

Cartridge (Wb@MV)

Rifle
Weight

Recoil
energy

Recoil
velocity

Expanded Rifle Recoil Table

By Chuck Hawks

For every action there is an equal and opposite reaction; that is one of the physical laws of our universe. This means that the momentum of a rifle's reaction will exactly equal the momentum of the bullet and powder gasses ejected from the barrel. In the shooting sports we call that reaction recoil or "kick." It can be measured or computed empirically and has been for this recoil table.

Do not forget that rifle weight is a crucial factor in the recoil equation, inversely proportional to recoil. Increase the gun weight by, say, 25% and the recoil goes down by 25%. In the real world, firearms chambered for less powerful cartridges are typically built lighter than firearms chambered for more powerful cartridges. Violate this principle by, for example, chambering a lightweight, short action rifle for a powerful Magnum cartridge like the .300 WSM and the result will be a dramatic increase in kick. Just because it *can* be done does not mean it makes sense, despite what you might read in advertising copy. Choose a rifle weight appropriate for the loads you intend to shoot.

However, perceived recoil, what the shooter feels, is a highly subjective matter. In addition to gun weight, it is influenced by many factors. One of the most important of these is the fit and shape of the rifle stock. A good recoil pad can help soften the blow to the shooter's shoulder. Gas-operated semi-automatic actions reduce apparent recoil by spreading it over a longer period of time. These sorts of things cannot be accounted for in a recoil table. Also, please understand that there are dozens of loads for any given bullet weight in any cartridge that will produce the same velocity, but a different amount of recoil. So the figures in any recoil table should be taken as approximate. Never-the-less, the table below should give a reasonably accurate comparison of the recoil of most popular rifle cartridges.

It is worth remembering that the majority of authorities agree that recoil of over twenty foot pounds will cause most shooters to develop a serious flinch, which is ruinous to bullet placement (the prime component of killing power). Fifteen foot pounds is probably about the maximum recoil energy with which most shooters feel reasonably comfortable, particularly at the shooting range, where most serious marksmanship practice occurs.

While recoil energy determines how hard the blow to the shoulder feels, recoil velocity determines how abrupt the blow to the shoulder feels. My subjective impression is that, with a well designed stock, recoil velocity above about 10 fps begins to feel like a sharp rap on the shoulder rather than an abrupt push.

In 1909 the *British Textbook of Small Arms* stated that 15 ft. lbs. of free recoil energy was the maximum

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
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allowable for a military service rifle. (The standard British .303 Lee-Enfield infantry rifle was below that figure, as are most service rifles to this day. This should tell you something.) The 1929 edition of the same textbook stated, in addition, that recoil velocity should not exceed 15 fps; above that velocity a gun-headache was very likely to occur. These figures remain practical maximums for the modern hunter.

Above this level recoil becomes increasingly intrusive. In addition, the effects of recoil are cumulative. The longer you shoot, and the harder the rifle kicks, the more likely you are to flinch. These are good things to remember when comparing rifle cartridges.

In the table below rifle weight is given in pounds, free recoil energy is given in foot pounds, and free recoil velocity is given in feet-per-second. All recoil values have been rounded off to one decimal place. The recoil energy and recoil velocity figures are taken from various sources including the recoil nomograph in the *Handloader's Digest 8th Edition*, various online recoil calculators, the Remington Shoot program or calculated from the formula given in the *Lyman Reloading Handbook, 43rd Edition*. * = reference load.

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.17 HMR (17 at 2550)*	7.5	0.2	n/a
.17 Hornet (20 at 3650)*	8.5	0.6	2.0
.17 Fireball (20 at 4000)	8.5	0.9	2.6
.17 Rem. (25 at 4000)	8.5	1.6	3.5
.204 Ruger (33 at 4225)	8.5	2.6	4.4
.218 Bee (45 at 2800)	8.5	1.3	3.1
.219 Wasp (55 at 3300)	8.5	3.2	4.9
.219 Zipper (55 at 3400)	8.5	3.4	5.1
.22 LR (40 at 1165)	4.0	0.2	n/a
.22 WMR (40 at 1910)*	6.75	0.4	n/a
.22 Hornet (45 at 2800)	7.5	1.3	3.3
.22 PPC (52 at 3300)	8.5	3.0	4.8
.221 Fireball (50 at 3000)	8.5	1.8	3.7
.222 Rem. (50 at 3200)	7.5	3.0	5.1
.222 Rem. (52 at 3200)	8.5	2.8	4.6
.222 Rem. Mag. (55 at 3200)	8.5	2.9	4.7
.223 Rem. (45 at 3500)	8.5	2.6	4.5
.223 Rem. (50 at 3400)	7.5	3.3	5.3
.223 Rem. (52 at 3300)	8.0	3.3	5.1

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.223 Rem. (55 at 3240)*	8.5	3.0	4.7
.223 Rem. (55 at 3240)	12.0	2.1	3.4
.223 Rem. (60 at 3000)	12.5	1.9	3.1
.223 Rem. (62 at 3025)	7.0	3.9	6.0
.223 Rem. (70 at 2900)	8.0	3.6	5.4
.223 Rem. (80 at 2700)	8.0	3.7	5.5
.223 Rem. (90 at 2510)	8.0	3.8	5.6
.22 BR Rem. (52 at 3664)	8.0	4.1	5.7
.225 Win. (55 at 3700)	8.5	4.4	5.7
.224 Wby. Mag. (55 at 3700)	10.0	3.6	4.8
.22-250 Rem. (50 at 3700)	8.5	4.0	5.5
.22-250 Rem. (55 at 3600)	10.5	3.5	4.6
.22-250 Rem. (60 at 3500)	12.5	3.1	4.0
.220 Swift (50 at 3900)	10.5	3.7	4.8
.220 Swift (55 at 3690)*	11.0	3.9	4.8
.220 Swift (55 at 3800)	8.5	5.3	6.4
.220 Swift (60 at 3600)	10.5	4.3	5.1
.223 WSSM (55 at 3850)	7.5	6.4	7.4
.223 WSSM (68 at 3600)	7.5	7.8	8.2
.224 TTH (80 at 3550)	7.5	10.2	9.4
5.6x50 Mag. (60 at 3300)	7.5	4.0	5.9
5.6x52R (70 at 2800)	7.5	3.7	5.7
5.6x57 RWS (60 at 3800)	7.5	6.9	7.7
6mm PPC (85 at 2800)	7.5	5.3	n/a
6mm BR Rem. (80 at 3100)	8.5	5.2	6.3
6mm-223 (75 at 2950)	7.5	4.6	n/a
6mm Norma BR (95 at 2914)	8.5	5.9	6.7
6mm Lee Navy (112 at 2650)	8.5	6.5	7.0
6mm Dasher (100 at 3000)	8.5	7.0	7.3
.243 Win. (75 at 3300)	8.5	8.1	8.5
.243 Win. (87 at 3100)	7.25	8.6	8.8
.243 Win. (95 at 3000)	8.75	7.8	7.6
.243 Win. (95 at 3019)	6.75	11.1	10.3
.243 Win. (95 at 3100)	7.25	11.0	9.9

