

Dope Data BAG & Comments

It's not surprising that Thompson/Center would use traditional wood and steel for its newest gun. What is surprising, though, is that the gun is a semi-automatic rifle chambered for .22 Long Rifle.



Thompson/Center 22 Classic

A lot can be said for using modern materials when manufacturing firearms. For example, synthetic stocks are tough and unaffected by environmental conditions, and aluminum is lightweight and corrosion-resistant. A lot can also be said about using time-honored, classic materials, such as wood and steel. Nothing beats wood for its warm glow and attractive figure, and "tough as steel" wouldn't be a cliché if there weren't some truth in it. It's not surprising that Thompson/Center would use these traditional materials on its newest gun. What is surprising is that

the gun is a semi-automatic rifle chambered for the .22 Long Rifle cartridge. That gun, the T/C 22 Classic, was shown at the 2000 SHOT Show and recently received here for test and evaluation.

At first sight, it's clear that the T/C Classic makes a statement with its unconventional lines. Beginning with a premium American walnut blank, T/C shapes the Classic's stock with a Monte Carlo cheekpiece and squared fore-end. It comes standard with quick-detach, steel sling swivel studs. The pistol grip's wrist appears to be an ergonomic aberration, but actu-

ally positions the shooter's hand at a comfortable angle within easy reach of the smooth trigger blade. It's finished with a black grip cap with the T/C logo, and blends at the top with the sculpted, all-steel receiver.

Inside the receiver, a steel bolt rides on rails formed by the top of the fire control assembly, and is returned to battery by a single coil return spring surrounding the guide rod. At the rear of the receiver, a large rubber buffer dampens the impact of the bolt during cycling of the blowback action.

Contained within the fire control assembly are the hammer, powered by a large, single mousetrap spring; hammer/trigger-blocking safety lever; magazine-activated, bolt hold-open device; ejector; and one-piece trigger/sear/disconnector. That piece has essentially three "hooks." The first is the trigger blade proper. The second works as the sear by holding the hammer in the cocked position until the trigger is pulled, while the third hooks the hammer until the trigger is released, thus acting as the disconnector.

T/C 22 CLASSIC

MANUFACTURER:

Thompson/Center Arms Co., Inc. (Dept. AR), P.O. Box 5002, Rochester, NH 03866; (603) 332-2333; www.tcarms.com

CALIBER: .22 Long Rifle

ACTION TYPE: blowback-operated, semi-automatic rifle

OVERALL LENGTH: 38½"
BARREL: 22"

RIFLING: button-rifled, six-groove, 1:15" RH twist

MAGAZINE: five-round, detachable steel box

WEIGHT: 5 lbs., 13 ozs.

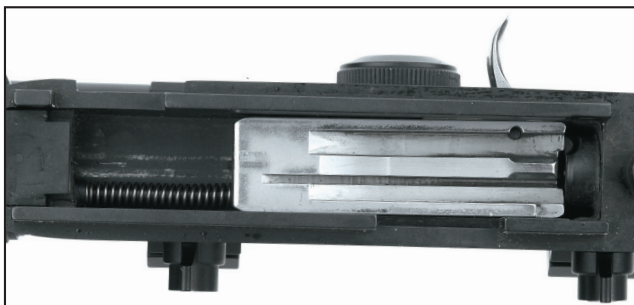
SIGHTS: fully adjustable, green fiber-optic rear; red fiber-optic front

TRIGGER: single-stage, non-adjustable; 3-lbs. pull

STOCK: American walnut; length of pull, 13½"; drop at heel, 2¼"; drop at comb, 1¼"

ACCESSORIES: padlock with keys, empty chamber indicator

SUGGESTED RETAIL PRICE: \$335



A steel bolt is returned to battery by a single coil return spring surrounding the guide rod. At the rear of the receiver, a rubber buffer dampens the impact of the bolt during cycling.

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."

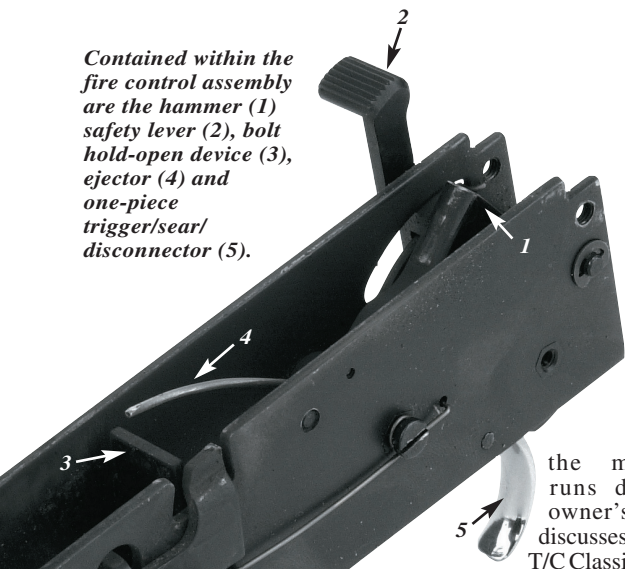
WARNING: Technical data and information contained herein are intended to provide information based on the limited experience of individuals under specific conditions and circumstances. They do not detail the comprehensive training procedures, techniques and safety precautions absolutely necessary to 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.

