventually, Griff founded CFF, a company built on the belief that its products can do more than fill a customer need. He's turning flip-flops into economic and educational opportunities by manufacturing them in dangerous, war-town, impoverished locales.

Griff sat down to explain how four tours, an episode of *Shark Tank*, and thousands of flip-flops built a \$1.5 million company that's trying to win wars using "business, not bullets."

FOUR DEPLOYMENTS, FIVE YEARS

RECOIL: What were the conditions on your first deployment (Winter Strike in Nangalam near the Korengal Valley)?

Matt Griffin: We lived up in the villages and valleys for three-and-a-half months in the middle of the worst win-

U.S. Army Rangers secure the high ground above a natural choke point between three valleys that could be used for fleeing insurgents during Operation Winter Strike in 2003.

Griffin photographed these little girls playing one morning on the roof of a building his team was using in Afghanistan in 2003. The view affected the way he saw the Afghan people.

Donald Lee, left, and Matt Griffin, right, prepare for a patrol from FOB Nangalam. The base was later renamed FOB Blessing for Sgt. Jay Blessing, a U.S. Army Ranger killed on the convoy to this northwestern Afghanistan outpost.



ter they had seen in a decade. ... The base elevation was anywhere between 6,000 and 8,000 feet. We had some of our patrols poke out over 10,000 feet of snow, pulling weapons out and meeting with villagers who hadn't seen a white guy since the British. It was a pretty unique experience.

Anything from that deployment have a profound effect on you?

MG: I get up in the morning, and I'm watching these three little girls playing with a stick. That's all they've got. Mom comes out, sits down with them, plays with them, prays with them.

What I determined was they're just like us. They're families. They're kids. ... Those children had no choice where they were born, but because

of the location we classified them as terrorists or enemies. Was that their fault? Is that fair of us? If this decision-making goes both ways, would they think the same of my daughters?

How did the villagers feel about your presence?

MG: The vibe from the Afghans was like, “We are so thankful that you’re here. We would like to kick these sh*theads out of our area. We don’t want to grow drugs. We don’t want to be subject to this. We want to get our kids in schools. We want to have opportunity. Thank you for coming and getting rid of these guys.”

... We lived in villages and got to witness the hardship of Afghan life. Amidst that despair, they hosted us, fed us, and kept us warm. When we left, they were still there, cold, hungry, and with less food because they hosted us. That made a huge impression on me about the kindness of the Afghan people.

STARTING COMBAT FLIP-FLOPS

You took a job with Remote Medical International and ended up back in Afghanistan. How did coordinating

medical services turn into making flip-flops?

MG: Flip-flops just happened. As I was witnessing businesses make positive change throughout the Middle East and Africa, I was on the hunt for an idea that would be applicable. ... The U.S. told the Afghans if you build factories for boots and uniforms, we’ll give you preference in our contracts. These Afghan families invested millions of dollars putting these facilities in Kabul.

[I got talking with a former Marine captain who] got hired to build one of them. He said, “Hey man, you can tour our factory. Plus, we’ve got a really good cup of coffee. Best coffee in Kabul.”

I’m from Seattle; I’ve been without good coffee for a few weeks, so the next day I got in my car and took a tour over there.

What was the factory like?

MG: It was beautiful. It was the cleanest factory I had ever been in. This guy had figured out how to build this factory out of rubble in about 18 months in a war zone. It was unbelievable. He was employing around 300 people, [each of whom supported] five to 13 family members with that job.



Griffin and a young Afghan policeman during a patrol in Konar Province, Afghanistan in December 2003.

Nothing ever happens at that factory. Not a mugging, not a shooting, not a bombing because those people protect the factory, because it supports the livelihood of so many. To me, it’s just like, wow, that’s a really smart thing.

I’m sitting there in the factory talking to him. I say, “What are you gonna do when the war ends?” He goes, “Yeah we’re just gonna shut it down. Nobody’s gonna want to buy anything in Afghanistan.”

What was your reaction?

MG: I got absolutely furious — so mad. We had spent thousands of lives, and by this point, I’m sure over a trillion dollars to get to a point where [Afghanistan] could have an opportunity like that. ... I’m just furious, and I’m standing there on the factory floor. I look and there’s this combat boot sole on a flip-flop. I’m like, “Gee what’s that?”

[The guy says], “Oh yeah, we designed that for the military because in garrison, they have to take their boots



Griffin took this photo 10 minutes after receiving their first run of footwear in Kabul. The entire first production run turned out badly, though, and Griffin gave them all away to Afghans in Need.



on and off [to pray] five times a day. They're just losing a ton of time." ... It was a product made for the Afghan National Army. But what I thought was, "Damn, that thing looks cool. Americans would buy that."

I picked [the flip-flop] up, looked at it, and said, "Hey man, do you mind if I run with this?"

He says, "Yeah, sure go ahead."

I called my Ranger buddy [Lee] and said, "Hey man, we're gonna start a flip-flop company in Afghanistan." It was like 2 in the morning in L.A. He said, "Yeah, sure," and hung up the phone on me.

How did it grow from there?

MG: My brother-in-law, Andy Sewrey, is a non-military dude, plays in a rock band, and a professional painter. ... We were on our way to a bachelor party, and I started explaining [my

After the loss of the first run of footwear in 2012, Griffin and his partner Andy Sewrey, left, visited the home and shrine of Ahmad Shah Massoud, the famed Lion of the Panjshir. Massoud is a national hero who fought the Soviets and was assassinated by al-Qaeda in 2001.

idea] to him. He said, "I'd like to be a part of that. "

... He comes back with a sketch, straight-up line-drawing diagram on a computer. ... We released that on Soldier Systems, and people were like, "Yeah, it's a really good idea, you should do that. "

We were like, "F*ck it, we might as well." We didn't have any money, so I continued to work my day job and sold my boat, mobile home, chopper, another motorcycle.

That's when you brought the prototypes to SHOT Show?

MG: We sold 4,000 pairs in about four days. So, we had established a demand for the product, [but] Afghanistan can't make raw materials. ... [Then] Obama announced the end of the Afghan war in 2014, so all the logistics and contracting for the Afghan National Army,

Afghan National Police went over to the Afghans, [who] cut off all the contracts with the factory we were going to use to manufacture our stuff. ...

Then our materials supplier pulled a bait and switch on us. So, Andy and I got some duffle bags and hopped on a plane. We go pick up our footwear, and we start slicing the bags open. All of them were bad — 100 percent. They were beautiful, but it was just bad materials.

What did you do?

MG: We didn't know what to do. My buddy goes, "Hey, you want to go up to [Ahmad Shah] Massoud's house for the weekend?" F*ck it. We might as well get something cool out of this trip. So, we roll up to the Panjshir Valley. We're hanging out with Mouj fighters in Massoud's garden on his martyr day and go to his shrine. We see how hard



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that guy worked to save the country. We're like, "F*ck, dude. What would he do if he had a bad run of flip-flops to deal with. That guy sold sh*t to defeat the Russians. Our problems aren't so bad."

So, you have delivery delays on pre-orders and then another factory fell through, right?

MG: I have a container full of raw materials, [and] at this point, we're six months behind to customers. Andy's a real technical guy. He was like, "Sh*t dude, I'll make them."

We told the supplier in China, "Ship the container to my house." My wife, Michele, sold her car, and I sold everything of value. ... We got in my garage, painted the floor bright green, and put a flip-flop manufacturing facility behind my house.

But you found a Colombian manufacturer for new orders?

MG: We were like, "Colombia, that's kind of dicey. War on drugs." ... [Then we find out we] can deliver higher quality, full-grain leather product out of Colombia, with a shorter transit time. We had our first run in 2013 from Colombia in October.

Are you still making products in Afghanistan?

MG: What we learned is that you have to be able to make a product in country. From fiber to finish, it's got to be made there. ... We asked ourselves, "What can we make in Afghanistan?"

I found this woman, Hassina Sherjan ... She sent us these sarongs, and they were beautiful. We were like, "Hey, can you make some more?" Then it just kind of evolved from there.

... That's when we really started supporting her educational programs. "OK, we want to educate women and employ women. What if you manufacture our product, and we'll pay for a day of school for an Afghan girl?"

And I thought, well, why don't we just do that for everybody?

After a series of manufacturing setbacks, CFF decided to do it themselves. CFF president Andy Sewrey sanded nearly 7,500 flip-flops and got a wicked case of carpal tunnel syndrome doing it.



Griffin atop a shipping container in Seattle in 2013.

G9 CARBINE

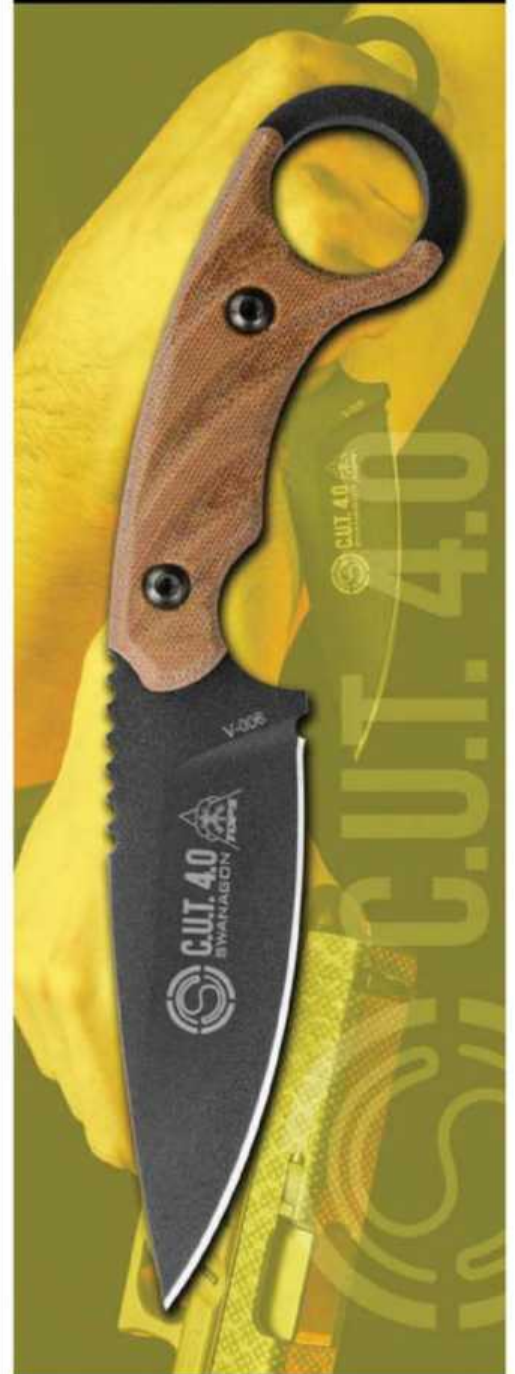
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SHARK TANK

Then, in 2015, you got an unexpected phone call.