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.243 Win. (95 at 3100)*	7.8	9.6	8.9
.243 Win. (100 at 2900)	8.75	7.7	7.5
.243 Win. (100 at 2960)	7.5	9.9	9.2
.243 Win. (105 at 2900)	8.0	9.0	8.5
.243 Win. (105 at 3000)	8.0	11.5	9.6
6mm Rem. (80 at 3450)	8.5	7.4	7.5
6mm Rem. (95 at 3260)	7.5	10.6	9.6
6mm Rem. (100 at 3100)	8.0	10.0	9.0
6mm-284 (105 at 3000)	7.5	10.9	9.7
6mm-06 (105 at 3000)	8.0	10.2	9.1
.243 WSSM (55 at 3900)	7.5	6.3	7.4
.243 WSSM (95 at 3250)	7.5	10.6	9.6
.243 WSSM (100 at 3100)	7.5	10.1	9.3
.240 Wby. Mag. (87 at 3300)	8.0	9.2	8.9
.240 Wby. Mag. (100 at 3150)	6.75	14.2	11.64
.240 Wby. Mag. (100 at 3150)	9.25	10.4	8.5
.240 Wby. Mag. (100 at 3206)	8.0	12.3	9.9
.240 Wby. Mag. (100 at 3217)	9.25	10.8	8.7
.240 Wby. Mag. (100 at 3352)	7.5	14.4	11.1
.240 Wby. Mag. (100 at 3352)	8.0	13.5	10.4
.25-20 Win. (86 at 1460)	6.5	1.3	3.5
.256 Win. Mag. (75 at 2400)	7.5	2.4	4.5
.25-35 Win. (110 at 2425)	7.5	6.0	7.2
.25-35 Win. (117 at 2200)	7.5	5.9	7.1
.25-35 Win. (117 at 2230)	6.5	7.0	8.3
.25-35 Win. (117 at 2230)	7.5	5.0	6.6
.25-35 Win. (117 at 2300)	7.5	6.4	7.4
.250 Savage (87 at 3000)	7.5	6.9	7.7
.250 Savage (100 at 2820)	7.5	7.6	8.1
.250 Savage (100 at 2900)	7.5	7.8	8.2
.257 Roberts (117 at 2650)	8.0	9.5	8.7
.257 Roberts +P (100 at 3000)	7.5	9.3	8.9
.257 Roberts +P (115 at 2800)	8.25	10.5	9.0
.257 Roberts +P (117 at 2800)	8.25	10.7	9.2

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.257 Roberts +P (117 at 2900)	8.75	9.9	8.5
.257 Roberts +P (120 at 2700)	8.25	10.7	9.1
.257 Roberts +P (120 at 2800)	8.0	10.7	9.3
.257 Rob. Imp. (115 at 2900)	8.0	10.8	9.3
.25 WSSM (120 at 2990)	7.25	13.8	11.1
.25-06 Rem. (75 at 3600)	8.5	9.2	n/a
.25-06 Rem. (100 at 3000)	6.75	13.5	11.4
.25-06 Rem. (100 at 3230)	6.75	16.3	12.5
.25-06 Rem. (100 at 3230)	8.0	11.0	9.4
.25-06 Rem. (115 at 3030)	8.0	12.6	10.1
.25-06 Rem. (120 at 2800)	6.75	14.4	11.7
.25-06 Rem. (120 at 2990)	6.75	17.5	12.9
.25-06 Rem. (120 at 2990)	8.0	12.4	10.0
.25-06 Rem. (120 at 3000)	8.0	12.5	10.0
.257 Wby. Mag. (100 at 3602)	9.25	15.8	10.5
.257 Wby. Mag. (115 at 3433)	9.25	17.7	11.1
.257 Wby. Mag. (117 at 3200)	9.25	14.4	10.0
.257 Wby. Mag. (120 at 3225)	9.25	15.4	10.4
.257 Wby. Mag. (120 at 3305)*	9.25	15.9	10.5
.257 Wby. Mag. (120 at 3402)	9.25	18.4	11.3
6.5mm Grendel (100 at 2700)	8.0	6.1	7.0
6.5mm Grendel (120 at 2500)	7.5	7.6	8.1
6.5mm Grendel (120 at 2500)	8.0	7.2	7.6
6.5mm Grendel (123 at 2450)	7.5	7.4	8.0
6.5mm Grendel (123 at 2590)	8.0	7.9	8.0
6.5mm Grendel (125 at 2484)	8.0	7.1	7.6
6.5mm Grendel (129 at 2350)	7.5	7.4	8.0
6.5mm Grendel (129 at 2400)	8.0	7.3	7.7
6.5x50 Arisaka (140 at 2600)	8.0	10.0	n/a
6.5x52 M-C (140 at 2200)	8.0	7.8	n/a
6.5x54 M-S (140 at 2400)	7.5	11.1	9.7
6.5mm Creedmoor (120 at 2925)	8.0	11.1	9.5
6.5mm Creedmoor (130 at 2735)	8.0	10.8	9.3
6.5mm Creedmoor (140 at 2690)	8.0	11.6	9.7

