Load Development

Brian Pearce

In the two previous articles on "Handloading the AR-15 .223 Remington," we offered tips and data for rifles with barrel twist rates of one turn in 12 inches and one turn in 9 inches. Now let's look at rifles with the one-in-7-inch twist.

The 7-inch twist is intended primarily for heavier bullets ranging from 62 to 80 grains, which it stabilizes very well. With a match grade barrel and heavyweight match bullets, it has proven a worthy contender at 600 yards, effectively beating the .308 Winchester at its own game. (Just for reference, barrels featuring one turn in 8 inches have become popular in AR-15s, which stabilize bullets up to 80 grains. For those wanting an even heavier bullet, rifles fitted with a barrel featuring a one-in-6.5-inch twist will stabilize bullets up to 90 grains, such as the Sierra HPBT-Match. Both the 8- and 6.5-inch twists can be used with today's data.)

In my mind, rifles fitted with a onein-7-inch twist are somewhat special-



A Redding Instant Indicator-Case Comparator is an excellent tool for adjusting a sizing die to obtain correct headspace and determine datum length.



ized, intended primarily as long-range target rifles (which is not to say they won't work with select 55-grain bullets). While handloads can be assembled with an overall cartridge length of 2.260 inches, which is within SAAMI specifications and will function and feed reliably through the action, better performance and improved accuracy can be obtained by seating bullets out for an overall cartridge length of 2.550 inches. Due to their excess length, cartridges loaded in this fashion will not fit into the magazine and become specialized "single shots" for competition.



A Redding Competition Bullet Seating Die aids in producing precise ammunition.

1

= Handloading the AR-15 .223 with 1-in-7 twist Part III





The cartridge on the left has an overall length of 2.260 inches (SAAMI specifications), while the cartridge on the right features an overall length of 2.550 inches. Note the significant change in powder capacity. Never use data developed for cartridges with a 2.550 inch length while seating bullets to SAAMI specifications, as dangerous pressures can result.

Some competitors modify magazines by cutting a slot into the front for the bullet tips to protrude, but the receiver box becomes the limiting factor. The rifle used in this article limited that length to 2.380 inches. Seating bullets out increases powder capacity and allows for greater velocity but also places bullets closer to the rifling, which usually improves accuracy and will allow one to finetune the load for a given rifle.

When using the accompanying data, take note of the overall cartridge length listed with each bullet, as they were assembled "long" for use in the "single-shot" mode. If bullets are seated deeper (to SAAMI specifications) than the listed length, powder charges must be reduced 7 to 10 percent. Failure to do so will result in loads that produce substantially greater (and even dangerous) pressures. The data presented here was developed in commercial Nosler-Custom cases, which have greater capacity than military cases. Do not use the accompanying data with



Some of the handloads in the accompanying table feature 80-grain bullets seated to an overall cartridge length of 2.550 inches, which are too long to fit into an AR-15 magazine and must be fired in the single-shot mode, which is common in competition.

Load Development



A factory loaded .223 Remington cartridge with a 55-grain bullet (left) is compared to a competition handload with an 80-grain match bullet seated to an overall cartridge length of 2.550 inches. The latter cartridge must be fired in the single-shot mode, as it is too long to fit in magazines.

military brass, or pressures exceeding SAAMI guidelines will probably result. Commercial cases also vary in capacity. The point being, never begin with maximum listed loads, but rather begin with the starting loads, carefully measuring fired cases for signs of excess pressure (and case head expansion) before increasing the powder charge. And when working up powder charges, keep in mind that the .223 Remington case is small and a .5-grain increase will noticeably raise pressures, especially when used in conjunction with heavier bullets weighing 75 to 80 grains.

Most commercial .223 Remington cases are of good quality, but to obtain the consistency that match shooters seek, most will need the flash holes "uniformed" and deburred, then the



AR-15 .223 rifles fitted with a one-in-7-inch twist barrel will stabilize bullets up to 80 grains.

