DOPE BAG®

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."

CAUTION: 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.

TAURUS 454 RAGING BULL

Since 1955, the .44 Mag. has been the most powerful factory cartridge chambered in a mass-produced double-action revolver. Taurus toppled the .44 Mag's status with its Model 454 Raging Bull in the awesome .454 Casull.

AMERICAN buying habits show we want bigger, more-powerful, faster everything. This insatiable hunger for power is recognized by many including the automobile and computer industries, shopping malls and fast food restaurant chains. Bigger is better, right?

TAURUS 454

MANUFACTURER: Taurus S.A. Forjas, Avenida Do Forte 511, Porto Alegre, RS Brasil 91360
IMPORTER: Taurus International Firearms, Inc., (Dept. AR), 16175 NW 49th Ave., Miami, FL 33014
MECHANISM TYPE: double-action revolver
CALIBER: .454 Casull
OVERALL LENGTH: 12⅜"
BARREL LENGTH: 6½" (tested), 8⅜"
WEIGHT: 55 ozs.
WIDTH: 1¾"
HEIGHT: 6⅝"
CYLINDER CAPACITY: five
RIFLING: six-groove, RH twist
TRIGGER: 13 lbs. double-action pull, 5½ lbs. single-action pull
SIGHTS: Patridge front, fully-adjustable square notch blade rear
ACCESSORIES: Taurus Security System key
PRICE: $699 (blued), $767 (stainless)

Since its debut in 1955, the .44 Magnum has been the most powerful factory cartridge chambered in a double-action revolver from a major manufacturer. That lofty and lengthy status was shaken in January 1997 when Taurus announced it would be producing a double-action revolver chambered in .454 Casull. Many were doubtful this announcement would ever come to fruition, but the .44 Magnum's status officially toppled this past November when the Taurus Model 454 Raging Bull in .454 Casull became available.

Taurus' Model 44 frame would seem a logical starting point for building a new, more-powerful revolver. However, simply strengthening it's stress areas was insufficient to contain the extremely powerful .454 cartridge. An entirely new frame had to be designed for the Raging Bull that's not only larger, but incorporates several obvious design-strengthening features.

Most noticeable of the strengthening features is the multiple cylinder lock-up system. Taurus and S&W users will find the cylinder pin latch at the rear of the cylinder familiar, while Dan Wesson fans will recognize the yoke latch at the front. Both locks must be operated independently, but at the same time to release the cylinder. This operation becomes quite natural after a few tries as the latches are well-positioned for right-handers. Left-handed staff members found it necessary to switch hands and open the cylinder as if they were right-handed.

Like with Taurus' Model 445 (August 1997, p. 45), the Model 454 Raging Bull has a fluted, five-shot cylinder with .08"-deep locking bolt cuts arranged between the chambers. This arrangement maintains the integrity of the chamber walls that are .105" thick at their thinnest point.

Taurus' engineers didn't stop after designing a gun that could handle the .454 Casull cartridge—they went on to design a gun in which the average shooter could handle the .454 as well. To that end, the Model 454 has a massive barrel, available in either 6½" or 8⅜" lengths, with a full-length ventilated rib and solid under lug. The barrel has Taurus' built-in compensator system that uses eight round holes arranged in pairs on either side of the front sight. Gas is directed up through the holes and against an angled undercut on the top rib in a fashion first seen by us on the Rossi Model 971 VRC (Jan. 1996, p. 50). An expansion chamber is part of the compensator, thus placing the origin of the rifling about 1¼" back from the muzzle.

Attention was paid to felt recoil reduction on the Raging Bull's stock as well. The black, stippled, mono-grip is made of a soft, recoil-absorbing, rubber-like synthetic material and has a round butt and finger grooves. The front extends up to the trigger

Recoil from the Model 454 was rather anticlimactic. Those anticipating vicious, bone-crunching recoil were happily disappointed.

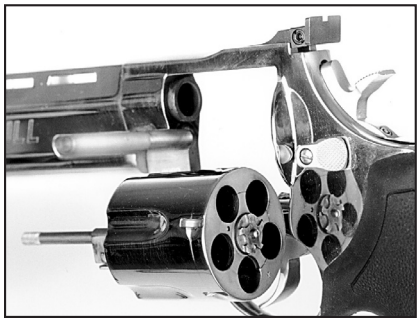
guard, and covers the rear of it to protect the knuckle of the middle finger that usually takes quite a beating when shooting a hard-kicking revolver. Further, a red insert rises .07" along the back of the grip to act as a "shock-absorber." The insert is distinct, cannot be easily compressed with finger pressure, but is functional in reducing the felt recoil. The stock is completed with brass escutcheons having the Taurus logo.

Fit between the barrel and cylinder on our sample was very tight. Fit between the sideplate and frame was also good except for a slightly gapped section that was covered by the stocks.

Our stainless steel sample was polished to the mirror-bright finish we have come to expect from Taurus. The top rib, however, is matte-finished to reduce glare.

For a front sight, the Taurus Model 454 uses a generous Patridge-style blade pinned into a ramp. The rear is a strikingly plain, flat black blade with square notch. It is very sturdy, provides a well-defined sight picture and is screw-adjustable for windage and elevation.

The hammer has a checkered spur and the "Taurus Security System." The system incorporates a small "deactivation pin" in the back of the hammer that is raised and lowered using the supplied key. Raising the pin with the key blocks the backward movement of the hammer and theoretically disables the gun. The instructions make it very clear that the Security System "... is NOT a substitute for cautious gun handling." And correctly reminds us that "... there is no such thing as a safety which is 'childproof' or which can completely prevent accidental discharge ... ."



The 454 has a five-shot cylinder with locking bolt cuts arranged between the chambers. The capacity and the arrangement help maintain the chamber wall integrity.