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
6.5x55 Swede (120 at 2867)	8.0	12.5	10.1
6.5x55 Swede (125 at 2850)	8.0	12.9	10.2
6.5x55 Swede (129 at 2700)	8.0	12.5	10.0
6.5x55 Swede (140 at 2550)	8.0	11.0	9.4
6.5x55 Swede (140 at 2650)	8.25	11.6	9.5
6.5x55 Swede (140 at 2700)	8.25	12.2	9.8
6.5x55 Swede (140 at 2735)*	8.5	12.1	9.6
6.5x55 Swede (140 at 2740)	7.5	15.3	11.5
6.5x55 Swede (160 at 2300)	8.0	12.7	10.1
.260 Rem. (120 at 2860)	7.5	13.0	10.6
.260 Rem. (120 at 2860)	8.25	10.2	8.9
.260 Rem. (120 at 2890)	8.0	10.2	9.1
.260 Rem. (125 at 2860)	7.5	13.7	10.8
.260 Rem. (125 at 2900)	8.25	11.1	9.3
.260 Rem. (129 at 2700)	7.5	12.7	10.4
.260 Rem. (129 at 2800)	7.5	13.7	10.8
.260 Rem. (129 at 2800)	8.25	11.6	9.5
.260 Rem. (129 at 2900)	8.25	12.5	9.9
.260 Rem. (140 at 2360)	8.0	9.5	8.8
.260 Rem. (140 at 2700)	7.5	14.9	11.3
.260 Rem. (140 at 2750)	8.0	12.2	9.9
.260 Rem. (140 at 2750)*	9.2	11.3	8.9
.260 Rem. (160 at 2600)	8.0	17.2	12.2
6.5x57 (129 at 2800)	8.0	12.1	n/a
6.5x57 (140 at 2700)	8.0	12.5	10.0
6.5mm-284 Norma (129 at 2900)	8.0	13.3	10.5
6.5mm-284 Norma (140 at 2920)	8.0	14.7	10.9
6.5mm-06 (140 at 2800)	8.0	13.9	10.6
6.5x64 Brenneke (142 at 3160)	9.0	15.9	10.7
6.5mm Rem. Mag. (120 at 3100)	8.0	13.1	10.3
6.5mm Rem. Mag. (120 at 3210)	8.0	15.2	11.1
6.5mm Rem. Mag. (120 at 3210)	8.5	14.3	10.4
6.5mm Rem. Mag. (125 at 3200)	8.5	14.9	10.6
6.5mm Rem. Mag. (129 at 3000)	8.0	13.8	10.6

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
6.5mm Rem. Mag. (129 at 3000)	8.5	12.3	9.6
6.5mm Rem. Mag. (140 at 2900)	8.5	13.9	10.3
6.5mm Rem. Mag. (160 at 2800)	8.5	16.5	11.2
6.5x68S (120 at 3300)	8.0	17.7	n/a
6.5x68S (140 at 2990)	8.5	16.8	11.3
.264 Win. Mag. (129 at 3300)	8.5	18.2	n/a
.264 Win. Mag. (140 at 3200)	8.5	19.2	12.1
.26 Nosler (129 at 3400)	8.5	23.9	13.5
.26 Nosler (140 at 3200)	8.5	23.4	13.3
6.5-300 Wby. Mag. (140 at 3395)	9.5	21.1	12.0
6.8mm Rem. SPC (100 at 2500)	7.5	5.4	6.8
6.8mm Rem. SPC (110 at 2500)	7.5	5.9	7.1
6.8mm Rem. SPC (115 at 2625)	7.5	8.0	8.3
6.8mm Rem. SPC (120 at 2460)	8.0	7.5	n/a
6.8mm Rem. SPC (130 at 2300)	7.5	6.8	7.6
.270 Win. (110 at 3200)	8.0	13.3	10.3
.270 Win. (120 at 2675)	8.0	10.0	9.0
.270 Win. (120 at 2675)*	8.75	9.2	8.2
.270 Win. (130 at 2600)	7.5	12.3	10.3
.270 Win. (130 at 3060)*	9.25	14.3	10.0
.270 Win. (130 at 3100)	7.0	19.2	13.3
.270 Win. (140 at 2950)*	8.75	16.1	10.9
.270 Win. (140 at 3000)	8.0	17.1	11.7
.270 Win. (150 at 2410)	7.5	11.5	10.0
.270 Win. (150 at 2800)	8.0	15.2	11.1
.270 Win. (150 at 2830)*	8.6	15.3	10.7
.270 Win. (150 at 2900)	8.0	17.0	11.7
.270 WSM (130 at 3275)	8.0	18.7	12.3
.270 WSM (140 at 3125)	8.0	18.8	12.3
.270 WSM (150 at 3000)	8.0	18.9	12.3
.270 Wby. Mag. (130 at 3280)*	9.0	18.4	11.5
.270 Wby. Mag. (130 at 3375)	9.0	21.0	12.3
.270 Wby. Mag. (140 at 3100)	9.0	17.4	11.2
.270 Wby. Mag. (140 at 3320)	9.5	18.7	11.3

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.270 Wby. Mag. (150 at 3000)	9.25	17.8	11.1
.270 Wby. Mag. (150 at 3115)	9.0	19.7	11.9
.270 Wby. Mag. (150 at 3200)	9.0	20.4	12.1
.270 Wby. Mag. (150 at 3245)	8.5	22.0	12.9
7-30 Waters (120 at 2700)	7.0	10.0	9.6
7-30 Waters (139 at 2600)	7.5	10.6	9.5
7x57 Mauser (120 at 2800)	8.0	10.4	9.1
7x57 Mauser (120 at 3000)	8.0	11.9	9.8
7x57 Mauser (139 at 2500)	8.0	10.5	9.2
7x57 Mauser (139 at 2700)*	8.75	11.7	9.3
7x57 Mauser (139 at 2800)	8.0	14.0	10.6
7x57 Mauser (140 at 2660)	8.0	13.5	10.4
7x57 Mauser (140 at 2680)	8.5	11.8	9.5
7x57 Mauser (140 at 2820)	8.5	13.0	9.9
7x57 Mauser (145 at 2725)	8.5	13.0	9.9
7x57 Mauser (150 at 2730)	8.5	13.5	10.1
7x57 Mauser (154 at 2500)	8.5	12.5	9.7
7x57 Mauser (160 at 2600)	8.0	14.3	n/a
7x57 Mauser (160 at 2645)	8.0	15.2	11.1
7x57 Mauser (175 at 2500)	8.0	15.5	11.2
7mm-08 Rem. (120 at 3000)	7.5	12.1	10.2
7mm-08 Rem. (130 at 2950)	7.5	14.2	11.0
7mm-08 Rem. (139 at 2800)	6.8	15.6	12.1
7mm-08 Rem. (140 at 2860)	7.5	13.5	10.8
7mm-08 Rem. (140 at 2860)	8.0	12.6	10.1
7mm-08 Rem. (150 at 2750)*	7.5	13.9	10.9
7mm-08 Rem. (154 at 2620)	6.8	14.9	11.9
7mm-08 Rem. (160 at 2600)	8.0	13.9	10.6
7mm-08 Rem. (175 at 2500)	8.0	14.9	11.0
.284 Win (150 at 2860)	7.5	17.4	n/a
7x64 (140 at 3000)	8.0	16.4	11.5
7x64 (154 at 2850)	8.0	17.9	n/a
7x65R (175 at 2600)	8.0	17.1	11.7
.280 Rem. (140 at 3000)	8.0	17.2	11.8