75 Hornady A-Max Match TAC 22.0 2.484 2.390 22.5 2.561 23.5 2.652 24.0 2.682 24.0 2.682 AAC-2230 2.1.0 2.488 21.5 2.507 22.0 2.567 22.5 2.611 23.0 2.673 XMR-2015 21.0 2.681 23.0 2.673 XMR-2015 21.0 2.681 24.8 24.9 22.0 2.681 23.0 2.661 25.9 21.0 2.611 23.0 2.673 24.9 24.9 22.0 2.691 21.5 2.505 22.0 2.691 H-335 21.0 2.480 22.0 2.691 24.5 2.599 22.0 2.539 22.5 2.556 24.0 2.596 24.5 2.598 25.5 2.694 W-748 22.5 2.561 24.5 2.663 24.0 2.565 2.40 2.556 2.45 2.669 2.556 2.45 2.669 2.55 2.644 2.55 2.661 <	bullet (<i>grains</i>)	powder	charge (grains)	velocity (<i>fps</i>)	length (<i>inches</i>)
22.5 2.535 2.625 23.0 2.561 2.30 23.5 2.625 2.40 24.0 2.682 2.15 22.0 2.567 2.5 22.5 2.611 2.0 22.0 2.667 2.5 23.0 2.673 XMR-2015 2.0 21.0 2.611 2.1 2.5 21.0 2.661 2.0 2.661 21.5 2.560 2.0 2.681 21.5 2.509 2.2.0 2.589 22.0 2.589 2.50 2.661 22.5 2.569 2.50 2.661 25.0 2.661 2.5 2.694 W-748 22.5 2.641 2.5 23.5 2.565 2.4.0 2.663 24.5 2.663 24.0 2.663 24.5 2.663 24.0 2.655 24.6 2.663 24.0 2.655 24.0 2.655 2.641 2.5 25.0 2.741 2.0 <td>75 Hornady A-Max Match</td> <td>TAC</td> <td>22.0</td> <td>2.484</td> <td>2.390</td>	75 Hornady A-Max Match	TAC	22.0	2.484	2.390
23.0 2.561 23.5 2.662 24.0 2.682 24.0 2.682 21.5 2.567 22.0 2.567 22.5 2.611 21.0 2.661 22.0 2.567 22.5 2.611 21.0 2.611 21.5 2.660 22.0 2.691* H-335 21.0 2.480 21.5 2.505 2.599 22.0 2.599 2.599 23.0 2.590 2.599 23.0 2.590 2.556 24.5 2.598 2.502 23.5 2.556 2.40 23.5 2.561 2.40 23.5 2.561 2.41 23.5 2.561 2.41 23.5 2.561 2.41 23.5 2.561 2.41 23.5 2.561 2.41 23.5 2.561 2.41 23.5 2.561 2.41 24.5 2.603 <td></td> <td>1</td> <td>22.5</td> <td>2.535</td> <td>1</td>		1	22.5	2.535	1
23.5 2.625 24.0 2.682 24.0 2.682 22.5 2.611 22.0 2.667 22.5 2.611 23.0 2.673 20.0 2.631 21.0 2.611 21.5 2.601 21.0 2.611 21.5 2.603 21.0 2.611 21.5 2.600 21.5 2.601 21.5 2.503 22.0 2.539 22.5 2.559 22.0 2.539 22.5 2.559 23.0 2.560 24.0 2.560 24.0 2.560 24.5 2.661 25.5 2.694 W-748 22.5 23.0 2.569 24.0 2.633 24.0 2.633 24.0 2.633 24.0 2.633 24.0 2.633 24.0 2.665 24.0 2.665			23.0	2.561	
24.0 2.692 AAC-2230 21.0 2.488 22.0 2.567 22.5 2.611 22.0 2.661 22.0 2.661 21.5 2.660 21.5 2.561 21.5 2.660 22.0 2.691 H-335 21.0 2.480 2.590 22.0 2.599 22.5 2.599 22.0 2.590 23.0 2.590 22.0 2.590 23.0 2.590 23.0 2.590 23.0 2.590 24.5 2.598 25.0 2.661 25.5 2.694 2.505 2.44.5 2.588 25.0 2.651 24.0 2.565 2.40 2.565 24.0 2.555 2.644 2.565 2.44.5 2.669 24.0 2.655 2.44.5 2.699 2.55 2.644 25.0 2.741 2.55 2.644 2.600 2.577 25.0			23.5	2,625	
AAC-2230 21.0 2.488 21.5 2.501 22.5 2.611 22.0 2.6673 22.5 2.611 21.5 2.503 2.6633 2.6633 XMR-2015 20.5 2.6631 2.6633 21.5 2.505 2.0 2.611 21.5 2.505 2.653 2.653 21.5 2.505 2.559 2.559 22.5 2.559 2.25 2.559 22.5 2.560 2.480 2.55 22.5 2.559 2.55 2.694 W-748 22.5 2.471 23.5 2.565 23.5 2.566 2.4.5 2.502 2.563 24.0 2.563 2.45 2.705 2.464 24.0 2.565 2.663 2.45 2.705 24.5 2.705 2.569 2.569 2.569 2.569 24.0 2.653 2.669 2.577 2.569 2.569 2.569			24.0	2 692	
21.5 2,501 22.0 2,567 22.5 2,611 23.0 2,673 XMR-2015 20.5 2,563 21.5 2,660 22.0 22.0 2,691* H-335 21.5 2,505 22.0 2,691* H-335 21.5 2,505 22.0 2,539 22.0 23.0 2,590 22.0 23.0 2,590 22.0 23.0 2,590 24.5 24.5 2,598 25.0 25.0 2,653 24.0 25.5 2,644 23.0 25.0 2,653 24.5 24.0 2,563 24.5 25.0 2,764 24.5 24.0 2,653 24.5 25.0 2,741 20.0 25.0 2,741 20.0 25.0 2,741 20.0 25.0 2,741 20.0 25.0 2,741 20.0 25.0 2,741 20.0 </td <td>AAC-2230</td> <td>21.0</td> <td>2 488</td> <td></td>		AAC-2230	21.0	2 488	
77 Nosler hollowpoint boat-tail TAC 22.0 2.667 22.5 2.611 22.5 2.661 21.0 2.611 21.5 2.660 22.0 2.691* H-335 21.0 2.480 21.5 2.505 22.5 2.599 22.5 2.599 22.5 2.599 22.5 2.599 22.5 2.598 22.5 2.691* H-335 21.0 2.480 22.5 2.599 22.5 2.599 22.5 2.599 22.5 2.651 23.5 2.562 24.5 2.653 24.5 2.653 24.5 2.705 25.0 2.741 VV-N140 23.0 2.569 25.0 2.741 24.5 2.663 25.0 2.773 22.5 2.644 23.0 2.669 24.5 2.660 25.0 2.		1	21.5	2 501	
