

Rochester Police Department Emergency Task Force Officer Henry Favor test fires the MARK 23. Notice the Insight Technology LAM or Laser Aiming Module.

# MK23 MOD 0

## THE CREW-SERVED PISTOL

story & photos by **CHRISTOPHER R. BARTOCCI**

The Global War on Terrorism has put to the test many new weapon systems adopted in the post Cold War period. Many of those weapons and tactics had never really been tested in a real combat environment. They worked well in the lab and in testing but never really saw combat until the wars in Iraq and Afghanistan. Small arms were no exception; in fact they would be the first to be put on trial.

The venerable M1911A1 pistol, firing the hard hitting .45 ACP cartridge, was the standard service pistol for the United States from 1911 right up through 1985. The M1911-series pistols were outdated as it would be compared to the modern pistols such as those manufactured by Glock and Heckler & Koch. The M1911-series was a single action semiautomatic pistol that had a magazine capacity of 7 rounds. One of the major issues with the M1911-series was that the last run of pistols was procured by DoD in the 1950s. The pistols were old and in many cases towards the 70s and 80s you would have to take pieces from 5 pistols to make one work. The cartridge had proven itself throughout the last century and came well into the new one. The M1911-series suffered from some severe setbacks including no firing pin safety, not safe to carry loaded, heavy and a low magazine capacity. With the onset of the Cold War, there was another problem; the .45 Auto caliber cartridge did not conform to the new NATO standardization that specified 9mm as the NATO caliber pistol cartridge.

On January 14, 1985, after a very controversial and very thorough testing program, the U.S. adopted its first pistol in more than 70 years.





The M9 would replace all the old and tired M1911 pistols. The new pistol was the Beretta 92F. This pistol was planned to correct all of the deficiencies of the M1911 that included a passive firing pin block and could be carried safely in double action mode yet the hammer could be cocked back to shoot in single action mode. There is a decocking/safety lever and the magazine capacity was double that of its predecessor with carrying 15 rounds of the NATO standard 9x19mm cartridge. However, the champions of the .45 Auto caliber cartridge ran very deep and there were those who would accept no pistol unless it was chambered in the .45 Auto caliber. In 1987, the U.S. Navy stopped procurement of M9 pistols due to “reliability” issues and procured 1,500 SIG Sauer P226 9mm caliber pistols. However, the M9 continues as of this writing as the standard issue military sidearm for all branches of the military and has served with distinction in both theaters of operation with more than 250,000 in service. The Marine Corps requested modifications to be made to the M9 to more closely fit the Corps needs hence the introduction of the

Commercial Off The Shelf (COTS) M9A1. In the spring of 2005, Beretta U.S.A. was awarded a contract for the United States Marine Corps for 3,480 M9A1 pistols along with 6,960 PVD nickel plated improved magazines. There were three main differences. First the addition of a Mil-Std 1913 rail to the front of the frame, second a more aggressive and thick trigger guard and third more aggressive checkering patterns on the front and backstrap of the pistol.

Although the M9 (Beretta 92FS) is the standard pistol, you will find a variety of handguns in the U.S. inventory whether it be by Special Forces or any other unit. These would include Glock, Smith & Wesson .38 cal. revolvers and so on. The first official departure to revert back to the legacy .45 Auto caliber was by MARSOC or the Marine Corps Special Operations Command in 1985. They went back to a M1911A1 (M45) but it was modified for their specifications. The Marines would continue to replace them with updated models in 2005 (Springfield Armory Professional Model) and a new requirement was issued in 2010 for another replacement which have three different manufacturers competing for that contract.