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.280 Rem. (150 at 2900)	8.0	17.4	11.8
.280 Rem. (160 at 2800)	8.0	17.0	11.7
.280 Ackley Imp. (150 at 2930)	8.5	16.3	11.1
7x61 S&H Mag. (154 at 3000)	8.5	18.4	11.8
7mm Rem. SAUM (140 at 3147)	8.0	18.8	12.3
7mm Rem. SAUM (154 at 3000)	8.0	19.8	12.6
7mm Rem. SAUM (160 at 2931)	8.0	21.5	13.2
7mm WSM (140 at 3200)	8.0	20.7	12.9
7mm WSM (150 at 3000)	8.0	20.1	12.7
7mm WSM (160 at 3000)	8.0	21.9	13.3
7mm Rem. Mag. (139 at 3000)	9.0	18.0	11.4
7mm Rem. Mag. (139 at 3100)	9.0	19.3	11.8
7mm Rem. Mag. (140 at 2700)	8.5	15.5	10.8
7mm Rem. Mag. (150 at 3110)	8.5	21.7	12.8
7mm Rem. Mag. (154 at 3000)*	9.0	19.7	11.9
7mm Rem. Mag. (154 at 3035)	8.5	20.3	12.4
7mm Rem. Mag. (160 at 2950)	9.0	20.3	12.0
7mm Rem. Mag. (175 at 2870)	9.0	21.7	12.5
.275 H&H Mag. (160 at 3050)	8.5	19.5	12.2
7mm Wby. Mag. (140 at 3300)	9.25	19.5	11.7
7mm Wby. Mag. (154 at 3200)	9.0	24.8	13.3
7mm Wby. Mag. (160 at 3200)	9.0	25.6	13.5
7mm Wby. Mag. (175 at 3000)	9.25	22.2	12.4
7mm STW (140 at 3400)	8.5	23.2	n/a
7mm STW (160 at 3185)	8.5	27.9	14.6
7mm Dakota (160 at 3200)	8.5	24.8	13.7
.28 Nosler (150 at 3374)	9.0	26.9	13.9
.28 Nosler (160 at 3200)	8.5	29.4	14.9
.28 Nosler (160 at 3200)	9.0	27.7	14.1
.28 Nosler (175 at 3093)	9.0	27.6	14.1
7mm Rem. Ultra Mag (140 at 3425)	8.5	25.3	n/a
7mm Rem. Ultra Mag (160 at 3200)	8.5	29.4	n/a
.30 Carbine (110 at 1990)	7.0	3.5	5.7
.300 Blackout (110 at 2350)	7.5	4.8	6.4

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.300 Blackout (135 at 2085)	8.0	7.0	n/a
.300 Blackout (150 at 2035)	8.0	7.0	n/a
.30 Rem. (170 at 2120)	7.5	9.8	9.2
.30-30 Win. (110 at 1900)	6.5	4.1	6.4
.30-30 Win. (125 at 2175)	7.5	6.6	7.5
.30-30 Win. (150 at 2364)	6.5	12.7	11.2
.30-30 Win. (150 at 2364)	7.0	10.7	9.9
.30-30 Win. (150 at 2364)	7.25	10.4	9.6
.30-30 Win. (150 at 2364)	7.5	10.0	9.3
.30-30 Win. (150 at 2364)	8.0	9.4	8.7
.30-30 Win. (150 at 2364)	10.0	7.5	7.0
.30-30 Win. (150 at 2390)	7.5	10.3	9.4
.30-30 Win. (160 at 2240)	6.5	13.3	11.5
.30-30 Win. (160 at 2240)	7.0	12.4	10.7
.30-30 Win. (160 at 2240)	7.25	12.0	10.3
.30-30 Win. (160 at 2240)*	7.5	11.6	10.0
.30-30 Win. (160 at 2240)	8.0	10.8	9.3
.30-30 Win. (160 at 2400)	7.5	12.7	10.5
.30-30 Win. (160 at 2400)	8.0	11.9	9.8
.30-30 Win. (160 at 2400)*	9.4	9.3	8.0
.30-30 Win. (170 at 2200)	6.5	12.5	11.1
.30-30 Win. (170 at 2200)	7.0	11.6	10.3
.30-30 Win. (170 at 2200)	7.5	10.8	9.6
.30-30 Win. (170 at 2200)	8.0	10.1	9.0
7.5x54 MAS (150 at 2600)	9.0	11.3	9.0
.30-40 Krag (150 at 2500)	9.0	10.5	8.7
.30-40 Krag (180 at 2430)	8.0	16.6	n/a
.300 Sav. (150 at 2600)	8.0	14.0	10.6
.300 Sav. (150 at 2630)	7.5	14.8	n/a
.300 Sav. (150 at 2740)*	9.0	10.9	8.8
.300 Sav. (180 at 2350)	7.5	15.2	11.4
.307 Win. (150 at 2600)	7.5	13.7	10.9
.307 Win. (180 at 2500)	7.5	18.0	n/a
.307 Win. (180 at 2510)	8.0	16.0	11.4

