

H&K SL8-1 SEMI-AUTOMATIC RIFLE



The SL8-1 is a gas-operated semi-automatic that utilizes an indirect impingement gas system and a carbon-fiber reinforced polymer upper and lower receiver. The bolt system, a departure for H&K, is reminiscent of the Stoner-designed AR-18. The design borrows heavily from H&K's new G36 rifle.

Based on the new G36 design, the SL8-1 is a radical departure from H&K's previous semi-automatic rifles in terms of materials, design and operation. The H&K Models 91 and 93 used a unique roller-locking bolt, stamped steel upper and lower receivers and a gas operating system with a long operating rod similar to the M1 Garand and AK-47. In contrast, major and minor components of the SL8-1, save the barrel and bolt, are made almost entirely of carbon-reinforced polymer. The rifle as received has a long Picatinny rail, iron sights, black nylon sling and takedown/sight adjustment tool. A 3X combination electro/optic scope and short rail are available as optional accessories.

The operating system is an indirect gas impingement design reminiscent of the ArmaLite AR-18. This system is well-known for two main advantages, light weight and the limited amount of fouling allowed back into the receiver as compared to other designs.

As this system is set up on the SL8-1, expanding gas from the fired cartridge is tapped through a single port on top of the barrel at a point 10" from the breech. Gas pressure tapped from the barrel is directed

through the steel gas block to impinge on a steel tappet rod/short-stroke piston arrangement above the barrel that unlocks the bolt from the barrel extension. A coil spring wrapped around the tappet rod returns it to its original position.

The six-lug bolt is chromed and locks up in the barrel extension after making a one-quarter turn.

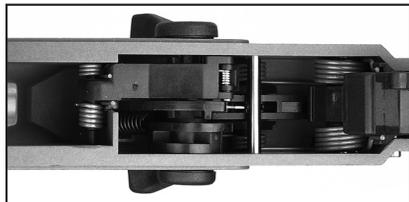


The upper and lower receivers are of carbon-fiber reinforced polymer and are easily separated for cleaning.

Horizontally opposed at the 3 and 9 o'clock positions of the bolt's recessed face are the internal ejector and extractor.

A chromed steel cylindrical cam pin holds the bolt in the parkerized bolt carrier and guides its travel on a beveled, S-shaped track cut into the carrier's left side. The floating firing pin is held in the bolt assembly by a cylindrical steel retaining pin at the rear of the bolt carrier. Its forward movement is controlled by inertia.

The steel bolt assembly slides on a single aluminum rod wrapped with a steel recoil spring. This recoil guide rod and spring pass through the hole in the bolt carrier above the bolt face and below the charging handle. The rectangular bolt carrier does not turn or pivot. Instead, its straight back-and-forth movement is guided by a deep, full-length groove on



The inside of the SL8-1's receiver is reinforced in critical areas so that metal parts bear on metal surfaces to reduce wear.

H&K SL8-1

MANUFACTURER: Heckler & Koch GmbH, P.O. Box 1329, 78722 Oberndorf, Neckar, Germany

IMPORTER: Heckler & Koch, Inc. (Dept. AR), 21840 Pacific Blvd., Sterling, VA 20166-8903; (703) 450-1900

CALIBER: .223 Rem.

ACTION TYPE: indirect gas-impingement operated semi-automatic rifle

RECEIVER: carbon-reinforced polymer
FINISH: external polymer surfaces light gray, exposed metal surfaces dark gray

OVERALL LENGTH: 38.6"

BARREL: 20.8", 0.75" round contour

RIFLING: six-grooves, 1.7" RH twist

WEIGHT: 9 lbs., 2 ozs.

MAGAZINE: 10-round, polymer, single-column

SIGHTS: adjustable aperture metallic sights with Picatinny rail for the attachment of optic sights.

TRIGGER: single-stage, 5-lb. pull

STOCK: carbon-reinforced gray polymer; length of pull 13 3/4"; drop at heel 1 1/4"; drop at comb 1/4"

ACCESSORIES: 10-round magazine, nylon sling, disassembly tool

SUGGESTED RETAIL PRICE: \$1,600

The *American Rifleman* has used the phrase "Dope Bag" at least since 1921, when Col. Townsend Whelen first titled his column with it. Even then, it had been in use for years, referring to a sack used by target shooters to hold ammunition and accessories on the firing line. "Sight dope" also was a traditional marksman's term for sight adjustment information, while judging wind speed and direction was called "doping the wind."

WARNING: Technical data and information contained herein are intended to provide information based on the limited experience of individuals under specific conditions and circumstances. They do not detail the comprehensive training procedures, techniques and safety precautions absolutely necessary to properly carry on similar activity. Read the notice and disclaimer on the contents page. Always consult comprehensive reference manuals and bulletins for details of proper training requirements, procedures, techniques and safety precautions before attempting any similar activity.

each side of the carrier, as well as a round stud at the carrier's top rear and a rail that runs the length of its bottom surface. Each of these surfaces match up with corresponding polymer grooves and rails molded as part of the receiver.

The polymer receiver is molded as one unit and is reinforced with steel inserts at several critical areas including the take-down pin holes and the guide rail for bolt cam pin on the left-hand receiver wall.