SHOOTING RESULTS

.22 Long Rifle Cartridge	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (inches)	Largest (inches)	Average (inches)
Federal GM Match 900 40-gr. SP	1087 Avg. 25 Sd	105	0.1	0.51	0.83	0.67
Federal GM Target 711 40-gr. SP	1032 Avg. 15 Sd	95	0.1	0.62	1.05	0.79
Federal GM Match 900B 40-gr. SP	1019 Avg. 27 Sd	92	0.1	0.64	1.12	0.88
Average Extreme Spread:						0.78

Measured average velocity for 10 rounds from a 22" barrel. Range temperature: 66° F. Humidity: 56%. Accuracy for five consecutive, 10-shot groups at 50 yds. from a sandbag. Abbreviations: Sd (standard deviation), SP (solid-point), GM (Gold Medal).

Contained within the fire control assembly are the hammer (1) safety lever (2), bolt hold-open device (3), ejector (4) and one-piece trigger/sear/disconnector (5).



the magazine runs dry. The owner's manual discusses using the T/C Classic as a single-shot by removing the magazine and manually manipulating the hold-open, but it seems much simpler to single-load the magazine instead.

A simple wire wrapped around a screw serves as the ejector. It projects up into a groove in the bottom of the bolt, and when the bolt reaches its rear-most position, the rim of a spent cartridge hits the tip of the wire causing the case to eject free of the action.

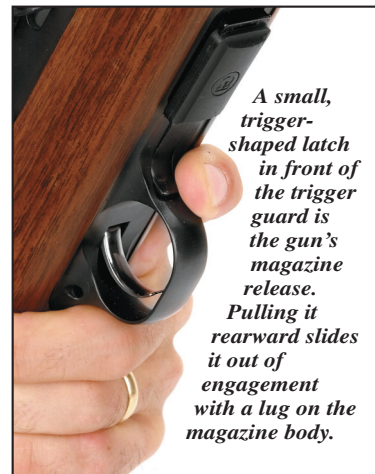
There is no magazine disconnect, so the T/C Classic will fire with the magazine removed, but the magazine does activate a bolt hold-open device when

When activated, the manual safety lever has a lug at its top that blocks the hammer from moving forward and a lug on its bottom that prevents the trigger from being pulled rearward. Red and green dots on the right side of the stock indicate the condition of the safety lever. For added security, a small padlock provided with the T/C 22 Classic can be locked through the rear of the trigger guard to lock the safety in the "safe" position.

The T/C Classic's magazine is all-steel with a plastic floorplate. With a capacity of five rounds, the magazine fits flush

with the bottom of the stock so it doesn't spoil the lines of the Classic. A small, trigger-shaped latch in the front of the trigger guard is the magazine release. Pulling it rearward slides it out of engagement with a raised lug on the magazine body allowing that part to drop free.

Barrels are match grade and threaded into the receiver, and they feature a recessed target crown. Button rifling is held to a .0005" tolerance the entire 22" length of the barrel, and fully adjustable, fiber-optic sights are standard. The rear sight on our sample had the new "double blade" that protects the green fiber-optic element from damage while the front sight had four metal bands across its red fiber-optic element to protect it. Holes are already drilled and tapped in the receiver for Weaver No. 411 scope bases, a convenient feature for mounting a scope, such as the Weaver 2.5-7x28 mm we put on the test gun when firing it for accuracy. Before receiving the sample rifle, T/C had three types of Federal Gold Medal ammunition sent to us for use in our accuracy tests. The factory's in-house testing had shown that Federal 900, 900B and 711 loads were the most accurate. We found Federal's 900 shot best in our test rifle, and that 711 tended to result in the occasional stovepipe malfunction where the ejected case didn't clear the receiver. Tightest groups were possible when the front



A small, trigger-shaped latch in front of the trigger guard is the gun's magazine release. Pulling it rearward slides it out of engagement with a lug on the magazine body.

sandbag was moved back to the trigger guard instead of under the fore-end.

Function firing was with a mixed bag of solid, hollow-point and truncated cone-shaped bullets—all .22 Long Rifle as T/C cautions against using anything else, such as .22 CB, Short, Long or shotshells. Aside from the above-mentioned stovepipes, there were no malfunctions of any kind despite the variety of bullet styles used. Trigger pull is great for a sporter rifle having no take-up and very little creep, but the super-smooth surface is slick and does not provide great finger purchase. Let-off was a crisp three pounds with no overtravel. Left-handed staffers appreciated the location and operation of the magazine release.

We were taken with the light weight of the T/C 22 Classic. The 13 3/8" length of pull suits smaller shooters equally as well as those with a large frame. While a good choice for a first gun, the real value of the T/C 22 Classic is in knowing its high quality ensures it may be passed on to future generations. The price point puts the T/C 22 Classic in the same league with rifles such as Browning's Auto-22 and Remington's 522 BDL Speedmaster, while the materials, construction, fit, finish and performance confirm that



Factory testing showed that Federal's Gold Medal line of match and target ammunition was most accurate in the T/C 22 Classic, so we used that as our test ammunition.

Knight Wolverine II

Knight's new version of the LK-93 combines the full-side stock of the American Knight with the upgrades found on the original Wolverine. That gun, the Wolverine II, is now available through traditional gunshops.



