# Vehicles

## VehicleCombat

Vehicle combat occurs much the same way that regular combat occurs. Each individual character sequences as usual. Combat while on a vehicle can be a particularly exciting aspect of roleplaying, especially if combat occurs at the climax of a story – you are rescuing the mayor’s daughter from the clutches of evil bikers and they are chasing you down, for example.

### Vehicle Damage

Like everything else in the Fallout universe, vehicles take damage. Vehicles are divided into five separate “systems” or areas that all have a certain number of hit points and a damage resistance (vehicles do not have a damage threshold). In addition, each vehicle has an Armor Class to help them avoid taking damage, and any to hit roll against a vehicle suffers an automatic –10% penalty because the vehicle is in motion – it’s simply harder to hit a moving target.

The five “systems” on a vehicle are universal, although they may be named different things on different vehicles. Obviously, they will differ greatly in some cases and be indistinguishable in others. The vehicle sheet included at the back of the book has a rough diagram of a vehicle, broken down into the five systems with room to display the different hit points and damage resistance for each one. The descriptions in the Vehicles section of the book break each vehicle’s system down in the appropriate numbers.

The five vehicle systems are – generally –

* Structure,
* Engine,
* Control System,
* Drive System, and
* Treads/Tires.

Again, these may differ for different kinds of vehicles, like aircraft and boats. The necessary changes will be noted in the vehicle’s description. Note that the Treads/Tires category is split up into two, three, or four separate “sub- systems,” one for each tread or tire, that all take damage separately.

### Targeting Vehicle Systems

Vehicles are large enough to allow combatants to target certain areas without a penalty (except for the usual –10% when a vehicle is in motion). Anti-tank weapons are designed to come down on top of a vehicle, and therefore almost always target the structure or engine. Alternately, mines are designed to take out a vehicle’s drive system and tires. When an attack against a vehicle is made that is not a pre-determined attack, like a TOW missile launcher, then the attacker must announce what vehicle system he or she is aiming for.

Regardless of the vehicle system aimed for, other systems can and do take damage normally – they are subject to blast, shrapnel, and concussion damage from explosives.

### EMP Attacks

One of the most devastating attacks made against vehicles are EMP attacks, because many parts of a vehicle are electronically controlled. It should be noted, however, that EMP attacks have no effect on a vehicle system that is not electronic, like the treads or the structure. An EMP mine can, however, utterly destroy a vehicle’s drive, control, and engine systems in a split second. Such is the risk of driving in the wastes.

### Damage and Destroying Systems

When a vehicle system has lost more than 66% of its total hit points, the system becomes inoperative. When this happens, the system simply shuts down. The following table should be used as a guide to determine what happens when a system is rendered inoperative:

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| Inoperative Systems Effects | |
| System | Effects |
| **Structural** | Vehicle begins to fall apart |
| **Engine** | Vehicle coasts to a halt |
| **Controls** | The driver can no longer steer or control speed (!) |
| **Drive** | Engine continues to run, but vehicle begins to coast (no more acceleration) |
| **Treads** | Vehicle immediately stops (treat as a crash for everyone inside) |
| **Tires** | Driver must make an immediate Pilot roll to avoid crash, and top speed is reduced to 25% normal |

If a vehicle ever loses 100% of its hit points in any system, that system is totally destroyed and must be replaced entirely. This can be a major pain, as vehicles are incredibly rare in the wastes, and working parts are sometimes even rarer.

## Vehicle Condition

Vehicles wear and tear just like weapons and armor, but do not have condition boxes indicating how damaged they are. Instead, the vehicle is broken down into five different sections, each with individual hit points. Those hit points can be repaired, but require a lot of time and effort (see Repairing Vehicles, below). When a vehicle loses more than two-thirds of its hit points in a section, that section breaks down. For example, if a truck lost 2/3 of its hit points to the engine, the engine would no longer work, and the vehicle would coast to a halt. For more information on various vehicle sections and the effects when those sections are damaged or destroyed, see Vehicle Combat, below.

## Repairing Vehicles

Repairing lost hit points on a vehicle can be a time-consuming process. When attempting to repair a vehicle, the character needs to determine which section of the vehicle he or she will focus on. Then, 8 hours are spent making repairs; at the end of those three hours, a roll against Repair is made. If the roll is successful, 3d10 hit points of damage were repaired to that particular section. For more information on the different vehicle sections, see Vehicle Condition, above, and Vehicle Combat, below.