The stock/lower receiver assembly and fore-end assembly are carbon-reinforced polymer. On each side of the thumb-hole



The ambidextrous bolt handle lies in line with the bore and is hinged so that it may be rotated to either the left or right side.

stock's center are large hex-screws. Loosening them allows the butt-pad to be removed to accommodate the insertion of shims to increase the length of pull. One 0.37" shim is included with the rifle. The height of the cheek piece can be raised with extra inserts as well.

The teardrop-shaped black polymer safety lever is behind and above the trigger guard. Pushing the lever down lines up the lever with a red "F" for fire. Rotating the lever upward, revealing a white "S" for safe, engages the safety mechanism.

Engaging the safety raises angled surfaces on the polymer trigger extension that block downward movement of the sear so the hammer cannot be released. The hammer is black polymer with a steel insert. The bolt catch is stainless steel. H&K ensured that among the moving parts of the trigger

and safety mechanism, metal meets metal and polymer meets polymer.

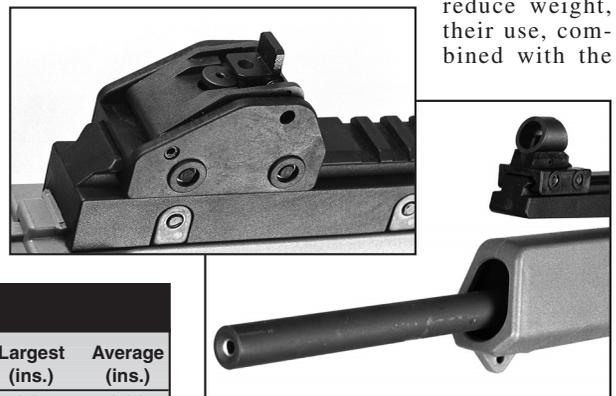
The black polymer button at the top of the trigger well is a bolt stop. Drawing the bolt back and pushing the button upward raises the stainless steel bolt catch to lock the bolt to the rear when the magazine has been removed. It does not act as a bolt release. To release the bolt, simply pull the bolt handle to the rear, then release it.

Just forward of the trigger guard and below the magazine well is the polymer magazine release lever. The top of the spring-loaded lever retains the magazine by fitting in to a corresponding beveled notch on the rear of the magazine body. Pushing the lever forward rotates the top of the lever out of the notch and allows the magazine to drop free. The bolt handle is completely ambidextrous. Although the rubber-coated handle normally lies in line with the bore, where it is out of the way, it is hinged so that it can be rotated to the left or right to suit the shooter's preference.

Molded as a separate piece, the magazine well can be removed for maintenance and cleaning. The SL8-1 utilizes a detachable, 10-round, single-column, translucent green magazine. The magazine's walls, feed lips, floor plate and follower are all molded from polymer.

A black polymer Picatinny rail runs from the rear of the upper receiver to the end of the fore-end. It is attached to the receiver with two, large, steel Phillips-head screws at the rear and one at the front. Grooves along the top of the rail allow for a maximum sight radius of 17.5" with the supplied iron sights or the attachment of optic sights with Weaver-style rings.

The rear sight assembly is polymer and comes with two flip-up apertures for 100 and 300 meters. The front sight is a fixed, black polymer post surrounded by a ring. The unit is attached to the front of the SL8-1's long Picatinny rail.



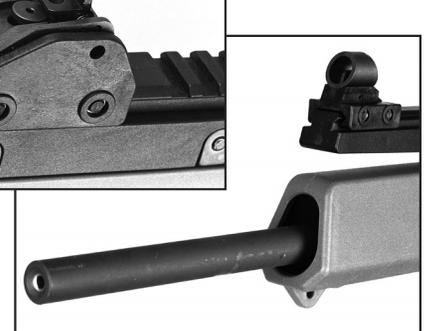
The six-lug bolt is a rotating design similar to the that of the AR-18. It travels back and forth within its steel carrier.

The 20.8" long, round-contoured barrel is cold hammer forged from carbon steel to a uniform 3/4" diameter and is covered with a Parkerized finish. The bore has six well-defined lands cut in a right-hand 1:7" rifling twist. A dished, recessed crown protects the muzzle. And like the bolt, both the bore and the chamber are chrome-lined for durability.

The barrel and gas system are protected by a substantial one-piece fore-end assembly made from the same carbon-reinforced polymer as the receiver and stock. The fore-end is attached to the receiver by a horizontal take-down pin at the top while the lower sides have U-shaped recesses that mate up with corresponding round projections on the side of the receiver. The barrel is entirely free-floated.

During function testing, the single-stage trigger broke cleanly with limited take-up and no stacking at 5-lb. pull. There were no malfunctions of any kind. While the 1:7" twist would seem to promise potential with the heaviest .223 Rem. projectiles available, the manual recommends bullet weights of 50 to 70 grs. Previously tested H&K rifles have proven to be among the most accurate semi-autos available and the 1.1", five-shot groups produced by SL8-1 at 100 yds. prove that it is no exception.

The only complaint testers voiced is the rifle's bulk. While polymer components reduce weight, their use, combined with the



Picatinny rail and the legally mandated thumb-hole stock all add up to a bulky firearm. That said, it is generally easier to shoot well with a large rifle as opposed to one that is a compact. For those in search of a reliable, accurate semi-automatic rifle in .223 Rem. with ambidextrous controls for practical rifle shoots, three-gun matches or with the right ammunition, varmint hunting, the SL8-1 is an obvious choice.