Special Forces at large saw the need for the .45 Auto pistol; they felt that the M9 is an excellent sidearm but did not fit the requirements of Special Forces. In 1986 USSOCOM (United States Special Operations Command) was formed bringing all branches of special operations forces under one central command/umbrella. In 1989 it was realized that the mission of SOCOM would be close quarter battle, operations made with small units in close proximity. Due to the uniqueness of the SOCOM operations they would be permitted to procure their own equipment that would fit the needs of SOCOM. The first commander of SOCOM was General Lindsey. One of his first orders of business was to have a study made of all of the small arms that were in use by SOCOM. Major Gus Taylor was tasked with this study and his finding was

**ABOVE:** Already in development when the solicitation came out for the MK23 was the .40 caliber USP (Universal Self-loading Pistol). This was the baseline and the starting point used by H&K engineers to develop the MK23. **BELOW:** The Phase 1 OHWS shows the original non checkered frame, slide lock for silent suppressed fire, the H&K developed sound suppressor and early attempt at a Laser Aiming Module (LAM).



there were 120 different types/configurations of small arms in use by the different units that make up SOCOM. General Lindsey was very disturbed by these findings. The logistical burden alone in spare parts to maintain so many was a nightmare. With this knowledge General Lindsey tasked Major Taylor to work with all units of SOCOM to develop a plan to replace the wide variety small arms with standardized weapons to be used by all of SOCOM. The first weapon to be developed for unified use by SOCOM would be the Offensive Handgun Weapon System (OHWS). The OHWS was to be the first joint SOCOM weapon. This was not simply because of the importance of the pistol but also it was the most controversial. If the different units could work together and agree upon this program, that would lead the way to a cohesive development of far more critical small arms. The purpose of the OHWS program was to replace the 9x19mm caliber M9/M12 service pistols

a malfunction due to the nature of the threat. Those seconds mean the difference between going home and being KIA. The first order of business was to determine the caliber of the new OHWS. There was without a doubt no question the 9x19mm was to be ruled out. The poor performance/stopping power of a 124gr FMJ NATO round was well documented. At this time a new cartridge was being looked at by the FBI to replace the 9mm, the new and powerful 10mm auto. However, it was just plain to powerful. There were only 3 manufacturers who made pistols in this caliber and a couple of those have a very short service life due to the power of the cartridge so the 10mm was passed over. However, full circle was made and the .45 Auto was chosen. The stopping power of the .45 Auto was undeniable. It had proven this in its more than 70 years of service. It was not perfect; it did not always put a target down in one stop so SOCOM did feel there was room for

weapon system not of M1911 origin.

Next was what the pistol was going to be. Early discussion was to base it off of the venerable M1911-series. This was quickly dismissed for several reasons. First the M1911-series frame would not hold up to the constant use of the new +P ammunition. Just the sheer amount of ammunition shot in training would destroy the pistols. The M1911-series is not designed for use with a sound suppressor and maintain semiautomatic function. To even attempt to modify the pistol to overcome these shortcomings would be far more expensive than starting from scratch. So the decision was a new pistol of modern design. The new pistol would need an improved maritime finish that could withstand being on a SEAL divers hip in the middle of the ocean protecting the weapon from harsh salt water conditions and the new pistol would need a greater mean-round-between-failure than any other pistol in the world.



with a pistol that would fit the requirements of SOCOM. The M9/M12 served very well for its intent, a sidearm for defensive use. They are light, high capacity magazines and have light recoil and have reasonable stopping power. The low recoil and accuracy advantage permitted multiple hits on the target increasing incapacitation probability.

The SOCOM operator has very different needs than the average soldier. Their pistol may very well be a primary weapon, not a back up. The pistol becomes his offensive weapon in case of malfunction or running out of ammunition in his rifle or carbine. This transition would often take place in a firefight when he does not have time to reload or clear

