

SHOOTER'S IN-SIGHT

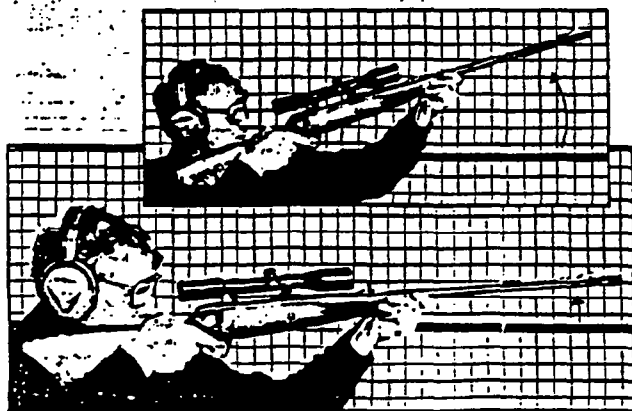
By Ross Seyfried

A world champ takes a sharp look at today's gun scene.

Recently, several of your letters have made me aware of a problem that confronts you when you want to buy a product that you have seen in my column. Sometimes I will quote a retail price on a product so that you have some ball park idea of what that item costs, and later, when you order that product, you find the price is considerably higher than you expected. There are two reasons why this happens. First, you should understand that there is a considerable time lag between my purchasing and evaluating the product, and when you see it printed in *Guns & Ammo*. From the date that I submit material to the magazine, to the day you read it, takes a minimum of three months. Normally I will

own and use a given product for several weeks or months before I am confident that it has the quality and performance to make it worthy of me telling you about it. In short, from the time I buy a product for testing until you read about it could easily be six months or a year. In that time, very natural price increases can and do occur. There are also times when a manufacturer, especially a small independent one, will see the tremendous advertisement value of my putting my seal of approval on his product. In the American way of supply and demand they will raise their price, sort of charging what the traffic will bear. Good, bad or indifferent, this is the way of

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In top photo, author fires the powerful new .411 KDF cartridge without using any recoil reducing device. Bottom photo shows how the muzzle jump is held down when the KDF muzzle brake is employed.

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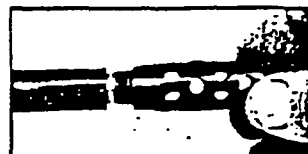
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the American marketplace, but keep in mind you are in charge of that system. If someone gets too greedy and charges more than you think a product is worth... don't buy it. If enough people agree with you, the price will come down. It's simply called freedom, the same thing that lets us own firearms and shoot!

Those of you who know me and even some who don't will be surprised to see me devoting space to a muzzle brake. It's not that I'm biased against them, I just don't like the damn things. Or, I should say, I didn't like them.

My dislike was well-founded, since in general they were obtrusive, ugly, noisy and more or less didn't work. When I was competing, I had access to any kind of brake or compensator for the .43 ACP I wanted. I didn't use any of them, because the very minimal benefits were outweighed by their negative aspects. I just left it at that for rifles or handguns. My attitude was, "Show me one that works, and I'll take the time to look again." Some months ago a friend called to say that he had seen a rifle with a muzzle brake on it that was something special, and it really worked.

I doubted that, but contacted KDF and had a brake fitted to my .30-06, then had them send me a longer rifle chambered for their proprietary .411 KDF cartridge. I'll talk about the .411 in depth later, but to keep things in perspective, it is a ballistic brother to my pet .416 Rigby. They live in



To adapt a KDF muzzle brake to your rifle, the barrel must be threaded. Then simply screw the brake in place.

the realm of major horsepower for heavy game—400-grain bullets at 2,400 feet per second (fps). That kind of power also has an attendant heavy recoil, making the .411 a good guinea pig to acid test the KDF muzzle brake.