WOLVERINE II

MANUFACTURER: Modern Muzzleloading, Inc. (Dept. AR), P.O. Box 130, 21852 Hwy J46, Centerville, IA 52544; (515) 856-2626; www.knightrifles.com

CALIBER: .50 (tested), .54
ACTION TYPE: in-line, muzzleloading rifle

OVERALL LENGTH: 41"

BARREL: 22" Green Mountain

RIFLING: cut, eight-groove, 1:28" RH twist

WEIGHT: 6 lbs., 11 ozs.

SIGHTS: fully adjustable red, fiber-optic rear, green fiber-optic front

TRIGGER: single-stage, factory-adjustable for creep and pull weight; 2½ lbs. pull

STOCK: synthetic standard or thumbhole; black, Advantage Timber, Realtree Hardwoods, Mossy Oak Break-Up; length of pull, 14½"; drop at heel, 2½"; drop at comb, 1"

ACCESSORIES: combo tool, instructional video, five plug screws

SUGGESTED RETAIL PRICE: \$270



For an upcoming elk hunt, we settled upon a load of 130-grs. equivalent of Pyrodex Pellets behind a Knight 300-gr. Swift A-Frame bullet. This load gave us the best balance between power and accuracy.

Knight's LK-93 is the company's best selling line of in-line muzzleloaders. First came the LK-93 Legend with a birch stock that was quickly supplanted by the less expensive Knight LK-93 Wolverine. The Wolverine differed from the Legend primarily in that it had a lightweight, synthetic stock with recessed buttstock sides. A few years ago, Knight introduced the LK-93 American Knight—a basic, no-frills version of the Wolverine available only with a blued barrel and full-sided, black synthetic buttstock.

Recessed buttstock sides have recently fallen out of favor with consumers, so Knight came up with a new LK-93 version that combines the full-side stock of the American Knight with the upgrades found on the Wolverine. That gun, the Wolverine II, is now available in conventional or thumbhole, and black or camouflage

stock versions. While the American Knight will continue to be available through mass merchandisers and catalogs, the Wolverine II is an entry-level-priced muzzleloader available to customers loyal to their local, full-line gunshops.

Available stock options are what really set the Wolverine II apart from its progenitors. Camouflage patterns include Advantage Timber, Mossy Oak Break-Up and Realtree Hardwoods. Basic black is an option, and the Wolverine II can also be had as a Knight Value Pack that includes everything you need to start shooting except powder and percussion caps. Small-statured shooters have the option of a Wolverine II Youth version with a 12½" length of pull that is also offered as a Knight Value Pack.

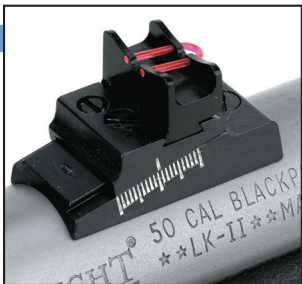
At the heart of all Knight muzzleloaders is a Green Mountain rifle barrel that on the Wolverine II is 22" long with 1:28" twist rifling for stabilizing bullets in sabots. Caliber choices are .50 or .54, and blued

or stainless barrels are available.

Another feature common on all of Knight's muzzleloaders is the one-piece barrel/receiver. Rifling starts at the muzzle and extends back 22" where the

Three metal bands protect the Knight Wolverine II's front sight element while still allowing it to collect plenty of light.





The rear sight has a double blade through which the red fiber-optic element passes. The forward-most blade protects the element from impact.

rifling ends and a threaded section begins. This threaded section receives the breech plug that in turn receives Knight's double-taper Red Hot nipple that is sized for No. 11 percussion caps. Behind the breech plug, the top half of the barrel/receiver is milled out to form a priming port, and the rear end of the barrel/receiver contains the cylindrical striker assembly. The priming port is fairly small, and an in-line capper is necessary.

Safety has always been a primary consideration with Knight rifles. The company's patented double-safety system has a conventional trigger blocking safe-

ty lever at the right rear of the receiver as its primary safety. Unique to Knight rifles is the secondary safety that functions as a striker block. Here, a knurled knob at the rear of the striker is turned down to arrest the forward movement of the striker should the trigger be inadvertently pulled. When engaged, the knob impacts the receiver end cap, stopping the striker before it hits the nipple.

Sights are fully-adjustable TRUGLO fiber-optic units—green front and red rear. The rear sight has, for lack of a better term, a "double blade." The rearmost blade has a U-shaped notch with the fiber-optic element terminating on each side to form bright red dots. The front most rear blade is essentially a silhouette of the rearmost, through which the fiber-optic element passes to protect it from impact. Our experience with fiber-optic front sight

elements is that they're fragile and easily broken when doing something as simple as leaning the gun against a wall. On the Wolverine II, three bands of metal protect the element from such damage while still allowing it to collect enough ambient light to glow like a radioactive isotope.

For shooters who prefer to use a receiver sight or scope, the Wolverine II is drilled and tapped.

Also adjustable on the Wolverine II is the trigger, though any adjustments should be done only by the factory or a certified gunsmith.

We fitted the Wolverine II with a Nikon 3-9x40 mm Monarch UCC scope and fired it for accuracy with the results shown in the accompanying table.