Z2.5 2.611 23.0 2.673 XMR-2015 20.5 2.663 21.0 2.611 21.5 2.650 21.0 2.611 21.5 2.650 22.0 2.639 22.0 2.639 21.5 2.505 2.539 22.5 2.559 22.0 2.539 22.5 2.559 22.5 2.559 22.0 2.530 22.5 2.559 22.5 2.559 23.0 2.500 2.651 24.5 2.560 24.5 2.663 24.0 2.556 24.0 2.556 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.669 24.5 2.663 24.5 2.669 25.0 2.741 VV-N140 23.0 2.565 2.45 2.699 25.0 2.784 24.5 2.669 2.5.5 2.784 2.660 <			22.0	2 567	
Z20 2,673 XMR-2015 20.5 2,563 21.0 2,611 21.5 2,650 22.0 2,691* 1.5 2,650 1 22.0 2,691* 1.5 2,505 22.0 2,599 22.0 2,599 22.0 2,599 22.0 2,590 23.0 2,560 24.5 2,560 24.5 2,560 26.5 2,694 1.5 2,566 25.0 2,651 24.5 2,566 24.5 2,568 25.5 2,694 W-748 23.0 2,562 24.5 2,653 24.5 2,653 1.2 24.5 2,653 1.2 1.2 24.5 2,653 1.2 24.5 2,659 1.2			22.5	2 611	
XMR-2015 20.5 2.603 21.0 2.611 21.5 2.650 22.0 2.691* 1 1.5 2.505 1 21.5 2.505 2.539 22.5 2.559 22.0 2.691* 1 2.5 2.559 2.559 2.559 2.559 2.559 2.550 2.560 2.550			23.0	2 673	
Amin 2013 21.5 2,503 21.5 2,650 22.0 2,691* H-335 21.5 2,505 22.0 2,539 22.5 2,559 23.0 2,590 BL-C(2) 23.5 2,599 24.0 2,560 25.5 2,691 24.0 2,500 25.5 2,691 24.5 2,598 25.0 2,651 24.5 2,598 25.5 2,694 W-748 22.5 24.0 2,505 24.0 2,505 24.0 2,505 24.0 2,505 24.0 2,505 24.0 2,505 24.0 2,505 24.0 2,653 Varget 23.0 2,541 24.0 2,655 24.0 2,655 24.0 2,655 24.0 2,655 25.0 2,783 VV-N135 21.5 2,577		XMR-2015	20.5	2 563	
21.5 2,011 22.0 2,691* H-335 21.0 2,480 22.0 2,539 22.5 22.0 2,539 22.5 22.0 2,539 22.5 22.0 2,539 22.5 23.0 2,590 24.0 25.5 2,694 24.5 25.5 2,694 25.5 24.5 2,598 25.5 2,694 W-748 22.5 23.5 2,556 24.0 2,565 24.0 2,563 Varget 23.0 23.5 2,556 24.0 2,653 Varget 23.0 23.5 2,561 24.0 2,653 24.0 2,653 24.0 2,653 24.0 2,651 24.0 2,661 24.0 2,663 24.0 2,664 23.5 2,741 VV-N140 23.5 2,769 24.0 2,660 <td></td> <td>1</td> <td>21.0</td> <td>2,505</td> <td></td>		1	21.0	2,505	
21.3 2,030 22.0 2,691* H-335 21.0 2,480 22.5 2,559 22.0 23.0 2,590 22.5 BL-C(2) 23.5 2,529 24.5 2,598 25.0 25.0 2,661 24.5 25.5 2,694 25.5 W-748 22.5 2,566 24.5 2,693 24.5 25.5 2,694 24.5 W-748 22.5 2,471 23.5 2,566 24.5 24.5 2,663 24.5 24.5 2,663 24.5 23.5 2,584 24.0 24.5 2,663 24.5 25.0 2,741 24.5 VV-N140 23.0 2,659 24.5 2,699 25.0 25.0 2,783 24.5 26.0 2,773 24.5 27.0 2,569 25.0 25.0 2,784 24.0 26.5 2,784 24.0			21.0	2,011	
H-335 21.0 2,091 H-335 21.5 2,505 22.0 2,539 22.5 23.0 2,590 24.5 BL-C(2) 23.5 2,598 24.5 2,598 25.5 25.5 2,694 25.5 W-748 22.5 2,471 23.5 2,556 24.5 23.5 2,566 24.5 24.0 2,565 2,663 24.0 2,565 2,663 24.0 2,565 2,663 24.0 2,653 2,564 24.0 2,653 2,765 25.0 2,741 2,00 VV-N140 23.0 2,569 24.5 2,699 2,502 25.0 2,783 2,705 25.0 2,774 2,20 25.5 2,784 2,669 25.5 2,784 2,669 25.5 2,784 2,669 25.5 2,784 2,669 25.5 2,784 2,669			21.5	2,000	
PT-533 21.0 2.480 21.0 2.505 2.505 22.0 2.539 2.25 23.0 2.590 3.0 BL-C(2) 23.5 2.529 24.0 2.560 2.661 25.5 2.694 2.502 23.5 2.556 2.400 25.5 2.664 2.502 23.5 2.556 2.400 23.5 2.556 2.400 23.5 2.556 2.400 23.5 2.554 2.411 23.5 2.564 2.400 24.0 2.653 2.445 24.0 2.655 2.445 24.0 2.655 2.445 25.0 2.741 VV-N140 23.5 2.609 2.55 24.5 2.609 2.55 24.5 2.699 2.55 25.5 2.784 AAC-2520 2.50 2.560 25.5 2.784 AAC-2520 2.50 2.577 23.5 2.660 </td <td></td> <td>1 225</td> <td>22.0</td> <td>2,091</td> <td></td>		1 225	22.0	2,091	
21.3 2.303 22.5 2.539 22.5 2.559 23.0 2.590 24.5 2.560 24.5 2.588 25.0 2.651 24.5 2.598 25.5 2.694 W-748 22.5 23.0 2.502 23.5 2.556 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.5 2.663 24.6 2.663 24.7 2.663 24.5 2.663 24.6 2.663 24.7 2.705 25.0 2.741 VV-N140 23.5 25.0 2.741 VV-N135 21.5 22.0 2.599 22.5 2.644 23.0 2.669 23.5 2.766 RL-15 23.5 2.769 24.0		H-330	21.0	2,400	
22.0 2,539 22.5 2,559 23.0 2,590 24.5 2,598 25.5 2,661 25.5 2,661 23.0 2,502 23.5 2,556 24.0 2,566 25.5 2,694 W-748 22.5 2,471 23.5 2,556 24.0 2,595 24.0 2,595 24.0 2,595 24.0 2,555 24.0 2,555 24.0 2,555 24.0 2,653 24.0 2,653 24.0 2,653 24.5 2,609 25.0 2,783 VV-N140 23.0 23.5 2,669 25.0 2,7783 VV-N135 21.5 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,569 23.5 2,660 25.5 2,784 23.5 2,663			21.5	2,505	
