





FN's

A Cut Above SCAR

The new selective-fire SCAR rifle platform from FN represents the most sophisticated solution to date for the complex requirements of America's unconventional warriors upon whom the nation relies to be the "tip of the spear." There is also a new semi-automatic-only version available to shooters.

BY MICHAEL O. HUMPHRIES, Field Editor

By any measure, the level of professionalism and training of its members, the sophistication of its tactics and its equipment, or simply its successes, the U.S. military is the finest armed force in the world. And while the majority of the military is made up of conventional forces, the cold, hard realities of today's unstable post-Cold War world demand that some missions employ unconventional forces.

That is where America's Special Operations Forces (SOF) come into play. Often referred to as "the tip of the spear" of our armed forces, they include components from each branch of the U.S. military, and these forces have gained even more recognition since the terrorist attacks of Sept. 11, 2001, synchronizing planning of global operations against terrorist networks.

To help ensure that the SOF groups from each of the branches of the military are trained, organized and equipped in a concerted manner, the U.S. Special Operations Command (USSOCOM) was created just over 20 years ago. Its purpose was to bring all these specialized forces under a single banner.

The 5.56x45 mm NATO/.223 Rem. SCAR 16S is the semi-automatic-only version of FN's Special Operations Forces Combat Assault Rifle being built for the U.S. Special Operations Command. The 16¼"-barreled carbine is fitted here with an Aimpoint Comp ML3 on its integral top rail.



As a result of their radically varied missions, USSOCOM forces employ a broad range of firearms in a variety of chamberings, and some were not fully suited to all tasks. In 2003 USSOCOM approved a Joint Operational Requirements Document (JORD) to search for a new selective-fire rifle. The purpose of the program, titled SCAR (SOF Combat Assault Rifle), was to develop a new rifle “designed for SOF by SOF,” with operator input required in the initiation, generation, testing and selection of the new system.

The requirements called for a system chambered in 5.56x45 mm NATO or 7.62x51 mm NATO (and others in some cases) in a variety of configurations. As a result, the SCAR needed to not only be adaptable to multiple chamberings, but also multiple configurations. Reliability, durability and accuracy were important considerations in the design as well.

In response to the JORD, manufacturers offered submissions to the SCAR trials. Out of these trials emerged an offering from a company well versed in producing firearms for the U.S. military—FN Herstal. “FN won the full and open SCAR competition because we showed up with a weapon that met, and more often exceeded, USSOCOM’s requirements. And this was not just an existing weapon that we tweaked to compete; the FN SCAR was built from the ground up, combining some of the best features from numerous weapon designs all aimed at the primary requirements of modularity, reliability, accuracy and durability,” said Gabe Bailey, FNH-USA’s marketing director for Combat Rifles & Technical Support. In fact, the company, which produces the GAU-21, M16s, M249 and M240 variants for the U.S. military, knows how to produce high-quality firearms to the most stringent specifications. FN has also broken new ground with some of its more innovative offerings, like the top-loading P90 personal defense weapon and bullpup-configured F2000 rifle.

So what exactly is the military’s new SCAR? It is a gas-piston-operated, selective-fire rifle that combines ultra-modern materials with a highly modular design.

There are two primary designs built around their respective chamberings—the MK 16 MOD 0 and the MK 17 MOD 0. They are, respectively, a 5.56x45 mm

The SCAR 16S A Hands-On Evaluation

It’s great to see that FN-USA has made a semi-automatic-only variant of the SCAR (Special Operations Forces Combat Assault Rifle) commercially available. The new carbine is called the SCAR 16S, which denotes it is a 16¼"-barreled semi-automatic. Since Special Operations Command adopted the SCAR in November 2004, it has fueled a lot of speculation and excitement in both military and civilian shooting circles. Special Operations Command wrote its own requirements for a new rifle. The requirements were sound, and the tests were by all accounts thorough and fair.