SHOOTING RESULTS

.223 Rem. Cartridge	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
Federal 69-gr. HPBT	2560 Avg.	1004	2.8	0.93	1.25	1.04
Gold Medal Match GAM	22 Sd					
Remington 62-gr. HP Match R	2595 Avg.	927	2.3	0.98	1.38	1.13
	29 Sd.					
Black Hills 52-gr HP	2896 Avg.	969	2.2	0.71	1.02	0.87
	23 Sd					
Average Extreme Spread:				1.01		
Measured average velocity for 10 rounds from a 20.8" barrel. Range temperature: 80° F. Humidity: 66%. Accuracy for five consecutive, five-shot groups at 100 yds. from a sandbag rest. Abbreviations: Sd (standard deviation), HP (hollow-point)						

RUGER ALL-WEATHER

RED LABEL



Ruger's new stainless steel All-Weather Red Label over-under shotgun is rugged enough to handle considerable abuse and nearly anything Mother Nature can dish out. Unlike previous Red Labels, the All-Weather has stainless steel barrels and a Rynite buttstock and fore-end.

Ruger's newest addition to its Red Label line is impervious to the elements thanks to its construction of stainless steel and synthetic materials. The Ruger Red Label shotgun has been fully and enthusiastically covered in *American Rifleman* since its introduction in 1977. The new All-Weather version is quite similar in mechanics to previous versions, and a detailed description of the gun is omitted here for that reason.

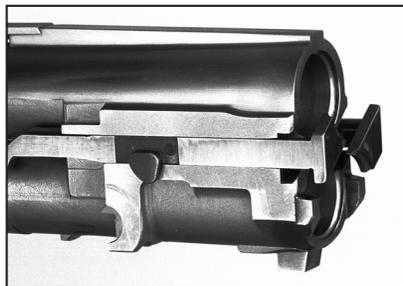
At the heart of the All-Weather is a matte-finished, box lock action that is investment cast of 400 series stainless steel. The receiver is entirely businesslike with no engraving or ornamentation as befits a gun made to hunt hard in adverse conditions. The tang-mounted, automatic safety also functions as the barrel selector, and the smooth, stainless steel trigger is a single, selective, mechanical unit. Coil springs power the hammers and automatic ejectors are selective and easily converted to extractors. The stainless steel barrels are backbored, chambered for 3" shells and threaded for screw-in choke tubes. They are



Inside, the All-Weather is all Red Label. Operating parts are primarily of stainless steel, so the inside of the shotgun is also impervious to the elements.

joined at the breech end by the monobloc that incorporates trunnion bearings on which the barrels pivot. Bolting lugs extend from the rear of the monobloc just above the boreline of the lower barrel. The monobloc also incorporates a solid section of the cross-grooved, ventilated top rib and a rectangular lug that engages a hole in the bottom of the frame to eliminate any sideplay of the barrels. What appear to be side ribs are actually removable, metal filler strips. They serve no purpose other than to keep debris from between the barrels and maintain the classic appearance of the gun. They may be easily detached by removing two screws from each of the filler retainers between the barrels behind the fore-end tip.

Stock material is a black synthetic with molded-in checkering of about 16 lines per inch. It is fitted with a stainless steel grip cap and fore-end latch and a 1"-thick, solid, black rubber recoil pad. Small Ruger escutcheons in gold are inlaid in the grip cap and fore-end. Thanks



The Red Label is built on the monobloc principle. Bolting lugs extend from the rear above the bore line of the lower barrel.

ALL-WEATHER

MANUFACTURER: Sturm, Ruger & Co., Inc. (Dept. AR), 200 Ruger Road, Prescott, AZ 86301-6181; (520) 541-8820

GAUGE: 12, 3"

ACTION TYPE: over-under box-lock

RECEIVER: investment cast 400-series stainless steel

FINISH: brushed, matte, natural stainless steel

OVERALL LENGTH: 43"

BARREL: 26" (tested), 28", 30" stainless steel, backbored

WEIGHT: 7 lbs.

SIGHTS: single, gold front bead on stainless steel, ventilated rib

TRIGGER: single, selective, mechanical, 5-lb. pull bottom barrel, 6-lb. pull top barrel

STOCK: molded, black, synthetic with 1"-thick, solid, black, rubber recoil pad; stainless steel grip cap; gold Ruger escutcheons in grip cap and fore-end; length of pull, 14 1/2"; drop at heel, 2 3/8"; drop at comb, 1 3/8"

CHOKE SYSTEM: interchangeable, screw-in choke tubes

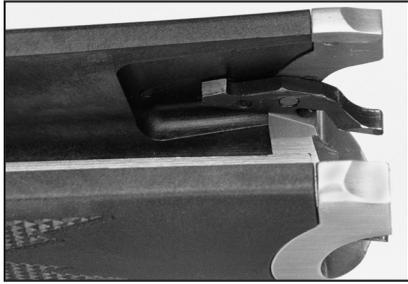
ACCESSORIES: five choke tubes: full, modified, improved cylinder and two skeet; choke tube key

SUGGESTED RETAIL PRICE: \$1,276-\$1,415



Unlike all Ruger Red Labels we have tested in the past, the All-Weather variant's point of impact was very near point of hold.

to the tight molding tolerances, the Ruger's synthetic-to-metal fit, while not perfect, rivals the wood-to-metal fit of many high-end wood-stocked guns.