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.308 Marlin Express (160 at 2660)	8.0	13.4	10.4
7.5x55 Swiss (150 at 2800)	9.0	12.9	9.6
7.5x55 Swiss (180 at 2566)	8.0	16.5	n/a
.308 Win. (125 at 2660)	8.5	10.0	8.7
.308 Win. (125 at 2675)*	8.75	9.0	8.1
.308 Win. (150 at 2600)	7.5	14.6	11.2
.308 Win. (150 at 2700)	7.5	16.0	11.7
.308 Win. (150 at 2700)	8.0	15.0	11.0
.308 Win. (150 at 2740)	8.5	13.9	10.2
.308 Win. (150 at 2740)*	8.75	13.5	10.0
.308 Win. (150 at 2800)	8.0	16.3	11.5
.308 Win. (150 at 2800)	9.0	12.9	9.6
.308 Win. (150 at 2820)	8.5	13.9	10.3
.308 Win. (165 at 2700)	7.5	18.1	12.5
.308 Win. (165 at 2700)	8.5	14.8	10.6
.308 Win. (180 at 2600)	7.5	19.2	12.9
.308 Win. (180 at 2600)	8.0	17.8	12.0
.308 Win. (180 at 2620)	8.5	15.8	11.0
.308 Win. (200 at 2460)	8.0	20.4	12.8
.30 T/C (150 at 2900)	8.5	13.9	10.3
.30-06 Spfd. (125 at 2660)	8.0	10.2	n/a
.30-06 Spfd. (125 at 2700)	7.75	11.3	9.7
.30-06 Spfd. (125 at 2700)	8.5	10.3	8.8
.30-06 Spfd. (150 at 2910)	8.0	17.6	11.9
.30-06 Spfd. (165 at 2900)	7.5	21.5	13.6
.30-06 Spfd. (165 at 2900)	8.0	20.1	12.7
.30-06 Spfd. (180 at 2700)	8.0	20.3	12.8
.30-06 Spfd. (180 at 2700)	8.5	18.5	11.8
.30-06 Spfd. (180 at 2700)*	9.0	17.5	11.2
.30-06 Spfd. (180 at 2700)	9.5	16.5	10.6
.30-06 Spfd. (200 at 2620)	8.5	23.1	13.2
.30-06 Spfd. (220 at 2600)	8.0	26.0	14.5
.30-06 Ackley Imp. (180 at 2985)	8.5	23.0	13.2
.300 RCM (180 at 2900)	8.5	22.3	13.0

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.300 Rem. SAUM (150 at 3200)	8.25	21.0	12.8
.300 Rem. SAUM (165 at 3075)	8.25	22.3	13.2
.300 Rem. SAUM (180 at 2960)	7.25	26.8	15.4
.300 Rem. SAUM (180 at 2960)	8.25	23.5	13.6
.300 WSM (150 at 3300)	8.25	22.5	13.3
.300 WSM (180 at 2970)	7.25	27.1	15.5
.300 WSM (180 at 2970)	8.25	23.8	13.6
.308 Norma Mag. (180 at 3000)	8.5	25.9	14.0
.300 Win. Mag. (150 at 3320)	8.5	23.5	13.3
.300 Win. Mag. (165 at 3110)	8.0	26.2	14.5
.300 Win. Mag. (180 at 2960)	8.5	25.9	14.0
.300 Win. Mag. (200 at 2950)	8.5	30.9	15.3
.300 H&H Mag. (180 at 2920)	8.5	23.1	13.2
.300 Dakota (180 at 3100)	8.5	28.3	14.7
.30 Nosler (180 at 3112)	9.0	26.9	13.9
.30 Nosler (200 at 3012)	8.5	31.2	15.4
.30 Nosler (200 at 3012)	9.0	29.4	14.5
.300 Wby. Mag. (150 at 3400)	9.25	24.6	13.1
.300 Wby. Mag. (180 at 3240)	9.0	31.6	15.0
.300 Rem. Ultra Mag (180 at 3230)	8.5	32.8	15.8
.300 Norma Mag. (180 at 3317)	8.5	35.5	16.4
.300 Norma Mag. (180 at 3317)	9.0	33.5	15.5
.30-378 Wby. Mag. (180 at 3412)	9.0	39.4	16.8
.30-378 Wby. Mag. (180 at 3412)	9.75	36.4	15.5
.30-378 Wby. Mag. (220 at 3155)	9.75	41.1	16.5
7.62x39 Soviet (123 at 2350)	7.5	7.4	8.0
.303 Savage (170 at 2170)	7.5	10.3	9.4
7.62x53R Finn (150 at 2800)	9.0	13.1	9.7
7.62x54R Russian (150 at 2700)	9.0	12.5	9.5
7.62x54R Russian (150 at 2800)	9.0	13.1	9.7
7.62x54R Russian (174 at 2600)	9.0	15.0	10.4
7.65x53 Mauser (150 at 2700)	9.0	11.9	9.2
7.65x53 Mauser (180 at 2500)	8.0	15.4	n/a
.303 British (150 at 2700)	7.5	14.2	11.0

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.303 British (150 at 2700)	9.0	11.9	9.2
.303 British (174 at 2400)	9.0	13.0	9.6
.303 British (180 at 2460)	7.0	17.6	12.7
.303 British (180 at 2460)	7.5	16.4	11.9
.303 British (180 at 2460)	8.0	15.4	11.1
.303 British (180 at 2460)	8.5	14.5	10.5
.303 British (180 at 2460)	9.0	13.7	9.9
.303 British (180 at 2460)	9.5	12.9	9.4
7.7x58 Jap (150 at 2700)	9.0	11.9	9.2
.32-20 Win. (100 at 1984)	6.5	3.3	n/a
.32-40 Win. (200 at 1375)	7.0	5.0	6.8
.32 Spec. (165 at 2410)	7.5	13.2	10.6
.32 Spec. (170 at 2250)	7.0	12.2	10.6
.32 Spec. (170 at 2250)	7.5	11.1	9.8
8x56 M-S (170 at 2260)	8.0	12.4	10.0
8x57 Mauser (170 at 2360)	8.0	12.9	n/a
8x57 Mauser (170 at 2400)	8.0	13.6	10.4
8x57JS Mauser (150 at 2900)	8.0	17.1	11.7
8x57JS Mauser (195 at 2500)	8.0	18.5	12.2
8mm-06 (150 at 2900)	8.5	15.7	10.9
8mm-06 (170 at 2700)	8.5	16.3	11.1
.325 WSM (180 at 3060)	7.5	33.1	16.9
.325 WSM (200 at 2875)	8.0	31.4	15.9
.325 WSM (200 at 2950)	7.5	35.3	17.4
.325 WSM (200 at 2950)	8.0	32.4	16.2
.325 WSM (220 at 2840)	7.5	37.5	17.9
8x68S (150 at 3300)	8.5	25.3	13.9
8x68S (170 at 3100)	9.0	24.2	13.2
8x68S (200 at 2950)	9.0	29.1	14.4
8x68S (220 at 2800)	8.5	30.0	n/a
8mm Rem. Mag. (200 at 2900)	8.5	32.9	15.8
8mm Rem. Mag. (200 at 3000)	8.5	34.5	16.2
.33 Win. (200 at 2100)	8.0	13.9	10.6
.338-57 O'Connor (200 at 2400)	8.0	19.2	12.4