MG: It was a Tuesday night at 11:30, and I get a call from Culver City, California. I'm not picking up the phone; it's someone who wants money, right? I listen to the voicemail: "Hey my name is Max Swedlow. I'm with ABC's *Shark Tank*. I read about your company on Gizmodo. Would you like to come on the show?"

I don't watch TV. From what I had seen, it seemed like *Shark Tank* takes startups that could do well and crushes them on national TV. I said to Andy and Lee, "I told them I would think about it."

Lee says, "Are you high? Are you crazy? That's America's No. 1 rated work-related reality TV show."

CFF-embroidered products are sourced from a women owned and operated factory in Kabul, Afghanistan. Each sarong takes roughly six hours in manufacturing to complete — no digital work anywhere.

From left, Matt Griffin, Andy Sewrey, and Jill Doherty prepare product for shipment in CFF's backyard factory in Issaquah, Washington.






So, we started training for *Shark Tank*. We spent hundreds of hours and watched every single episode ... [and] we walked out of there pretty successful.

That was a big gamble, right? You lost time preparing for the show, and then it took a while for the episode to air.

MG: [It was the fall, and] who's selling flip-flops in fall? ... Then, we



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When Griffin isn't trying to save the world with footwear, he's enjoying the mountains of the Pacific Northwest on skis, in hiking boots, or on his mountain bike.

aired. We did more business in 15 hours than we did in all of 2014. In 36 hours, more business than in our entire company history. We grew from a \$300,000 company to a \$1.5 million company.

MOVING FORWARD

What are your plans now?

MG: We've got all the retail partners we want right now. We closed a deal with the Naval Exchange, so we're on the Navy bases. We should have the Army Exchanges closed up here by March [and] the Marine Corps closed up as well. We just got into Cabela's.

How would you describe your role as CEO?

MG: The conductor for the orchestra.

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- › LED Sensor P3 RFS P Flashlight
- › Power Practical Lithium 4400 USB Battery/Light
- › iPhone 6 128GB White
- › RokForm iPhone Case
- › Pentel EnerGize Mechanical Pencil.
- › Sharpie Fine Point
- › Sharpie Extra Fine Point
- › SOG Knife (Model Unknown) Gift from Ranger BN Commander and CSM
- › Glock 19 (no modifications)
- › Syndicate Concealment Guardsman Holster





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MATTHEW GRIFFIN

TITLE:
CEO Combat
Flip-Flops

AGE:
37

EDUCATION:
U.S. Military Academy, West
Point

FAVORITE FIREARM:
Harrington & Richardson/
AAC Handi-Rifle in 300
Blackout

MARRIED:
13 years

CHILDREN:
2 girls

FAVORITE TV SHOW:
I don't watch TV

LAST BOOK READ:
Fearful Odds
by Charles Newhall

LAST FILM WATCHED:
Die Hard (it was Christmas)

FAVORITE SKI:
H2O Gear Kodiak 191cm.
I call them mountain
chainsaws.

What kind of a leader are you?

MG: I really liked [being an officer]. I liked being an enabling leader, giving my guys the ability to go out and execute and perform a mission. What else could you ask for? To be surrounded by a bunch of hyper-motivated, intelligent guys who could bring the fight to the

enemy, develop a plan, train for it, and then go out and execute it within plus-or-minus three seconds? It's great.

I really want to see my people do well and realize their full potential. I know if they work hard, how far they can take themselves, even though they probably don't.

HEARTS, MINDS, AND FEET

Griffin and his daughters in May 2015. His girls put together a birthday hiking trip for him in Stehekin, Washington, one of most secluded spots in the lower 48.



Does your family think you're nuts?

MG: Yes. Everybody does. But I deliver. So, they tolerate it and have stories to tell afterward.

Ever thought about giving up?

MG: What day is it? Yes. All the time.

Is it worth it?

MG: Oh, totally. When people send you photos of little girls holding our sarongs or they're trying the flip-flops, that makes it all go away. Like hell yeah, right? Totally worth it.

Any lessons worth sharing with others contemplating a startup?

MG: Sure. One, fail fast. Fail cheap. Plan for it. Two, have contingencies for everything. Three, cash is king. Four, don't outsource it until you can hand it off to somebody to generate equal or greater returns than you. Lastly, keep swinging. Eventually, you'll knock one out of the park.

How did you know to keep swinging?

MG: It just seemed like whenever we were about ready to go under as a company, something miraculous would happen. I knew it was God's way of saying that, "OK, you've learned your lesson. I'm going to give you a bump, so you can go make your next couple of lessons right." **R**

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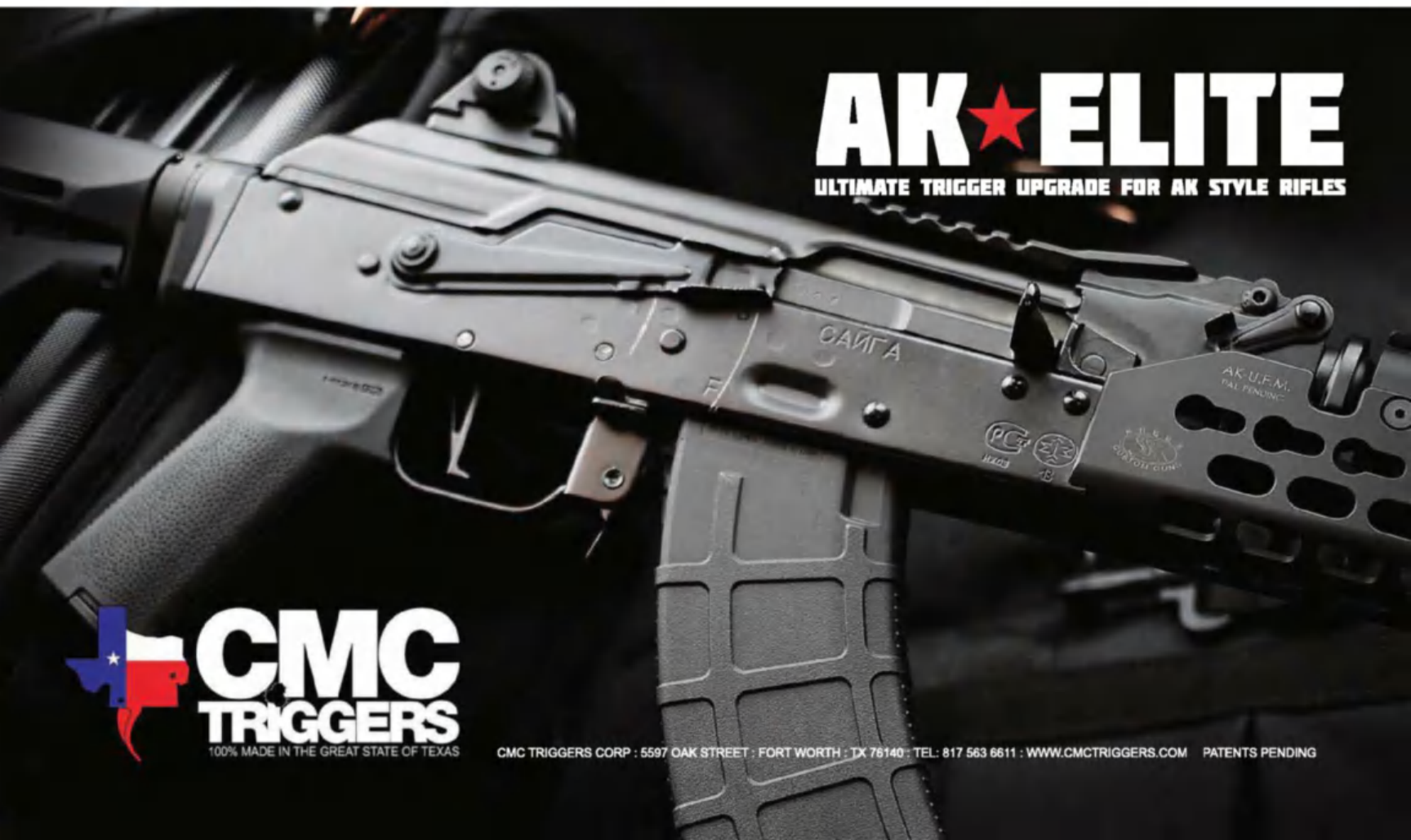


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THE 1919

ONE OF THE BATTLEFIELD'S BEST-KNOWN HEAVYWEIGHTS

STORY BY JAMIE SLAUGHTER
PHOTOS BY TERRA PICCIRILLI

If you call yourself a gun enthusiast and you don't know who John Moses Browning was, you need to find a safe space and decide how you should actually self-identify yourself. John Browning's most famous creation, at least in the United States, is the ubiquitous Model 1911. It's everywhere, and probably within reach of well more than a few people reading this article. The 1911's active service life in military organizations is pretty much over. However, another of Browning's continues to serve — the Model 1919 Machine Gun.

The Model 1919 was essentially an air-cooled Model 1917. It was chambered in the powerful and effective .30-06 round, modernized following extensive ballistic testing in the post-World War I years. Unlike most ground-mounted WWI-era machine guns, the 1919 was air cooled, had a heavier barrel, and was easier to maintain under combat conditions than its water-cooled cousins.

It didn't require all the accouterments of a water-cooled gun, such as a bulky water jacket, water, and a con-

densing can. The 1919 was originally fed by a cloth belt and designed for vehicles—or a very solid (and heavy) tripod. It had a reasonable rate of fire at 500 rounds per minute on average. By WWII, it was the standard U.S. light machine gun, serving alongside Browning's M1917 and the legendary Browning M2 HMG.

Like most of Browning's designs, the 1919 was very reliable for the day and age in which it was produced (insert Glock joke here). It was also apparent early on that the 1919 was versatile.





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By the end of WWII, it was mounted on tanks, in aircraft, and found in various calibers, including .303 British. It served in virtually every Allied army, and if you dig hard enough, you can even find pictures of enemy troops using captured 1919s. It was very effective against personnel, and when loaded with armor-piercing ammunition, it was also effective against thin-skinned armored vehicles.

In the air, the modified M1919 was called the ANM2. This variant was specifically modified for aerial warfare, boasting a blistering rate of fire at 1,200-plus rpm. The improvements in aircraft technology and design during the period meant rifle-caliber machine

guns were only effective when their throw weight could be boosted by increased rates of fire, and by mounting anywhere from two to six of the guns. Feeding them with the most destructive type of ammunition available, generally one form or another of API-T (Armor Piercing Incendiary Tracer), helped.