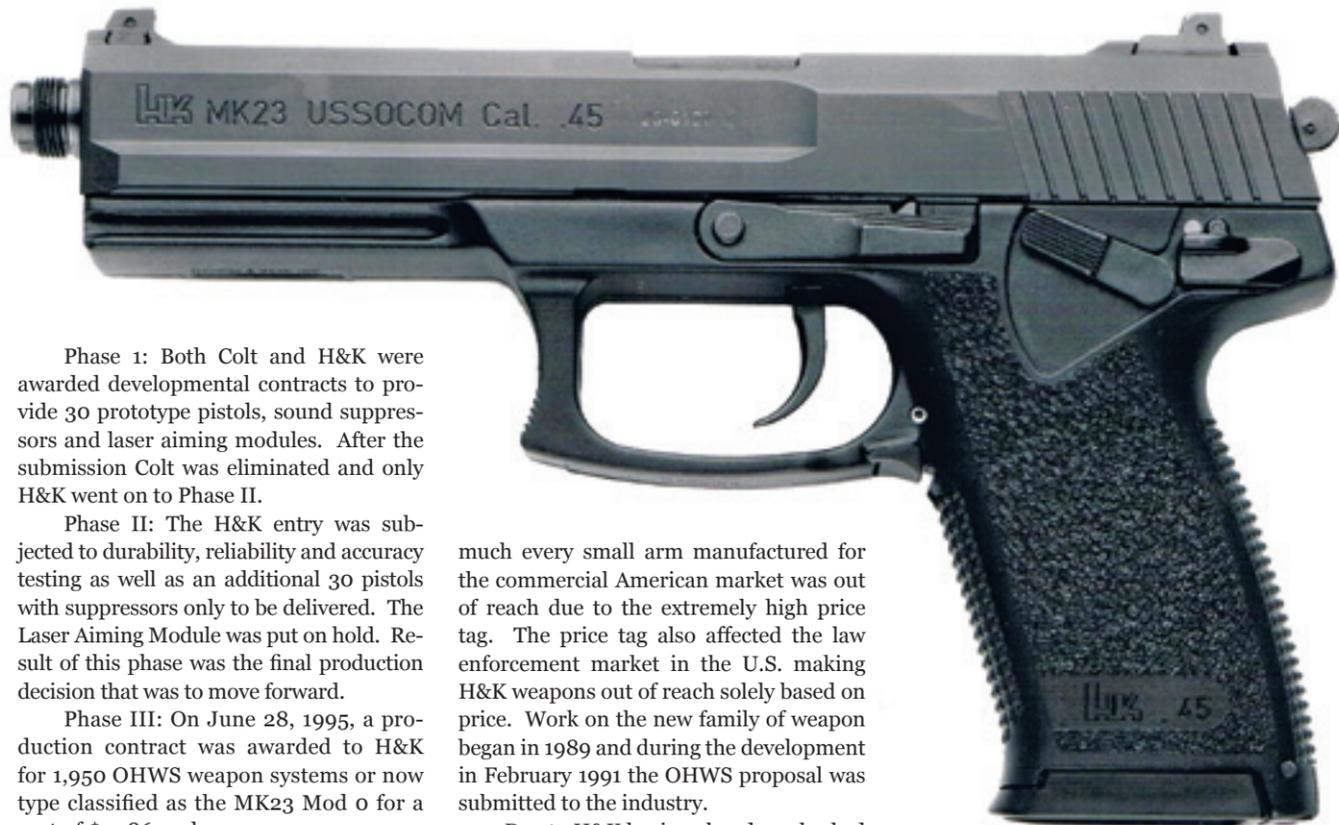
improvement. The solution would be a 185 grain +P load that got SOCOM to where they wanted to be. It was settled, the OHWS would be chambered in 45 Auto. The central requirement around the OHWS was to achieve one-shot incapacitation of enemy personnel at close range and quietly at that. The new pistol would have to reliably be able to fire many different types of ammunition including this new high velocity +P cartridge. This is key in the requirement of the service life of the new pistol. It would need to have a significant longer service life using even this new high pressure ammunition. Tall order since no .45 caliber pistol in service could match this. This was the catalyst for the development of an entirely new

As written in the RFQ (Request For Quote) the OHWS (Offensive Handgun Weapon System) was just that, a system. The system is to be made of a pistol, a sound suppressor and a LAM (Laser Aiming Module). The OHWS could serve as a sidearm but again, it is to be designed as a primary weapon for CQB and sentry incapacitation. The Navy Program Executive Officer for Expeditionary Warfare and their small arms department at Crane, Indiana was decided upon to be the lead agency to solicit, develop, test and procure the OHWS in December 1989. Chuck Zeller was chosen as the Program Manager and was the manager responsible to USSOCOM for research, development, testing, procurement and life cycle sustainment testing of weapon systems.

