



## Bullet Points

# Vehicles Revisited

by Charles Ryan

Welcome to the eleventh installment of *Bullet Points*. I'm Charles Ryan, one of the designers of the **d20 Modern Roleplaying Game**. I'm here to answer your questions about the game, offer advice on tricky issues, and give you a little peek into the minds of the designers. You'll be hearing from me every couple of weeks.

If you've checked out the earlier installments of *Bullet Points*, you know the format. Every two weeks I pick an issue that's provoked a lot of questions or comments, begin with a general discussion of the topic, and then answer specific questions related to it. If there are any unrelated but pressing questions in my mailbox, I might tackle them at the end of the column, but only if there's room and they can't wait for an appropriately themed column.

### **Vehicles Revisited**

In this installment, we revisit the topic of vehicles. Over the past few weeks, a lot of interesting questions about vehicles have come in. Several readers followed up on my comments about armored vehicles in [Bullet Points #6](#). Most of their remarks boiled down to a rehash of the issue of small arms taking out an M1A2 Abrams tank. (With all the interest in this tank's statistics, you'd think it was the most common vehicle on the road!) One person pointed out that, with the Burst Fire feat and a light machine gun, a character could theoretically take out the Abrams in 4 rounds, assuming maximum damage (40 points on 4d10, reduced to 20 points for hardness) each round. With a heavy machine gun and the Burst Fire feat (4d12), the tank could be out of commission in 3 rounds!


Well, if we accept the base assumptions, the argument is valid. But maximum damage is rarely a good basis for evaluating combat results. Maximum damage on 4d10 happens once every 10,000 rolls, statistically speaking. The chance of rolling maximum damage four times in a row is 1 in 10,000,000,000,000,000 (that's ten quadrillion)! Rolling maximum damage on 4d12 happens (approximately) once in 20,000 rolls; the chance of doing so three times in a row is roughly 1 in 9 trillion. Do odds like these realistically model the chances of taking out a tank with a machine gun? I don't think so. The situation described is probably never going to happen in play, so it's not worth the argument.

I hate to waste valuable words on redundant issues, but a few remarks bear repeating. It's absolutely true that small arms shouldn't be able to penetrate the primary armor on a modern main battle tank. But modern tanks aren't usually disabled in that manner. In the war with Iraq (and in the Gulf War before that), many M1 Abrams tanks were lost even though their primary armor was never penetrated. It was damage to running gear, optics, and other external equipment -- all of which are susceptible to damage from relatively light weapons -- that did them in.

If you still find yourself questioning the vehicle statistics, please take a minute to reread [Bullet Points #6](#). Or better yet, play out several scenarios pitting reasonably equipped mid-level characters against opponents with armored vehicles. I bet you'll find the results pretty satisfying.

## Questions and Answers

Now that we have that all cleared up, let's look at some new vehicle-related issues.

 **How does one convert vehicle speed from numbers of squares into real-world terms such as miles per hour or kilometers per hour? I'd like to know how fast my vehicle can go and be able to estimate travel time by looking at distances on a map.**

A speed of 1 square per turn equates to 5 feet per 6 seconds. This value converts to a speed of about 0.57 miles per hour. So you can calculate a vehicle's current speed (or top speed) in mph by multiplying its speed in squares by 0.57. For example, if you're traveling at a speed of 120 squares, that's about 68 miles per hour. So if the map says you have 150 miles to go, it'll take you around 2 1/4 hours to get to your destination. A Lamborghini Diablo has a top speed of 360 squares, which works out to 205 miles per hour. Yeah, baby!

Although the *d20 Modern* game doesn't use the metric system, it's just as easy to convert squares to kilometers per hour. If those are the units you want, just multiply the speed in squares by 0.92 instead of 0.57. That means your Lamborghini tops out at 331 kilometers per hour!

 **What happens if a character falls or jumps out of a moving vehicle?**

If you exit a moving vehicle, either intentionally or otherwise, you take damage for a collision with whatever you hit. If that's the ground, apply a x1/2 multiplier. If you hit an object, such as a bridge abutment or a boulder, the collision multiplier is x1. If you fall from any height, add normal falling damage to the collision damage.