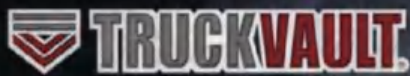
While the ANM2 served valiantly, it was not as effective as its Browning M2 brethren as an anti-aircraft machine gun. In the decade before WWII, fighter aircraft were increasingly fitted with heavier machine guns, generally .50 BMG Browning variants in the U.S., or 20mm (or larger) cannons in Europe. It wasn't the fault of the ANM2 that it was less effective against aircraft; it was the fault

of the ordnance officers who decided to mount it in aircraft in the first place.

In the infantry role, the M1919 was successful within its limitations. Keep in mind the M1919 was designed in an era when the belt-fed machine gun was essentially a static weapon. The exception to this trend at the time was the MG08/15, which was an intentional departure designed specifically to make the infantry machine gun more portable and useful. By WWII, the MG08/15 concept (a highly mobile, portable general-purpose machine gun [GPMG]) evolved into the MG34 and eventually the MG42 in German service. This is where the M1919's combat failings became apparent.

The view from the user's end reveals the 1919's WWI era design heritage.





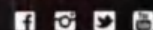
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To all those who have
gone downrange,
we salute you!

Although accurate, reliable, and possessing a good sustainable rate of fire, it was clumsy and awkward on a mobile battlefield compared to the MG34 and MG42. The tripod was large and unwieldy, and it was not always easy to emplace. U.S. troops frequently had to improvise with the 1919, more or less propping it up against or on the WWII equivalent of “a rock or something” when the tripod simply wouldn’t work under the conditions.

As a result, the M1919A6 was developed. This variant added a buttstock and a bipod to the M1919 in attempt to turn it into a light machinegun, more like the MG34 or MG42. However, it was still about a pound heavier than the standard M1919 without the tripod, weighing in at 32 pounds. It was an improvised solution akin to adding a bipod and a buttstock to a boulder. It was still awkward; although it was a bit less unwieldy and more stable, it appeared far too late in the war to have much of an impact.

Again, don’t blame the gun, blame the ordnance weenies.

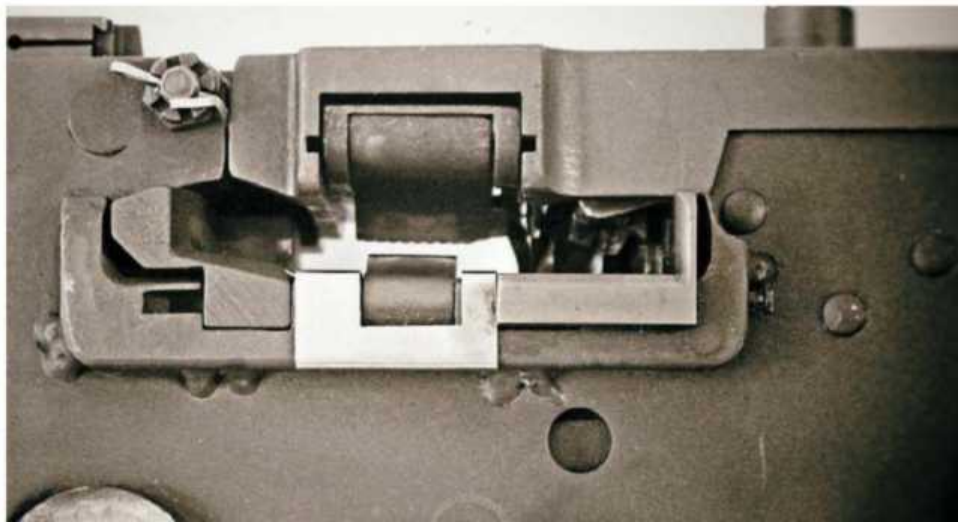
Until the M60 (a less-than-fantastic GPMG, but a product of the “made here” school of ordnance development) was made widely available during the Vietnam War, the U.S. infantry were saddled with the M1919 and M1919A6 combination.

As a vehicle-mounted machine gun, the 1919 excelled. As a matter of fact, it does such a good job it’s still in service in many places across the globe. It’s been modernized, now using disintegrating link belts instead of old-fashioned cloth belts. Most 1919s still in service were converted to 7.62 NATO, as well, to ease the strain on logistics. Notably, however, one 1919 variant, the M37 Coaxial MG, was somewhat notoriously problematic, again mostly because some people just can’t resist fixing something that works.

The 1919 has definitely outlasted the Chevette and the Nova. Good job, GM!

The grip and trigger seem awkward but are very easy to manipulate.

The 1919 is always, always hungry. Feed it as much as possible; it’ll work off the calories.





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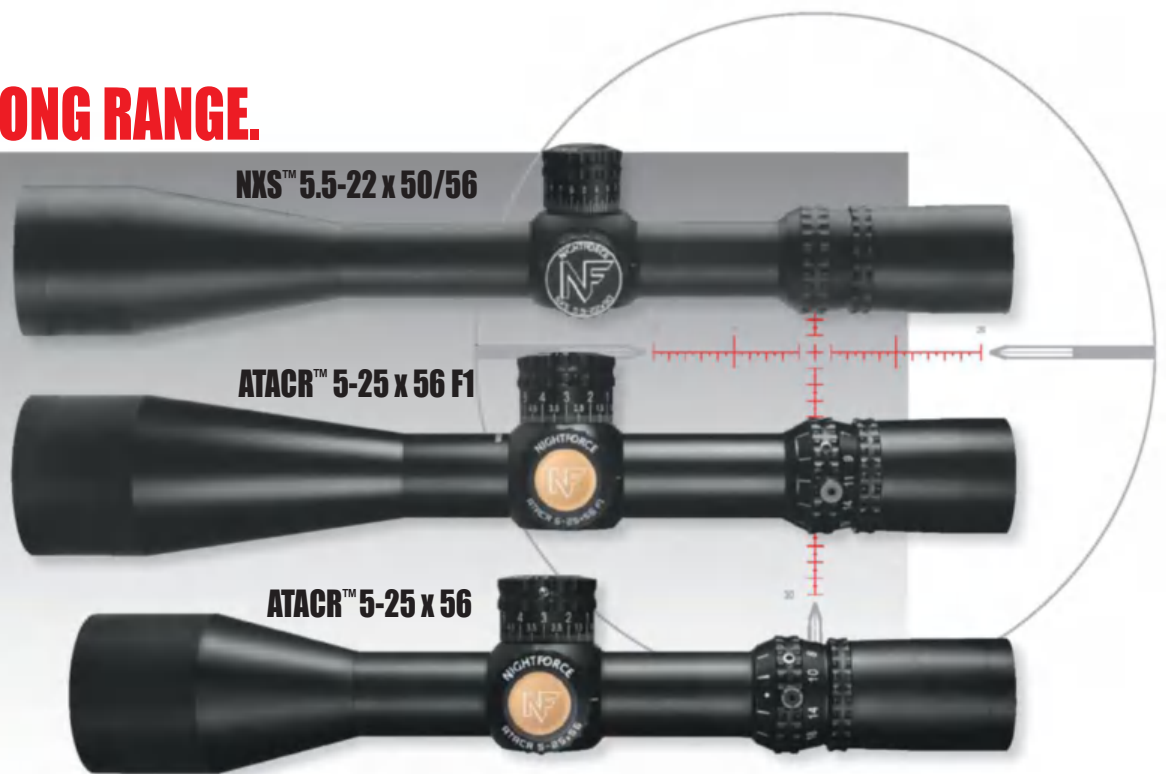


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There have been some interesting variants of the 1919 over the years. Several ANM2s were converted into a variant called the Stinger. The Stinger was basically a scavenged aircraft-mounted gun with a bipod, carry handle, and buttstock. The extremely high rate of fire was welcomed (for the six or so guns which appear to have actually made it into combat),

but the Stinger only served in limited numbers. Its primary claim to fame was being the weapon "Terrible" Tony Stein used during the combat action that earned him a Medal of Honor on Iwo Jima.

If you ever get a chance to fire a ground-mounted M1919, we highly recommend you do so. As it was originally designed, it's accurate,

reliable, and very easy to shoot. As a machine gun for a fixed position, it can easily hold its own against any gun of its era. It's easy to manipulate, strip, and clean, and it's very robust in its most common and most current variant, the 1919A4. However, remember it's almost a 100-year-old design; don't expect it to perform like a modern machine gun. ■

1919A4

CALIBER:
.30-06 or 7.62 NATO
(most common)

OAL:
38 inches

BARREL LENGTH:
24 inches

RATE OF FIRE:
500 rpm, average

WEIGHT:
31 pounds

TRIPOD WEIGHT:
16 pounds



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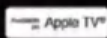
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DON'T RUN AMOK

A CASE FOR STRENGTH TRAINING IN YOUR RUNNING PROGRAM

STORY BY RYNE GIOVIANO

Running is a staple in many tactical training programs — for good reason.

The ability to move quickly over longer distances is often a requirement for surviving combat, as is developing a robust aerobic system.

While getting in the gym to pump iron has its benefits, it can cannibalize your running performance. Plus, adding mass will only worsen any running issues you already have unless you're smart about your training. So, let's talk about that.

STRENGTHEN YOUR JOGGING

Running is very repetitive. This may not be a newsflash, but doing the same thing over and over is a great way to cause overuse injuries if you're not careful. Common injuries for those embarking on a running program include stress fractures, bursitis, plantar fasciitis, and shin splints, to name a few. How can you reduce these types of injuries? We can build a program with exercises that build stability and strength, with benefits carrying over to your running. Let's dig a little deeper into some specifics of strength training that will help you.



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MAKE FRIENDS WITH MULTIDIRECTIONAL MOVEMENT

Running happens only in the sagittal (front and back) plane. Over time, this could lead to poor stability on one leg and a lack of range of motion at the hip joint. Think about it; when

you primarily move in one direction, movement outside of that area won't be as good. And when you lack motion in one area, you'll get it in other areas. So, to avoid injury down the line, we want you to build strength in general, and specifically in the frontal plane (side to

side) and the transverse plane (rotational). This is how athletes train, and you should be no different.

To do this, let's review two different exercises that will specifically get you out of that front-to-back plane of movement.

FRONTAL PLANE (SIDE TO SIDE)

Goblet Lateral Lunge

- › Begin standing with your feet shoulder width apart, holding a kettlebell at your chest.
- › Step out to the side so your feet are about 4 feet apart.
- › While moving away from your stationary leg, sit your hips back and keep your opposite knee straight.
- › Your weight should be in your heel.
- › Push off and return back to the starting position.
- › Complete three sets of eight repetitions per leg.



TRANSVERSE PLANE (ROTATIONAL)

Explosive Standing Cable Lift

- › Start with your feet shoulder width apart, and grab a cable machine rope attachment at the lowest setting.
- › Sit your hips back, then explosively stand tall while bringing the rope across your body and pushing it over your opposite shoulder.
- › Push off and pivot on your foot closest to the machine.
- › Slowly return to the starting position.
- › Complete three sets of eight repetitions per side.