After testing several designs, in August of 1991, there were two manufacturers awarded developmental contracts for the OHWS pistols: Heckler & Koch and Colt's Manufacturing Company. The developmental stages for the new OHWS would be divided up into three separate stages:

**ABOVE LEFT:** The Phase 2 OHWS has the slide lock removed, new frame with checkered front and backstrap and beveled mag well. This is a second generation H&K designed sound suppressor. **ABOVE RIGHT:** The Phase 3 and final MK23 is equipped with the Knight's Armament sound suppressor and final Insight Technology Laser Aiming Module (LAM). Notice the slide is marked MK23 USSOCOM Cal. .45. The front gripping grooves were also removed. This is the complete OHWS (Offensive Handgun Weapon System) comprising of the pistol, sound suppressor and LAM.

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Phase 1: Both Colt and H&K were awarded developmental contracts to provide 30 prototype pistols, sound suppressors and laser aiming modules. After the submission Colt was eliminated and only H&K went on to Phase II.

Phase II: The H&K entry was subjected to durability, reliability and accuracy testing as well as an additional 30 pistols with suppressors only to be delivered. The Laser Aiming Module was put on hold. Result of this phase was the final production decision that was to move forward.

Phase III: On June 28, 1995, a production contract was awarded to H&K for 1,950 OHWS weapon systems or now type classified as the MK23 Mod 0 for a cost of \$1,186 each.

The timing of this program was most opportune for H&K due to the ongoing development of a new class of modern pistol geared for the U.S. market that came out of the American market. This study was to determine the desirable characteristics of a new family of handguns. The results of the study determined desirable characteristics included reliability, durability, safety, high quality, advanced materials, low recoil, single/double action and perhaps most important for H&K; affordability. Pretty

much every small arm manufactured for the commercial American market was out of reach due to the extremely high price tag. The price tag also affected the law enforcement market in the U.S. making H&K weapons out of reach solely based on price. Work on the new family of weapon began in 1989 and during the development in February 1991 the OHWS proposal was submitted to the industry.

Due to H&K having already embarked on a new advanced family of weapons they had several legs up on Colt. Colt, due to the time constraints, for all intents and purposes threw their OHWS submission together using preexisting technology. They combined the M1911 with features from the Double Eagle and the locking system of their failed All American 2000. The frame was basically an M1911 type frame with a longer grip to accept the 10-round single column magazine. The decocking mechanism was taken from the Double Eagle while retaining the cocked and locked safety of the M1911. Colt chose the rotating barrel locking system of the All American 2000. This proved problematic since you could not attach a suppressor directly to the barrel as the pistol could not function. To deal with this, a separate mounting apparatus was used that attached to a rail in front of the handguard where the suppressor was attached. Colt en-

gineers did not necessarily agree this was the best method but due to time constraints they were limited on what they could design as well as test. This is not saying that if Colt would have had more time the outcome would have been different; however Colt has not then nor since put out a handgun that would have been suitable for the requirements set out in the RFQ. Early on in the planning of the requirement, SOCOM said they did not want an M1911 variant and for the most part that was what they got with the only difference being the barrel locking system. When looking at the requirements SOCOM had, H&K was already working on a new pistol which already had many of those characteristics.