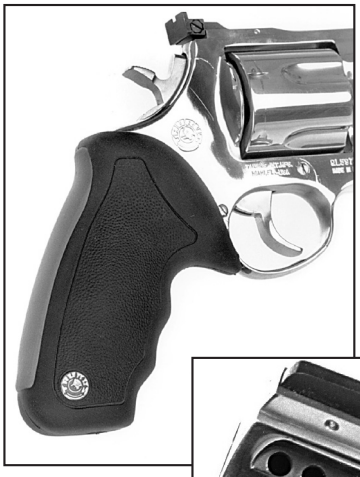
The Taurus 454 Raging Bull was fired for accuracy at 25 yds. using Winchester, CorBon and Black Hills ammunition with the results shown in the accompanying table. Shooting a .454 Casull at 25 yds. is like fishing for minnows with a shark hook, so additional function firing was done at bowling pins placed at ranges to 100-yds. Function firing also included a number of .45 Colt loads from various ammunition makers. Shooting .45 Colt in a .454 Casull is akin to shooting .44 Specials in a gun chambered for .44 Magnum.

Both the Winchester and CorBon ammunition performed without failure when fired single-action. There were a few failures to fire Black Hills 300-gr. JHP cartridges that were attributed to light firing pin strikes. Firing double-action, the gun almost always misfired regardless of ammunition. These failures were also attributed to light firing pin strikes. There were no failures to fire .45 Colt, single-or double-action, with the Taurus Raging Bull.

A second Taurus 454 Raging Bull was sent to us and it fired all ammunition types in both double- and single-action though the trigger did not always return and needed to be encouraged forward with a slight push from the trigger finger. This malfunction went away after a thorough cleaning and about 100 shots.

Freedom Arms was the first to offer the .454 Casull in its well-known single-action revolver, as well as ammunition. Though the Technical Staff had a supply of Freedom's ammunition, it specifically states that it is for use in its single-action revolvers only and was therefore not used in the Taurus. A call to Freedom Arms confirmed that this warning is still in effect. Furthermore, Freedom Arms is no longer producing .454 Casull ammunition, but will continue to make and offer component bullets for handloaders.

Note that the .454 Casull uses small rifle primers, and not just any .451"-.452" bullet will hold up to its power. Bullets with harder cores and heavier jackets are required.



A user-friendly gun despite its impressive caliber, the Taurus Model 454 Raging Bull has a massive barrel with solid under lug and full-length ventilated rib. The muzzle (below) has Taurus' built-in compensator system. The stock (l.) has a built-in "recoil pad" and extends forward to pad the back of the 454's trigger guard.

Recoil from the Taurus 454, though stout, is rather anti-climactic. Shooters anticipating a vicious muzzle flip and bone-crunching kick will be happily disappointed. The gas vented upward from the compensator nearly eliminates muzzle rise, and the sharp, straight-back kick is amply absorbed by the rubber stock. The stock, however, is large, and may cause a problem for small-handed shooters.The double-action trigger pull was on the heavy side. The single-action pull will probably see more use, and it broke crisply at 5½ lbs.

The Taurus Model 454 Raging Bull is a big step forward in the double-action revolver market. It offers advanced design features that not only accommodate a very powerful cartridge, but ones that allow owners to enjoy shooting as well.

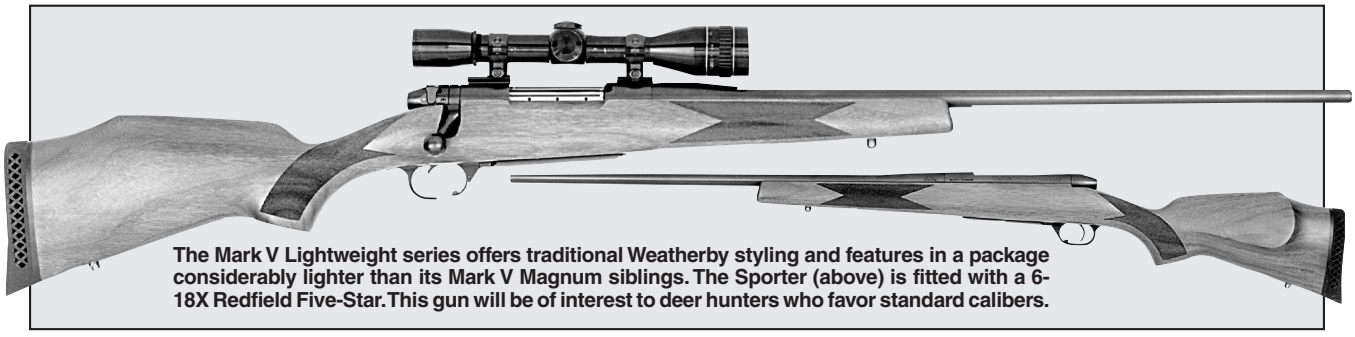
In addition to punching holes in paper at 25 yds. with .454 and .45 Colt loads, we also tried the 454 out on bowling pins at 100 yds.

ACCURACY RESULTS

.454 Casull Cartridge	Vel. @15' (f.p.s.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
Black Hills 300-gr. JHP	1362 Avg. 28 Sd	1.45	1.97	1.69
Winchester X454C2 300-gr. JFP	1592 Avg. 21 Sd	1.08	1.87	1.54
CorBon 335-gr. WFPL	1418 Avg. 8 Sd	1.76	2.75	2.20
Average Extreme Spread				1.81

Five consecutive five-shot groups from 25 yds., fired from Outer's Pistol Perch. Abbreviations: Sd (standard deviation), JFP (jacketed flat-point), JHP (jacketed hollow-point), WFPL (wide flat-point lead)

WEATHERBY MK V LIGHTWEIGHT



The Mark V Lightweight series offers traditional Weatherby styling and features in a package considerably lighter than its Mark V Magnum siblings. The Sporter (above) is fitted with a 6-18X Redfield Five-Star. This gun will be of interest to deer hunters who favor standard calibers.