SINGLE-LEG EXERCISES BUILD STABILITY

When you're out running, just like walking, you'll either be on one leg or the other. So, single-leg exercises are extremely important

in any running program. If you're going to take thousands of steps when you go out for a jog, you better believe it's important to be stable. If you're not, any issues you do have will be more and more pronounced. Many knee-related

injuries stem from instability in your hips.

Here, we focus on exercises that, while they look like they're in that same front-to-back plane of motion, still require stability in all three planes, reducing the likelihood of injuries down the line.

ELEVATED SINGLE-LEG SQUAT

- › Start by standing at the edge of an elevated surface, such as a sturdy box or stair.
- › Bear all of your weight on the planted leg.
- › Sit your hips back, reach your arms forward, and lower yourself toward the ground while keeping your other knee straight.
- › Once your heel makes contact with the floor, push yourself back to the starting position.
- › To progress this exercise, stand on a higher surface or put weight in your hands.
- › Complete four sets of eight repetitions per leg.



SINGLE-LEG ROMANIAN DEADLIFT

- › Start in a standing position with a dumbbell in front of your thigh on one side.
- › As you sit your hips back, reach your dumbbell-side leg back behind you. Focus on getting long.
- › Be sure to keep your back flat and focus on hinging at your hips.
- › Once you feel a strong stretch in the hamstring of your planted leg, return to the starting position.
- › Complete four sets of six to eight repetitions per leg.



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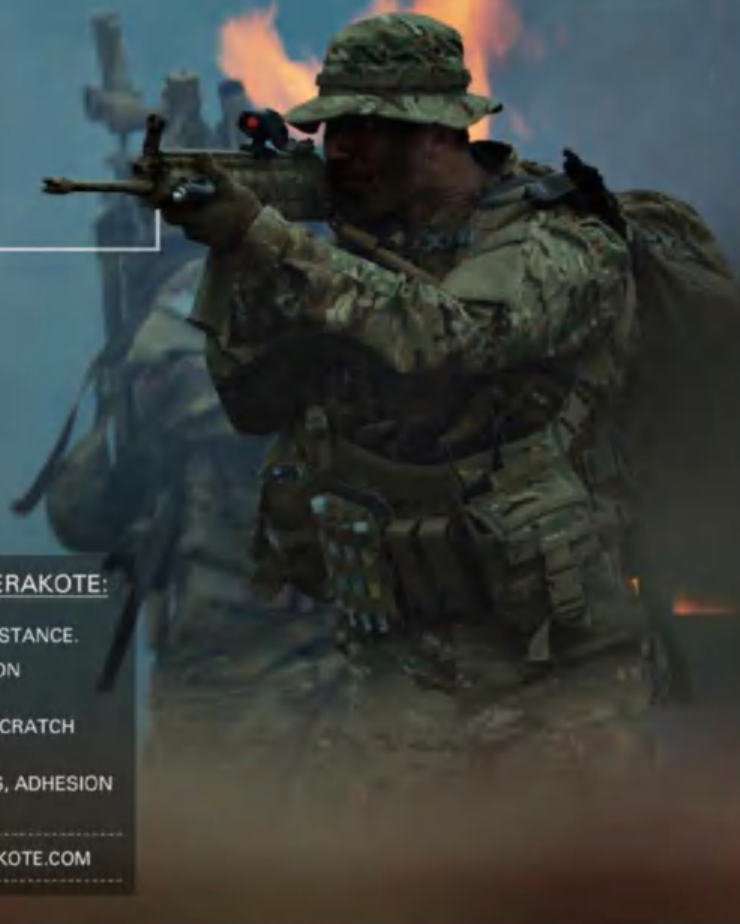
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PLYOMETRICS HAVE THEIR PLACE

Running is basically a repeated series of plyometric repetitions on alternating legs. It's good to build a base of elasticity to protect

against repeated impact-related injuries. While the repetitions aren't nearly the same as going for a run, you'll still build more capacity to make contact and push off with each repeti-

tion, which will most certainly carry over into your running.

Some great examples of these types of exercises include:

BOX JUMPS WITH SINGLE-LEG LANDING

- › Begin by standing in front of an 18- to 30-inch box. The height will depend on your comfort level and ability, so feel free to adjust accordingly.
- › Bring your arms up, then swing them down as you sit back.
- › Swim your arms back up as you explode off the floor and land softly on the box with one leg.
- › Your takeoff position and landing should look identical. If your knees are at your chest, the box is too high.
- › *Step down* and repeat. It's common for people to jump down from a box, which defeats the purpose of a box jump. You might as well jump over a hurdle then.
- › Complete three sets of six repetitions per leg.



LATERAL HURDLE HOP

- › Start by standing on one leg facing 90 degrees away from a hurdle.
- › Similarly to the box jump, swing your arms down, then up as you explode off one leg and jump over the hurdle.
- › Land softly and repeat.
- › Complete three sets of six repetitions per leg.





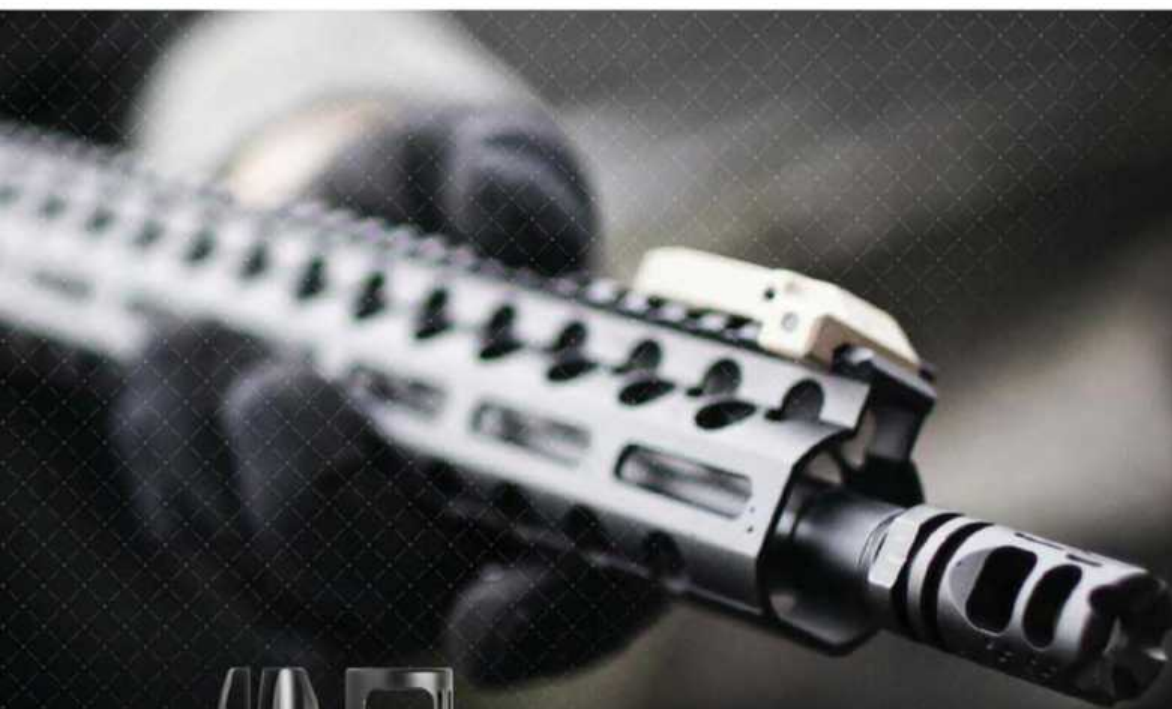
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CORE TRAINING IS CRUCIAL

This doesn't need to be fancy by any stretch of the imagination, but it definitely should be included. Remaining upright for

the duration of your run may not seem like a huge deal, but if you begin to take on longer distances, more stability in the core means better range of motion and movement in your

limbs, as well as better posture throughout the run.

We'll keep it simple with some basic but effective core exercises.

DEEP SQUAT ANTI-ROTATION PRESS

- › Begin in a hip-width stance perpendicular to a cable machine.
- › Firmly hold a handle attachment at your chest. The cable should be adjusted to about shoulder height.
- › While holding a brace and squeezing your butt, exhale and slowly reach your arms forward.
- › Don't allow your body to rotate or move at all.
- › Pause briefly with elbows straight, and slowly return to the starting position.
- › Bonus points for this one as you'll notice it mimics a shooting stance. It's a great exercise to add to your firearms training as well.
- › Complete three sets of eight to 10 repetitions per side.



CORE-ENGAGED STRAIGHT-LEG RAISE

- › Begin by lying on your back with your legs straight.
- › Wrap a band around a sturdy object and hold it firmly in outstretched arms.
- › Flatten your lower back to the floor and straighten your legs.
- › Exhale and slowly raise one leg toward the ceiling keeping your back flat to the floor.
- › Stop once you feel a moderate stretch in your moving leg, and bring your leg back to the starting position.
- › Complete three sets of 10 to 12 repetitions per leg.



CONCLUSION

By using some of these techniques, you'll be much less injury prone when you hit the pavement. Add all of them to your program, and you'll be practically bulletproof. ■

ABOUT THE AUTHOR

Ryne Gioviano is the owner of Achieve Personal Training & Lifestyle Design located in Aurora, Illinois. He earned his master's degree in exercise physiology and is a certified personal trainer through the National Strength and Conditioning Association.