In January 1993, H&K introduced their new family of weapons with the acronym USP or Universal Self-loading Pistol. The first pistol was based on the newly released .40 S&W caliber cartridge. This was a wise move due to the fact that the new caliber was more powerful than the 9mm and the new pistols chambered in this caliber were basically 9mm caliber pistol chambered for the new caliber. Many of the newer .40 caliber pistols being developed by other companies suffered durabil-



**OPPOSITE TOP:** The left side of the finalized MK23 Mod 0 OHWS. **OPPOSITE BOTTOM:** The MK23 breaches the two worlds of combat reliability and match grade accuracy. This is a very difficult task but was accomplished by H&K with this pistol. **THIS PAGE:** Shown is a Phase two MK23 during its testing phases. The MK23 is available to any unit that falls under the umbrella of SOCOM. (Heckler & Koch)



ity and longevity issues. The USP 40 was in fact the first pistol designed around this new caliber and then modified to take the less powerful 9mm caliber. In 1995, H&K would release for the commercial market their UPS 45 chambered in the .45 Auto caliber pistol.

Compared to anything else on the market, the USP was in fact the most advanced handgun design available. It took the advancements of the polymer frame which H&K had extensive background going back to the 1970s with the P9S and VP70Z and gave the customer the double/single action features they wanted and a few more advancements as well. The pistol used a conventional short recoil operation utilizing a modified Browning-type linkless system. The frame was entirely made of a polymer called polymide, which is very light and very strong. The magazine release

was ambidextrous and the magazines were drop free and also made of polymide. One strange departure was the original USP pistols did not use H&K's trademark polygonal rifling but used a conventional lands and grooves system. This would not take long to change; the H&K customers demanded the barrels H&K was famous for. Perhaps the feature that stood out the most and contributed significantly to increasing service life and reducing recoil (30% less recoil) was the patented recoil reduction mechanism. Basically, there are two recoil springs, one that returns the slide forward and one that cushions the impact of the slide into the frame. This is also what makes the pistol shoot high pressure ammunition with little to no consequence. The USP is offered in 10 variants that include double/single with a manual safety, decock only, cocked and locked, and double action only and the per-

tinient in left hand variations as well. The variant 8, the "missing variant" is a U.S. government test sample, essentially a variant 7 double action only.

The MK23 started with the USP concept and in fact shares most of the features with some modifications made that were mandated in the RFQ. The MK23 maintains the passive firing pin block of the USP that requires the trigger to be pulled all the way to the rear before the firing pin is released to strike the primer. There is a separate decocking lever that allows the pistol to be decocked quietly as well as a thumb safety that can be used if the operator chooses to carry cocked and locked. The MK 23 has an overall length of 9.65 inches. The pistol weighs 2.66 pounds empty.

The frame of the MK23 is manufactured from the same polymide as the USP but a larger frame with an oversized trig-

ger guard to accommodate heavy gloves. Due to the requirement for a laser aiming module a rail was added to the front of the frame. The trigger guard is flared to the rear to protect the wings of the ambidextrous magazine release from accidental release of the magazine. When comparing the Phase 1, 2 and 3 H&K pistols you are able to see where modifications have been made as the process went on such as the elimination of the slide lock (so no slide chatter is heard when firing suppressed) that was used on the phase 1 pistol only, change in the checkering on the front and backstrap of the pistol. There were gripping grooves on the front of the slide on Phase 1 and 2, which were eliminated on the final version.

The slide is manufactured from a single piece of steel. The main evolutionary changes in the slide was the omission of forward gripping notches, which were used on Phase 1 and 2 pistols only. Modifications had to be made to the sights due to the large diameter of the sound suppressor. The sights had to sit up higher so they could be used when the suppressor was installed. The sights chosen were tritium night sights. All of the roll pins are nickel plated to insure against corrosion as well as the firing pin. The finish is very unique. It is a lacquer appearing black finish, which is a proprietary maritime finish intended to protect the pistol from salt water emersion and has been tested in salt/fog spray chamber lab testing up to 96 hours. This pistol again was intended for surf and ocean

conditions a SEAL would encounter in his mission. This finish is a three step process beginning with the bare slide being nitro-carborised, second phosphate and coating of the black lacquer to give it the black appearance. Even if the black surface finish is worn off, the slide is still protected.