22.5 2.599 33.0 2.590 24.0 2.560 24.5 2.593 25.5 2.661 25.5 2.644 W-748 22.5 23.0 2.556 24.0 2.556 24.0 2.556 24.0 2.556 24.0 2.555 24.0 2.563 24.0 2.563 24.0 2.563 24.0 2.563 24.0 2.563 24.0 2.563 24.5 2.663 24.0 2.633 24.5 2.705 25.0 2.741 VV-N140 23.5 23.5 2.660 25.0 2.783 VV-N135 21.5 22.5 2.664 23.5 2.726 RL-15 23.5 25.0 2.707 25.5 2.784 AAC-2520 22.0			22.0	2,539	
Pine 23.0 2,590 BL-C(2) 23.5 2,529 24.5 2,598 25.0 2,651 24.5 2,594 W-748 22.5 2,471 23.5 2,556 2,471 23.5 2,556 2,471 23.5 2,556 2,471 23.5 2,556 2,40 24.5 2,603 2,502 23.5 2,556 2,40 24.5 2,603 2,45 24.5 2,705 25.0 25.0 2,741 24.0 VV-N140 23.0 2,569 24.5 2,600 2,569 24.5 2,699 24.5 25.0 2,741 24.0 VV-N135 21.5 2,577 22.0 2,599 22.5 22.5 2,644 23.0 23.5 2,726 24.0 RL-15 23.5 2,784 AAC-2520 22.0 2,569 24.0 2,660 25.0			22.5	2,559	
BL-C(2) 23.5 2.529 24.0 2,560 24.5 2.598 25.0 2,651 25.5 2,694 W-748 22.5 23.0 2,502 23.5 2,556 24.0 2,595 24.0 2,595 24.0 2,595 24.0 2,595 24.0 2,595 24.0 2,595 24.0 2,653 Varget 23.0 2,541 24.0 2,633 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,699 25.0 2,741 VV-N140 23.0 2,659 24.5 2,699 25.0 2,741 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,784 AAC-2520 22.0 2,560 24.0 2,660 23.5 2,643 24.0 2,689 23.5 2,643 </td <td></td> <td></td> <td>23.0</td> <td>2,590</td> <td></td>			23.0	2,590	
24.0 2,560 24.5 2,598 25.0 2,651 25.5 2,694 W-748 22.5 2,471 23.5 2,556 24.0 2,595 24.5 2,653 24.0 2,595 24.5 2,653 24.0 2,595 24.5 2,653 24.0 2,633 24.0 2,633 24.5 2,705 24.5 2,705 25.0 2,741 VV-N140 23.0 2,659 24.5 2,699 24.0 2,655 2,44 2,659 24.0 2,659 24.0 2,655 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,726 22.0 2,560 25.0 2,707 25.5 2,734 AAC-2520 22.0 2,560 23.0 2,623 23.0 2,623 23.0 2,623 23.5 2,588 23.0 2,639 277 Nosler hollowpoint boat-tail TAC 22.0 2,517 2,390 <td< td=""><td></td><td>BL-C(2)</td><td>23.5</td><td>2,529</td><td></td></td<>		BL-C(2)	23.5	2,529	
24.5 2,598 25.0 2,651 25.5 2,694 W-748 22.5 2,471 23.0 2,502 23.5 2,556 24.0 2,595 24.5 2,663 Varget 23.0 2,541 23.5 2,584 24.5 2,603 24.5 2,603 24.5 2,603 Varget 23.0 2,541 24.5 2,603 24.5 2,609 25.0 2,741 100 20.0 2,569 24.5 2,609 25.0 2,741 100 20.0 2,569 24.5 2,609 25.0 2,741 100 20.0 2,569 24.5 2,609 25.0 2,773 24.5 2,609 25.0 2,773 24.5 2,609 23.5 2,7726 RL-15 23.5 2,726 RL-15 23.5 2,784 24.0 2,604 24.5 2,660 25.5 2,784 24.0 2,689 24.0 2,689 24.0 2,689 24.0 2,689 24.0 2,689 24.0 2,689 24.0 <			24.0	2,560	
25.0 2,651 25.5 2,694 W-748 22.5 2,471 23.5 2,556 24,0 2,595 24.0 2,595 24,0 2,633 Varget 23.5 2,584 24,0 2,633 24.0 2,633 24,5 2,705 25,0 2,741 VV-N140 23.0 2,659 24,5 2,699 25,0 2,769 25.0 2,741 24,0 2,655 24,5 2,699 25,0 2,741 VV-N140 23.5 2,610 24,5 2,699 25,0 2,743 VV-N135 21.5 2,577 22,0 2,599 22,5 2,644 23.0 2,669 23,5 2,766 23,5 2,766 RL-15 23,5 2,766 24,5 2,660 25,0 2,776 RL-15 23,5 2,760 23,0 2,623 23,0 2,623 23,0 2,623 23,0 2,623 23,0 2,623 23,0 2,643 24,0 <t< td=""><td></td><td></td><td>24.5</td><td>2,598</td><td></td></t<>			24.5	2,598	
W-748 22.5 2.471 23.0 2.556 24.0 2.595 24.0 2.595 24.5 2.653 Varget 23.0 24.5 2.653 24.5 2.653 24.5 2.653 24.5 2.653 24.5 2.653 24.5 2.705 25.0 2.741 VV-N140 23.0 2.569 24.5 2.655 24.5 2.699 25.0 2.783 VV-N140 23.0 2.655 24.5 2.699 25.0 2.783 VV-N135 21.5 2.577 22.5 2.644 23.0 2.669 23.5 2.726 RL-15 23.5 2.760 25.5 2.784 AAC-2520 22.0 2.560 23.0 2.643 24.0 25.5 2.784 2.643 24.0 2.643 24.0 23.0 <t< td=""><td></td><td></td><td>25.0</td><td>2,651</td><td></td></t<>			25.0	2,651	
W-748 22.5 2.471 23.0 2.502 23.5 2.556 24.0 2.595 24.0 2.563 Varget 23.5 2.584 24.0 2.633 24.5 24.0 2.633 24.0 2.633 24.0 2.633 24.0 2.655 24.0 2.655 2.40 2.669 25.0 2.741 VV-N140 23.0 2.569 24.5 2.669 23.5 2.610 24.0 2.655 24.0 2.655 2.44 23.0 2.669 23.5 2.644 23.0 2.669 23.5 2.726 2.55 2.784 RL-15 23.5 2.664 23.0 2.669 23.0 2.669 25.5 2.784 24.0 2.604 24.0 2.604 25.5 2.784 24.0 2.669 23.0 2.623 23.0 2.623 23.0 2.623 23.0<			25.5	2,694	