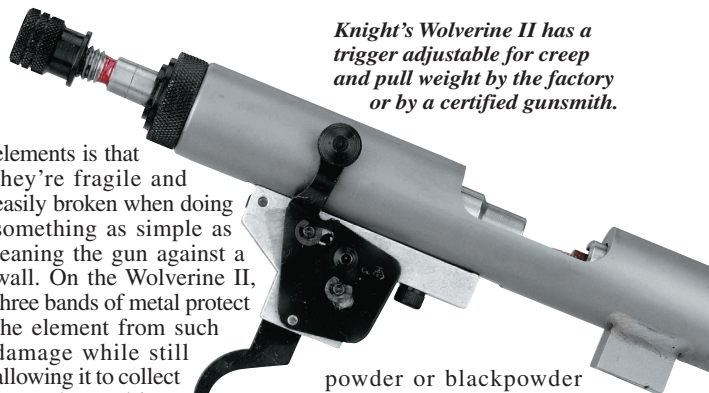
As this rifle has a fast twist, we chose to use only bullets in sabots, as previous testing by the Technical Staff has shown that to be the most accurate combination. Also, Knight warns against using non-saboted lead projectiles in its rifles for safety reasons. As for powder charges, the maximum load shown in the owner's manual is a charge of 120-grs. by volume of black-

Extensive testing has shown that the Wolverine II is suitable for loads of up to three Pyrodex Pellets or 150-grs. equivalent.

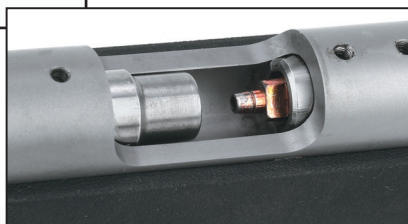
SHOOTING RESULTS

.50 Caliber	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (inches)	Largest (inches)	Average (inches)
Knight 250-gr. RHB, 120-grs.* FFG Clean Shot, CCI No. 11 Magnum cap	1435 Avg. 46 Sd	1143	16.7	3.40	4.90	4.07
Knight 325-gr. SA-F 100-grs.* Goex FFG Clear Shot, CCI No. 11 Magnum cap	1490 Avg. 44 Sd	1602	21.8	3.62	5.30	4.42
Knight 260-gr. LHP, two 50-gr. equivalent Pyrodex Pellets, CCI No. 11 Magnum cap	1595 Avg. 38 Sd	1470	17.6	1.72	3.52	2.38
Average Extreme Spread:						3.62
Measured average velocity for 10 rounds from a 22" barrel. Range temperature: 66° F. Humidity: 56% Accuracy for five consecutive, five-shot groups at 100 yds. from a sand-bag. Abbreviations: LHP (lead hollow-point), RHB (Red Hot bullet), SA-F (Swift A-Frame), Sd (standard deviation).						

Knight's Wolverine II has a trigger adjustable for creep and pull weight by the factory or by a certified gunsmith.



Knight's patented double-safety system has a conventional, trigger-blocking safety lever and a knurled knob at the rear of the striker that is turned down to arrest the forward movement of the striker should the trigger be inadvertently pulled.



Behind the breech plug, the top half of the barrel/receiver is milled out to form a priming port. The port is not very large, and an in-line capper will be necessary for most shooters.



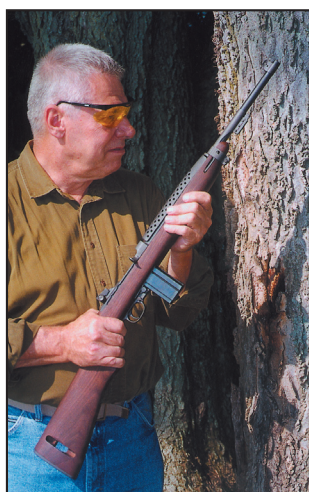
powder or blackpowder equivalent, but that's about to change. Extensive testing at Knight has shown that the Wolverine II is suitable for loads of up to three Pyrodex Pellets, or 150-grs. equivalent, and future owner's manuals will contain the new data.

We went to the 150-gr. maximum during testing as we were also preparing this rifle for an upcoming elk hunt, but settled on a slightly lighter load of 130-grs. equivalent of Pyrodex Pellets behind a Knight 300-gr. Swift A-Frame bullet in a sabot. This load gave us the best balance between power and accuracy. Groups at 100-yds. averaged 1.4" and muzzle velocity was 1787 f.p.s. Assuming an elk's vital area is about 10" in diameter, that load gave us a maximum point blank range of 185 yds. with the rifle zeroed at 160 yds., though energy had dipped to about 750 ft.-lbs. at that range. Unfortunately, our elk permits fell through, so we'll have to remember that load and try again next year.

The Wolverine II, then, is an example of a well-made muzzleloader for the entry-level hunter or shooter. Knight's method of marketing the Wolverine II supports small, local gunshops while providing their customers with an accurate, affordable product.

With its high fun-to-shoot quotient, the M1 Carbine refuses to die. From Israel Arms Int'l (IAI) of Houston, Texas, come the new M1 Carbine in .30 Carbine. Soon a 5.7 mm Johnson chambering will also be available.