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.338-57 O'Connor (225 at 2300)	8.0	18.8	12.3
.338 Marlin Express (200 at 2400)	8.0	16.2	11.4
.338 Marlin Express (200 at 2600)	8.0	22.0	14.0
.338 Federal (180 at 2705)	7.0	20.1	13.6
.338 Federal (180 at 2830)	8.0	23.0	13.0
.338 Federal (185 at 2750)	8.0	22.0	13.0
.338 Federal (200 at 2465)	7.0	20.0	13.6
.338 Federal (200 at 2600)	7.0	22.2	14.3
.338 Federal (200 at 2660)	8.5	19.3	12.1
.338 Federal (200 at 2660)*	9.0	18.3	11.4
.338 Federal (210 at 2630)	7.0	25.0	15.0
.338 Federal (210 at 2630)	8.0	22.0	13.3
.338 Federal (215 at 2469)	7.0	22.4	14.3
.338 Federal (225 at 2361)	7.0	21.9	14.2
.338-06 A-Square (200 at 2800)	8.0	23.9	13.9
.338-06 A-Square (200 at 2800)	8.5	22.5	13.1
.338-06 A-Square (225 at 2400)	8.5	19.9	12.3
.338-06 A-Square (225 at 2600)	8.0	24.8	14.1
.338-06 A-Square (250 at 2500)	8.5	28.2	14.6
.338-06 A-Square (250 at 2500)	9.0	25.5	13.5
.338 RCM (200 at 2800)	8.0	26.1	14.5
.338 RCM (225 at 2600)	8.0	26.3	14.6
.338 Win. Mag. (180 at 2960)	8.5	28.9	14.8
.338 Win. Mag. (200 at 2950)	8.5	32.8	15.8
.338 Win. Mag. (200 at 3000)	8.5	33.3	15.9
.338 Win. Mag. (210 at 2872)	8.5	34.1	16.1
.338 Win. Mag. (225 at 2780)	8.5	35.2	16.3
.338 Win. Mag. (225 at 2780)	9.0	29.1	14.4
.338 Win. Mag. (250 at 2650)	8.5	37.0	16.7
.338 Win. Mag. (250 at 2660)	9.0	32.1	15.2
.338 Win. Mag. (250 at 2700)	9.0	36.8	16.2
.338 Win. Mag. (250 at 2745)	9.0	38.0	16.5
.330 Dakota (250 at 2878)	8.5	40.5	17.6
.338 Rem. Ultra Mag (250 at 2860)	8.5	43.1	n/a

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.340 Wby. Mag. (200 at 3100)	10.0	29.6	13.8
.340 Wby. Mag. (225 at 3000)	10.0	35.6	15.1
.340 Wby. Mag. (250 at 2900)	10.0	38.3	15.7
.340 Wby. Mag. (250 at 2941)	9.0	43.4	17.6
.338 Lapua Mag. (225 at 3000)	9.5	37.2	15.9
.338 Lapua Mag. (250 at 2900)	9.5	37.8	16.0
.338-378 Wby. Mag. (250 at 3040)	11.75	41.1	15.0
.348 Win. (200 at 2510)	8.0	23.7	n/a
.348 Win. (250 at 2300)	8.0	25.9	14.4
.38 Special. (158 at 1100)	7.0	1.7	4.0
.38 Special. (158 at 1100)	8.0	1.5	3.5
.357 Mag. (125 at 2050)	8.7	3.9	5.4
.357 Mag. (158 at 1650)	7.0	4.7	6.6
.357 Mag. (158 at 1830)	7.5	5.3	6.7
.357 Mag. (158 at 1830)*	8.7	4.5	5.8
.357 Mag. (180 at 1400)	7.0	4.2	6.2
.357 Mag. (180 at 1550)	6.5	5.5	7.4
.357 Mag. (180 at 1550)	8.7	4.1	5.5
.35 Rem. (150 at 2300)	7.5	12.7	10.4
.35 Rem. (180 at 2220)	8.0	12.1	9.9
.35 Rem. (200 at 2020)	7.5	13.2	10.6
.35 Rem. (200 at 2050)	7.5	13.5	10.8
.35 Rem. (220 at 2200)	7.5	17.5	12.3
.356 Win. (200 at 2400)	7.5	17.5	n/a
.356 Win. (220 at 2325)	7.5	21.3	13.5
.358 Win. (200 at 2435)	8.5	17.7	11.6
.358 Win. (200 at 2460)	7.66	18.7	12.5
.358 Win. (200 at 2490)	8.5	19.7	12.2
.358 Win. (200 at 2500)	7.5	20.5	13.3
.358 Win. (220 at 2300)*	7.66	19.5	12.8
.358 Win. (220 at 2400)	7.66	21.1	13.3
.358 Win. (220 at 2400)	8.5	19.0	12.0
.358 Win. (220 at 2420)	7.5	21.9	13.7
.358 Win. (225 at 2345)	7.5	21.6	13.6

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.358 Win. (225 at 2450)	7.5	23.6	14.2
.358 Win. (250 at 2260)	7.66	23.0	13.9
.35 Whelen (200 at 2400)	8.0	21.0	13.0
.35 Whelen (200 at 2675)	7.5	24.6	14.5
.35 Whelen (200 at 2675)	8.0	22.6	13.5
.35 Whelen (225 at 2400)	8.5	21.1	12.6
.35 Whelen (225 at 2500)	8.5	22.8	13.2
.35 Whelen (225 at 2525)	8.0	25.0	14.2
.35 Whelen (250 at 2400)	7.5	27.9	15.5
.35 Whelen (250 at 2400)	8.0	26.1	14.5
.35 Whelen (250 at 2400)	8.5	24.1	13.5
.35 Whelen (250 at 2500)	8.0	27.8	15.0
.350 Rem. Mag. (180 at 2800)	8.5	20.2	12.4
.350 Rem. Mag. (200 at 2700)	8.5	25.2	13.8
.350 Rem. Mag. (200 at 2770)	8.5	26.2	14.1
.350 Rem. Mag. (220 at 2655)	8.5	25.3	13.9
.350 Rem. Mag. (225 at 2550)*	8.5	24.2	13.5
.350 Rem. Mag. (225 at 2640)	8.5	25.9	14.0
.350 Rem. Mag. (225 at 2700)	8.0	28.2	15.1
.350 Rem. Mag. (250 at 2400)	8.5	27.5	14.4
.350 Rem. Mag. (250 at 2500)	8.5	29.0	14.8
.358 Norma Mag. (250 at 2723)	9.0	31.2	15.0
.358 Norma Mag. (250 at 2800)	8.5	35.3	16.4
.358 STA (225 at 2889)	9.0	35.1	15.8
.358 STA (225 at 3021)	9.0	38.4	16.6
.358 STA (250 at 2878)	9.0	40.6	17.0
.358 STA (250 at 2900)	8.5	42.9	18.0
9.3x57 (232 at 2330)	8.5	19.8	12.2
9.3x62 (250 at 2400)	8.5	24.7	13.7
9.3x62 (250 at 2450)	8.5	25.7	14.0
9.3x62 (270 at 2400)	8.5	27.8	14.5
9.3x62 (270 at 2550)	8.5	33.3	n/a
9.3x62 (286 at 2360)	8.5	29.6	15.0
9.3x62 (286 at 2360)*	9.0	28.0	14.1