Fit between the metal and synthetic stock and fore-end was better than many wood-stocked guns we have recently tested.

The Ruger All-Weather Red Label was patterned with the results shown in the accompanying table and was test-fired on hand-thrown clay targets with Remington field loads and PMC target loads. We also fired the gun on a Sporting Clays course and at released ducks. There were no malfunctions of any kind. Ejection was positive and the targets and ducks hit easily. Unlike all other Ruger Red Label shotguns we have tested previously, the All-Weather's point of impact was very near our point of hold.

But is a stainless shotgun that great an advantage in the field? It could be if you hunt over salt or brackish water where salt spray can rust a gun before your eyes. Aside from cosmetic flaws, rust can also cause mechanical malfunctions. One staffer here recalls a duck hunt years ago when the salt spray was so intense that he could set a shell on the edge of his blind and watch it rust. He missed doubling on a pair of pintails that morning because the surface rust on a shell he just fired locked with the surface rust that had formed inside the chamber and hopelessly seized his pump-action shotgun.

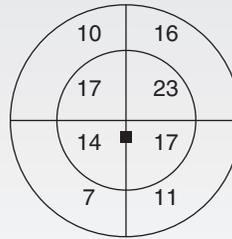
As for its appearance, the Red Label All-Weather's brushed, matte finish doesn't reflect any more light than a highly polished

blued gun. We would have preferred a sand-blasted metal finish to reduce reflection even more. If you're a hard-core waterfowler who hunts in harsh conditions, Ruger has delivered an all weather over-under shotgun rugged enough to handle considerable abuse and nearly anything Mother Nature can dish out.

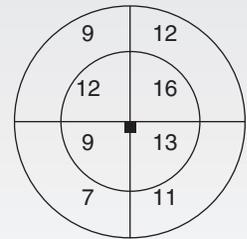


SHOOTING RESULTS

AVERAGE OF 10 PATTERNS AT 40 YDS.



Modified Tube



Improved Cylinder Tube

■=Point of Hold

Federal No. P128 12-ga.

2³/₄"—1¹/₂ oz.—No. 6 lead

Average Pellet count—253

Measured Velocity @3-ft.—1376 f.p.s.

Remaining Energy Per Pellet @40 yds.: 2 ft.-lbs

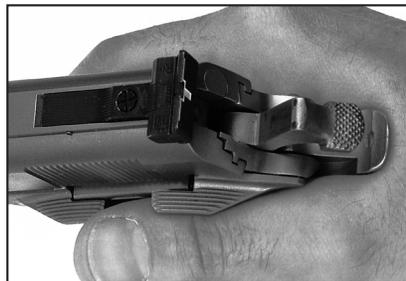
Recoil: 29.1 ft.-lbs

Total Hits	115 (46%)	Total Hits	89 (35%)
21" Inner Circle	71 (28%)	21" Inner Circle	50 (20%)
30" Outer Ring	44 (18%)	30" Outer Ring	39 (15%)

AMT COMMANDO .40 S&W



The Commando is one of the newest products in AMT's line of M1911-inspired semi-automatic pistols. The pistol is mainly made of stainless steel investment castings and is chambered for the popular .40 S&W cartridge. Size is similar to the Colt Commander.



One of the newest products in AMT's line is an M1911-inspired design mainly made of stainless steel investment castings. Called the "Commando," this model is chambered for the popular .40 S&W cartridge and is quite similar in size to the Colt Commander. This new product has features desired by

Enhanced features include an extended slide stop, oversize thumb safety and improved beavertail grip safety. Sights are by Millett and feature a white dot front blade and a white outline and bar rear.

many shooters such as a wide, smooth trigger with adjustable stop, Millett adjustable sights with three white dots, extended slide stop, oversize thumb safety, full-length recoil spring guide rod and extended magazine release. The magazine well

is beveled for fast insertion of eight-round stainless steel magazines.

AMT's Commando reminds one of the AMT Skipper (July 1992, p. 66), that emulated the Colt Officer's ACP. The Commando, however, is slightly taller, has an improved beavertail grip safety and wraparound, pebble-textured rubber grips.

As the Commando's operational essentials are typical of the M1911, explanations can be omitted. Nonetheless, field stripping is different from that of standard M1911s because of the full-length recoil spring guide rod. We found the easiest way to field strip the Commando, first ensuring the gun was unloaded and all ammunition was removed from the area, was to remove the magazine, then retract the slide until the slide release lines up with the disassembly notch. Press the slide release out from right to left, and remove the slide assembly from the front of the frame. While controlling the guide rod, tip the rod up and out of the slide assembly then lift the recoil spring plug out from the slide. Rotate the barrel bushing counterclockwise about 20 degrees and lift it from the slide. Pivot the link toward the muzzle, and withdraw the barrel from the front of the slide. Reassembly is in the reverse order.