23.0 2,502 23.5 2,556 24.0 2,555 24.5 2,653 24.0 2,633 24.5 2,569 24.5 2,663 24.0 2,633 24.5 2,705 24.5 2,769 23.5 2,610 24.0 2,655 24.5 2,699 25.0 2,771 VV-N140 23.0 25.0 2,783 VV-N135 21.5 22.0 2,599 22.0 2,669 23.5 2,726 RL-15 23.5 23.5 2,726 RL-15 23.5 24.0 2,669 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.5 2,660 23.5 23.5 2,663 24.0 23.5 2,660 23.5 23.5 2,660 23.5 <t< td=""><td></td><td>W-748</td><td>22.5</td><td>2,471</td><td></td></t<>		W-748	22.5	2,471	
23.5 2,556 24.0 2,595 24.5 2,633 Varget 23.5 2,584 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,609 23.5 2,610 24.5 2,609 25.0 2,741 VV-N140 23.0 2,569 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,766 24.5 2,660 25.0 2,707 25.5 2,784 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.5 2,643 23.0 2,623 23.5 2,643 24.0 2,689 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2,390 2,612 23.5 2,660 23.0 2,612 23.5 2,660			23.0	2,502	
24.0 2,595 24.5 2,663 23.0 2,541 23.5 2,584 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,601 24.5 2,609 24.5 2,609 24.5 2,699 25.0 2,783 VV-N135 21.5 25.0 2,783 VV-N135 21.5 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 25.0 2,707 25.5 2,784 AAC-2520 22.0 25.5 2,784 AAC-2520 22.0 23.5 2,660 23.5 2,643 23.5 2,643 23.5 2,643 23.5 2,660 25.5 2,784 AAC-2520 22.0 2,560 23.5 2,643 23.5 2,643 <td></td> <td></td> <td>23.5</td> <td>2,556</td> <td></td>			23.5	2,556	
24.5 2,653 Varget 23.0 2,541 23.5 2,584 24.0 2,633 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,699 24.5 2,699 24.5 2,699 25.0 2,783 VV-N135 21.5 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,726 RL-15 23.5 2,769 24.5 2,669 24.5 23.0 2,669 23.0 23.0 2,669 24.5 23.0 2,669 25.0 23.0 2,669 25.0 23.0 2,660 24.5 25.0 2,707 25.5 23.0 2,623 23.0 23.0 2,623 23.0 23.5 2,660 24.0 24.0 2,689 24.0<			24.0	2,595	
Varget 23.0 2,541 23.5 2,584 24.0 2,633 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,609 24.5 2,699 24.5 2,699 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,726 RL-15 23.5 2,569 24.5 2,660 24.5 25.0 2,776 RL-15 23.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.0 23.0 2,623 23.5 23.0 2,643 24.0 22.5 2,550 2,500 23.0 2,612 2,500			24.5	2,653	
23.5 2,584 24.0 2,633 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,609 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.5 2,604 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.5 2,600 25.5 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.0 2,623 23.5 2,643 24.0 2,689		Varget	23.0	2,541	
24.0 2,633 24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,600 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.5 2,669 23.5 2,726 RL-15 23.5 2,569 24.5 2,660 23.5 2,726 RL-15 23.5 2,669 23.5 2,726 RL-15 23.5 2,660 25.0 2,707 25.5 25.0 2,707 25.5 25.5 2,784 24.0 AAC-2520 22.0 2,560 23.5 2,643 24.0 23.5 2,643 24.0 23.5 2,660 22.5 23.5 2,660 23.5 23.0 2,623 23.5 23.0 2,612 23.5 23.0 2,			23.5	2,584	
24.5 2,705 25.0 2,741 VV-N140 23.0 2,569 24.5 2,609 24.0 2,655 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 23.5 2,766 RL-15 23.5 2,766 22.5 2,644 23.0 2,609 23.5 2,726 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.5 2,643 23.0 2,623 23.5 2,643 24.0 2,689 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 23.0 2,612 23.5 2,660 24.0 <			24.0	2,633	
25.0 2,741 VV-N140 23.0 2,569 23.5 2,610 24.0 2,655 24.5 2,699 25.0 2,783 VV-N135 21.5 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,726 RL-15 23.5 2,760 24.0 2,604 24.5 24.5 2,660 25.0 25.0 2,707 25.5 25.0 2,707 25.5 25.0 2,707 25.5 25.0 2,707 25.5 25.0 2,707 25.5 25.0 2,707 2.588 23.0 2,623 23.5 23.0 2,623 23.5 23.5 2,643 24.0 22.5 2,550 23.0 23.0 2,612 23.5 23.0 2,612 23.5 23.0 2,612 23.5 </td <td></td> <td></td> <td>24.5</td> <td>2,705</td> <td></td>			24.5	2,705	
VV-N140 23.0 2,569 23.5 2,610 24.0 2,655 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,663 23.0 2,623 23.0 2,623 23.0 2,623 23.0 2,623 23.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 23.0 2,612 23.5 2,660 23.0 2,612 23.5 2,660 23.0 2,612 23.5 2,660			25.0	2,741	