My lack of success with brakes in the past aside, physics lessons were the main reason I doubted if the KDF brake would work. This fellow Newton, who said there was an equal but opposite reaction for every action, hasn't been proven wrong yet. What he was saying about guns is that if you push a lot of energy downrange toward the target, your gun is going to push back uprange (recoil). The point being that there isn't a damn thing you can do about recoil, except make the gun heavier and make the recoil velocity of the gun lower to make it feel better. Unfortunately, the

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cure becomes worse than the disease if the arm is heavier than we want it. What I hadn't considered is that the recoil that you can't cure is only related to the bullet's mass and its velocity. There is another component of recoil that I hadn't thought about. This is the recoil generated by the gas escaping the muzzle. A firearm, in very simple terms, is nothing but a rocket engine (with a bullet or shot charge in front of it). The gas generated by the burning powder pushes the bullet or shot down the barrel and toward the target. As the lead leaves the muzzle, all of that compressed gas escapes and drives the gun back toward you, just like a rocket. If you don't think there is some real force there, just have a look at a rocket, and imagine that its booster tanks are full of gunpowder, rather than rocket fuel. Just watch that big bird scream into orbit. The booster engines make hot, high-velocity gas that is directed through nozzles toward the ground. They generate millions of pounds of thrust towards the earth and push that rocket the other way. A firearm does the same thing on a miniature scale. Gas downrange, gun back at shooter, equals part of the firearm's recoil.

What we need to do to get rid of this "gas recoil" is to direct the force of the gas in some direction other than directly away from the shooter. The KDF brake does just that by directing the gas in a full circle around the barrel, at 90 degrees to the bore. The gas pushes up, down, left and right, making the net effect of all of this nothing. That is, the gas ends up working against itself, not pushing the rifle in any direction and to a great degree eliminating the "rocket engine" part of the recoil.

The physical machinery that does the job is actually quite simple. The rifle's muzzle is threaded and a 2-inch-long tube is screwed onto the threads. It makes your rifle 1 1/2 inches longer and 1 1/4 ounces heavier, with the brake itself being .750 inch in diameter. This makes a small "bulge look" on my standard Remington .30-06 with a barrel diameter of .660 inch at the muzzle. (These dimensions are on the .30-06 and vary with the caliber.) The brake has 24 holes drilled in it—four rings of holes around the brake with six holes in each ring. The "bore" of the .30 caliber brake is .330 inch in diameter, just large enough to clear the .308-inch bullets without touching the brake.

What happens in actual firing is that the bullet exits the original muzzle and crown on your rifle just like it always did, with the high-pressure gas pushing it. The bullet almost plugs the bore of the brake, forcing the gas out of the circles of holes behind the bullet. By the time the bullet leaves the brake itself, almost all of the gas has dissipated in circles around the muzzle, and there isn't very much left to push the rifle back your way.

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Because the brake doesn't ever touch the bullet, and doesn't redirect the gas until the bullet has left the original muzzle, the accuracy and ballistics of the original rifle are not affected. Your velocity and group size don't change measurably. What does change is the noise and recoil perceived by the shooter. You get a lot more noise and a lot less recoil.

The noise is probably the only real negative factor about the KDF brake. Firing a rifle with the brake is a lot like firing a magnum revolver—you get surrounded by a lot of noise and muzzle blast. Ear protection of some kind is almost going to be a "must," and you will have to be doubly aware of bystanders when you fire.

The real reason for this whole drill is to get rid of some recoil, and the KDF brake does an almost magical job of that. Actual felt recoil of the .30-06 comes down to the level of a .243 round. Shooting the .411 is another pleasant story. Rifles in this power range are not fun to shoot from the benchrest. With the brake on the .411 rifle I could almost forget I was bench testing a heavy. Its recoil level drops to something like the .300 magnum's—a major decrease. In fact, after firing over 20 rounds with the brake on the rifle from my bench, I took the brake off just to see if I was imagining the lower recoil. I wasn't! The brake had lulled me into firing the big gun with a very light hold. The first round without it literally shocked me right back into reality by kicking the hell out of me. The motor drive photos clearly show the reduction in both rearward recoil and muzzle rise with the brake on the rifle.