The Commando was test-fired with a variety of factory ammunition and we experienced several malfunctions. After about 70 rounds had been fired, the slide seized up half out of battery and had to be hammered closed. After disassembling the pistol and thoroughly cleaning all parts, we attempted to reassemble just the slide on the frame, which proved impossible. Close examination revealed that the rear of the guide rod had peened ridges up on the front surface of the frame where the guide rails end. The ridges were knocked off with a file and



Improvements on current-production Commandos include a washer-shaped buffer on the full-length guide rod, a modified recoil spring plug and a new Wolff recoil spring. The new parts greatly improved the functioning and reliability of our test pistol.

shooting resumed. Ten rounds later, the slide stuck again—this time because the link pin walked out of place and was binding in the frame. Further, the U-shaped flange at the rear of the guide rod had become bent, which adversely affected the pistol's functioning.

A second AMT Commando was requested to complete the test. This gun included needed design improvements in the form of a washer-shaped buffer on the guide rod, modified recoil spring plug and a new Wolff recoil spring. Further, the Millett white-dot rear sight was replaced by a white-outline one. Manufacturer representatives advised that the modifications would prevent the battering we experienced, and that overlubrication on our part appears to have contributed to the malfunctions. The new gun, with current-production modifications, was fired for accuracy with the results shown in the



An adjustable stop is incorporated into the stainless steel AMT Commando's smooth, wide trigger blade. An extended, checkered magazine release is yet another of the pistol's enhanced features.

SHOOTING RESULTS

.40 S&W Cartridge	Vel. @15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
Federal No. P40HS4 135-gr. H-S	1121 Avg. 31 Sd	377	4.0	1.82	3.60	2.46
Hornady No. 9136 180-gr. XTP	915 Avg. 17 Sd	334	4.5	1.98	3.29	2.96
Win. No. X40SWSTHP 155-gr. STHP	1133 Avg. 23 Sd	442	5.6	2.32	3.11	2.65
Average Extreme Spread:						2.69
Measured average muzzle velocity for 10 rounds from a 4½" barrel. Range temperature: 50° F. Humidity: 22%. Accuracy for five consecutive, five-shot groups at 25 yds. from a Ransom Rest. Abbreviations: H-S (Hydra-Shok), Sd (Standard Deviation), STHP (Silver Tip Hollow-Point), XTP (Extreme Terminal Performance)						

AMT COMMANDO

MANUFACTURER: Galena Industries, Inc. (Dept. AR), 3551 Mayer Ave., Sturgis, SD 57785; (605) 423-4105
CALIBER: .40 S&W
ACTION TYPE: short recoil-operated, semi-automatic pistol
CONSTRUCTION: stainless steel
FINISH: natural satin stainless steel
MAGAZINE: eight-round, single-stack, stainless steel
OVERALL LENGTH: 7¾"
BARREL: 4½", stainless steel
RIFLING: conventional, six-groove, RH-twist
WIDTH: 1¾"
HEIGHT: 5½"
WEIGHT EMPTY: 2 lbs., 5 ozs.
SIGHTS: click-adjustable Millett rear with white outline, white dot, ramped front
TRIGGER: smooth, single-stage, 4½-lb. pull
STOCKS: one-piece, wraparound, pebble-texture, black rubber
ACCESSORIES: hard plastic storage box
SUGGESTED RETAIL PRICE: \$425

accompanying table and function fired extensively. Of more than 300 rounds fired, 200 of which were consecutive without cleaning, there were no malfunctions. Recoil was modest, though snappy, and trigger pull was typical of a production single-action semi-automatic with about 1/16" take-up.

Though we experienced problems with the first gun, the second one worked without incident. Those here who handled the AMT Commando liked the way it felt. The gun points naturally, and its operation is familiar to most shooters. Accuracy was quite acceptable for such a pistol. The finish of the Commando, however, needs some work. Casting seams and even some slight voids were evident on the gun's surface.

If the corrective measures that worked for our second test gun hold true to all Commandos, and given a little more attention to detail, the AMT Commando from Galena Industries would make a fine carry gun for those who like the M1911-type design, but are looking for something a little different.



RAPTOR DELUXE

BOLT-ACTION RIFLE

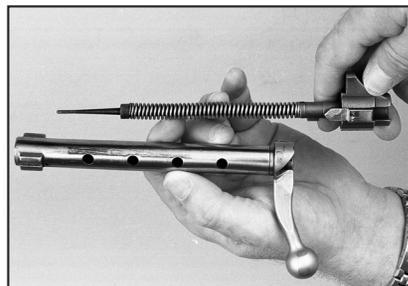
Raptor Arms Co. is a new manufacturer using leading-edge technology to offer a safe, ultra-low-cost, bolt-action, center-fire rifle to modern sportsmen on a limited budget. The Raptor Deluxe Sporter shown above carries a suggested retail price of only \$309.

Raptor Arms Co. is a new gun company using leading-edge manufacturing technology to offer a safe, ultra-low cost, bolt-action hunting rifle in popular, center-fire calibers. The rifle offers the traditional, proven, bedrock features shooters demand, while eschewing frills and unnecessary contrivances. It seems to be a perfect fit for customers on a limited budget and those who view hunting rifles as all-weather, working tools with limited aesthetic value. Raptor was able to shorten developmental time by using sophisticated CAD computer technology to design the action and tooling and allow simulated function testing before the first part was made. We received a Raptor Arms Deluxe Sporting Rifle in .30-'06 Sprg. caliber for test and evaluation.