23.5 2,610 24.0 2,655 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.5 2,643 24.0 2,669 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 2.55 23.0 2,623 23.5 2,643 24.0 2,689 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 23.0 2,612 23.5 2,660 23.5 2,660 23.5 2,660 23.5 2,660 23.5 2,660		VV-N140	23.0	2,569	
24.0 2,655 24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.5 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.0 2,623 23.0 2,623 23.5 2,643 24.0 2,689 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660			23.5	2,610	
24.5 2,699 25.0 2,783 VV-N135 21.5 2,577 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.5 2,660 25.0 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689			24.0	2,655	
77 Nosler hollowpoint boat-tail TAC 22.0 2,517 27 Nosler hollowpoint boat-tail TAC 22.0 2,517 2,390			24.5	2,699	
VV-N135 21.5 2,577 22.0 2,599 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.5 2,776 24.5 2,660 25.5 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.5 2,643 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 2,550 2,550 2,550 2,550 23.0 2,612 23.5 2,660 2.35 2,660			25.0	2,783	
22.0 2,599 22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.5 2,777 25.5 2,784 AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689		VV-N135	21.5	2.577	
22.5 2,644 23.0 2,669 23.5 2,726 RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.5 2,643 23.0 2,623 23.0 2,623 23.5 2,643 24.0 2,689 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 23.5 2,660 23.0 2,612 23.5 2,550 23.0 2,612 23.5 2,560 23.5 2,660 23.5 2,660		1	22.0	2,599	
77 Nosler hollowpoint boat-tail TAC 22.0 2,669 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 24.0 2,604 24.5 2,660 25.5 2,707 25.5 2,784 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 27.5 2,550 2,550 2,560 23.5 2,643 24.0 2,689			22.5	2,644	
77 Nosler hollowpoint boat-tail TAC 22.0 2,500 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 27.0 25.5 2,660 2.55 2,560 2.560 20.0 2,600 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 23.0 2,612 23.0 2,612 23.5 2,560 23.5 2,560			23.0	2,669	
RL-15 23.5 2,569 24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 23.5 2,660 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 23.0 2,612 23.5 2,660 23.5 2,660			23.5	2,726	
24.0 2,604 24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 23.0 2,623 23.5 2,643 24.0 2,689 22.5 2,550 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 23.0 2,612 23.0 2,612 23.5 2,660		RL-15	23.5	2,569	
24.5 2,660 25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 23.0 2,612 23.0 2,612 23.5 2,660 23.5 2,660 23.5 2,612 23.5 2,612			24.0	2,604	
25.0 2,707 25.5 2,784 AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 23.5 2,660 24.0 2,612 23.5 2,612			24.5	2,660	
25.5 2,784 AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,612 23.5 2,612 23.5 2,612 23.5 2,612			25.0	2 707	
AAC-2520 22.0 2,560 22.5 2,588 23.0 2,623 23.5 2,643 24.0 2,689 77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 23.0 2,612 23.0 2,612 23.5 2,660			25.5	2 784	
77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 27. Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 23.0 2,612 23.0 2,612 23.5 2,660		AAC-2520	22.0	2 560	
77 Nosler hollowpoint boat-tail TAC 22.0 2,623 23.0 2,623 23.5 2,643 24.0 2,689 24.0 2,689 23.0 2,517 2.390 23.0 2,612 23.5 2,660 23.5 2,660 24.0 2,612			22.5	2 588	
77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 23.5 2,643 24.0 2,689 2.00			23.0	2 623	
77 Nosler hollowpoint boat-tail TAC 22.0 2,643 24.0 2,689 22.5 2,517 2.390 23.0 2,612 23.5 2,660			23.5	2 6/3	
77 Nosler hollowpoint boat-tail TAC 22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 23.5 2,660 24.0 27.0			24.0	2,040	
22.0 2,517 2.390 22.5 2,550 23.0 2,612 23.5 2,660 24.0 27.10	77 Nosler hollowpoint boat-tail	TAC	24.0	2,009	0.000
22.5 2,550 23.0 2,612 23.5 2,660		TAC	22.0	2,51/	2.390
23.0 2,612 23.5 2,660			22.5	2,550	
23.5 2,660			23.0	2,612	
010 0710			23.5	2,660	
1 24.0 2,/10 1		1	24.0	2,710	