I will stand second to no man in my love for the M16/AR-15 rifle. As an infantryman in the U.S. Army, I had the

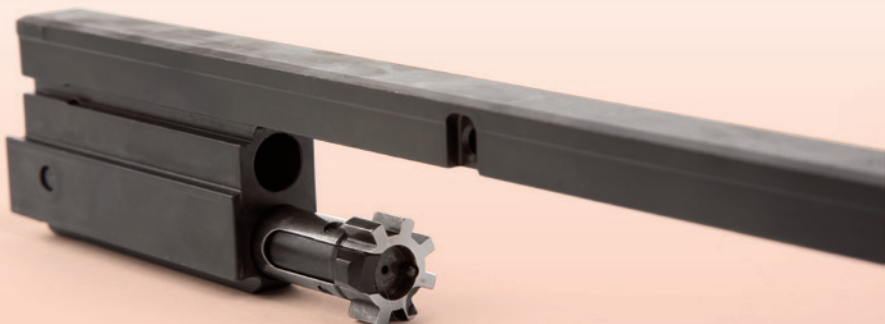
utmost confidence in both the rifle and the cartridge, but the very qualities I cherished most came at a price. The gas system that made it so lightweight and uniquely accurate dumped a lot of carbon fouling and heat back into the receiver. During a live-fire exercise in Korea I shot more than 500 rounds through my M16 in just about a half-hour. By the time I fired 300 rounds, the magazine well was so hot that there was no way I could touch it without wearing a leather shell glove. Moreover, scouring baked-on carbon out of the bolt carrier was always a time-consuming chore, even for seasoned troops who knew every trick in the book.

During my time in the Army, I felt there were a number of guns as good as

the M16, but there really wasn’t anything significantly better. The candidates for the SCAR competition, however, and the winner in particular, have forced me to reassess. Today, the U.S. military finds itself at a crossroads. Aging receivers taxed by the current pace of training and operations have to be retired, and the military faces a choice of whether to buy new M16s and M4s or consider something different. Speaking as someone who carried the M16 for 10 years, the SCAR is a great gun worthy of consideration as a new service rifle or carbine. Now having put the gun through its paces, I’ll explain why.

In examining and shooting the SCAR 16S it’s clear that FNH-USA preserved the blessings of the M16, but washed

Retaining the multi-lug bolt design of the AR-style rifle maximizes the SCAR’s accuracy potential, while the bolt carrier’s mass (20 ozs.) and an adjustable gas system help ensure it seats into battery. A pivoting extractor is on the bolt’s right.



NATO SCAR variant and a 7.62x51 mm NATO SCAR variant. The 5.56x45 mm MK 16 MOD 0 is designated as SCAR-L for “light,” and the 7.62x51 mm MK 17 MOD 0 is designated as the SCAR-H for “heavy.” The SCAR features 98 percent parts commonality within the same caliber and 82 percent between the SCAR-L and SCAR-H. This greatly simplifies maintenance, armorer training, parts supply and logistical support.

As a side note, the “mark” in the system’s designations is due to the fact that the SCAR program’s office is located at Naval Surface Warfare Center (NSWC) Crane Division. “MK” is the military-type designator for U.S. Navy equipment/weapons.

FN designed the SCAR to employ quick-change barrel assemblies so the rifle could be easily customized to particular missions. These free-floated barrel assemblies consist of the barrel, gas block and regulator, 6 o’clock MIL-STD-1913 (Picatinny) rail section, and front-sight assembly.

FNH-USA states that a trained operator can change barrel assemblies on a SCAR in two to three minutes with a pre-set torque wrench. The barrel retention system itself consists of six captive T-25 screws that torque to 62 in.-lbs. Two sets of screws are located within two caps on either side of the receiver just forward of the

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Photo courtesy of FNH-USA

BY GLENN M. GILBERT, Shooting Editor

away many of its sins. Those who shoot AR-style rifles for service or sport will find themselves right at home. The dimensions of the lower receiver are similar to those of the AR-15, as are the location of its controls. The bolt stop paddle, magazine release button and safety lever are in the same places, and the latter two controls are now ambidextrous. The bolt stop paddle is almost identical to that of the AR-15, but the circular magazine release button is taller and wider, so it is easier to find in a hurry.