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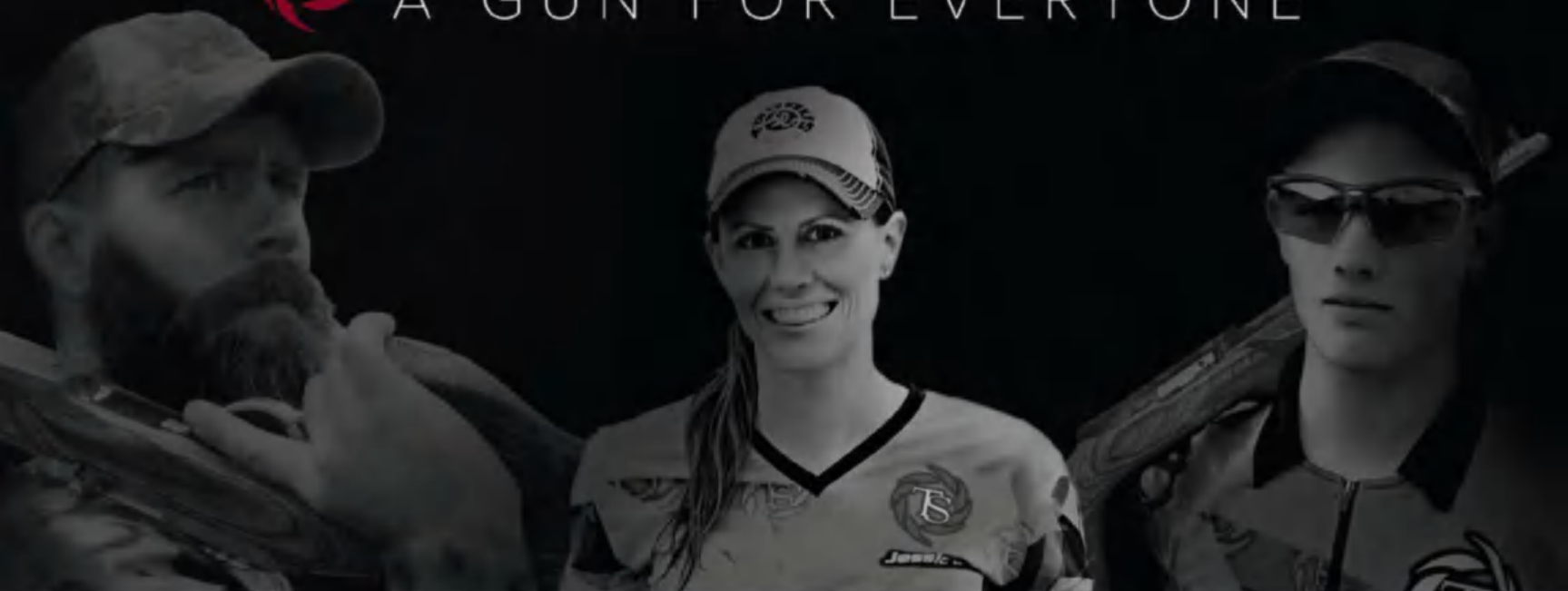
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SHOW US YOUR TATS

RECOIL is starting a new column dedicated to those who've emblazoned their flesh with firearms-related ink. This issue we kick it off with three that belong to our social media editor, David Merrill. All were originally done at Port City Tattoo in Wilmington, North Carolina, in 2006. Listed are the artists' current locations.

KALASHNIKOV

Artist: Matt Beckerich
Kings Avenue Tattoo, NYC

Dave Merrill: I've always been a fan of the AK, even if it isn't my absolute favorite rifle. Delving into the history and development of the rifle was my first great leap into gunnery, and I'll always have a special affinity toward them.

SOLDIER'S GRAVE

Artist: Matt Beckerich
Kings Avenue Tattoo, NYC

DM: Though not strictly a "gun tattoo" it certainly has a rifle as part of the centerpiece. After getting back from a tour overseas, initially I wanted a memorial tattoo specific to some of my good friends who passed. After some consideration on the fact that far more than just my individual friends gave the ultimate sacrifice, I decided on a modern interpretation of the Soldier's Grave to commemorate them all. It's located on my left forearm so I see it every single day.

THOMPSON

Artist: Axel Mercier
Love Hate Social Club, NYC

DM: I got this one done for my grandfather. He only ever had positive things to say about the Thompson and his experience with them during his time in WWII. It seemed fitting.

Got a gun tattoo you'd like to share? Please send some well-lit, high resolution photos to recoil@enthusiastnetwork.com, along with your name, the tattoo artist's name, the studio name and city in which it was done, and 50-70 words on what the tattoo is of and why you got it. By sending in submissions, you grant TEN: The Enthusiast Network the unrestricted, transferable and sub-licensable, irrevocable, royalty-free, world-wide, and perpetual license to reproduce, distribute, publicly display, make derivative works of, and otherwise use the Submissions in any media whatsoever now known or later invented throughout the world for any purpose whatsoever, commercial or not.

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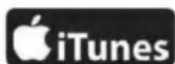


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CENTRAL PNEUMATIC

SUPER COUPON

2.5 HP, 21 GALLON, 125 PSI VERTICAL AIR COMPRESSOR

ITEM 69091/61454
61693/62803
67847 shown

Customer Rating



SAVE \$296

SUPER COUPON

\$149.99

~~\$179.99~~

comp at \$446.61

58216616

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PITTSBURGH

SUPER COUPON

RAPID PUMP® 3 TON LOW PROFILE HEAVY DUTY STEEL FLOOR JACK

ITEM 61282 shown

61253/62326



SAVE \$190

SUPER COUPON

\$199.99

~~\$389.99~~

comp at \$269.99

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HaulMaster

SUPER COUPON



SUPER COUPON

\$7.99

SUPER COUPON

\$19.97

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SUPER COUPON

MAGNESIUM FIRE STARTER

ITEM 69457

65660 shown

SUPER COUPON

\$1.99

comp at \$7.95

58231181

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HaulMaster

SUPER COUPON

72" x 80" MOVING BLANKET

ITEM 69505/62418/66537 shown

Customer Rating



SUPER COUPON

\$5.99

~~\$8.99~~

comp at \$17.97

58302446

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Bunker Hill Security

AMMO BOX

ITEM 63135

61451 shown

SUPER COUPON

\$4.99

comp at \$12.88

58211645

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PITTSBURGH

SUPER COUPON

• 300 lb. capacity

HIGH LIFT RIDING LAWN MOWER / ATV LIFT

ITEM 61523 shown

60395/62325/62493



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\$179.99

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SUPER COUPON

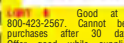
SUPER COUPON

INDUSTRIAL EAR MUFFS

ITEM 43768 shown

60792/61372

Customer Rating



SUPER COUPON

\$1.99

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58320133

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SUPER COUPON

18" MACHETE WITH SERRATED BLADE

ITEM 62113/62682/62683

69910 shown

Customer Rating



SUPER COUPON

\$4.99

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PISTOL

CZ USA @czusafirearms

› P-01

HOLSTER

Alien Gear Holsters @aliengearholsters

› CZ – P01 Cloak Mod OWB Holster

HELMET

Team Wendy @teamwendyl

› EXFIL Ballistic

BELT

Blackhawk

› Loopback Inner Duty Belt

BREACHING TOOL

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Fir Tactical @fir_tactical

› Women's Medium Duty Padded Glove

SHIRT

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› Women's Coldblack Short Sleeve Polo

PANTS

5.11 Tactical @511tactical

› Women's Cirrus Pant

BOOTS

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**BALLISTIC
BREAKTHROUGHS**
SEE HOW FOUR DIFFERENT BRANDS
OF 9MM AND .380 COMPARE

08

**CCW
PISTOL
SHOWDOWN**
DOES THE GEAR
MAKE THE
SHOOTER OR
VICE VERSA?

04

RECOIL's staff turns to Brownells on a regular basis for a lot of our editorial projects. In fact, in a time-crunched, deadline-driven world, they're our go-to source for gun parts when we feel that a test gun could use a little love, or its performance could be improved by the addition of a better component. No surprises there, as they've been supplying professionals and gun plumbers alike since 1939. Recently, they've added firearms and ammunition to their lineup, expanding the one-stop-shop experience of their website.

In this issue, the good folks from Grinnell, Iowa, bring you information to help you pick a defensive handgun. While we all have our own preferences (and mine didn't win in the single-stack shoot off), having data points to narrow down our choices is one way to save a lot of

time at the gun counter or range.

Of course, once you've picked a pistol, you're going to need to feed it. Richard King assembled a bunch of ballistic gel, along with the FBI's standard winter clothing barrier, to see how various ammo loads perform. While we've come a long way in terms of terminal performance, some bullets are definitely better than others, especially when launched from the short barrels of the most popular single stacks.

Finally, Tom Marshall builds a couple of truck guns from off-the-shelf parts, because when you're away from home, having options is never a bad thing when it comes to the ability to project force. Note that if you do choose to carry a long(er) gun in your vehicle, it's never a bad idea to either secure or disguise it, and as luck would have it, Brownells can hook you up there, too.

Iain

How does one differentiate information from advice? Think about the best advice you've received over the years. Chances are that you got it for free because whoever communicated that wisdom to you cared more about putting your best interests first than saying "What's in it for me?" Some might call that approach the Golden Rule, but Brownells just calls it their business model.

While other firearms industry suppliers have come and gone from the scene, Brownells has remained a fixture in the industry because their philosophy is not just to provide people with the best products on the market, it's also to ensure their customers know how to use them. Questions inevitably come up, so unlike some outfits whose commitment to you ends as soon as the receipt gets printed, Brownells prides itself as the resource you can always return to.

When Bob Brownell founded the company in 1939, he recognized an obvious absence of critical information resources. That's why he took it upon himself to spearhead the cre-



Bob Brownell proofing a newsletter, early 1950s.



BEING THE EXCEPTION

VOLUMES OF KNOWLEDGE ... AND THE BEST PART IS IT'S FREE

ation of *The Encyclopedia of Modern Firearms*, the first ever non-military documentation and schematics of all firearms on the market at that time. Why? Gunsmiths and hobbyists had a critical need for reliable information, and nobody else was supplying it.

In the early days, Bob also solicited his newsletter recipients to provide recommendations for common fixes. The result? A series of *Gunsmith Kinks* books that compiled all this information. And yes, these books are still in print, and you can still order them. ("Kink" is a term coined by Bob Brownell for "a new and better way of doing the same old job" that makes a task easier, faster, or more effective.)

However, remaining relevant isn't just about having the right information. It's also important to stay current with the latest platforms to communicate it. So, if you find yourself perusing the "interwebs" for the latest gun products and tech know-how, Brownells provides plenty of viewing material.

With over 1,600 videos on their YouTube channel (www.youtube.com/user/brownellsinc), and new ones added each week, you can watch everything from tips on completing simple tasks to more in-depth topics such as how to Parkerize, how to build an AR-15, how suppressors work, and even historical firearms maintenance. Do you find yourself posting on Facebook more than you talk to your own wife? Check out Brownells' bimonthly Facebook Live events where they entertain viewer questions.

And their insistence on having everything you need at the click of a button doesn't end there. Need online



support? Go to www.brownells.com and use their live chat feature for the one-on-one service you want and deserve. If you haven't clicked on the "Learn" section of their site, you can filter tech articles and videos by make, model, and category of topic. Need a live body to talk to? Brownells' gun techs aren't greenhorns who were put to work after a two-hour seminar. They've got the gray hair, scarred hands, and experience to guide you in the right direction when you have

questions that require proficiency. And they're just a phone call away.

As always, if you don't feel satisfied with what you've purchased, Brownells' 100% Forever Guarantee enables you to return your item, no questions asked. It's all about communication and being hands-on. This approach has endured since 1939. Sometimes people only think of a retailer as a source for products. While that may be true in some cases, Brownells prides itself on being so much more. **G**

Top left: Frank Brownell and Bob Brownell signing *Gunsmith Kinks* books in 1969.