overall

.223 Remington Handloading Data

(Continued from page 00)

bullet (grains)	powder	charge (grains)	velocity (<i>fps</i>)	overall loaded length (<i>inches</i>)
77 Nosler hollowpoint boat-tail	AAC-2230	21.0 21.5 22.0 22.5 23.0	2,527 2,555 2,598 2,645 2,713	2.390
	XMR-2015	20.5 21.0 21.5 22.0	2,548 2,601 2,655 2,711*	
	H-335	21.0 21.5 22.0 22.5	2,497 2,530 2,555 2,585	
	BL-C(2)	23.0 23.5 24.0 24.5 25.0 25.5	2,620 2,521 2,556 2,615 2,670 2,720	
80 Sierra MatchKing	Varget	22.0 23.0 23.5 24.0 24.5 25.0	2,402 2,504 2,554 2,613 2,676	2.550
	RL-15	22.0 22.5 23.0 23.5 24.0	2,735 2,475 2,499 2,542 2,588 2,636	
	BL-C (2)	23.0 24.0 24.5 25.0	2,543 2,618 2,653 2,679	
	VVN-135	23.5 21.0 21.5 22.0 22.5	2,738 2,528 2,557 2,595 2,633	
	H-335	23.0 20.0 21.0 21.5 22.0	2,692 2,371 2,460 2,490 2,535	
	VV-N140	22.5 22.5 23.0 23.5 24.0	2,583 2,508 2,549 2,605 2,621	
	H-4895	24.5 21.5 23.0 23.5 24.0	2,676 2,489 2,614 2,660 2,722	
	AAC-2495	21.0 21.5 22.0	2,395 2,431 2,469	ad an age 5



Bullets in the 75 to 80 grain weight increase the long-range accuracy potential of the .223 Remington cartridge.

overall case length trimmed and deburred inside and out. With the volume of handloading projects that I tackle, it proved a timesaver to order NoslerCustom unprimed brass for this project, which has all the above features and is ready to load right out of the box, and they certainly assisted in obtaining accuracy.