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
9.3x62 (286 at 2360)	9.5	26.5	13.4
9.3x62 (286 at 2360)	10.0	25.2	12.7
9.3x62 (286 at 2360)	10.5	24.0	12.1
9.3x62 (286 at 2410)	8.5	31.8	15.5
9.3x64 (286 at 2400)	9.0	30.2	14.7
9.3x64 (286 at 2650)	9.0	36.5	16.2
9.3x64 (286 at 2690)	9.0	40.6	17.0
9.3x66 (286 at 2559)	9.0	36.3	16.1
9.3x74R (250 at 2270)	7.0	27.7	16.0
9.3x74R (250 at 2270)	8.0	24.2	14.0
9.3x74R (250 at 2400)	8.0	26.6	14.6
9.3x74R (250 at 2550)	9.0	29.1	14.4
9.3x74R (270 at 2130)	7.0	28.3	16.1
9.3x74R (270 at 2130)	8.0	24.8	14.1
9.3x74R (270 at 2300)	8.0	33.4	16.4
9.3x74R (270 at 2300)	9.0	26.4	13.7
9.3x74R (286 at 2300)	9.0	27.3	14.0
9.3x74R (286 at 2360)	7.0	39.4	19.0
9.3x74R (286 at 2360)	8.25	31.3	15.6
9.3x74R (286 at 2360)*	9.0	30.7	14.8
9.3x74R (286 at 2400)	10.0	27.6	13.3
.370 Sako Mag. (286 at 2550)	8.5	35.2	16.3
.375 Win. (200 at 2200)	7.5	15.0	11.4
.375 Win. (220 at 2200)	7.5	17.1	12.1
.375 Renner (200 at 2418)	7.0	22.8	14.2
.375 Renner (235 at 2658)	7.0	33.8	17.7
.375 Renner (260 at 2499)	7.0	35.7	18.1
.375 Ruger (225 at 2900)	7.5	39.1	18.3
.375 Ruger (225 at 2900)	8.5	34.5	16.2
.375 Ruger (270 at 2700)	7.5	46.7	20.0
.375 Ruger (270 at 2700)	8.5	41.2	17.7
.375 Ruger (270 at 2840)	9.0	41.3	17.2
.375 Ruger (300 at 2400)	7.5	41.6	18.9
.375 Ruger (300 at 2400)	8.5	36.7	16.7

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.375 Ruger (300 at 2500)	7.5	48.4	20.4
.375 Ruger (300 at 2500)	8.5	42.7	18.0
.375 Ruger (300 at 2550)	8.5	44.8	18.4
.375 H&H Mag. (225 at 2800)	9.0	29.9	14.6
.375 H&H Mag. (235 at 2700)	9.0	29.5	14.5
.375 H&H Mag. (250 at 2750)	9.0	33.2	15.4
.375 H&H Mag. (260 at 2720)	9.0	34.6	15.7
.375 H&H Mag. (270 at 2450)	9.0	29.9	14.6
.375 H&H Mag. (270 at 2690)	9.0	36.1	16.1
.375 H&H Mag. (270 at 2870)	9.0	42.5	17.4
.375 H&H Mag. (300 at 2530)	9.0	37.3	16.3
.375 H&H Mag. (300 at 2600)	9.0	42.0	17.3
.375 Dakota (300 at 2600)	8.5	44.5	18.4
.375 Wby. Mag. (300 at 2700)	10.0	47.3	17.5
.375 Wby. Mag. (300 at 2800)	9.0	49.9	18.9
.375 Rem. Ultra Mag (300 at 2800)	8.75	53.2	n/a
.376 Steyr (270 at 2580)	8.0	39.0	n/a
.378 Wby. Mag. (300 at 2900)	10.25	60.3	19.5
.38-40 Win. (180 at 1100)	7.5	3.1	5.2
.38-40 Win. (180 at 1300)	7.5	3.7	5.6
.38-55 Win. (220 at 1700)	7.5	11.1	9.8
.38-55 Win. (220 at 1700)	8.2	10.2	8.9
.38-55 Win. (245 at 1400)	7.5	8.1	8.3
.38-55 Win. (245 at 1400)	8.5	7.1	7.3
.38-55 Win. (255 at 1320)*	7.5	7.8	8.2
.38-55 Win. (255 at 1320)*	8.75	6.7	7.0
.38-55 Win. (255 at 1415)	7.0	9.5	n/a
.38-55 Win. (255 at 1500)	8.2	9.0	8.4
.38-55 Win. (255 at 1603)	7.5	11.3	9.8
.38-55 Win. (255 at 1700)	8.2	12.5	9.9
.38-55 Win. (255 at 1830)	7.5	15.1	11.4
.38-55 Win. +P (255 at 1950)	7.5	17.4	12.2
.38-55 Win. +P (255 at 1950)	8.5	15.3	10.8
.450/.400-3" (400 at 2150)	9.0	51.0	n/a