Top right: Brownells gunsmith techline

BY NICK SAITI

There was a time when drivers only had two choices: a car or a truck. But time goes on, evolution does its thing, and automakers herd consumers toward new classes of automobiles that didn't previously exist. Today's plentiful subcategories of vehicles might confuse the masses, but products have also been tailored to perfectly fit individual needs. We now have hybrids, luxury compacts, ESVs, sport luxury midsize crossovers ... and the list keeps getting longer. Meanwhile, we're still at the rental counter trying to figure out the difference between economy and compact class.

Just like automobiles, handguns require increasingly specific monikers and designations to sort them out. The 9mm single-stack carry gun has seen a major

influx as of late. The popularity is for good reason, as these guns are made for deep concealment without sacrificing on caliber. For eons, 9mm was considered an inferior cartridge, but advances in technology have made the little bullet better, stronger, and faster. This class of handgun is the culmination of progress in ammunition development, shootability, and concealability.

So when presented with such a crowded field, how does one go about making an informed carry gun purchase? Aside from trying out a multitude of firearms yourself, you have to narrow down the choices with some empirical data. We decided to pit three single-stack 9mm carry guns against each other until only one is left standing. Picking the prettiest one won't cut it, and it's almost impossible to test the lap times

of a handgun. A couple of basic shooting drills were in order. The basis for the "com-paro" are fundamental skills like the draw, transitions between targets, and recoil management.

THE TEST TRACK

The Bill Drill is shot on one target at 7 yards. The shooter draws the gun from a "surrender" hand position and puts six shots on target as quickly and as accurately as possible. This is our first drill, testing the draw and efficiency of recoil management. The point is not to just pull the trigger as fast as you can, but to track your sights during the six shots and watch them as they lift. The other drill we chose is El Presidente. Like the chicken or the egg argument, this exercise has been around for so many



CCW GUN BATTLE ROYALE

THREE SINGLE-STACK 9MMS GO HEAD TO HEAD



years it's hard to tell which came first — the drill or the gun itself.

“El Pres” is done with three targets set at a distance of 10 yards spaced out laterally with about 1 yard between targets. The shooter starts facing up range, turns, then draws. He or she engages each target with two rounds each, then performs a reload, and engages each target again with two rounds each. For many competitive shooters this is one of the first drills you learn. El Pres, with all its moving parts, might be a bit much for consistent repeatability. One dropped reload and we would have to start over. We decided to use the target setup,

but simplify the drill, instead shooting each target with two rounds each from a normal ready start position. This would still test the draw, repeatable shots, and transitions. We like to stick with the K.I.S.S. Principle.

Keeping track of time is easy enough, but we needed a method to record the points. Since the drills used USPSA-style targets it's only natural to score them accordingly. For those of you unfamiliar with the USPSA system, it uses what's called a “hit factor.” Basically, this number equates to how many points are scored per second. There are four scoring zones on the USPSA target: A is 5 points, B and C are 3 points, and D is

1 point. Add the amount of points scored on the targets and divide that by the time it took to shoot them. The hit factor is not that complicated once you understand it.

THE DRIVERS

Once we had the test tracks set up, we moved on to the drivers. We sought out a range of skill levels to provide more useful results. Our first driver was Stephanie, a mounted police officer with the Phoenix Police Department. As our baseline shooter, she knows how to break a shot, but doesn't get to shoot as much as the others. Next, Aaron is a member of the Phoenix Fire Department,



considers himself an amateur shooter, and gets to the range a little more than the average Joe. Finally, this author is a world-class competitive shooter and instructor.

THE CARS

To get a good baseline of the skill levels involved, we used a pair of “control” guns. Nearly every shooter has at least handled a Glock 17 once in their life. You can’t beat a full-size 9mm. Besides, that was the first gun that fell out of the RECOIL vault. On the other end of the spectrum is the Ruger LCP II, a pocket-sized .380 ACP. The smaller the gun, the more challenging it is to shoot, and the LCP is about as small as you can get. These two guns were brought in to test the difference, if any, between the size of the gun and ability to put rounds on target.

The first test gun is one of the most popular single-stack 9mms. The Smith & Wesson M&P Shield has been selling like hot cakes since its inception a few years ago — and we’ll find out why. The Walther PPS M2 9mm is the new kid. Lastly, a first-generation Ruger LC9 rounded out the comparison.

THIRD PLACE

The only reason the Ruger LC9 came in third is that there were only three test guns. Before the “bashing” begins, note that this particular LC9 is a first-generation model. The importance of this fact is the exact reason it falls to last place. The trigger on this model seems to be a mash up of the worst aspects of a pistol trigger. It’s a double-action trigger, but doesn’t boast the second round strike capability of a true double-action gun. Besides the fact that the pull is longer than a 1970s Cadillac, it doesn’t break cleanly or consistently. The trigger is so lackluster that it overshadowed all of the gun’s potential. To Ruger’s credit it remedied the situation in the LC9s. The “s” designa-

tion stands for striker fired, which takes care of the hammer and the long pull.

The LC9 came in at 17.1 ounces, making it the lightest gun tested. Lightweight is a good thing when carrying all day, and the gun performed flawlessly once you got past the trigger. The LC9 features a magazine disconnect which doesn’t allow firing without a magazine in the gun. The LC9 performs as intended.

SECOND PLACE

Most people think of James Bond when they hear the name Walther. It can be argued that the Walther PPK started the semi-auto concealed carry craze. The PPS M2 is Walther’s latest version of the single-stack compact carry gun. Even though you don’t notice it, the PPS is the fatty of the three, weighing in at 21.3 ounces. A 4-ounce difference isn’t a big deal in the grand scheme of things, but at this weight it’s roughly the same as a Glock 26 with essentially twice the magazine capacity.

The major issue with this gun was the magazine release. When Stephanie accidentally depressed the button during recoil we initially blamed a bad grip, but when it happened to me too there was something worth looking into. The previous version of the PPS had a paddle-style mag release versus the new button on the M2. The M2 lost marks specifically for this reason. It didn’t happen every time, but having to be that aware of your grip position when your life depends on it is not a good thing. Imagine the magazine falling out during a gunfight. “OMG, how embarrassing.”

The fit and finish on the M2 is ahead of the curve. The front serrations on the slide are a plus and look good. The trigger breaks right at 6 pounds. Technically, it’s lightest trigger of the three, but that’s not saying much. Overall, it’s a refined design that would be right up with the best if it would just go on a diet.

MAKE / MODEL / PRODUCT ID# / PRICE

Glock G17 100-300-133 \$500	SMITH & WESSON M&P SHIELD 9MM 100-018-692 \$370
Ruger LC9S 100-300-302 \$380	Walther PPS M2 9mm 100-405-068 \$450
Ruger LCP II 100-023-032 \$300	

FIRST PLACE

The Shield stands tall at the end, not by reinventing the wheel, but by sticking to what works. Besides barrel length and magazine capacity, this is basically a “mini-me” version of a full-size M&P. It lacks refinement and enthusiasm in that it doesn’t seem to be built from the ground up as the other test subjects, but that’s probably why it works so well. My OCD kicked in when the magazine didn’t fit perfectly flush, so if you really want to split hairs the fit could use some attention. Other than that, it’s a home run.

Even though the Shield weighs in at 19 ounces, it shoots and acts like a bigger gun. It comes with the highest capacity of the three: a whopping eight rounds. Recoil on smaller guns is not exactly velvety, but the recoil impulse is the softest of the three. The Shield won almost every test we performed. One can easily see why this is the best-selling gun in the category. It’s a compact carry gun that acts like a full-size. The question to ask at the end is not which gun to buy, but how can I not buy a Shield?

NUMBERS DON'T LIE

After putting the numbers together you can discern a couple of things. First, the times from the full-size Glock 17 and the test guns were not that far off, but the smaller .380 presented a bigger gap in performance. The major downfall of the small gun was retrieving it from deep concealment (i.e. a pocket holster). Putting aside the first shot, the small gun was still more challenging to shoot quickly and accurately. Lastly, it’s definitely the driver, not the car, that makes the biggest impact on performance. Put a great shooter with an inferior gun against a novice with the latest and greatest, and you get the same result over and over again. You can’t substitute great equipment for good range time. **G**

	M&P Shield	Walther PPS M2	Ruger LC9	Glock 17	Ruger LCP II
SPECS					
CALIBER	9mm	9mm	9mm	9mm	.380 ACP
BARREL LENGTH	3.1"	3.18"	3.1"	4.48"	2.75"
TRIGGER PULL	6.5 lb	6.1 lb	6.3 lb	5.5 lb	5.7 lb
MAGAZINE CAPACITY	7/8	6/7	7	17	6
OVERALL LENGTH	6.1"	6.3"	6.0"	8.03"	5.17"
OVERALL WEIGHT	19 oz	21.3 oz	17.1 oz	1.38 lb	10.6 oz
ACTION TYPE	Striker	Striker	DAO Hammer	Striker	SAO Hammer
BILL DRILL					
STEPHANIE	Total time: 4.67 First shot: 2.19 Points: 6a Hit factor: 6.424	T: 3.63 F: 1.98 Pts: 5a 1c Hf: 7.713	T: 7.37 F: 2.05 Pts: 4a 1c 1d Hf: 3.392	T: 3.75 F: 1.67 Pts: 4a 2c Hf: 6.933	T: 9.99 F: 5.53 Pts: 4a 2c Hf: 2.603
AARON	T: 2.79 F: 1.63 Pts: 5a 1c Hf: 10.036	T: 2.78 F: 1.48 Pts: 3a 3c Hf: 8.633	T: 4.68 F: 2.88 Pts: 4a 2c Hf: 5.556	Total: 2.36 First: 1.35 Pts: 5a 1d Hf: 11.441	T: 4.68 F: 2.88 Pts: 4a 2c Hf: 5.556
NICK	T: 2.19 F: 1.09 Pts: 3a 3c Hf: 10.959	T: 2.34 F: 1.14 Pts: 4a 2c Hf: 11.111	T: 2.41 F: 1.15 Pts: 3a 3c Hf: 9.959	Total: 2.45 First: 1.28 Pts: 6a Hf: 12.245	T: 3.24 F: 2.04 Pts: 5a 1c Hf: 8.642
3 TARGET TEST					
STEPHANIE	T: 4.99 F: 2.21 Pts: 5a 1c Hf: 5.611	T: 5.09 F: 1.88 Pts: 6a Hf: 5.894	T: 8.46 F: 2.16 Pts: 3a 2c 1d Hf: 2.719	T: 4.60 F: 1.68 Pts: 5a 1c Hf: 6.087	T: 9.48 First: 4.41 Pts: 2a 3c 1 miss Hf: 2.004
AARON	T: 4.21 F: 1.57 Pts: 3a 3c Hf: 5.701	T: 4.19 F: 1.49 Pts: 6a Hf: 7.160	T: 6.79 F: 2.00 Pts: 4a 2c Hf: 3.829	T: 4.69 F: 1.59 Pts: 5a 1c Hf: 5.970	T: 7.28 F: 3.48 Pts: 2a 4c Hf: 3.022
NICK	T: 2.33 F: 1.09 Pts: 6a Hf: 12.876	T: 2.63 F: 1.39 Pts: 3a 2c 1d Hf: 8.745	T: 2.72 F: 1.24 Pts: 4a 2c Hf: 9.559	T: 2.59 F: 1.31 Pts: 4a 1c 1d Hf: 9.653	T: 3.52 F: 2.12 Pts: 4a 2c Hf: 7.386



Nick Saiti has been a world-class competitive shooter for over 10 years and is a four-division USPSA grand master. As impressive as he is to watch behind an Open Division pistol, he’s currently third in the nation in the sport of three-gun. Considering himself a professional gunslinger, he happily imparts his unique perspective and knowledge teaching at www.secretweapontraining.com.