Major differences include a charging handle that reciprocates with the bolt. The handle can be switched from the left to the right side, so both right- and left-handed shooters can choose whether they want to operate it with either their strong or weak hand. Additionally, the safety lever has a short, 45-degree throw between the safe and fire positions, whereas that of the M16/AR-15 has a longer 90-degree throw. The ejection port has no dustcover. FNH says its design makes it unnecessary. Since I have not shot the SCAR under

The fire-control group of the SCAR 16S is semi-automatic only, and the carbine comes with a 16¼" barrel.



severe dusty or sandy conditions, I am not in a position to argue.

Some have questioned FNH’s decision to retain the multi-lug rotating bolt of the original AR-15 design. In theory, a larger, AK-style bolt head with fewer lugs would be less prone to jamming. In my opinion, the decision to retain the multi-lug bolt maximizes the rifle’s accuracy potential, and the design of the SCAR has a number of mechanical features that help ensure the multi-lug bolt seats consistently into battery. The first beneficial attribute is a two-position adjustable gas port. Rotating the dial on the gas block counter-clockwise one-quarter turn opens up the gas port so consistent energy is directed against the tappet even when the port

is fouled. The SCAR’s bolt carrier, which weighs 20 ozs., also promotes reliability. In contrast, the M16 bolt carrier weighs 12 ozs., while that of the AR-15 weighs just 11 ozs. The extra mass of the bolt assembly combined with the mechanical advantage of the SCAR’s fixed charging handle helps ensure that its multi-lug bolt seats consistently into battery and eliminates the need for M16s’ infernal forward assist plunger.

As one can imagine, these improvements greatly simplify the immediate action drill. In the event of a stoppage, there is no need to tap a separate forward assist after you pull and release the charging handle. Also, as there is no charging handle to pull over the top of

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Photo courtesy of FNH-USA

ejection port. Two forward retention screws are located within the 3 and 9 o'clock Picatinny rail sections.

All SCAR-L barrels chambered in 5.56x45 mm NATO feature six-groove, 1:7" RH twist rifling, while all SCAR-H barrels in 7.62x51 mm NATO feature four-groove, 1:12" RH twist rifling. The barrels are chrome-lined and made from cold hammer-forged steel. They are equipped with a muzzle brake designed to interface with a suppressor.

Both the SCAR-L and SCAR-H feature three barrel assemblies of differing lengths for specific missions. The 5.56x45 mm NATO MK 16 MOD 0 SCAR-L can be equipped with a CQC (close-quarters-combat) 10" barrel assembly, a Standard 14" barrel assembly or an 18" LB (long-barrel) barrel assembly. The CQC configuration makes the gun suited to an urban environment, while the Standard configuration is more like a conventional all-purpose rifle. The LB configuration is suited to a designated marksman rifle (DMR) role.

The 7.62x51 mm NATO MK 17 MOD 0 SCAR-H's barrel assemblies include the 13" CQC barrel, the Standard 16" barrel and a 20" LB barrel, designed for the same roles (PDW, all-purpose and DMR, respectively) as the SCAR-L assemblies. The six configurations—three SCAR-Ls and three SCAR-Hs—are intended to replace a broad array of arms currently in service, as well as fill previously unaddressed roles. Experience has shown that under extreme stress

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The SCAR 16S **A Hands-On Evaluation**

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the stock, one can keep his or her head on the stock when reducing a stoppage, to get the gun back into action that much faster. Another advantage of this construction is its compatibility with an adjustable comb. Naturally, the polymer stock of the SCAR 16S has a two-position adjustable comb, which is no small advantage considering that some optical sights currently available demand the use of tall rings and bases.