IAI M1 Carbine



During a 38-month period from June 1942 to August 1945, 11 American companies manufactured more than 5.5 million U.S. M1 Carbines. American G.I.s quickly came to appreciate the short, handy arm for its light weight, low recoil and large magazine capacity. Although the last new carbines for the U.S. government were made just before VJ Day, returning veterans brought their fondness for and familiarity with the little guns home with them. Civilian demand for the M1 Carbine became so strong after World War II, that private companies such as Plainfield Machine,

Universal and Iver Johnson undertook commercial manufacture for the civilian market. By the early 1990s, those companies had disappeared, but civilian demand for the M1 Carbine had not. To meet that demand, Israel Arms International (IAI) was founded in the late 1990s using Israeli quality control and American manufacturing techniques to produce M1 Carbines in Houston, Texas.

There are three versions to choose from: a birch-stock model with a vented metal upper handguard; a walnut-stock model

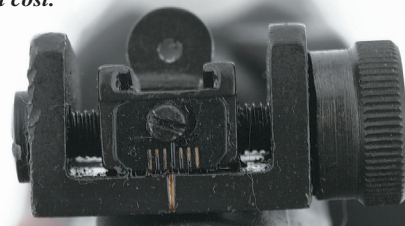
with a vented metal handguard; and a walnut-stock model with a wooden handguard. While the latter model is closest to the actual G.I.-issue Carbine, the metal-handguard versions are more durable and allow barrel heat to dissipate more quickly. Our test example had the walnut stock and metal handguard.

Operation, assembly and disassembly of the IAI M1 Carbine is exactly like the original, meaning it is a gas-operated, semi-automatic design employing a short-stroke piston gas sys-

SHOOTING RESULTS

.30 Carbine Cartridge	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Recoil (ft.-lbs.)	Smallest (inches)	Largest (inches)	Average (inches)
Winchester No. X30M1 110-gr. SP	1907 Avg. 16 Sd	888	3.7	1.23	2.24	2.03
Federal No. AE30CB 110-gr. FMJ	1886 Avg. 5 Sd	869	3.7	1.83	2.62	2.19
Fiocchi No.30US 110-gr. FMJ	1896 Avg. 11 Sd	878	3.7	2.26	3.53	2.81
Average Extreme Spread:						2.34
Measured average velocity for 10 rounds from a 17½" barrel. Range temperature: 63° F. Humidity: 44 %. Accuracy for five consecutive, five-shot groups at 50 yds. from a sandbag. Abbreviations: Sd (standard deviation), FMJ (full metal jacket), SP (soft point).						

Sights of the IAI M1 Carbine are of the T21-type and are adjustable for windage by means of a knob on the right side of the rear sight. Elevation can be adjusted by means of a peep sight sliding on an incline marked for various distances. A scope mount is offered at additional cost.



IAI M1 CARBINE

MANUFACTURER: Israel Arms Int'l IAI Inc. (Dept. AR), 5709 Hartsdale, Houston, TX 77036; (713) 789-0745; www.israelarms.com

CALIBER: .30 Carbine

ACTION TYPE: semi-automatic, gas-operated, center-fire rifle

RECEIVER: investment cast 4140 steel

FINISH: Parkerized

OVERALL LENGTH: 35½"

BARREL: 17½"

RIFLING: four-groove, 1:20" RH twist

MAGAZINE: detachable, 10-, 15- (tested) or 30-round capacities

SIGHTS: protected blade front, peep rear adjustable for windage and elevation

TRIGGER: two-stage, non-adjustable, 4½-lb. pull

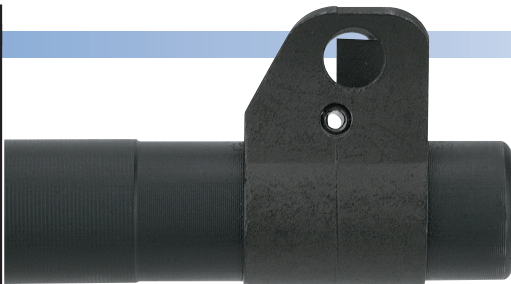
STOCK: walnut: length of pull, 13½"; drop at heel, 2"; drop at comb, 1½"

WEIGHT: 5 lbs., 8½ ozs.

ACCESSORIES: available at added cost: spare magazines, oiler, sling, scope mount, flash hider, magazine pouch, flashlight with mount, laser with mount

SUGGESTED RETAIL

PRICE: \$636 (walnut stock and metal handguard), \$652 (with walnut stock and handguard), \$599 (birch stock and metal handguard)



We found accuracy of the new IAI M1 Carbine to be better than most G.I. versions. Note that the group size of the accompanying target does not exceed 2" extreme spread.



rod, leaving polishing to a minimum. Despite that, the visual effect remains one of excellent workmanship, fit and finish. Wood-to-metal fit on the IAI Carbine is acceptable, but not in the same class as commercial, bolt-action hunting rifles.

Although the carbine is made to "mil specs," the company has endeavored to improve on the quality rather than simply copy the G.I. version. For example, the domestically made button-rifled barrel IAI installs has a chamber made to "match-grade" tolerances. Essentially, the chamber is tighter by a few thousandths and more consistent than an average military chamber. As a result, while most G.I. carbines produce five-shot groups of 3" to 5" at 100 yds., IAI's guns typically group 2" to 2½" under similar conditions, according to company literature. Our tests supported that claim.

We tested the sample gun with several surplus, G.I. 15- and 30-round magazines and found they functioned flawlessly. Out of the box, our test example came with one 15-round, surplus, G.I. magazine, however, IAI offers new 10- and surplus 30-round magazines for those who want them at added cost.