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.404 Jeffery (400 at 2170)	10.25	41.0	16.1
.405 Win. (300 at 1900)	8.0	22.1	13.3
.405 Win. (300 at 2200)	8.0	30.6	15.7
.41 Rem. Mag. (210 at 1775)	7.0	9.5	9.4
.416 Taylor (400 at 2350)	10.0	47.8	17.5
.416 Ruger (400 at 2390)	9.0	58.1	20.4
.416 Hoffman (400 at 2400)	10.0	53.0	18.5
.416 Rem. Mag. (350 at 2325)	10.0	37.9	15.6
.416 Rem. Mag. (400 at 2400)	10.0	52.9	18.5
.416 Rigby (350 at 2424)	10.0	47.8	17.6
.416 Rigby (400 at 1900)	10.0	32.7	14.5
.416 Rigby (400 at 2400)	10.0	58.1	19.3
.416 Rimmed (400 at 2400)	10.0	62.8	20.1
.416 Dakota (400 at 2500)	10.0	59.2	19.5
.416 Wby. Mag. (400 at 2700)	10.25	83.0	22.8
.44-40 Win. (200 at 1200)	7.0	3.4	n/a
.44 Rem. Mag. (200 at 1200)	5.5	4.6	7.3
.44 Rem. Mag. (240 at 1230)	5.5	6.5	8.7
.44 Rem. Mag. (240 at 1500)	5.5	11.3	11.5
.44 Rem. Mag. (240 at 1760)	7.5	11.2	9.8
.44 Rem. Mag. (265 at 1500)	5.5	13.6	12.6
.44 Rem. Mag. (270 at 1638)	7.5	11.6	10.0
.44 Rem. Mag. (275 at 1580)	7.5	11.4	9.9
.44 Rem. Mag. (300 at 1452)	7.5	11.2	9.8
.444 Marlin (240 at 2400)	7.5	23.3	14.2
.444 Marlin (265 at 2200)	8.5	22.1	12.9
.444 Marlin (265 at 2325)	7.5	27.6	15.4
.444 Marlin (270 at 2212)	8.5	23.7	13.4
.444 Marlin (300 at 2100)	8.5	24.2	13.6
.45 Colt (255 at 1100)	8.0	4.0	5.6
.45 Colt +P (240 at 1550)	6.5	10.2	10.1
.45 Colt +P (250 at 1500)	6.5	11.1	10.5
.454 Casull (240 at 2050)	6.5	19.0	13.0
.45 Muzzleloader (285 at 1550)	8.5	22.8	13.1

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.45 Muzzleloader (325 at 1500)	8.5	25.5	13.9
.458 SOCOM (300 at 1840)	7.5	20.2	13.2
.45-70 (300 at 1810)	7.0	26.1	15.5
.45-70 (300 at 1810)	7.5	22.1	13.8
.45-70 (300 at 1810)	8.5	21.5	12.8
.45-70 (300 at 1810)	10.0	18.1	10.8
.45-70 (350 at 1585)	7.5	24.6	14.5
.45-70 (350 at 1700)	7.5	26.2	15.0
.45-70 (405 at 1330)	7.0	21.9	14.2
.45-70 (405 at 1330)	7.5	19.2	12.9
.45-70 (405 at 1330)	8.5	18.0	11.7
.45-70 +P (350 at 1900)	7.0	37.9	18.7
.45-70 +P (350 at 1900)	8.5	32.2	15.9
.45-70 +P (350 at 2100)	10.0	32.0	14.4
.45-70 +P (500 at 1700)	8.25	45.3	18.8
.45-70 +P (500 at 1700)	10.0	37.3	15.5
.450 Marlin (300 at 2100)	7.0	32.6	17.3
.450 Marlin (300 at 2405)	8.5	34.8	16.2
.450 Marlin (350 at 2000)	7.0	37.2	18.5
.450 Marlin (350 at 2100)	8.5	33.6	16.0
.45-120 Sharps (405 at 1850)	9.0	33.9	n/a
.450 N.E. (465 at 2150)	11.0	55.5	18.0
.458 Win. Mag. (300 at 1850)	9.0	18.9	11.6
.458 Win. Mag. (300 at 2100)	9.0	26.4	13.8
.458 Win. Mag. (350 at 2100)	9.0	34.7	15.8
.458 Win. Mag. (400 at 1400)	9.0	17.1	11.1
.458 Win. Mag. (400 at 2050)*	9.0	41.7	17.3
.458 Win. Mag. (400 at 2100)	9.0	43.9	17.7
.458 Win. Mag. (400 at 2400)	10.0	50.6	18.1
.458 Win. Mag. (450 at 2100)	9.0	53.2	19.5
.458 Win. Mag. (450 at 2200)	10.0	52.4	18.4
.458 Win. Mag. (465 at 2220)	10.0	56.9	19.2
.458 Win. Mag. (500 at 2000)	9.0	56.3	20.1
.458 Win. Mag. (500 at 2090)	9.0	63.1	21.3

Cartridge (Wb@MV)	Rifle Weight	Recoil energy	Recoil velocity
.458 Win. Mag. (500 at 2090)	10.0	56.8	19.1
.458 Win. Mag. (500 at 2150)	10.0	60.6	19.8
.458 Lott (500 at 2100)	10.0	57.8	19.3
.458 Lott (500 at 2300)	10.0	70.4	21.3
.460 Wby. Mag. (500 at 2500)	11.0	83.3	22.1
.460 Wby. Mag. (500 at 2600)	11.0	96.4	23.8
.500/.465 N.E. (480 at 2150)	11.0	60.7	n/a
.470 N.E. (500 at 2150)	11.0	69.3	20.1
.470 Mbogo (500 at 2509)	11.0	83.5	22.1
.480 Ruger (325 at 1450)	6.25	16.4	13.0
.50 Muzzleloader (177 at 1801)	9.25	12.3	9.3
.50 Muzzleloader (385 at 1360)	9.75	21.0	11.8
.50 Muzzleloader (410 at 1400)	9.25	29.9	14.4
.50 Muzzleloader (490 at 1142)	9.75	27.5	13.5
.50 Sav.10ML-II (250+11 at 1900)*	9.75	14.2	9.7
.50 Sav.10ML-II (250+11 at 2170)	9.75	17.3	10.7
.50 Sav.10ML-II (300+11 at 2227)	9.25	25.9	13.4
.50-140 Sharps (515 at 2090)	10.0	72.1	21.6
.500 N.E. (570 at 2150)	12.0	74.5	n/a
.50 BMG (647 at 2710)	30.0	70.0	12.3
.50 BMG (750 at 2400)	30.0	68.3	12.1
.50 BMG (750 at 2800)	30.0	94.8	14.3
.54 Muzzleloader (425 at 1400)	9.5	34.4	15.3
.54 Muzzleloader (510 at 1288)	9.5	43.1	17.1
.577 N.E. (750 at 2050)	12.0	127.5	n/a
.58 Muzzleloader (525 at 1275)	9.5	35.4	15.5
.58 Muzzleloader (560 at 1331)	9.5	50.1	18.4
.600 N.E. (900 at 1950)	12.0	154.0	28.8

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Cartridge (Wb@MV)

**Rifle
Weight**

**Recoil
energy**

**Recoil
velocity**

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