The barrel, like all other H&K weapons, is manufactured from a cold hammer forging proceeded with polygonal rifling. This rifling has no sharp edges to wear and sports a tighter diameter than a standard barrel providing a better and stronger bullet to bore seal. With no sharp edges there is nothing to wear increasing the barrel life. On top of this, the 6 land and groove bore is chrome plated to further increase life as well as corrosion resistance. The barrel is threaded to accept the sound suppressor and as fitted with a rubber "O" ring that helps to lock the barrel to the slide consistently the same to increase accuracy. This greatly assists in the pistol being able to maintain the requirement of 2 1/2 MOA at 25 yards when in actuality the MK23 far exceeded the requirement with 1.44 inches with many groups under 1 MOA.

The operation requirements for this pistol, it is safe to say the standards for the OHWS, were by far the strictest and most

stringent of any pistol in the world. During Phase 2, the reliability testing could not fall below 2,000 mean rounds between failure. The MK23 averaged around 6027 mean rounds between failure and a maximum of 15,122 rounds between failures far exceeding the requirement. Three pistols were subjected to endurance testing of 30,000 rounds each and after the testing was concluded the pistols maintained the original standard of 2 1/2 inches at 25 meters. The only part needed replacing was the runner "O" ring which has a service life of 20,000 rounds. Environmental testing was nothing short of brutal requiring the weapon to function in temperature ranges from -25°F to 140°F. On top of that was the sat fog spray, covered in mud, frozen in ice as well as sand testing. Most of the testing was conducted with no lubrication on the pistol.

The sound suppressor was part of the RFQ and part of the OHWS. The Phase I sound suppressor was manufactured by H&K. However, the Phase II and III suppressors were manufactured by Reed Knight at Knight's Armament Company. Though a hard pill to swallow, H&K knew that the KAC suppressor was far superior to theirs not to mention it was the one Colt went with. The KAC OHWS sound sup-

**OPPOSITE TOP:** Shown is the commercial MARK23 with the Insight Technology LAM (Laser Aiming Module). **ABOVE:** The MARK23 provided was tested with Pierce Ammunition .45 Auto 230 grain FMJ. This target showed a 1 1/4 inch group at 25 meters. The MK23 breaches the worlds between combat reliability and match accuracy – a very difficult task to accomplish.