In recent years there has been increased interest in lightweight, bolt-action rifles, often dubbed "mountain rifles" as the result of their popularity with western hunters who pursue goats, sheep and other high-elevation game. In 1997, Weatherby introduced its own series of Lightweight Mark V rifles, not only to cater to those interested in a "mountain rifle," but also to appeal to deer hunters who favor "standard" calibers.

The Mark V Lightweight Sporter features a blued finish and a walnut stock; the Lightweight Stainless combines an injection-molded composite stock with stainless steel barrel and action; and the Lightweight Synthetic offers a composite stock and blued steel. All feature 24" barrels, a six-lug action with 54° bolt lift, and chamberings ranging from .22-250 Rem. up to .30-'06. The Mark V Lightweights also offer lower prices than we've been accustomed to seeing on Mark V rifles.

The action of the new Lightweights resembles that of the now-discontinued Weatherby Varmintmaster. Instead of the traditional nine-lug array of the classic Mark V action, the Lightweight action features six lugs arranged in two circles of three evenly-spaced lugs, yet retaining the short 54° bolt lift that Weatherbys are known for.

Safety features include an indicator tab that protrudes rearward when the firing pin is cocked and a shroud-mounted safety that is moved rearward to the "safe" position.

The Lightweight action is proportioned for standard cartridges the size of the .22-250 Rem., .243 Win. and .30-'06. The bolt is slightly smaller in diameter than the bolt used in the much larger, heavier and longer magnum-size action. The round receiver is also narrower in diameter and 1/4" shorter in length than the full-size Mark V. There is a semicircular relief cut in the forward ejection port edge to facilitate the ejection of live rounds that also slightly reduces weight.

The Lightweight's bolt retains all the signature features of the magnum Mark V bolt, such as the three gas vent holes in the bolt body, the machined groove in the body that accepts the trigger-actuated bolt stop and the signature bolt shroud profile. Also retained is the shroud-mounted, two-position manual safety with a grooved thumbpiece that is rotated rearward to block the firing pin and forward to allow the rifle to fire. In the forward "fire" position a red dot is visible on the shroud. When in the "safe" position, the bolt is locked.

The Lightweight's trigger is also of conventional Weatherby design. Contained in an aluminum housing attached to the underside of the receiver, the trigger also controls the bolt stop, a cylindrical pin that projects upward from the trigger housing through the floor of the receiver to engage a groove in the underside of the bolt body. The bolt's rearward travel is arrested when the bolt stop strikes the end of this track. Pulling the trigger all the way to the rear lowers the bolt stop out of this track, allowing the bolt to be withdrawn from the receiver. When reinserting the bolt, the trigger must be pulled.

Contributing to lighter weight is the slender barrel, which measures 1.1" just forward of the receiver ring and tapers to .55" at the muzzle. The bore is button rifled in a four-groove, right-hand twist pattern.

Lightweight stocks feature high Monte Carlo cheekpieces, 3/4" thick ventilated rubber recoil pads and sling swivel studs at the toe and fore-end. A well just to the rear of the barrel channel in each stock accepts the receiver's integral recoil lug. Weatherby utilizes glass bedding in the recoil lug mortise of its wood-stocked Sporter and Carbine models; no bedding compound is used in the synthetic-stocked versions. The barrel channel contacts the barrel at the fore-end tip to help damp out excessive vibration.

Weatherby Lightweight rifles feature an internal, non-detachable box magazine loaded through the top of the receiver. The bottom of the magazine is a hinged floor-

MK V LIGHTWEIGHT

MANUFACTURER: Acrometal Cos., Inc., Brainerd, MN
SOLD BY: Weatherby, Inc. (Dept. AR), 3100 El Camino Real, Atascadero, CA 93422
MECHANISM TYPE: magazine-fed, centerfire, bolt-action rifle
CALIBERS: .22-250 Rem., .240 Wby. Mag., .243 Win., .25-'06 Rem., .270 Win., 7 mm-08 Rem., .280 Rem., .308 Win. and .30-'06 (tested)
LENGTH: 44⅛"
WEIGHT: 6¾ lbs.
BARREL LENGTH: 23 15/16"
RIFLING: four-groove; RH twist
MAGAZINE CAPACITY: five
TRIGGER: single stage, 3¾ lbs. pull
SIGHTS: none supplied; receiver drilled and tapped for scope mounts
STOCK: Claro walnut; length of pull, 13¾"; drop at heel, 1⅝"; drop at Monte Carlo, 3/4"; drop at comb, 1 3/16"
PRICE: Lightweight Sporter, $849

The Lightweight employs six lugs, in contrast to the nine-lug action of the Mark V in magnum calibers, and it is also shorter and smaller in diameter than its big brother.

The Lightweight Sporter features a non-detachable top-loading box magazine with a five-round capacity and a hinged floorplate.

plate that is released by a lever whose head is located inside the front face of the trigger guard. Pushing the lever forward releases the rear of the floorplate and dumps out all remaining rounds in the magazine.

The magazine features a steel follower tensioned by a flat Z-shaped spring. The body of the magazine on both the blued and stainless steel Lightweights is aluminum.

Our test Lightweight was the blued-steel, wood-stocked Sporter model in .30-'06 Springfield. The rifle's pistol-grip stock was of Claro walnut with 18 lines-per-inch machine-cut checkering on the fore-end and wrist. Both the metalwork and the walnut stock had an even, non-glare satin finish. We equipped the Weatherby Sporter with a Redfield Five-Star 6-18X scope and fired it for accuracy at 100 yds., with the results listed in the accompanying table, and function-fired the rifle with Federal, Hornady, Remington and Winchester ammunition. No malfunctions were experienced.

Accuracy was not spectacular, averaging a little more than two m.o.a. (minute of angle) with all ammunition tested. It should be noted, however, that these results were obtained with a 3-9X scope at maximum magnification—much as would be used afield—rather than the 16X to 32X target scopes often used in our testing. At 6¾ lbs. without scope, our rifle offered both easy carrying and snappy handling. It balanced right at the floorplate, and was judged to have rather neutral handling on offhand shots, being neither muzzle-heavy nor muzzle-light.