Its six-position collapsing stock is indexed on both sides. Compressing a metal release bar on the left-hand side of the stock allows the user to adjust length of pull. Additionally, depressing a half-moon shaped button at the wrist on the left side of the stock allows it to fold against the receiver's right side. A stud on the comb locks into a hook at the rear of the ejection port that doubles as a shell deflector. The hook is just a friction lock, so a sharp pull on the butt of the stock will release it.

The SCAR-16S has a number of sling attachment points. At the wrist of the stock are two vertical sling loops on the left-hand side, and one on the right.

Two more vertical sling loops are fixed to the mouth of the fore-end. Lastly, a horizontal slot runs through the heel of the stock.

The one-piece upper receiver with its built-in handguard is a big improvement over the AR design as well. The built-in rail simplifies gunsmithing. Armorers don't have to install a separate quad rail fore-end and align it with the rail on top of the upper receiver. On top of that, rough handling won't knock the rail out of alignment. This is especially important if one mounts laser sights on the fore-end. The SCAR-16S's 37-position M1913 Picatinny rail runs the full length of the upper receiver—all the way from the gas block to the wrist of the stock. The mounting points are indexed so it is easier to quickly reinstall optical sights without altering zero or eye relief. Also there is no slip ring on the one-piece upper receiver that can create steps and gaps that complicate scope mounting.

The SCAR-16S comes with detachable flip-up iron sights. The rear aperture overlaps the circular shroud



for the front sight—as system first seen on the G3/H&K-91 that aids rapid sight alignment. The front post is detent-adjustable for elevation. Vertical drums located on both sides of the rear sight base provide adjustment for windage, and a horizontal wheel at the foot of the rear aperture indexed from 200 to 600 meters allows adjustment for range.

The cold-hammer forged barrel has a relatively moderate profile. It measures 0.58" in diameter and is 16¾" long. The twist rate is a tight 1:7" so it will stabilize the heaviest bullets available

Except for the bolt-release lever, controls on the SCAR 16S are ambidextrous, and there are numerous sling attachment points (above r.). There are three positions for the gas regulator (above far r.), and a PWS muzzle brake is standard (l.)



The FN SCAR16S breaks down quickly and without tools, unless the user wants to remove the barrel, which will require a pre-set torque wrench. The serial numbered part is the upper, and it has a built-in rail the full length of its top. The AR-style rotating bolt head rides in heavy FNC-style carrier with a reciprocating handle. The side-folding buttstock has six positions for length of pull and a two-position cheekpiece.

SHOOTING RESULTS (100 YDS.)

| .223 REM. CARTRIDGE | VEL. @ 15' (F.P.S.) | ENERGY (FT.-LBS.) | GROUP SIZE IN INCHES | | |
|---|------------------------|----------------------|----------------------|---------|---------|
| | | | SMALLEST | LARGEST | AVERAGE |
| BLACK HILLS 68-GR. SIERRA HPBT (MATCH) | 2554 AVG. 23 SD | 985 | 0.88 | 1.06 | 0.95 |
| HORNADY No. 83278 55-GR. HPBT TAP FPD | 2784 AVG. 19 SD | 947 | 0.73 | 0.92 | 0.84 |
| M855 BALL 62-GR. FMJ | 2908 AVG. 19 SD | 1165 | 1.76 | 2.42 | 2.09 |

AVERAGE EXTREME SPREAD

1.29

MEASURED AVERAGE VELOCITY FOR 10 ROUNDS FROM A 16¼" BARREL. RANGE TEMPERATURE: 61° F. HUMIDITY: 57%. ACCURACY FOR FIVE CONSECUTIVE, FIVE-SHOT GROUPS AT 100 YDS. FROM SANDBAGS. ABBREVIATIONS: FMJ (FULL METAL JACKET), FPD (FOR PERSONAL DEFENSE), HPBT (HOLLOW-POINT BOATTAIL), SD (STANDARD DEVIATION), TAP (TACTICAL APPLICATION POLICE).

for .223 Rem. FNH chose a four-prong double baffle muzzle brake from Primary Weapon Systems. The assembly is attached by means of standard 1/2"x28 threads, so alternate brakes can be fitted, but FNH believes that the SCAR-16S performs best with the PWS brake.