The IAI comes equipped with the T21-type rear sight, which replaced the M1 Carbine's original two-aperture flip rear sight in 1943. The T21-type rear sight made by IAI is click-adjustable for windage using a knob on the right side of the sight base. Elevation can be changed by means of a peep sight that slides up or down on a sloped ramp with numbered stops corresponding to target distance. The front sight consists of a blade with a protective wing on either side.

IAI M1 Carbines are marked "Houston TX USA IAI," which will prevent any possible confusion for collectors of original military M1 Carbines. IAI backs all its carbine models with a two-year parts and labor warranty.

We tested the IAI with four different brands of commercial, .30 Carbine ammunition with both full-metal-jacket and soft-point bullets. Functioning and general operation proved flawless. For those so inclined, .30 Carbine brass is easily reloadable using commonly available components. If you do intend to start reloading .30 Carbine brass, remember that the case is tapered

Carbine cartridge as a weak orphan that is useless for hunting, target shooting or serious self-defense. But if that is true, why does it remain so popular? The answer seems to be that the fast-firing, handy little carbine with low recoil is just the ticket for plinking, hunting small game or varmints, informal target shooting, and personal protection. In the latter case, users might respond that the "puny" .30 Carbine cartridge retains more energy at 100 yds. than the .357 Mag. has at the muzzle!

Perhaps the continuing popularity of the M1 Carbine among civilian shooters in the



IAI's new M1 Carbine is made to military specifications using a mix of new parts—in particular, an investment cast receiver and new barrel—and original parts with a classic Parkerized finish on all metal parts. Both walnut and birch stocks are offered.

and must be full length resized every time. That will go faster using carbide dies, which eliminate having to lube the cases when sizing them.

The .30 Carbine cartridge with its round-nose, 110-gr. bullet at a muzzle velocity of 1990 f.p.s. offers a modest 965 ft.-lbs. of energy at the muzzle with 600 ft.-lbs. remaining energy at 100 yds. That brings up the much-debated subject of "so what good is it." Critics decry the .30

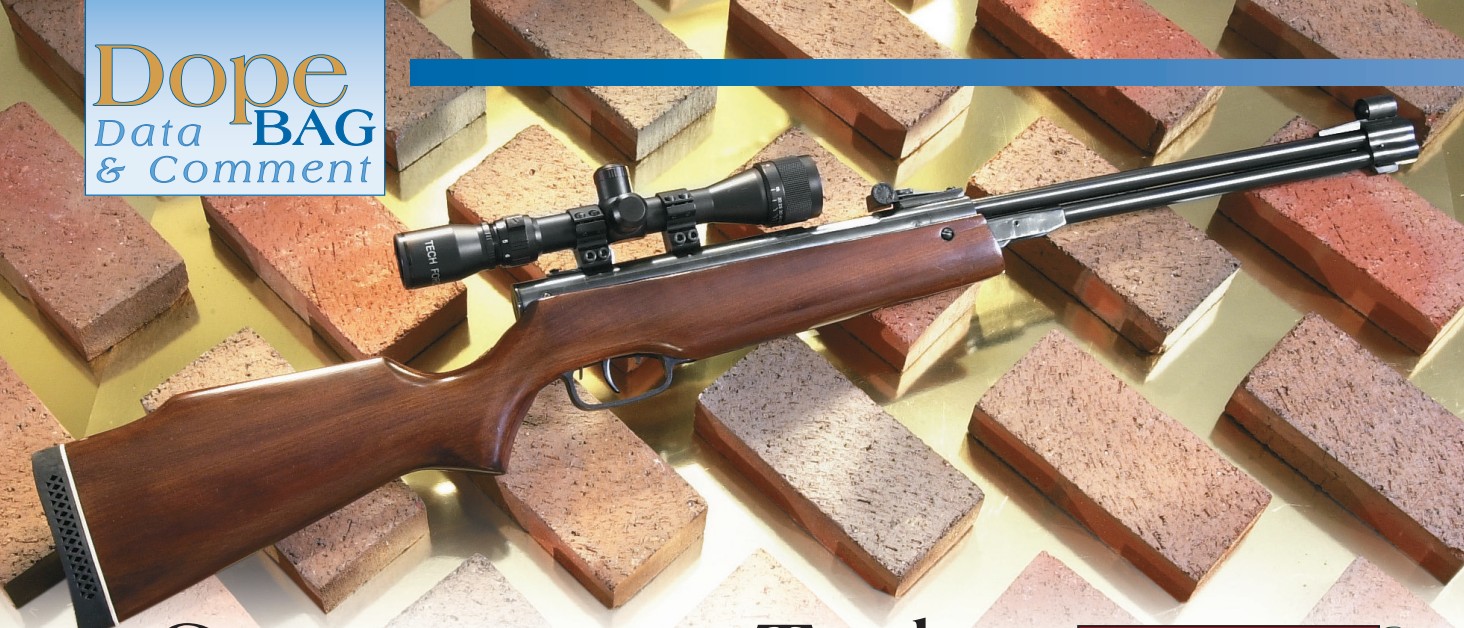
United States fully 58 years after its introduction is precisely that it is a jack-of-all-trades with a very high fun-to-shoot quotient and a rich heritage. Of such attributes legends are made. And, the IAI M1 Carbine appears right on target to continue that legend. IAI also plans to chamber the gun in .22 Carbine (or 5.7 mm Johnson) and is even working on another World War II soldiers' classic: the M1 Garand.



tem. That system will be a comfort to those familiar with the original. For shooters new to the carbine, the IAI operator's manual included with the rifle covers such subjects in detail. Similar information is also available from firearms reference books, military manuals and *American Rifleman* reprints. For that reason, they will not be covered in detail here.