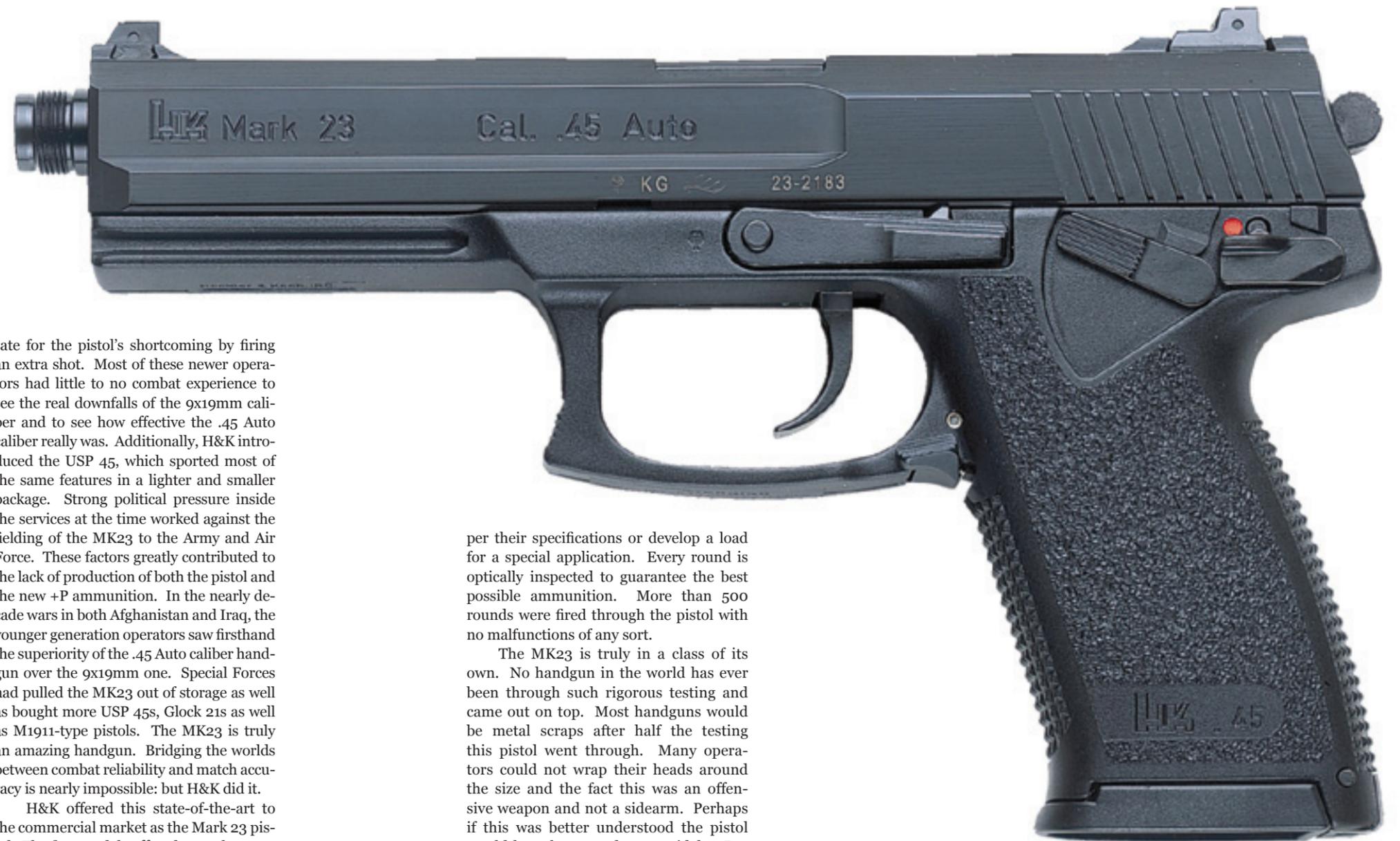
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pressor was designed by Doug Olson who is probably one of the most noted suppressor designers in the industry. The suppressor is manufactured from stainless steel with a Moly resin finish and 1.37 inches in diameter. The service life is an impressive 15,000 rounds. Of course with proper maintenance that number can be much greater. KAC uses the most state-of-the-art robotic welding and wired EDM process to insure gun-bore-to-baffle alignment followed by heat treat/stress relieve. This suppressor will not affect the reliability or accuracy of the pistol. The suppressor delivers more sound suppression if the inside of the suppressor has 5 cc of water in it; this creates additional turbulence thus more sound reduction (dry the suppressor reduces 26 db, wet the suppressor reduces 36 db). The suppressor also works as a very effective flash suppressor as well by reducing muzzle flash by 90% using ball ammo. The suppressor was designed to overcome the normal issue of the weight of the suppressor slowing down the slide velocity which, in semiautomatic short-recoil operated pistols, cause's malfunctions. This was overcome by Olson designing a hollow piston in the rear of the sound suppressor. There is a heavy captive spring surrounding the piston, which is held in place by a threaded retaining ring. The baffles are located in the main suppressor body. What this spring loaded piston does is when the pistol is fired the expanding gases that drives the projectile enters the suppressor and cause over pressure in the suppressor which in turn drives the suppressor body forward and then drives the piston rearward. Due to the suppressor being screwed onto the end of the barrel, it gives the pistol an extra jolt to the rear. This completely alleviates the issues related to slide deceleration. An additional feature of the suppressor is the

ability to adjust the point of impact of the projectile. This is accomplished by having at the rear of the suppressor 10 squared off teeth that lock in with squared off teeth on the pistons cap spring. The suppressed group is moved by rotating the suppressor body one tooth after the other. The position that provides the least suppressed to un-suppressed point of impact difference is recorded. Once this setting is found it never needs to be changed.