The single-stage trigger of my test gun broke at 6 lbs., 14 ozs. There was no creep, slack or stacking and overtravel was minimal. For accuracy testing I chose a Zeiss Conquest 4.5-14X 44 mm scope. Results in the accuracy table compare favorably with many AR-15-style rifles I've tested in the past. In particular it produced the best accuracy and velocity from M855 Ball that I've

ever seen from a carbine-length barrel.

For function testing I switched to an Aimpoint Comp ML3 with a 4-m.o.a. dot. The SCAR 16S was easy to shoot well. Fast pairs on E-type silhouettes came effortlessly. One interesting note was that when I first started shooting, the SCAR 16S's bolt rhythm seemed to be a bit different than the AR-style rifles I was used to, but after a few magazines that perception disappeared.

Being left-handed, I tried to shoot it without reversing the handle, but it kept brushing against my fingers as the bolt cycled. Needless to say, that problem disappeared after I switched the charging handle to the right side.

FNH-USA SCAR-L

MANUFACTURER: FN-USA (DEPT. AR), P.O. Box 697, McLean, VA 22101, (703) 288-1292; WWW.FNHUSA.COM

CALIBER: .223 REM./5.56 MM NATO

ACTION TYPE: GAS-OPERATED, SEMI-AUTOMATIC CENTER-FIRE RIFLE

RECEIVER: EXTRUDED ALUMINUM UPPER, POLYMER LOWER

BARREL: 16¼", COLD-HAMMER FORGED, CHROME-LINED

RIFLING: SIX-GROOVE, 1:7" RH TWIST

MAGAZINE: 10-OR 30-ROUND BOX

SIGHTS: FLIP-UP FRONT POST DETENT ADJUSTABLE FOR ELEVATION (1 MINUTE CLICKS); FOLDING REAR APERTURE FINGER-ADJUSTABLE FOR WINDAGE (1/2-MINUTE CLICKS) AND RANGE (200 TO 600 METERS), PICATINNY RAIL FOR MOUNTING SCOPE/RED-DOT SIGHTS

TRIGGER PULL: SINGLE-STAGE; 6 LBS., 14 OZS.


STOCK: LENGTH OF PULL, SIX-POSITION ADJUSTABLE IN 1/2" INCREMENTS FROM 14½" TO 11½"; DROP AT HEEL, 1¼"; DROP AT COMB, 1/2", 0" (COMB RAISED)

OVERALL LENGTH: 37½" (BUTTSTOCK EXTENDED) 28" BUTTSTOCK FOLDED

WEIGHT: 7 LBS., 4 OZS.

ACCESSORIES: ONE 10- OR 30-ROUND MAGAZINE, OWNER'S MANUAL

SUGGESTED RETAIL PRICE: \$2,994

From the point of view of the shooting public, the arrival of the semi-automatic SCAR 16S may be long overdue, but it is nevertheless welcome to the party. It has a mixture of the familiar and the exotic. Reliable and accurate, it is easy to see why it is the carbine of choice for our elite troops. 

people revert to ingrained, repetitive movements and maneuvers that are drilled into their memory through training. With SOF currently employing a broad range of firearms with varying controls on operations, this can be a real issue.

However, this is not an issue with the SCAR-L and SCAR-H due to their standardized controls, which are quite similar in placement and operation to that of M16-based firearms. With the SCAR-L or SCAR-H, the operator need only remember one set of standardized controls.

Also, the SCAR is set up to be almost completely ambidextrous, except for the bolt-release lever, which is on the left side of the rifle. The ambidextrous safety selector as set up from the factory features a long paddle on its left side and a shorter paddle on its right side (although they can be reversed). The charging handle, which is located in the upper receiver above the ejection port and also serves as a bolt release and forward assist, is reversible. Also, the magazine release is ambidextrous.