Before discussing these loads, it should be mentioned that the data presented with 65- to 75-grain bullets in the last edition of LoadData. com for the AR-15 rifle with a onein-9-inch twist are suitable for rifles with a one-in-7-inch twist. Those loads will prove of interest to folks wanting loads that function and feed correctly in the semiautomatic mode. For that reason the focus of today's data is with 75- to 80-grain bullets seated to overall cartridge lengths that exceed SAAMI specifications. It is suggested to not seat bullets that actually touch the lands, but rather to be seated from .015 to .001 inch off the leade.

As has been written in previous articles, the .223 Remington cartridge has a rather rough trip as it is stripped from the AR-15 magazine, over the locking lugs and into the chamber. Cartridges should normally receive a crimp, even those that contain bullets without a crimping cannelure, to keep the bullet in place. As previously mentioned, the loads listed here are intended to be fired in the single-shot mode, wherein the rough trip is minimized, and therefore were assembled without a crimp.

Load Development



Handloaded cartridges with proper tolerances will not need (as shown) chambering assistance.

To assemble loads that will produce maximum accuracy and provide long case life, it is imperative to adjust dies correctly so cases are sized to correspond with the headspace of a given rifle (that is assuming they will only be fired in one rifle). There are a number of good tools to help handloaders adjust dies and determine the datum length. In developing the accompanying loads, a Redding Instant Indicator-Case Comparator was used while adjusting the Redding sizing die. This is a highly precise and worthy tool for the serious handloader seeking to produce near perfect ammunition and obtain the next level of accuracy.

Another area that should always receive focus includes powder charges. For instance it is a common mistake



Federal Gold Medal 205GM Bench Rest primers were used exclusively in the accompanying data.

.223 Remington Handloading Data

bullet (grains)	powder	charge (grains)	velocity (<i>fps</i>)	overall loaded length (<i>inches</i>)
80 Sierra MatchKing	AAC-2495	22.5	2,517	2.550
	1	23.0	2,570	1
	H-322	20.0	2,479	
		20.5	2,521	
		21.0	2,542	
		21.5	2,580	
		22.0	2,661	
	AAC-2520	21.0	2,455	
		22.0	2,533	
		22.5	2,587	
		23.0	2,635	
		23.5	2,679	
		24.0	2,742	
	W-748	22.0	2,480	
		23.0	2,529	
		24.0	2,607	
	TAC	21.5	2,420	
		22.0	2,444	
		22.5	2,475	
		23.0	2,537	
1		23.5	2,580	
80 Nosler hollowpoint boat-tail	Varget	24.5	2,710	2.540
	RL-15	24.0	2,616	
	BL-C(2)	25.0	2,688	
	VV-N135	23.0	2,703	
	VV-N140	24.0	2,648	
	AAC-2520	24.0	2,733	
* maximum				
Notes: A DPMS with a 20-inch barrel Nosler Custom cases and Federal 205 mum case length: 1.760 inches; trim- 52 000 CUP	was used to test fir GM (Small Rifle Be to case length: 1.75	re all loads. Bull Inch Rest) prime 50 inches. The S	et diameter wa ers used throug GAAMI maximu	s .224 inch. Ihout. Maxi- m pressure:

Be Alert - Publisher cannot accept responsibility for errors in published load data.

to work up to the maximum charge for a given powder/bullet combination, then check the rifle to see how well it is shooting. Sometimes maximum loads are producing the best accuracy, but in many instances, loads that are below maximum often produce better accuracy, not to mention longer case life. It is usually productive to choose a powder or several powders, assemble a number of cartridges with small changes in the powder charge and check each load for accuracy. Likewise the bullet seating depth should be experimented with.

The choice of great powders for

handloading the .223 Remington is broad. As was discussed in Part II of this series, spherical powders tend to throw more uniformly than extruded cylindrical powders, but if care is used in charging cases, both are capable of producing super accuracy. Notable performers included Vihtavuori N135 and N140, Alliant Reloder 15, Hodgdon BL-C(2), Varget and Accurate Arms AAC-2520.

In the spirit of obtaining competition type accuracy, all loads were assembled using the Federal 205 Gold Medal Bench Rest primers, a primer that offers unusually good results in the .223 Remington.

The AR-15 chambered in .223 Remington changes personality depending on the rifle's twist rate and the bullets used. Stoked with 50- to 55-grain varmint type bullets (typically used with a one-in-12-inch twist), it will play havoc on a prairie dog town. Rifles featuring a one-in-9-inch twist are capable of employing 55- to 75-grain bullets and is arguably the most versatile barrel found on AR-15s, as they can work over a varmint town and make a good showing at the 600-yard firing line. To reiterate, the one-in-7-inch twist barrels are geared for 62- to 80grain bullets and are associated with winning 600-yard matches. Throw in the economical cost of ammunition and handloading, combined with firepower and a world with little peace and plenty of political unrest, it becomes clear why the AR-15 has become so widely popular.

Great features from writers Stan Trzoniec, Al Miller and John Barsness add to the classic volume covering the sport of varmint hunting from .17 caliber to .32-40.



WOLFE PUBLISHING COMPANY 2625 Stearman Rd., Ste A Prescott, AZ 86301 Tel: 928-445-7810 Fax: 928-778-5124





A variety of powders was used to develop .223 Remington data for the AR-15 rifle with its one-in-7-inch twist.