A modern, eclectic blend of traditional features found on the Remington Model 700 and Winchester Model 70 rifles have been incorporated into the Raptor action. It is a stressed design of investment cast, 410 stainless steel construction (standard models are made of carbon steel) approximately 1.34" in

RAPTOR DELUXE

MANUFACTURER: Raptor Arms Co., Inc. (Dept. AR), 273 Canal St., Shelton, CT 06484; (203) 924-7618
CALIBER: .243 Win., .270 Win., .30-'06 Sprg. (tested)
ACTION TYPE: turn bolt, center-fire, repeating, bolt-action rifle
RECEIVER: investment cast carbon steel (standard), investment cast stainless steel (deluxe)
OVERALL LENGTH: 42 1/4"
BARREL: 22" sporter contour, carbon steel (standard), stainless steel (deluxe)
RIFLING: six-grooves, 1:10" RH twist
WEIGHT: 6 lbs., 6 1/2 ozs.
MAGAZINE: internal, double-column, three-round capacity
SIGHTS: none, drilled and tapped for scope mounts
FINISH: Taloncote with medium polish (standard), natural with medium polish (deluxe)
TRIGGER: single-stage, adjustable, 4 1/2-lb. pull
STOCK: molded, black synthetic with Monte Carlo comb: length of pull 13 1/4"; drop at heel 2 1/4"; drop at comb 1 1/8"
ACCESSORIES: none
SUGGESTED RETAIL PRICE: \$259 (Standard Sporter), \$295 (Heavy Barrel Standard Sporter), \$309 (Deluxe Sporter stainless)



The massive, one-piece, steel firing pin will not win any awards for ultra-fast lock time, however, such firing pins have proven utterly reliable.

bolt to help prevent binding. A 0.10"-diameter hole on the left front receiver bridge serves as a gas relief hole in the event of a pierced primer.

The investment cast, stainless bolt features dual, opposed front locking lugs with an internal extractor and ejector. Four large, oval holes in the bottom of the bolt body allow high-pressure gasses to escape in the unlikely event of a cartridge case head failure. The firing pin is a large, single-piece, steel unit with a captive mainspring that will not win awards for ultra-fast lock time, but should prove utterly reliable.

The magazine is a three-round, dual-column design with a stainless steel follower powered by a conventional, zig-zag, carbon steel spring. The magazine does not have a hinged floorplate, and the blued, carbon steel magazine body is not fastened to the receiver. Instead, a combination magazine floorplate/trigger guard of black syn-

diameter with a round front bridge profile, a flat rear bridge and a flat bottom with an integral recoil lug and massive tang. An interesting feature borrowed from Sako is a guide rail machined into the right locking lug raceway inside the action that mates with a notch cut into the right locking lug on the

SHOOTING RESULTS

.30-'06 Sprg. Cartridge	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
Winchester X30065 165-gr. PSP	2815 Avg. 18 Sd	2903	23.1	1.92	3.76	2.77
Federal 3006A 150-gr. SP	2912 Avg. 16 Sd	2824	20.2	1.66	2.01	1.77
Sellier & Bellot NP39.51 180-gr. SP	2670 Avg. 6 Sd	2847	24.2	1.85	3.26	2.72
Average Extreme Spread:						2.42
Measured average velocity for 10 rounds from a 22" barrel. Range temperature: 80° F. Humidity: 66%. Accuracy for five consecutive, five-shot groups at 100 yds. from a sandbag rest. Abbreviations: Sd (standard deviation), SP (soft point), PSP (pointed soft point)						

thetic is held to the stock by the two unequal-length mounting screws.

The adjustable, single-stage trigger is mounted under the tang with a large screw and a locating pin. The body of the trigger assembly is aluminum with a stainless trigger bow and carbon steel bolt release and safety levers.

Raptor purchases barrels from Small Arms Manufacturing Co. (originally Erwin Shaw). Made of 416 stainless steel, barrels are 22" long with six lands and grooves of conventional configuration. A sporter profile with a simple taper is standard on Raptor Sporter models, though a heavy barrel is offered. Raptor barrels are not free-floating.

No metallic sights are supplied although the receivers are drilled and tapped for scope bases (those for the Remington Model 700 will fit). Metallic sights can be ordered on the Deluxe rifle at additional cost, but most users will choose to mount a scope.

The stock is molded of fiberglass-reinforced synthetic material. It has negative checkering of 18 lines-per-inch mold-

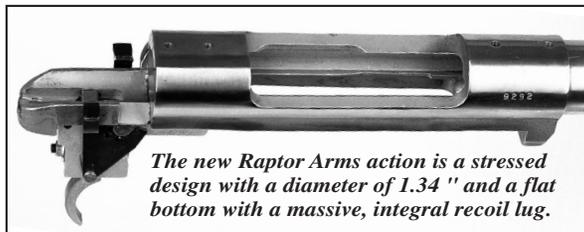
ed into both sides of the pistol grip and fore-end. Deluxe touches on both models include a Monte Carlo cheek rest; blued steel, QD, sling swivel studs and a ventilated, black rubber recoil pad.