BY RICHARD KING



Selecting a caliber for the perfect defensive handgun is a topic that some folks could debate for hours. Perhaps you've even engaged in some banter pointing out how calibers the size of lug nuts are superior to rounds resembling your grandma's earrings.

When you go into your favorite gun store to purchase a small pistol for concealed carry, caliber is probably one of the first things you consider. Picking up a pistol chambered in .44 Magnum might make you want to eat

a pound of bacon and yell "Murica!" at the top of your lungs, but if you can't hit a stop sign at 15 yards with it, how useful is it?

Technology has changed drastically over the past 10 years, and so has bullet design. Simply claiming smaller calibers are inferior just won't cut it anymore. In this assignment, we'll examine two of the more popular small calibers, 9mm Luger and .380 ACP. Both are popular choices for citizens exercising their Second Amendment rights, as well a standby option in backup guns for

law enforcement. These calibers are also a good starter caliber for new shooters, since guns chambered in the smaller round often have less felt recoil.

We conducted our ammo tests using two popular CCW handguns, the Glock 42 and Glock 43. Both are small, slim polymer-framed pistols with a single-stack magazine and proven reliability.

We tested four different brands of some of the best-selling ammunition based on sales from Brownells.

DOES DOWNSIZING MAKE SENSE?

JUST WHAT ARE YOU GIVING UP WHEN DROPPING FROM 9MM TO .380 ACP?

BROWNING BXP X-POINT

9mm: 147-grain hollow point with X-Point technology designed to shield the hollow point through intermediate barriers. This projectile has 326 ft-lb of energy, traveling at 1,000 fps.

› \$17.99 for 20 rounds
› \$0.90 per round



.380 ACP: 95-grain hollow point with the same X-Point technology designed to shield the hollow point through intermediate barriers. This projectile has 211 ft-lb of energy, traveling 1,000 fps.

› \$17.99 for 20 rounds
› \$0.90 per round



G2 RESEARCH R.I.P. AMMO

9mm: 92-grain hollow point machined from solid copper with detaching trocars that create nine separate wound channels. This projectile has 327 ft-lb of energy traveling at 1,265 fps.

› \$37.50 for 20 rounds
› \$1.99 per round



.380 ACP: 62-grain hollow point machined from solid copper with detaching trocars that create seven separate wound channels. This projectile has 198 ft-lb of energy traveling at 1,250 fps.

› \$36.40 for 20 rounds
› \$1.82 per round



RUGER ARX

9mm: 80-grain injection molded ARX projectile from a specially blended copper/polymer matrix designed to be tough enough to penetrate soft targets and tissue, but when it encounters tougher barriers it breaks apart to reduce the risk of collateral damage caused by over-penetration. The ARX relies on fluid dynamics to slow the projectile down, rather than expansion. This projectile has 385 ft-lb of energy traveling at 1,445 fps.

› \$19.99 for 25 rounds › \$0.80 per round



.380 ACP: 56-grain injection molded ARX projectile with the same design features as the 9mm version. This projectile has 215 ft-lb of energy traveling at 1,315 fps.

› \$18.99 for 25 rounds
› \$0.76 per round



SIG SAUER ELITE PERFORMANCE

9mm: 147-grain SIG V-Crown Jacketed Hollow Point bullets with a stacked design, featuring a smaller additional hollow point cavity behind the main cavity, providing controlled, uniform expansion. This projectile has 317 ft-lb of energy traveling at 924 fps.

› \$13.99 for 20 rounds
› \$0.70 per round



.380 ACP: 90-grain SIG V-Crown Jacketed Hollow Point bullets with a stacked design featuring a smaller additional hollow point cavity behind the main cavity, providing controlled, uniform expansion. This projectile has 192 ft-lb of energy traveling at 980 fps.

› \$14.99 for 20 rounds
› \$0.75 per round



* Rounds above shown from left, unfired, fired into bare gelatin, fired into fabric pack and gelatin.



TESTING

The FBI ballistic test protocol for heavy clothing was obtained from Buford Boone, former head of the FBI's Ballistic Research Facility. Boone told us to cover a 10-percent gelatin block with four layers of clothing: one layer of cotton T-shirt material, approximately 5.25 ounces per yard (48 threads per inch); one layer of cotton shirt material, approximately 3.5 ounces per yard (80 threads per inch); one layer of Malden Mills Polartec 200 fleece; and one layer of cotton denim approximately 14.4 ounces per yard (50 threads per inch). This simulates typical clothing worn in cold weather. The block is shot 10 feet from the muzzle and the projectile penetration is measured. Acceptable

penetration for the test is no less than 12 inches and no more than 18 inches.

Before testing began, each round was fired into a bare ballistic gelatin block to get a baseline for expansion and penetration. After measurements were gathered, the heavy clothing layers were constructed and attached to the front of the gelatin block and the test was conducted again. The chart to the right shows the findings of each round, at one round per test.

As you can see from the results, maintaining the 12- to 18-inch penetration the FBI protocol requires is tough when heavy clothing is introduced. With hollow point projectiles such as the Browning and SIG, heavy clothing tends to clog the front of the

Round Type	Bare Gelatin	Heavy Clothing
Browning BXP X Point 147gr 9mm	18.5 inches	20.5 inches
Browning BXP X Point 95gr .380 ACP	9.5 inches	25.5 inches
G2 Research RIP 92gr 9mm	14.25 inches	11.5 inches
G2 Research RIP 62gr .380 ACP	9.5 inches	9.25 inches
Ruger ARX 80gr 9mm	14.75 inches	17 inches
Ruger ARX 56gr .380 ACP	13.25 inches	17.5 inches
SIG Elite 147gr 9mm	18 inches	17.5 inches
SIG Elite 90gr .380 ACP	8.75 inches	22.25 inches



barrier it encounters. In this test, that holds true. When the RIP encountered bare gelatin, the trocars forming the outside of the projectile expanded like a flower while the center mass of the projectile continued into the gel. With the addition of clothing, the RIP projectile performed almost identically as in bare gelatin with the exception of penetration.

We noticed the SIG 9mm penetration numbers were pretty close. Upon inspection of the recovered bullet, it looks like the nose of the hollow point didn't get clogged and cause it to over-penetrate. We attribute this to the wizardry hidden in the projectile's V-shaped jacket skives and scores that allowed it to open, even when filled with dense fabric.

We spoke to a retired ammunition developer who previously worked for the United States Army Special Operations Command for nearly five years about the performance of these rounds. He said the FBI's standard for projectile penetration is 12 to 18 inches. Why a minimum of 12 inches?

Well, 12 inches is the *minimum* amount of penetration needed to reliably reach the vital organs that make the human body tick under varying conditions. Eighteen inches represents the maximum amount of desired penetration because, beyond that, all major organs are bypassed and the possibility for collateral damage becomes a greater concern. Generally speaking, .380 rounds are only expected to penetrate bare gelatin 6 to 9 inches, while 9mm rounds are designed to penetrate to the FBI standard of 12 to 18 inches.

Obviously, having a gun is better than having *no* gun, but there's no substitute for training and knowing what the potential legal ramifications are. In that case, caliber is moot. If your particular situation or body type doesn't allow you to carry a larger caliber pistol, then the .380 is better than nothing. Since the .380 doesn't generate as much energy or penetration in general as the 9mm, it's prudent to expect that it'll take

greater accuracy or more rounds on target (or both) to have the desired effect. Shooting until the threat is no longer present, shot placement, the size of your opponent, and your caliber choice all play a part in the outcome of a deadly force encounter. **G**

MAKE / MODEL / PRODUCT ID# / PRICE

- 1 **Glock**
G43 9mm Luger, 6+1 Capacity
100-018-990
\$449
- 2 **Glock**
G42 .380 ACP, 6+1 Capacity
100-300-139
\$399
- 3 **Browning**
BXP Personal Defense 9mm Luger
147GR X-Point
105-000-882
\$18 (20/box)
- 4 **Browning**
BXP Personal Defense 380 Auto
95GR X-Point
105-000-881
\$18 (20/box)
- 5 **G2 Research**
R.I.P. Ammo 9mm Luger 92GR HP
105-000-420
\$38 (20/box)
- 6 **G2 Research**
R.I.P. Ammo 380 Auto 62GR HP
105-000-421
\$36 (20/box)
- 7 **Ruger**
ARX Ammo 9mm Luger +P 80GR ARX
780-002-772
\$20 (25/box)
- 8 **Ruger**
ARX Ammo 380 Auto 56GR ARX
780-002-770
\$19 (25/box)
- 9 **SIG SAUER**
Elite Performance Ammo 9mm Luger
147GR JHP
105-053-353
\$14 (20/box)
- 10 **SIG SAUER**
Elite Performance Ammo 380 Auto
90GR JHP
105-000-329
\$15 (20/box)

bullet and prevent it from expanding. Because the bullet fails to expand it maintains velocity and acts like an ice pick as it travels through the target.

Projectiles like the Ruger ARX that are of a different design don't have expansion cavities to clog up. Rather than traditional expansion, the Ruger ARX relies on fluid dynamics to slow the bullet down. When harder barriers are encountered, the projectile is designed to break up to prevent over-penetration. In this test, the 9mm ARX projectile did just that. Instead of over-penetrating, the tip of the projectile broke up into a powdered substance inside of the ballistic gel.

The G2 Research RIP projectile is designed to fragment, regardless of the type of





BY TOM MARSHALL

PHOTOS BY TOM MARSHALL AND STRAIGHT 8

The idea of “trunk guns” or “truck guns,” however you choose to refer to them, has made a swift resurgence over the last several years. For the uninitiated, the concept revolves around keeping a long gun in the back of your vehicle for situations where pistols are inadequate. From that point, the truck gun discussion takes on all the fervor of any good gun debate. We worked with Brownells to build two sample long guns to explore the theory and potential capabilities of the venerable truck gun.

A TALE OF TWO RIFLES

The idea was to create two separate guns — one for a rural environment, the other for the urban jungle. These guns would be built to do all the things reasonably expected of a gun that lives full time in the back of your vehicle, in their respective environments.