The third component to the OHWS is the LAM or Laser Aiming Module. This is manufactured by Insight Technologies. Weighing only 5 ounces, the LAM features a 620 to 650nm visible laser sight that can be manually adjusted to zero at the range of the operator's choosing. There is a 70 lumen halogen bulb as a light source and third is a 810 to 850nm infrared laser. This is used in conjunction with night vision glasses. This would enable an operator to engage targets in total darkness accurately and reliably. The LAM is operated with two DL123A 3V batteries. There is a dial on the left side of the LAM that allows any combination of the features to be used. There is an activation lever that is ambidextrous under the unit and rests under the trigger guard where it is easily activated by the operator.

On June 8, 1995, H&K was awarded the contract for the USSOCOM pistol and designated the MK23 Modo (NSN 1005-01-426-8951). All pistols were manufactured in Germany. On May 1, 1996, the first MK23 pistols were delivered to SOCOM for operational use. Unfortunately, the MK23 program was less than a success although through no fault of the pistol. Due to the size and weight, many of the new operators were brought up with the double tap 9mm training. Carrying more ammunition in a lighter handgun they learned to compen-



per their specifications or develop a load for a special application. Every round is optically inspected to guarantee the best possible ammunition. More than 500 rounds were fired through the pistol with no malfunctions of any sort.

The MK23 is truly in a class of its own. No handgun in the world has ever been through such rigorous testing and came out on top. Most handguns would be metal scraps after half the testing this pistol went through. Many operators could not wrap their heads around the size and the fact this was an offensive weapon and not a sidearm. Perhaps if this was better understood the pistol would have been used more widely. But there is no question the OHWS program was a big success on the mechanical side. It was the political and culture ends that were the programs demise. **SAOJ**

sate for the pistol's shortcoming by firing an extra shot. Most of these newer operators had little to no combat experience to see the real downfalls of the 9x19mm caliber and to see how effective the .45 Auto caliber really was. Additionally, H&K introduced the USP 45, which sported most of the same features in a lighter and smaller package. Strong political pressure inside the services at the time worked against the fielding of the MK23 to the Army and Air Force. These factors greatly contributed to the lack of production of both the pistol and the new +P ammunition. In the nearly decade wars in both Afghanistan and Iraq, the younger generation operators saw firsthand the superiority of the .45 Auto caliber handgun over the 9x19mm one. Special Forces had pulled the MK23 out of storage as well as bought more USP 45s, Glock 21s as well as M1911-type pistols. The MK23 is truly an amazing handgun. Bridging the worlds between combat reliability and match accuracy is nearly impossible: but H&K did it.

H&K offered this state-of-the-art to the commercial market as the Mark 23 pistol. The first models offered were the exact same pistol with the only change being its SAAMI spec chamber. They came with the maritime finish and even a surface finish information card notifying the customer that this finish was "not designed or selected for aesthetic beauty." It is a functional finish designed specifically to protect the weapon from maritime conditions. Later commercial pistols would use the same finish as the USP. Currently H&K still offers the Mark23 in their catalog.

The test and evaluation pistol provided for this article was a later production MARK23. The ammunition used to test fire this pistol was Pierce Ammunition .45 Auto 230gr Ball ammunition. Pierce Ammunition is located in Buffalo, New York and manufacture match grade, military and commercial ammunition. They also will provide custom loads for customers

**OPPOSITE:** The MK23 has a decocking lever on the left side as well as a manual safety enabling the pistol to be carried with the hammer in the cocked position. This lever is ambidextrous. **ABOVE:** Released to the commercial market is the MARK 23 as opposed to the U.S. Gov't. MK23. Only differences are the markings on the left side of the slide and the chamber on the MARK23 is SAAMI spec. **RIGHT:** The MK23 is a combat reliable but match grade accurate pistol. Shown is the pistol field stripped. Notice the recoil spring guide, which has the proprietary H&K recoil reduction system. This reduces both recoil and stress on the frame.