All metal parts are Parkerized in similar fashion to the originals. IAI uses domestically manufactured parts, and the receiver is an investment casting of 4140 carbon steel. IAI also makes the parts for the gas system and rear sight assembly along with some pins and springs. More and more new parts will be used as production proceeds because the supply of surplus parts continues to dwindle. As a matter of fact, IAI is working on investment cast trigger guards and bolts, though those in our sample were of government manufacture.

The firm claims complete interchangeability with G.I. parts. IAI finish-machines the receiver, barrel and operating



Compasseco Tech Force 97 Air Rifle

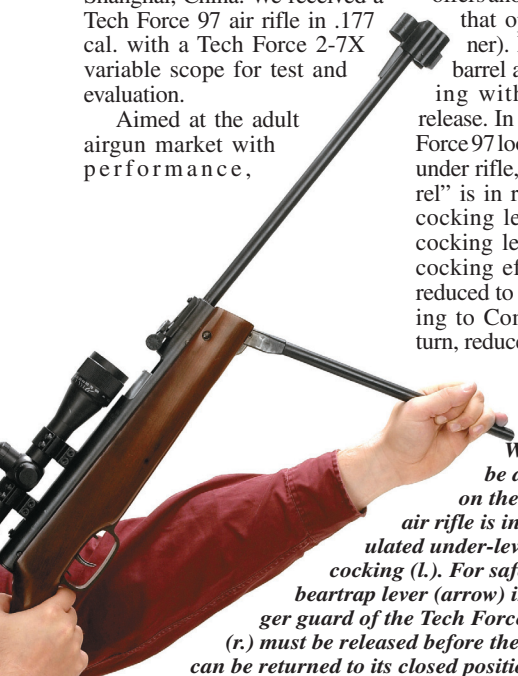
Compasseco aims to be your source for sporting air guns and airgun accessories of all types. To this end, it offers a wide variety of airgun brands from all over the world including: Air Force, Rutten, Webley & Scott, Beeman, Gamo, RWS, Crosman, Benjamin Sheridan, CZ, Daisy, Marksman and Tech Force. Compasseco is the exclusive importer of the extensive Tech Force product line made to its specifications by the Shanghai Air Gun Factory in Shanghai, China. We received a Tech Force 97 air rifle in .177 cal. with a Tech Force 2-7X variable scope for test and evaluation.

Aimed at the adult airgun market with performance,

weight and dimensions to match, the TF 97 is a high-velocity, sporting air rifle for pest elimination, hunting small game and informal target shooting or plinking. Offered in either .177 cal (muzzle velocity 900 f.p.s.) or .22 cal. (muzzle velocity 700 f.p.s.), the Tech Force 97 is powered with air compressed by a spring-powered piston.

Unlike many European-made, spring-piston air rifles, the TF 97 air rifle does not break open in shotgun style (Tech Force offers another model, the TF25, that operates in that manner). Rather, it has a fixed barrel and under-lever cocking with an anti-bear trap release. In appearance, the Tech Force 97 looks much like an over-under rifle, but the bottom "barrel" is in reality the articulated cocking lever. By placing the cocking lever in this position, cocking effort is substantially reduced to about 12 lbs. according to Compasseco, which, in turn, reduces shooter fatigue.

Cocking is accomplished by pressing the under-lever retaining latch under the front sight base to release the lever that may then be pulled rearward through an arc of about 150 degrees until a distinctive "click" is heard. The cocking lever pushes the air piston rearward inside the receiver against the compressed mainspring. At the same time, the breech block behind the barrel moves rearward to expose the rear end of the barrel for loading through a large cutout in the top front of the receiver. After inserting a pellet in the barrel and releasing the anti-bear trap lever inside the trigger guard, the under-lever can be returned and locked in its closed position, thus completing the loading procedure. When the trigger is pulled, the air piston is released, travelling forward under pressure from the main-spring. Air inside the receiver is compressed rapidly and forced through a small vent on the front of the receiver aligned with the



What appears to be a lower barrel on the Tech Force 97 air rifle is in fact an articulated under-lever used for cocking (l.). For safety, an anti-bear trap lever (arrow) inside the trigger guard of the Tech Force 97 air rifle (r.) must be released before the under-lever can be returned to its closed position.



TECH FORCE

MANUFACTURER:

Shanghai Air Gun Factory, Shanghai, China

IMPORTER:

Compasseco, Inc. (Dept. AR), 151 Atkinson Hill, Bardstown, KY 40004;

(800) 726-1696;

www.compasseco.com

CALIBER:

.177 or .22

ACTION TYPE:

spring-air piston, single-shot air rifle

RECEIVER:

1.270" diameter steel

FINISH:

blue

OVERALL LENGTH:

41"

BARREL:

18", carbon steel

RIFLING:

12 groove, 1:9½"

RH twist

WEIGHT:

7 lbs., 7 ozs.