In addition to being collapsible to adjust for length of pull, the SCAR's buttstock assembly also can fold along the right side of the rifle and locks under (and into) the shell deflector at the rear of the ejection port. To further enhance the adaptability of the rifle, the buttstock assembly also features a cheekrest adjustable for height to compensate for differing optics.

One area where the SCAR differs significantly from the M16 family of firearms is in its gas system. Rather than the direct gas impingement system of the M16, the SCAR employs a short-stroke, gas-tappet piston system driven by gas tapped through a port in the barrel and into a gas block just forward of the fore-end. As the gas impacts the piston and drives the bolt carrier rearward to cycle the SCAR, excess gas is expelled forward and clear of the

gun through a gas regulator just below the front sight.

As would be expected, the gas system of the SCAR is adjustable and features three settings—one for when the rifle is suppressed, one for unsuppressed firing and a third disassembly setting. Designed from the beginning to be fired both suppressed and unsuppressed, both the SCAR-L and the SCAR-H cycle at the same rate of fire in either mode—roughly 625 rounds per minute.

Both SCAR variants break down into five major components: upper receiver assembly, moving parts assembly (bolt and bolt carrier), trigger module (lower receiver), buttstock module and magazine.

The upper receiver of the SCAR is extruded aluminum and is the serialized part of the firearm. It houses the complete barrel assembly and features three sections of MIL-STD-1913 (Picatinny) rail at the 3, 9 and 12 o'clock positions on its free-floated fore-end. The top section of rail is uninterrupted the entire length of the upper receiver for maximum flexibility in mounting optics. The lower rail extends back to the magazine well of the SCAR, while the two side rails at 3 and 9 o'clock are 4" long.

Included on the SCAR's upper rail is a set of proprietary FN folding iron sights. The front sight, which is affixed to the gas block assembly, is hooded and is adjustable for windage and elevation. The rear sight, also adjustable for windage and range, has two sight apertures and is removable.

The moving-parts assembly is constructed of steel and is made up of the six-lug bolt, bolt carrier, return spring assembly and reversible charging handle. Of note is the size and bulk of the assembly, which is much like that of the FNC rifle. The trigger module, what many of us would refer to as the lower receiver, is manufactured from composite polymer. It features a removable M16-style

pistol grip and houses the majority of the rifle's controls, including the safety, the bolt release and magazine release, as well as the fire-control parts.

The folding/collapsing buttstock module is also of composite polymer and features 6 positions of adjustment for length of pull with a total range of 2½". The cheek rest can be adjusted up for an added 1/2" of cheek-weld height. On its top rear portion is an ambidextrous sling attachment point, and the rubber buttplate features horizontal grooves.

The magazine of both the SCAR-L and the SCAR-H are of steel, with the SCAR-L version being based on the M16 magazine while that of the SCAR-H is a new proprietary design. SCAR-L magazines are available in 20- and 30-round capacities while the SCAR-H magazine comes in 10- and 20-round versions.

To further enhance the capabilities of the SCAR system, FN also developed the MK 13, a 40 mm single-shot grenade launcher module. Based on the GL1 grenade launcher designed for the F2000 "bullpup" rifle, the MK 13 is a single-shot, pump-action rotary-locking-breech grenade launcher.

Currently, the SCAR rifle system is being deployed in a low-rate initial production phase to USSOCOM, with plans to field them with USSOCOM units this year. Once feedback has been gained from this, a decision regarding full-rate production of the SCAR will be made.

Initial reactions from SOF members have apparently been very positive. "I am really impressed with the operation of the MK 16. I was able to keep it on target while pulling on the charging handle; something that I can not do with my current weapon," said one evaluator. Another, testing the MK 17, stated, "I'm a true believer in this weapon. Although I was skeptical before I fired it, I would take a SCAR-H today."