There were a few complaints, however. The rifle's long 13¾" length of pull made many short-eye-relief scopes difficult to use, particularly with the thick clothing typically worn by those hunting in cooler regions. This is not a fatal flaw, as such scopes are seldom used on light, sharp-recoiling guns. Though nominal magazine capacity is five rounds, we found that smoother feeding occurred when only four cartridges were loaded.

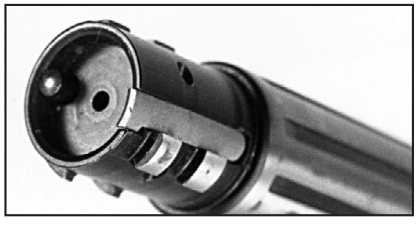
Also, care had to be taken when loading our Lightweight. When the bolt was in the rearmost position, the rear edge of the magazine box protruded just far enough to catch the rim of cartridges being loaded into the magazine. A round so caught would then enter the magazine at an angle and had to be removed and reinserted. When we positioned the cartridge about 1/4" further forward in an attempt to avoid the rear edge of the magazine, the bullet tip would contact the feed ramp. The cartridge had to be started in the magazine just so for problem-free loading—a situation that could be problematic for gloved fingers on a cold day.

We suspect that the new Weatherby Lightweights will appeal most to those who already own full-sized Mark Vs and who want a trimmer, lighter rifle of the same design. The rifles should also appeal to whitetail deer hunters who crave classic Weatherby styling in a rifle tailored to their needs and in calibers they desire. Nonetheless, shooters who value a crisp trigger, low weight, excellent balance and a short bolt lift will likely find the new Mark Vs worthy of consideration—whether they're Weatherby fans or not.

ACCURACY RESULTS

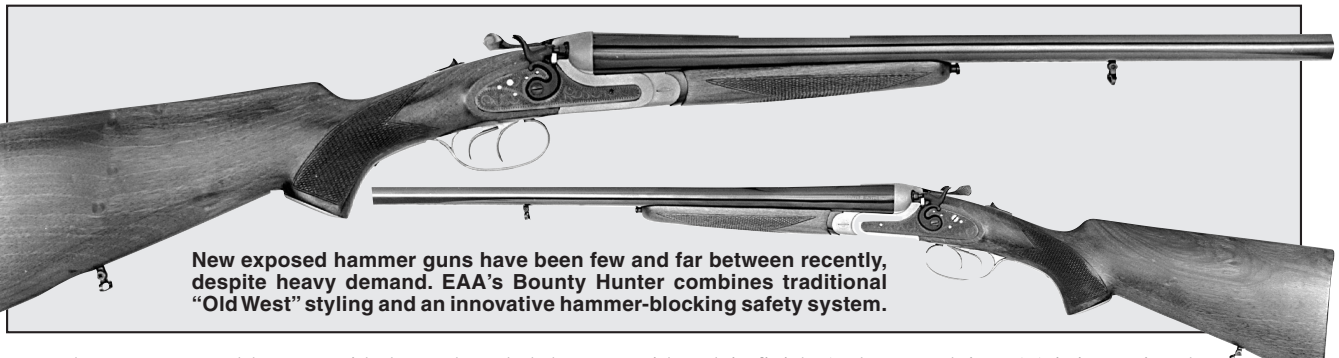
.30-'06 Cartridge	Vel. @15' (f.p.s.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
Hdy. No. 8115 165-gr. BTSP	2652 Avg. 11 Sd	1.56	2.03	1.78
Rem. No. ER3006C 178-gr ER	2611 Avg. 15 Sd	1.79	2.64	2.12
Win. No. X30061 150-gr. PP	2684 Avg. 12 Sd	1.09	2.37	1.87
Average Extreme Spread				1.92

Five consecutive five-shot groups at 100 yds. fired from a sandbag rest. Abbreviations: Sd (standard deviation), BTSP (boattail soft-point), ER (Extended Range), PP (Power-Point), Rem. (Remington), Win. (Winchester)



The new Mark V Lightweight's bolt still bears unmistakable Weatherby touches, such as its claw extractor, fluted body, three gas vent holes and distinctive bolt shroud.

EAA BOUNTY HUNTER SHOTGUN



New exposed hammer guns have been few and far between recently, despite heavy demand. EAA's Bounty Hunter combines traditional "Old West" styling and an innovative hammer-blocking safety system.

In the past, exposed-hammer side-by-side shotguns were marketed primarily to the well-to-do upland bird hunter. More recently though, Cowboy Action shooters have created a market for double-barreled shotguns with a plain finish. And while this sport does not require exposed hammers on double-barreled shotguns, they definitely add to the period look of the firearm. In an effort to appeal to that nostalgia, EAA is importing the Bounty Hunter side-by-side, double barrel shotgun.

Made by Spain's Astra for EAA, the Bounty Hunter shotgun is an exposed-ham-

BOUNTY HUNTER

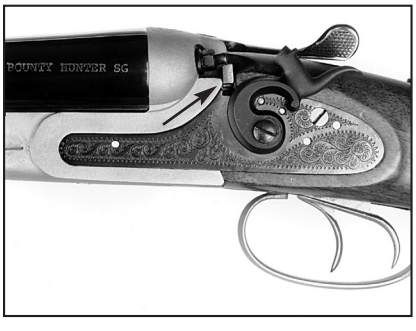
MANUFACTURER: ASTRA, Apartado 3, 48300 Guernica, Spain
IMPORTER: EAA Corp (Dept. AR), P.O. Box 1299, Sharpes, FL 32959
MECHANISM TYPE: break-action, side-by-side shotgun
GAUGE: 12-ga., 2¾"
OVERALL LENGTH: 37"
BARREL LENGTH: 20"
WEIGHT: 6 lbs., 11 oz.
TRIGGER: double: front, 4½-lb. pull; rear, 5½-lb. pull
SIGHTS: brass bead front
STOCK: walnut stained hardwood: length of pull 14½"; drop at comb, 1¼"; drop at heel, 2½"
ACCESSORIES: none
PRICE: $499

mer, double-barrel shotgun utilizing a Purdey double under-lug design. Its action bars are placed forward, underneath the barrels. Our 12-ga. test sample featured blued 20" barrels attached to a smooth solid rib with a single brass bead front sight. Barrels are available in 24" and 26" lengths as well.