SIGHTS:

hooded steel blade on grooved ramp front; notch in blade rear, click-adjustable for windage and elevation

TRIGGER:

single-stage, non-adjustable;

5½-lb. pull

STOCK:

oil-finished, walnut-stained hardwood with Monte Carlo comb and cheek rest:

length of pull, 14½";

drop at heel, 2½";

drop at comb, 1½"

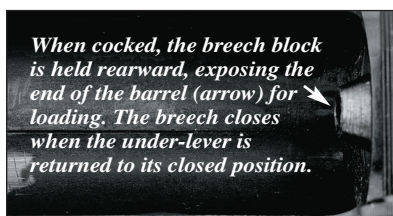
SUGGESTED RETAIL PRICE:

\$100



SHOOTING RESULTS

.177 Caliber	Vel. @ 15' (f.p.s.)	Energy (ft.-lbs.)	Smallest (inches)	Largest (inches)	Average (inches)
Gamo 9-gr. Round Ball	550 Avg. 28 Sd	20	0.92	1.40	1.31
RWS 9-gr. Flat Nose	650 Avg. 2 Sd	47	0.42	0.682	0.55
Beeman 9-gr. Spire Point	663 Avg. 7 Sd	22	0.495	0.67	0.56
Average Extreme Spread:					0.80
Measured average velocity for 10 rounds from an 18" barrel. Range temperature: 66° F. Humidity: 56 %. Accuracy for five consecutive, five-shot groups at 33' from a sandbag. Abbreviations: Sd (standard deviation).					



When cocked, the breech block is held rearward, exposing the end of the barrel (arrow) for loading. The breech closes when the under-lever is returned to its closed position.

barrel. Flowing through the vent, the expanding air pushes the pellet down the barrel.

The TF97's steel receiver is grooved for a dovetail scope mount and also has a scope stop to prevent optical sights from shifting. Standard equipment includes a square front sight blade protected by a stamped, steel hood and a rear notch in blade fully click-adjustable for windage and elevation.

Our test rifle mounted an optional Tech Force 2-7X variable air rifle scope with a 1" diameter tube, 32 mm adjustable objective lens and target-type adjustment turrets. Adjustment knobs have 1/4" click adjustments, clear white-on-black lettering and knurled surfaces to allow easier finger adjustment. Our sample scope

was of aluminum alloy construction with a matte black anodized finish. Exterior lenses were coated to improve light transmission. The reticle was a duplex-type with thin center crosshairs and thicker outer crosshairs. Included in the scope package were 1" diameter steel rings with tip-off bases and see-through plastic covers for both lenses.

Here, it is important to note that spring-piston-powered air guns require special scopes. The forward counter-recoil of the rebounding air piston will quickly loosen the internal components of standard rifle scopes that are stressed to accommodate rearward recoil only. Another problem with using standard rifle scopes on air guns is close range focus. Most standard rifle scopes simply will not focus at the very close ranges for air rifles. The TF 97 scope solves both problems as it has a lens system designed to handle both recoil and counter-recoil, as well as an ability to focus on targets as close as 22½'.

The one-piece wood stock has a full pistol grip,

Monte Carlo comb with cheekpiece and a ventilated rubber recoil pad with a white line spacer. Finish is a semi-gloss, oil-type over walnut-stained hardwood. There is no pistol grip cap and no checkering. With the 2-7X scope mounted, the balance point is about 2" in front of the trigger guard.

With a 7 lb., 7 oz. weight, 41" overall length and 14¾" pull on the buttstock, the TF 97 air rifle is dimensioned for adults. As adults, we appreciated the heft, balance and fit of the TF 97. Handling of the TF 97 feels very much like a center-fire hunting rifle, which is why many owners will buy it—for off-season plinking and practice or dispatching the occasional pest. The high muzzle velocity, scope and easy operation of this air rifle make the TF 97 eminently suitable for such pastimes.

We found the overall fit and finish of the TF 97 fully in keeping with its intended purpose. The bluing is low polish and plenty of small tool marks remain in various places, but remember this is intended as a sporting air rifle and these minor imperfections do not affect operation or accuracy. Fit and finish of the stock were rather better with the wood grain

nicely filled, the stain applied evenly and the oil finish adequately smooth.

Range testing of the TF 97 began by checking muzzle velocity and accuracy using several different brands and weights of .177-cal. pellets. We found muzzle velocity as specified, provided light weight pellets were used. When heavier 9 gr. pellets were used, muzzle velocity dropped off to approximately 650 f.p.s. With match-grade pellets, accuracy proved more than adequate for a sporting air rifle. The results of these tests are summarized in the accompanying table.

We experienced no operational difficulties with the TF 97 in shooting several hundred pellets both in the field and on the range. Everyone who shot the TF 97 air rifle liked the handling and accuracy. The fixed barrel and low cocking effort also received favorable comments, although several shooters suggested knurling the front end of the under-lever for better purchase.

As a moderately priced, sporting air rifle package for adults, the Tech Force 97 air rifle with 2-7X variable scope and rings offers good value. The dimensions, features, performance and handling of the Tech Force 97 air rifle with or without the 2-7X scope package should prove attractive to a wide variety of sporting rifle shooters.

NRB



The TF 97 air rifle can be purchased as a package including this 2-7X variable scope with a 32 mm objective lens and a set of scope rings, or the components may be purchased separately. Best accuracy was with match-grade pellets while the highest muzzle velocities were obtained with lightweight pellets.