First impressions of the Deluxe Sporter indicate that the classic styling cues have been carried off well as the rifle has pleasing lines and proportions. The matte black stock contrasts nicely with the polished, natural finish on the stainless steel parts. The Standard model has a "Taloncote" finish on the metal parts. Of course a polish level of medium quality, instead of high quality, reduces cost. Also, fit and finish cry "working tool" and decry "aesthetics." But here one must consider manufacturing costs. Fit and finish of a high order quickly add labor costs thus raising the price. Here, an eternal truth surfaces once again—you get what you pay for. This rifle may not be the pride of your gun locker, but it *may* be the rifle you take hunting.

Handling and balance of the Deluxe Sporter proved surprisingly good. With a Leupold 6X scope, and bases and rings installed, balance of the 7-lb., 5-oz. rifle was just under the magazine, which made for easy carry. Accuracy was good for a light hunting rifle of this type. With a scope attached, the Raptor remains about 1½ lbs. lighter than many similarly equipped hunting rifles. The rifle's light weight made for heavy perceived recoil, mitigated to some extent by the recoil pad.

There were a few small hitches. We found annoyingly sharp edges on the trigger bow, stock comb and checkering bor-

ders that could easily be removed—and we recommend it. Then there was the aforementioned synthetic floorplate/trigger guard that did not fit properly to the steel magazine well liner. Not only did this cause the floorplate to bulge downward, it forced the magazine follower to stick sometimes when attempting to insert cartridges. This can easily be fixed, however, and we under-



The new Raptor Arms action is a stressed design with a diameter of 1.34" and a flat bottom with a massive, integral recoil lug.



The blind magazine employs a zig-zag spring and a stainless steel follower. Magazine capacity is three rounds

stand Raptor is already on top of it. Although, buyers should not expect the smooth bolt glide of a \$2,500 rifle, the bolt did work easily without binding. Our rifle proved to have an excellent trigger pull—light and crisp with modest take-up and very little stacking.

We tested the Deluxe Sporter by function-firing several different, popular brands of hunting ammunition then firing tests for accuracy. Extraction and ejection were flawless, but our rifle did not feed round-nose, 180-gr. bullet ammunition reliably. With pointed-bullet ammunition, no problems were noted.

What we have here is a safe, low-cost, center-fire hunting rifle for modern hunters on a limited budget with more than acceptable accuracy for a center-fire hunting rifle in this price class. Raptor Arms has succeeded in giving the customer great value in a utilitarian rifle.

NRB

LEUPOLD/GILMORE LG-1 RED-DOT SIGHT

When a nitpicking field-tester writes a glowing report about a product, that's one thing. When he writes a personal check for the product, that's quite another. That's what happened with the Leupold/Gilmore LG-1 red-dot sight. One of our contributing editors was so favorably impressed with the unit that, in a rare display of putting his money where

The small, lightweight Leupold/Gilmore LG-1 red-dot sight has a cleanly defined, tiny 2-m.o.a. dot that proved ideal for Hunters Pistol silhouette competition. The sight was mounted on a Thompson/Center Contender with a .32 H&R Mag. barrel.



his mouth is, he bought the LG-1 test unit.

The LG-1 represents a joint effort by Leupold & Stevens, Inc. and Gilmore Sports Concepts, Inc. Leupold has a long and admirable history making high-quality scope sights and other sports optics, but until now had no red-dot sights in its line. Gilmore Sports Concepts, founded by Riley Gilmore, a top-ranked handgun speed-shooting competitor, has a short and admirable history marketing its high-quality red-dot sights. The Leupold/Gilmore brand of red-dot sights is the fruit of their collaboration.

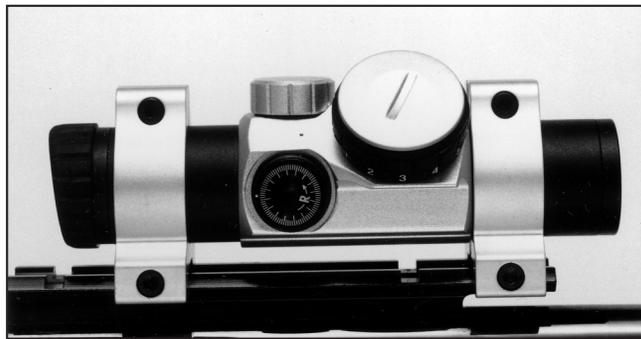
The LG-1, which is made in Japan to Leupold/Gilmore specifications, runs refreshingly counter to the current trend of optical bloat in the expanding universe of red-dot sights, some of which approach the size of beverage cans and present dots large enough to occlude a pizza. In contrast, the LG-1, with its svelte 1"-diameter, matte-black aluminum main tube, measures 4.5" long and weighs just 4 ozs. A supplied 1"-long screw-on extension tube attaches to the front of the main tube if needed to accommodate widely spaced mount rings or to serve as a lens shade.