For example, if you fall out of a vehicle while traveling at highway speed, you take 2d8 points of damage (4d8 for the collision of a Medium-size creature with the ground at highway speed, x1/2.) If you jump out of a car while it's moving over a bridge, you would add the appropriate falling damage to that total.

Unlike other collisions, an impact resulting from exiting a moving vehicle does not grant you a Reflex saving throw. However, if you deliberately jump from the vehicle, you may attempt a Tumble check (DC 15) to minimize the damage. (Don't forget that the check modifier for the vehicle's speed applies to this roll.) If the check is successful, roll 1d6 and subtract the result from the damage taken.

 **According to the Damage to Vehicle Occupants section (page 160), if a vehicle provides three-quarters or more cover, the occupants aren't damaged when the vehicle is. How do I know how much cover a vehicle provides for its occupants?**


Check the vehicle descriptions in Chapter Four. Most civilian cars and trucks provide three-quarters cover.

 **Since most vehicles provide three-quarters cover, it's virtually impossible for the occupant of a vehicle to be hurt in a crash. Is that right?**

That's correct for the most part -- the occupants of a vehicle involved in a collision typically escape

unharmful. That outcome may not be completely realistic, but there are a lot of good reasons why the game was designed that way. One is simplicity -- there's a lot less bookkeeping to do when the damage from a collision is applied only to the vehicle, rather than to the vehicle and a bunch of occupants. An even more important consideration, however, is lethality. The designers didn't want vehicles to become rolling coffins that killed entire parties with every unlucky hit. For those reasons as well as others, we decided to give characters the benefit of the doubt when it came to vehicle damage.

That said, however, there is one case in which characters in a vehicle can easily get hurt. Take a look at Losing Control, on page 160 of the *d20 Modern Roleplaying Game*. When a vehicle rolls, the occupants do take damage, regardless of the cover the vehicle provides.

 **If I lose control of a vehicle, causing it to spin or roll, it moves forward a number of spaces equal to its turn speed. If a collision occurs at the end of that movement, and my vehicle has no further movement available, does it move forward one space and push the other vehicle, or simply spin or roll on the spot?**

Use the guidelines given for collisions when the vehicle must still move forward. In this case, that means your vehicle pushes the other vehicle or object aside, if possible. If not, it stops where it is.

 **Why are the maneuverability ratings of tracked vehicles so low? They are the only land vehicles that can pivot in place, and they're substantially less likely to roll over than SUVs and minivans, which often have smaller penalties.**

Tracked vehicles, as a general rule, are very stable. Furthermore, as you point out, they can sometimes perform maneuvers (such as pivoting in place) that wheeled vehicles can't. But the maneuver penalty, as given on Table 4-14, represents something else altogether -- namely, the difficulty inherent in getting a vehicle to make an unusual maneuver, or in maintaining control of a vehicle under unusual circumstances. For example, it's hard to pull a bootleg turn in a tracked vehicle -- although it looks really cool if you can make it work!

Finally, if you look closely at the table, you'll notice that the penalties aren't really that severe. Most large civilian vehicles, such as busses and limousines, have comparable penalties, and they aren't nearly as huge and heavy as tanks and armored personnel carriers.

 **The driving rules don't seem to include aerial maneuvers; they all require Drive checks. Are the Pilot DCs the same?**

We don't have complete air combat rules at this time. The vehicle combat system works just fine for basic air movement, though you might think up a few additional maneuvers. So you can just apply the Drive check DCs to Pilot checks when the vehicles in question are aircraft.

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Do you have a rules question about the *d20 Modern Roleplaying Game*?  
Send it to [bulletpoints@wizards.com](mailto:bulletpoints@wizards.com), and then check back here every  
other week for the latest batch of answers!

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## About the Author

Charles Ryan has been designing and editing games for more than twelve years. His credits include such diverse titles as the **d20 Modern Roleplaying Game**, *The Wheel of Time Roleplaying Game*, *Deadlands*, *Millennium's End*, *The Last Crusade*, *Star Trek: Deep Space Nine*, *Dune: Chronicles of the Imperium*, and *Star Trek: Red Alert!*, to name just a few. Charles served as Chairman of the Academy of Adventure Gaming Arts & Design, the professional organization of the games industry, from 1996 through 2001. He lives in Kent, Washington with his lovely wife Tammie, three cats, and a dog. He works for Wizards of the Coast, Inc.



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