The barrels are finished to a deep, polished blue, as are the side plates and top latch lever. The breech, triggers, steel pistol grip cap and butt-plate have a satin nickel finish. The hammers and tang safety are finished in a contrasting dark grey. The side-plates and action are embellished with roll-pressed scrollwork that add to the period look of an otherwise plain side-by side. EAA plans to offer models with case-colored or nickeled side-plates and receivers as well.

The Bounty Hunter's hardwood pistol grip stock and beavertail fore-end are stained to a dark walnut color and feature coarse 16 lines-per-inch diamond-pattern, hand-cut checkering that is noticeably heavier in the center and lighter at the edges. Sling-swivels are standard on the Bounty Hunter. The forward swivel is screwed to the bottom of the rib and rear swivel is set into the toe of the stock.

Wood to metal fit is typical of a side-by-side in this price range. Namely, there are many noticeable gaps and the edges of the stock and fore-end were higher than their corresponding metal surfaces on the action, trigger-guard and side-plates.



The Bounty Hunter has a stainless-steel hammer block (arrow) between the rebounding hammer and striker that falls out of the way only when the trigger is pulled.

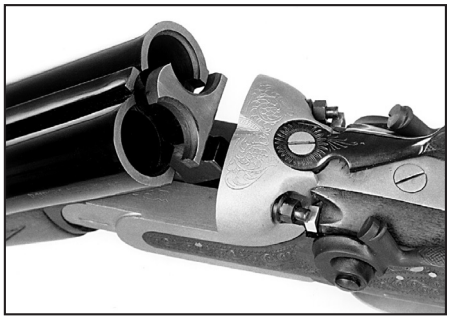
Like most double-triggered side-by-sides, the Bounty Hunter's triggers are arranged with the right barrel's trigger in front and the left barrel's to the rear.

Chokes on our 12-ga. sample were of the fixed type with full in the right barrel and modified in the left. However, EAA plans to offer models with adjustable screw-in chokes as well as rifled barrels in .45-70 and .45 Colt. The Bounty Hunter will be also available in a variety of gauges including 10-, 12, 16-, 20-, 28-ga. and .410. The gun has no ejectors and dual actuator rods lift the extractors as the action is opened.

The exposed hammers are fixed to the side-plates and powered by steel V-springs. An automatic safety mounted on the top tang is engaged when the top latch lever is pushed to the right. Pushing the safety button forward to cover the "S" engraved in the tang releases the safety so the gun may be fired.

The classically-styled Bounty Hunter came to shoulder quickly and pointed steadily. We found the 20" barrels made the gun particularly lightweight and easy to handle. Recoil, while stiff, wasn't too bad.

Many traditionalists claim that exposed hammer doubles have a safety advantage over their internal hammer counterparts because the shooter can see that the hammers are cocked. But there is a danger in that when cocking the gun, the firer may accidentally release the hammer short of full-cock, perhaps allowing the hammer to fall on the striker and cause an inadvertent discharge. In his book *Shotguns By Keith*, no less an authority than Elmer Keith warned shooters that exposed doubles had an annoying habit of snagging on brush and saddlery causing an accidental discharge if the safety was off.



The Bounty Hunter has no ejectors; and dual actuator rods lift the extractors as the action is opened. The automatic safety is activated by moving the top latch lever.

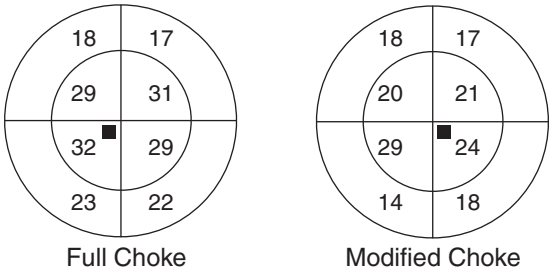
An EAA representative told us that Astra has devised an interesting solution to the problem by installing a stainless-steel block between the hammer and striker that falls out of the way only when the trigger is pulled. After firing, the hammer block rebounds back into place.

Disassembly of the unloaded Bounty Hunter is fairly straightforward. Depress the release plunger on the front of the fore-end and swing it down and away. Push the top latch lever to the right and tilt the barrels downward until the underlugs are unhinged from the action. Reassemble in reverse order.

The Bounty Hunter was pattern tested at 25-yds. with Winchester 3¼ dram equivalent No. 7½ shot 1 oz. field loads, and the results are shown in the accompanying table. During function-firing with Federal,

EAA BOUNTY HUNTER

AVERAGE OF 10 PATTERNS AT 25 YDS.



■=Point of Hold
Winchester Xpert 3¼-1-7½
Pellet count—350

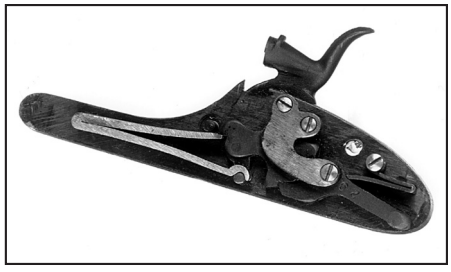
Total Hits	201 (57%)	Total Hits	161 (46%)
21.2" Inner Circle	121 (35%)	21.2" Inner Circle	94 (27%)
30" Outer Ring	80 (22%)	30" Outer Ring	67 (19%)

An automatic safety mounted on the top tang is engaged when the top latch lever is pushed to the right. Pushing the safety button forward disengages the gun's safety.