As you see, my tests were done with the same rifles by removing and replacing the brakes. They are designed to be screwed on and off by hand. If you want to use the rifle without the brake, a small, knurled thread protector is screwed on the barrel to protect the threads. Unfortunately, in most cases you will get a major change in point of impact between groups with the brake on and off. My .30-06 almost didn't know if the brake was on or off, as groups moved only about 1 1/4 inches with the change. But the .411 shot a foot low with 400-grain bullets at 100 yards when I shot it without the brake after zeroing it with the brake on. Remember, this isn't a velocity change. The groups move because of changes in the barrel vibration pattern and other complexities that maybe only the gods who control rifled bores understand. Each cartridge, brake and barrel may be different. Just don't count on being able to screw the brake on and off and have the rifle shoot to the same point of impact.

The degree of recoil reduction will depend on the weight of the rifle and the cartridge. If you have a lightweight rifle chambered for one of the .300 or 7mm magnums, the recoil reduction will be monumental. The recoil of a .458 Win-

chester will be reduced by a lesser percentage. This is because a lot higher percentage of the .458's recoil is caused by its bullet weight and less by its gas. Gas is a very major component of the small-bore magnum's recoil as compared to its relatively light bullet. Just keep in mind it's only the "gas-recoil" recoil we can do anything about.

The KDF brake isn't a cure for all shooters and all situations, but it opens a lot of options. I think its most important contribution is that it will allow many shooters to comfortably and accurately shoot rifles of considerably more horsepower. For instance, the .30 caliber magnums with 200-grain bullets will feel comfortable to people who used to stop at the .270's recoil level. In the big-game fields, shooters accustomed to the recoil of the .30 magnums will be right at home with the .375, .411 or .416 cartridge. Simply, many shooters are going to be able to apply more horsepower with the same precision. The lower recoil levels will also lead themselves to lighter rifles with the same power. The brakes aren't for everyone, but if you want less recoil, or more power, or a lighter rifle at the recoil levels of lesser guns, have a look at the KDF system. We might stop some wear and tear on shooters, and most important, by hunting with more powerful rifles that are fired with the same accuracy, we should reduce the number of our great game animals lost to crippling each year. If I can save even one lost deer, elk, bear, or Cape buffalo, this space has been well worth it.

.411 KDF CARTRIDGE

You have noted that I mentioned the .411 KDF cartridge during my testing of the KDF muzzle brake. It is a proprietary cartridge manufactured by the KDF firm. This is interesting, almost like the good old days when arm companies were interested enough in what they were doing to have their very own cartridges. It conjures up memories of things like the .463 Holland and Holland or the .416 Rigby—cartridges that serve exactly the same purpose as others on the market, but with the pride of the manufacturer's name on them. That is exactly what the .411 KDF does. It fills the ballistic space occupied by the .416 Rigby and its modern version, the .416 Taylor.

In the broadest sense they are .40 caliber bullets weighing 400 grains, with muzzle velocities of 2,400 fps. The .416 Rigby is the grandfather of the family. It came from the grand "Nitro Express" era of the big game loaded with cordite and low chamber pressures. The drawback is that to use the .416 Rigby you needed a big action. It was and is a fantastic cartridge, but American wisdom had produced its ballistic equivalent in a much smaller package. The one I am the most familiar with is the .416 Taylor. It is made by necking down the .458 Winchester to take .416-inch-diameter bullets. (It also can be made from necked up .338 Winchester cases, but the reduced .458 is most practical.) The results are delightful, with the .416 Rigby's horsepower

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made adaptable to standard-length, standard-size actions.