Before we discuss the builds themselves, let’s establish exactly what kind of tasks we think truck guns should be responsible for. In a rural or backcountry environment, truck guns are commonplace. The primer-and-rust-pickup truck with a rifle rack is part of pop culture imagery from the Bible Belt to the Bread Basket. While typically associated with the first day of deer season, these guns may be pressed into service under other circumstances, and we wanted our rural build to be just as capable in those less-desirable scenarios.

If you’re a cattle rancher driving the fence line of your property, and you spot a predator sniffing around the herd, a truck gun may save your livestock. Likewise, you may require a long gun to fend off criminal trespassers. The long gun may also be used for hunting or pest control, via the removal of nuisance animals from the property.

COUNTRY COUSIN

Our version of the rural rifle started with a Howa 1500 action in .223 Remington with a 20-inch barrel. In case you’ve never heard of Howa, they’re rifles manufactured in Japan that have been around for some time. Before you mutter something about “that foreign crap,” let it be known that Howa has produced rifle actions for Weatherby — no slouch in the rifle community. The action on our test gun was buttery smooth with very little play in the bolt, even when left fully open. There is a manual safety just behind the bolt handle, and it clicks in and out of place positively. The trigger shoe is wide, ribbed, and curved. It’s a two-stage affair with an airy 1-pound first stage and a 2-pound second stage. The trigger pops like bubble wrap at 3 pounds and a couple ounces.

The single-stack 10-round magazines feature a front-side release mechanism that we found

BACKSEAT BACKUP

A PAIR OF TRUCK GUNS FOR ON-THE-MOVE SITUATIONS



a little awkward at first, but perfectly usable with a little practice. We dropped the barreled action into an MDT chassis platform. The MDT is a skeletonized, space-age frame that uses standard AR-15 pistol grips and buttstocks. Be warned that the pistol grip interface on this chassis will not accept AR grips that have prominent beavertails on the back side.

We tried several different grips before using the VZ Grips G10 AR grip. This is a straight-backed grip much like the original A2 number, with zero beavertail. It fit like a charm. The buttstock was a Magpul CTR with cheek riser. We topped the whole arrangement with a Vortex 1-6x variable with ballistic matched reticle. While not typical glass for a bolt gun, we thought the 1-6x would balance speed with potential distance requirements. The 6x setting is plenty for layman-sized targets at 200 yards. The whole setup weighed in at 8.5 pounds with a single empty mag inserted.

We shot three different loads through the Howa. First was the Norma TAC 55-grain FMJBT. Then we shot Black Hills 62-grain solid copper TSX. Finally, we ran Federal 77-grain OTM. All three loads are match grade. After our first range trip we attached a Coldwell Bipod. This addition does wonders for when you may not have bean bags or a pack to shoot from. For instance, shooting off the hood of your truck.

Our only gripe was that the barrel seemed to heat up quickly. Within the first two magazines, we were seeing significant heat shimmer in front of the scope. While it's workable, it's not ideal and may throw off less-experienced shooters. However, this gun isn't necessarily intended for prolonged engagements or mag dumps. Overall, it wasn't a huge problem, but worth mentioning.





URBAN DEFENDER

Our second build was decidedly urban in flavor. We wanted a gun that would fit under the front seat of your SUV (admit it ... it's a minivan with pretensions), but still provide fire superiority over a handgun. The situations where a civilian would wind up needing a long gun in a city or suburban environment are decidedly limited. There has been a notable uptick in riots and violent protests around the country. Should you find yourself boxed in while getting from A to B, a sudden need to defend yourself against multiple attackers is not unfathomable. Neither is the idea of illegal checkpoints or hasty ambushes, in a more protracted breakdown of civil infrastructure.

To offer both convenient size and convincing firepower, we chose to build our "long" gun on an AR pistol platform. We wanted to see if we could build an effective Personal Defense Weapon (PDW) without resorting to NFA tax stamps. Our base pistol was a Stag receiver set with an 8-inch barrel and pistol-length gas system. The barrel was topped with a KX3 muzzle device and capped on the back side with a KAK Shockwave blade stabilizing brace coupled with a Law Tactical side-folding adapter.

The trigger is Trigger Tech's new frictionless drop-in bang switch. This single-stage trigger snaps like a glass rod at 3.5 pounds with no perceptible pre- or over-travel.

Our optic of choice was an EOTech XPS-2 featuring Brownells' own "Circle T" CQB reticle. This reticle modifies the traditional EOTech 65MOA ring by replacing the bottom hash mark with a small capital T. If you weren't aware, EOTech's reticle is specifically designed for a 50-yard zero. If you zero your holosight at 50 yards, that 6 o'clock hash mark is "Point Of Impact" at 7 yards for CQB scenarios. The modified Brownells' reticle makes your CQB aiming point all the more prominent. We had never seen this before, but dig the concept.

When folded, the entire package is about 14 inches with no ATF registration required. Did we mention it's also chambered in .300 Blackout? Because most *in-extremis* urban shoots are going to be sub-100 yards (really, they're going to be sub 50-yards) we thought the .300 offered a bit more *oomph* to deal with those pesky intermediate barriers. You know, things like vehicle glass and sheet rock, which are plentiful in city slicker-type environments.

A word to the wise for those who run, or might run, a .300 BLK AR. Ammo selection is critical as the gas system in most .300 weapons can run *either* suppressed or unsuppressed. Most guns cannot do both. If you have an adjustable gas block, the valve or set screw must be dialed in just so in order for the weapon to cycle. If you change bullet weights, or even ammo brands, that adjustable gas block may need to be re-adjusted. After you choose your duty ammo, make sure you run it for a function check.

The bottom of the Law folding adapter has a QD socket, so adding a single-point sling is definitely doable. It's also highly



advised if using this configuration for urban defense. You don't want to have to lay your gun on the ground just to open a door, climb a ladder or treat a casualty. Our test gun didn't have a sling, but the capability is there if you deem it necessary.

Perhaps our greatest learning point with this build was handguard selection. When we built the gun, we used a Brigand Arms Edge handguard, which is made of meshed strands of carbon fiber. On the plus side, this handguard is super light and doesn't seem to hold any heat at all. The bad news is that there are zero mounting points for accessories. As configured, we were unable to run a two-point sling, white light, IR laser, or even backup iron sights. All of those are very good things to have on a gun that's supposed to save your ass in a bind.

We requested a replacement handguard, and received a very nice KeyMod number by Odin Works. Always make sure that when you build a gun, you choose components that will allow the gun to do exactly what you want it to do.

We got little use out of the blade as an arm stabilizer. But it provided an excellent cheekweld and made the .300 Blackout highly shootable. Nobody bruised their cheek or thumped their eye with their face to the brace. Remember, the ATF says you can rest it against your cheek but you cannot shoulder it like a rifle. And, in an emergency, you may be able to "redesign" the brace against your body if you're in a situation where survival trumps following legislation. Of course, we don't advise this.

Regardless of whether you live upstate or downtown, having a truck gun is at least worth considering. It could be an incredible force multiplier for everything from pest control to self-defense. The builds featured here are just two possible options. There are literally thousands of components out there to help you build the perfect piece of backseat backup for your needs. **G**

MAKE / MODEL / PRODUCT ID# / PRICE

300 Blackout

Stag Arms AR-15 Stripped Lower Receiver 100-023-059 \$93	KAK Industry Shockwave Pistol Brace Package 100-020-821 \$95
Rock River Arms Forged A4 Upper Receiver Assembly 739-000-021 \$97	Brownells AR-15 Gas Tube Black Nitride 078-000-331 \$9
Brownells M16 B-Tac Bolt Carrier Group 078-000-328 \$80	Brownells/EOTech CQB T-Dot Holographic Sight 080-000-971 \$525
CMMG AR-15/M16 300 BLK Barrel 100-014-824 \$170	Brownells AR-15 Lower Parts Kit 078-000-330 \$30
Radian Weapons AR-15 Raptor Charging Handle 100-023-416 \$86	Noveske Rifleworks LLC AR-15 KX3 Flash Suppressor 30 Caliber 100-009-319 \$125
Seekins Precision AR-15/M16 Adjustable Gas Block 100-011-244 \$58	Triggertech AR-15 Trigger (3.5 lb.) 100-022-916 \$190
Law Tactical AR-15/M16 Gen3-M Folding Stock Adapter 100-022-522 \$220	Brigand Arms Edge Lightweight Woven Carbon Fiber Handguard 100-022-530 \$251
Magpul AR-15 MOE K2+ GRIP 100-016-408 \$24	

Additional Options

Arisaka Defense Keymod 1" Ring Light Mount 100-016-553 \$45	Surefire G2X Flashlight 152-000-158 \$73
Odin Works Inc. AR-15 O2 Lite Free Float Forend Keymod 9.5-inch 100-022-671 \$181	Magpul MS4 Dual Quick Detach Multi Mission Sling System 100-014-476 \$57

MAKE / MODEL / PRODUCT ID# / PRICE

Howa Bolt-Action Rifle

Howa 1500 Barreled .223 Rem Mini Action (Blued) 100-805-075 \$418
Modular Driven Technologies Howa 1500 LSS Chassis Mini Action 100-022-918 \$400
Magpul AR-15 CTR Adjustable Stock (Mil-Spec) 100-014-416 \$57
Brownells AR-15/M16 Mil-Spec Buffer Tube 080-001-046 \$26
DPMS AR-15 Receiver Extension Castle Nut 231-000-232 \$4
Magpul AR-15 CTR/MOE Cheek Riser 100-004-222 \$19
Warne Mfg. Company Howa Mini Action Scope Base 947-000-267 \$59
Harris S-BRM Bipod Sling Swivel Mount 416-005-100 \$105
TPS Products TSR-W Super Low Picatinny/Weaver Rings 100-020-403 \$106
Vortex Optics 1-6x24mm Strike Eagle Rifle Scope 100-017-320 \$330
Legacy Sports International Howa 1500 Mini Action Magazine 10 Round 100-023-245 \$50

AMMO

American Eagle 300 AAC Blackout 220Gr OTM Subsonic Ammunition 105-000-805 \$23 (20/box)	Norma Tac Ammo 223 Remington 55Gr FMJ 105-000-504 \$10 (20/box)	Team Never Quit Training Ammo 300 AAC Blackout 147Gr FMJ 105-000-469 \$195 (200/box)
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DREAM GUNS[®]

THINK IT,
BUILD IT.[™]



BRIGAND
12.3" BLADE HANDGUARD
100-022-535

FAXON
14.5" PENCIL BARREL
100-802-007

V7
2055 ENLIGHTENED UPPER
100-500-003

V7
2055 ENLIGHTENED LOWER
100-500-002

BATTLE ARMS
SABERTUBE
100-021-002

SUB 4 LBS. AR-15