Remington, Winchester and PMC shotshells we experienced no difficulties with any of the ammunition tested.

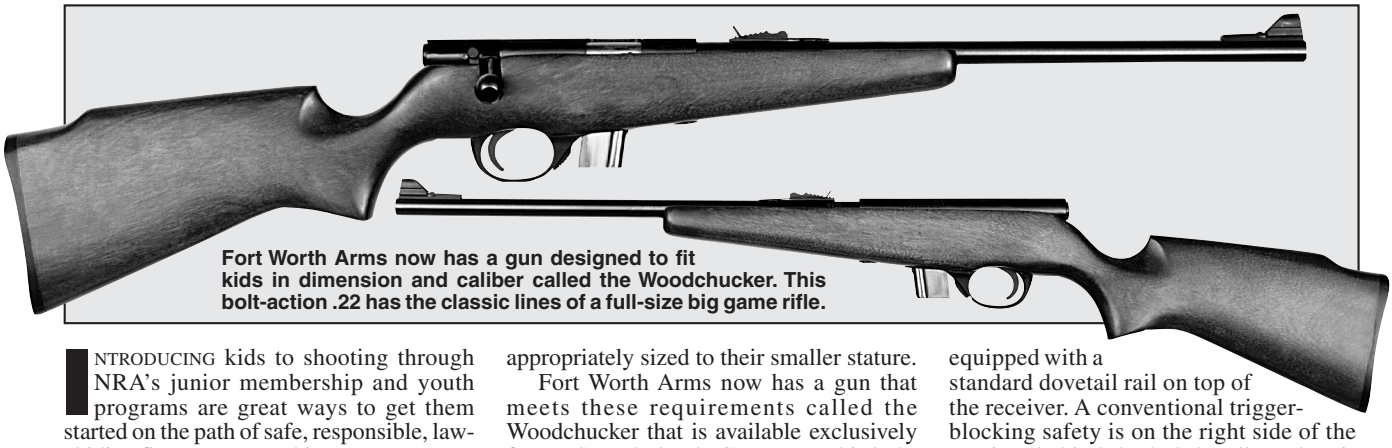
Shooters found this classically-styled gun comes to shoulder with quickness and points steadily. The 20" barrels make the gun particularly lightweight and easy to handle. Recoil, while stiff, is not punishing, even during extended firing. While function-testing the Bounty Hunter, shooters had a great deal of fun shooting hand-thrown clays. The birds were broken with great regularity and more than a few were reduced to powder. Some felt that a straight stock would make it easier to slide the firing hand back to find the second trigger, but others preferred the meatier heft of the pistol grip stock.

The Bounty Hunter is a handy, utilitarian, side-by-side with a nostalgic look and feel. It should appeal to Cowboy Action shooters and others in search of a modern, exposed-hammer shotgun with enhanced safety features like a hammer-drop safety and automatic tang safety.



The EAA Bounty Hunter shotgun's exposed hammers are fixed to the detachable side-plates and powered by V-springs.

FORT WORTH ARMS WOODCHUCKER



Fort Worth Arms now has a gun designed to fit kids in dimension and caliber called the Woodchucker. This bolt-action .22 has the classic lines of a full-size big game rifle.

INTRODUCING kids to shooting through NRA's junior membership and youth programs are great ways to get them started on the path of safe, responsible, law-abiding firearms ownership. We, as parents, guardians and mentors, can augment these NRA programs and spend more quality time with our kids through continuous, safe firearms teaching of our own. As is the case with adults, kids will achieve their best shooting results and thus gain more confidence if they use a gun they can handle. A gun they can handle means that it is in a minimally recoiling caliber, and that the gun be appropriately sized to their smaller stature.

Fort Worth Arms now has a gun that meets these requirements called the Woodchucker that is available exclusively from RSR Wholesale Guns, Inc. This bolt-action, six-shot, .22-cal. repeater has the classic lines of a full-size big game rifle and is made of quality materials.

The rifle we received for testing sported a one-piece hardwood stock that was stained to resemble dark, reddish walnut. There is no checkering and, as befits a rifle to be used with a scope, there is a Monte Carlo cheekpiece. A solid, black, plastic buttplate completes the stock.

Function firing was accomplished by supervising a seven-year-old we dutifully equipped with eye and ear protection, plenty of ammunition, and reactive targets like clay pigeons placed in front of a suitable backstop.

A conventional, tubular steel receiver is used that has a 90º bolt lift. Lock-up on .22 rimfire rifles is typically by the root of the bolt handle, and the Woodchucker is no exception. Dual, opposed extractors are used, and the ejector is part of a steel piece screwed into the bottom of the receiver. This piece also serves as the bolt guide, having a pair of rails corresponding to a pair of grooves in the underside of the bolt. To facilitate scope mounting, the Woodchucker is equipped with a standard dovetail rail on top of the receiver. A conventional trigger-blocking safety is on the right side of the receiver behind the bolt handle. When in

WOODCHUCKER

MANUFACTURER: Fort Worth Arms (Dept. AR), 2006-B Martin Luther King Freeway, Fort Worth, TX 76104-6303
DISTRIBUTER: RSR Wholesale Guns, Inc. (Dept. AR), 21 Trolley Circle, P.O. Box 60679, Rochester, NY 14606
MECHANISM TYPE: bolt-action, rimfire, repeater
CALIBER: .22 Long Rifle
OVERALL LENGTH: 32"
BARREL LENGTH: 16¼"
RIFLING: six-groove, RH twist
WEIGHT: 3 lbs., 8 ozs.
MAGAZINE CAPACITY: six
TRIGGER: single-stage, 4½ lbs. pull
SIGHTS: hooded, beaded post front; blade rear, drift-adjustable for windage, step-adjustable for elevation
STOCK: walnut finished hardwood: length of pull, 12"; drop at heel, 2¼"; drop at comb, 1⅜"
PRICE: $169

We gave high marks to the little rifle's magazine release, as it is well positioned and thought out in its location and operation.

the "fire" position, a red dot is exposed.