The sight is packed with silver-tone, vertically split rings that fit ubiquitous Weaver-contour bases. A silver-tone control saddle about 2" long occupies the midsection of the LG-1, carrying small coin-slotted elevation and windage dials with gasketed screw-on caps and a 1"-diameter rotary switch perched at a 45 degree angle. The switch controls dot brightness and also houses the 3-volt, coin-style 2032 lithium battery that feeds the dot. The switch has a rubbery nonslip ribbed rim and offers 12 heavily detented settings marked legibly in white: 0 (off) and 1 through 11 in ascending order of dot brightness. The control turns clockwise or counterclockwise through 0 to any setting, so there's never a need to go the long way 'round. The ocular end of the sight tube is clipped at an angle to form a subtle "eyebrow" and features a ribbed rubber rim, the precise purpose of which escapes us as the sight provides unlimited eye relief. It does look nice, though. Best of all, the LG-1 is blessed with a tiny, clearly defined dot that subtends just 2 minutes of angle (m.o.a.), or about 2" at 100 yds. Field of view at that distance is 45'.

Our field test of the LG-1 began inauspiciously as two successive early production units developed problems. The LG-1 sight on which this report is based was made later and represents current production. It was subjected to the lengthiest "Dope Bag" field test given an optical sight in the past

decade and it came through like a champ.

First, we gave the LG-1 a rough ride on a .45 ACP hardball gun equipped with a Cal Grip mount. After a couple of hundred rounds of Federal, Remington and Winchester 230-gr. loads, plus some CCI/Speer Gold Dot defensive ammunition for added vigor, we removed the LG-1 and subjected it to the infamous water test. The LG-1 is filled with nitrogen and claimed to be waterproof and fogproof. We plunged it into a tub of 110 degree water for 10 minutes. No bubbles escaped, thus indicating perfect sealing. Visual inspection showed no sign of internal moisture or fogging. We then mounted it on a Thompson/Center Contender 10" bull barrel chambered for the .32 H&R Mag. cartridge. Initial firing was with Federal 85-gr. JHP factory loads, then we upped the ante and switched to a hand-load that the developer refers to as the .30 Short Rimmed Carbine. It boots a 110-gr. jacketed, .307" bullet to 1300 f.p.s. for whacking metallic silhouettes. It is accurate, safe in the specific barrel in which it is used, and generates a sharp, quick recoil



The Leupold/Gilmore LG-1's elevation and windage dials, marked for direction of group shift, proved precise and repeatable in field tests. An angled rotary switch controls dot intensity and houses a coin-style 2032 lithium battery.

impulse guaranteed to wreck an optical sight that doesn't have the right stuff. Our LG-1 definitely had the right stuff. More than 1,000 rounds and nearly a year later, it was still behaving perfectly, at which time we transferred it to a T/C .22 Hornet barrel for further testing.

According to Leupold/Gilmore product literature, elevation and windage adjustments are clicked at 1/3-minute intervals. In test-firing at 50 yds. from a sandbagged rest, we performed our standard ring-around. First we shot a three-shot group directly at the point of aim. We fired a second group up and left 18 clicks, a third down 36 clicks, a fourth right 36 clicks, a fifth up 36 clicks, and sixth left and down 18. The same central aiming point was used for all shooting. The sixth group superimposed on the first, indicating perfect return to zero. The other four groups formed the corners of a square with 9" sides. The pattern was symmetrical, indicating even and predictable adjustments

regardless of the direction of movement. Spacing of the groups showed that click values on our sight were actually 1/2—rather than 1/3—minute. We repeated the test another day with identical results. The important finding was not the minor discrepancy between claimed and actual adjustment increments, but rather the admirable precision and repeatability of movement. The click detents are easy to feel and the dials are marked to indicate direction of group shift. Tiny scale calibrations are unnumbered, so note how many clicks you've gone in whatever direction when temporarily departing from a zero to which you wish to return.

Optically, the LG-1 was excellent. We detected no distortion in the viewing field and target detail showed clearly and distinctly. The faint blue-green image tint characteristic of red-dot sights was unobtrusive. The overall image was surprisingly bright for a dot sight even in low light. Effective anti-reflection lens coating prevented image degradation in high-glare shooting locales. Dot brightness was exceptional. In Hunters

Pistol competition under Arizona summer sun, we never had to turn the brightness control beyond No. 9, but it was reassuring to know that 10 and 11 were there for unimaginable eventualities. The tiny dot was sharply defined and encourages precise shot placement. There was no detectable parallax. As with all non-magnifying red-dot sights, eye relief is limited only by the length of the shooter's arms at one end or by the desire for optical intimacy at the other.

A question with all battery-powered devices is: How long will the battery last? We don't have a connotative answer, but our experience indicates that the LG-1 is not a battery hog. Our test unit has gone a year on the original 2032 packed with it and so far shows no sign of faltering. Since lithium batteries generally exhibit excellent shelf life, buy a spare—they're easy to find and relatively inexpensive—stash it with the gun/sight outfit, and don't obsess about it.

On balance, our Leupold/Gilmore LG-1 red-dot sight impressed us as an excellent instrument that is well-made, nicely finished and unusually pleasant to use. Our sample has performed impeccably in testing and real-world competition for a year at this writing and is none the worse for wear. The LG-1 is covered by a two-year limited warranty and comes with battery, extension tube, mount rings, hex wrench, front and rear lens covers and a concise, informative owner's manual.

Available from: Leupold & Stevens, Inc. (Dept. AR), P.O. Box 688, Beaverton, OR 97075-0688; (503) 696-9171. Suggested retail price: \$279.