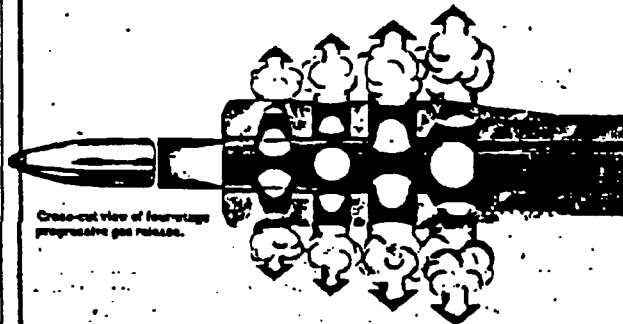
The .411 KDF follows the same trend and is almost an identical cartridge to the .416 Taylor, but it uses .411-inch-diameter bullets. Its bore is the same as the old .450/400 Nitro Express designed for double rifles and can utilize the same bullets. I'm sure you're wondering where you're going to find .411 bullets. It just happens that the .411 KDF was designed with the help of a bullet company. Randy Brooks of Barnes bullets did a lot of the engineering on the .411 KDF. Needless to say, they will supply bullets in a wide variety.

Starting with 300-grain spitzer bullets, the .411 is actually versatile enough to cover a wide range of needs. The 300-grain bullet runs easily at 2,800 fps from a 26-inch barrel. With this load you have serious horsepower and trajectories similar to or better than the .30-06 round. With the 300-grain loadings it becomes a super long-range deer or elk rifle and would be perfect for blowing the spots off a leopard. Moving up the scale to 400-grain bullets, the .411 becomes what it was designed to be—a "heavy." It becomes perfect for timber elk, bear and all of the rest of the world's big game. It is a grand buffalo cartridge and takes the fight out of lions better than any other round I have seen. I make these statements generically about 400-grain, .40 caliber bullets with 2,400 fps muzzle velocities. They just haven't made the Cape buffalo or lion who can read headstamps and tell the difference between Rigby, Taylor or KDF. The same applies to the .505-inch difference in bullet diameter between the .416 and the .411 KDF. Show me a buffalo who can tell the difference, and I'll give you my rifle. So even though I haven't used the .411 on game, I know how it will work.

The bullets are made with two jacket thicknesses, .032 inch and .049 inch. Other than for leopard I can't see a use for the thin jacket, but if you want it, they are available. Barnes also makes the spectacular "super solids" for the .411 KDF. These are quite simply the best solid bullets I have used. Drives out of the .411, they should shoot through Cape buffalo from almost any angle. With my .416 Rigby, I shot buff from side to side and end to end and wasn't able to stop a bullet to bring home. They are made from homogenous brass or bronze and just don't deform in any way.

Combine the fine bullet selection, the .411 cartridge and the KDF muzzle brake and you have a winner. It's true big-bore, heavy-duty "Nitro Express" performance in a modern, manageable package. If you're considering big-game hunting, or taking elk under tough conditions, this one is certainly worth your time to investigate. For details, write to KDF International, 2485 HWY 46 N., Dept. GA, Seguin, TX 78155.

REDUCE RECOIL 60-80% WITH THE K.D.F. RECOIL ARRESTOR



Cross-cut view of four-stage progressive gas release.

*This is not
just another muzzle brake
or barrel porting system.*

• The K.D.F. Recoil Arrestor the one that really works. Muzzle blast is diverted laterally to virtually neutralize gas induced recoil.

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"If you are not completely satisfied with the K.D.F. Recoil Arrestor, we will refund \$5 and refund your money."

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•NOTE•

Noise level is increased approximately 20% for the shooter, but the downrange noise is reduced proportionately with the K.D.F. Recoil Arrestor.



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GUNS & AMMUNITION 21

Meeting: Ken Sacy RSM
D S Anderson JWB
L B Bosquet FEM
J. Burns FHS
J. Will
P. Johnson
R. Forrington

Agenda To develop an introduction sched
for the NSAC in a way that
Objective

Introduction to Design
(Handed as guideline)
Explanation of Present Proposals
Discussion (Handed as guideline)

Conclusion: What have we decided?

Little. 6. high glass closed grain

7. " " " "

'k' 8. 10 glass open grain

'L' 9. 10 glass closed grain

Artist's rendering of checkerboard patterns