A massive, matte black, zinc casting serves as the trigger housing and contains the trigger group, magazine and magazine release. Bolts at either end of the housing pass through white metal spacers and secure the housing to the action at both ends. The forward spacer extends back and up, into the action to serve as the magazine feed ramp.

A 16¼" steel barrel with six-groove, right-hand twist rifling is threaded into the receiver in typical fashion. The crown is stepped to protect the origin of the rifling. A matte black, zinc, beaded-post front sight is screwed to the barrel and has a removable steel hood. Where many makers of youth rifles use plastic, the Woodchucker has a classic, steel, drift-adjustable, open rear sight with stepped elevator.

Attachment of the barreled action to the stock is unusual. Most rifles use a screw through the bottom of the stock that engages a threaded hole in the bottom of the receiver. On the Woodchucker, a threaded rod is screwed into the forward end of the receiver in lieu of the threaded hole. The "bolt" that is inserted through the stock is actually a long, cylindrical nut with a slotted head that screws down over the threaded rod.

Users will find the magazine and magazine release located in front of the trigger guard. While most adults will find the magazine size and location adequate, children may find it complicates carrying the gun at its center of balance. We give high marks to the magazine release, though, that is well positioned and thought out in its operation.

Take down of the Fort Worth Arms' Woodchucker is a simple matter of first ensuring that the gun is unloaded and all ammunition is removed from the area. Next, open the bolt, inspect the chamber to ensure it is empty and withdrawal the bolt from the rear of the receiver while pulling the trigger. No further disassembly is necessary for routine cleaning and maintenance, and reassembly is in the reverse order.

A Redfield 10X scope was mounted on the Fort Worth Woodchucker, and the rifle fired for accuracy at 50 yds. with CCI, Federal and Winchester ammunition. There were no malfunctions of any kind. Function firing was accomplished by supervising a seven-year-old shooter we dutifully equipped with eye and ear protection, plenty of inexpensive ammunition, and reactive targets like clay pigeons placed in front of a suitable backstop. There were no malfunctions of any kind and, needless to say, the youngster had a great time with the gun. We were able to observe that because the gun fit properly, the young shooter tended to have better shooting form, and shot better than he has previously with an adult-sized gun.

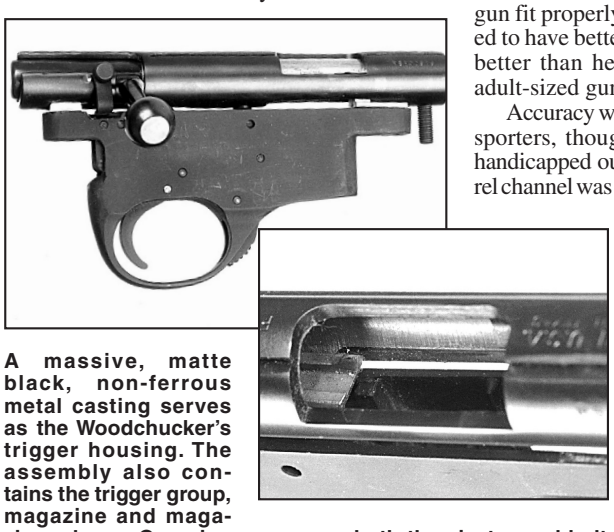
Accuracy was on par with most rimfire sporters, though the heavy trigger pull handicapped our young shooter. The barrel channel was noticeably off-center to the left, and the barrel bore heavily at the fore-end tip and on the left side of the fore-end. This was the only place we thought more attention to quality was needed.

Overall, we found the Woodchucker a good representation of a youth rifle It is adequately proportioned for the young shooter, and accurate enough to inspire confidence in these beginners.

ACCURACY RESULTS

.22 Long Rifle Cartridge	Vel. @ 15' (f.p.s.)	Smallest (ins.)	Largest (ins.)	Average (ins.)
CCI Mini Mag HP X0031	1238 Avg. 18 Sd	2.60	3.23	2.88
Fed. Hi-Power HP 1A8532	1211 Avg. 33 Sd	1.04	1.94	1.63
Win. Super-X RN X22LR1	1240 Avg. 21 Sd	1.45	2.21	1.74
Average Extreme Spread				2.08

Five consecutive 10-shot groups fired at 50 yds. from sandbag rest. Abbreviations: HP (hollow-point), RN (round-nose), Sd (standard deviation)



A massive, matte black, non-ferrous metal casting serves as the Woodchucker's trigger housing. The assembly also contains the trigger group, magazine and magazine release. One piece serves as both the ejector and bolt guide. The steel part is screwed into the gun's receiver and has upward extensions that correspond to grooves in the bolt.

AIMPOINT COMP DOT SIGHT

When Aimpoint introduced the non-magnifying optical sight with a battery-powered reflected red-dot aiming reference in lieu of a traditional reticle, it created a whole new *genre* of sighting equipment. In America, bullseye competitors, despite their legendary conservatism, were quick to appreciate the benefits of eyeing a single, clearly seen red dot in the center of a clearly seen black bull—particularly for those with aging eyes.

The downside was that early Aimpoints and its imitators were relatively large, heavy and dim instruments. By the time action shooters discovered that dot sights could help feed their greed for speed, dot-sight development was being driven by criteria that could be summed up in three words: smaller, lighter, brighter. To that wish list action shooters added: strong. The Aimpoint Comp is the Swedish firm's response to those demands.

The sight is available in several versions that differ in dot size and exterior finish. Our test sample has a three-minute dot (3" subtention at 100 yds.) and a black anodized body. Other options are seven-, 10- or 15-minute dots and stainless or blue anodized aluminum body. All share the same size, weight and configuration. Overall length is just under 4½", with a 1$^{3}/_{16}$"-long main tube section 30 mm in diameter that serves as the contact area for mount rings. A segmented

objective housing is 36 mm in diameter, and aft of the main tube is an adjustment saddle bearing elevation and windage dials and a slender octagonal nacelle holding three button batteries.

The front of the battery module has a water-tight screw-on cap and the rear presents the 10-setting, click-stopped rotary brightness control switch. With the switch in the off position a white dot near its ribbed rim at 12 o'clock matches a white dot on the edge of the battery module. Turning the switch one click counterclockwise selects the Extra High brightness setting that ensures dot visibility in intense daylight. Each successive clockwise click reduces dot brightness to suit a wide variety of ambient light conditions. If you favor certain settings for specific venues, remember how many clicks you need to reach them as the switch is unmarked except for the "off" position. The eyepiece end of the sight body is finished with a soft, rubbery rim.

The Aimpoint Comp, mounted here on a California Grip-equipped Colt Gold Cup, is a compact, lightweight, bright red-dot sight designed to satisfy competitive shooters' needs. A broad vertically split mount ring is supplied.

For field testing, we installed the 4½-oz. Aimpoint Comp on a Colt .45 ACP Gold Cup equipped with a California Grip mount. The sight comes with a 1 1/16"-wide vertically split mount ring formed to engage a Weaver-style contoured rail. It mated with the Cal Grip's interchangeable top plate designed to accommodate the Aimpoint Comp. The sight may be mounted with the battery module between one and two o'clock or swung 90° to between 10 and 11 o'clock. Adjustment dials are clearly marked "UP-L" and "UP-R" so whichever turret ends up wherever, useful prompts will be visible. Aimpoint literature claims 8.5' of adjustment at 100 yds. We don't doubt it. Our heavily accurized Gold Cup shoots low so we used considerable vertical adjustment to zero the rig. Nonetheless we had ample clicks remaining to shift the center of impact as desired.

Beneath the gasketed screw-on turret caps, the elevation and windage dials offer 50 clicks per full turn, each click visually denoted by a tiny white hashmark. The scales are not numbered and neither surround has an index mark against which to judge dial position. Click detents are easy to feel and hear. The dials are centrally grooved to accept the edge of a small coin or a screwdriver. Specifications state that each click represents 1/2" shift in center of impact at 100 yds. We found actual shift value closer to 0.6".

Firing from sandbags on a sturdy shooting bench 25 yds. from the target, we checked the adjustments by first firing a group directly at the point of aim. After adding 18 clicks of elevation and 18 clicks of left windage, we fired a second group while holding the dot on the original aiming point. Subsequent groups were fired after 36-click adjustments down, right and up. A sixth and final group was fired after adjustments of 18 clicks left and 18 down. The last group coincided indistinguishably with the first, indicating precise return to zero. The second, third, fourth and fifth groups punched out the corners of an imaginary square surrounding the central groups. The corner groups were 5½" apart rather than the expected 4½", indicating greater shift per click than specified in the owner's data sheet. We considered this a trivial anomaly. Much more important was the consistent separation and precise positioning of the corner groups, proving that adjustments were uniform and repeatable.

After firing several hundred rounds of .45 ACP ammunition ranging from powderpuff wadcutters to energetic hollowpoints, we transferred the Aimpoint Comp to a .22 LR High Standard Victor semi-automatic and repeated the adjustment test. Except for the smaller holes, results were identical.

Optically, the Aimpoint Comp presented a bright, crisp view with only a faint cool color cast betraying its semi-silvered internal reflective surface. We found no distortion. The anti-reflection lens coating effectively suppressed flare and ghosting even when viewing backlighted targets, and we encountered no problems with internal reflections. The three-minute dot in our unit was cleanly delineated and always easy to pick up when the brightness control was adjusted appropriately for the shooting conditions. The Extra High setting coped easily with intensely bright midday sun in the desert Southwest. We detected a small amount of parallax when we moved our master eye drastically off center, but the viewing angle was so exaggerated and the aiming error so small that we feel the practical significance borders on nil. In the real world, a competitor's aiming eye would not stray far enough from center to lose a point with this sight.

The Aimpoint Comp is claimed to be waterproof and pressure-resistant, so we subjected it to our usual water test—10-minute immersion in a tub of 110°F water. A tiny bubble emerged every 15 seconds or so from the base of one adjustment turret throughout the drowning. Despite this, subsequent inspection revealed no sign of moisture infiltration. There was no fogging, optical clarity was as good as before, and the dot functioned flawlessly.

The Aimpoint Comp is powered by three button-type batteries. Our unit came with SP 675 mercury batteries, which can light the dot, according to factory literature, for 7 to 15 hours at the Extra High setting or up to 500 hours at dimmer settings. We discovered that inexpensive mercury batteries are virtually unobtainable in some parts of the country and lithium alternatives of useful size and output appear to exist in catalogs but not in retail establishments. Zinc-air batteries cannot be used in the Aimpoint Comp because of the unit's air-tight battery compartment.

The bottom line is that you'll probably have to spring for silver-oxide Type 357 replacements, as we did. We paid about $8 plus sales tax for a set, and suddenly became very careful about turning off the power switch when not actually shooting. So it goes when your sight consumes the battery equivalent of Beluga caviar.

On balance, we found the Aimpoint Comp an excellent all-around performer. It is relatively light, compact and bright, and was throughout our extended test period utterly dependable. Our only gripe (a petty one, admittedly) is that unlike earlier models the Aimpoint Comp does not come with front and rear lens covers. Even without lens covers, though, the Comp impressed us as a top contender for anyone looking for a capable, high-quality red-dot sight.

Available from: Aimpoint USA (Dept. AR), 420 W. Main St., Geneseo, IL 61254. Price:(includes batteries, mount ring, hex wrench and cleaning cloth) $308.