## The Mechanics of Vehicle Combat

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| Sequence | Sequence is determined as normal in vehicle combat. |
| Rounds | Rounds in vehicle combat proceed just like regular combat rounds, with characters deciding what to do based on sequence. The difference is that the characters may be in vehicles, and vehicles behave a little differently than the normal, solid ground. For one thing, ranges are static, changing every round, and the characters are all at the mercy of the driver.  Passengers in the vehicle can all attack as normal, but will receive a –10% penalty to all to-hit rolls because they are in a moving car (or truck, or whatever). There are some kinds of weapons that cannot be used in all vehicles, mostly Big Guns and Energy Weapons that are simply too bulky to fire inside of a small car or buggy. The GM can ultimately use his or her discretion to allow different types of weapons; if the party is on top of a train or a semi-truck, then using a heavy machinegun wouldn’t be a problem. If they are stuck in the back of a tiny little sports car, it would be a big problem.  During the driver’s turn in combat, she announces what actions she intends to take that round; this is how the GM can determine trajectory, speed, and so forth. The driver must announce at what speed they intend to drive, and the approximate path they wish to take. For more details on specific vehicle actions like sharp turns, rapid braking, and rapid acceleration, see Vehicle Movement and Speed, below. Driving does not take AP, and the driver can attack, but suffers penalties to both the Pilot Roll (see below) and his or her to-hit (see Driver Actions, below). |
| Pilot Roll | At the end of each round of vehicle combat, the driver of each vehicle must roll vs. his or her Pilot skill. A successful roll means that the driver has kept her cool and combat can proceed as normal. A failed roll means that the driver couldn’t maintain control of the vehicle, and the vehicle either crashes or rolls over, and everyone inside is subject to crash damage and other results of impact (see below).  There are many modifiers to the Pilot roll, based on what the driver was doing in combat as well as terrain, light, and other factors. For a complete list of these modifiers, see Driving Actions, below. |

### Driving Actions

There are many different things a driver can do during combat. For roleplaying purposes, it might be a good idea to remember that if all the party members are shouting at the driver, the driver might be more apt to make a mistake. Not unlike real life, when everyone in the car is shouting at the driver and making lots of noise.

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| Accelerate | Put the pedal to the metal! If the vehicle isn’t already going at top speed, then the driver can make it go as fast as she wants - up to the top speed, of course. The vehicle’s acceleration lists how long, in rounds (10 second increments), it takes to reach maximum speed from a standstill. Use this as a rough guide; if the vehicle’s maximum speed is 100 KPH, and the vehicle is traveling at 40 KPH, and it takes 2 rounds for the vehicle to reach top speed from a standstill, then it would take about 1 round to reach maximum speed. Note that vehicles with sails do not accelerate as normal. |
| Brake | Slow down, buddy, there are pedestrians here! Braking is the opposite of acceleration: slowing down. Each vehicle’s statistics gives a braking rate in rounds: how much speed a vehicle can loose in 1 round of combat, based mostly on size and mass. Braking can be quite dangerous, however: see Pilot Roll Modifiers, below. Note that vehicles with sails and aircraft cannot necessarily come to a complete stop. See Sea Combat and Air Combat, below. |
| Turn | Driving would be boring if it was always on a straight line. Vehicle combat would be boring if there weren’t wild turns around sharp corners in bombed-out cities, too. Each vehicle’s statistics give a Turning Radius, which is how many meters (hexes) it takes for the vehicle to make a 90-degree turn. Note that the Turning Radius number is given in a straight line, but the turn actually takes place in an arc, or ¼ of a circle. See the (very rough) figure below:  The first column of “hexes” represents the actual Turning Radius number, which if you complete the circle in the 90- degree turn represented in the second column would be the distance from the center of the circle to the outside (the circle’s radius). This should be taken into consideration when figuring distance traveled in one round. See Movement at the End of the Round, below.  Note that turning, especially at high speeds, can be quite dangerous to all but the most experienced drivers. |
| Attacking | The driver can also use weapons in combat, like normal. She will suffer penalties to the Pilot Roll, however (see the table below) and suffers a flat 25% penalty to her to-hit rolls, no matter what type of weapon is used. It’s difficult to drive and shoot at the same time! |
| Nudging | Here’s the fun part of driving a car – tapping the other guy so he spins out and crashes. Unfortunately, you can guarantee that he probably has the same idea. When two vehicles nudge in combat, both drivers need to make a roll against Pilot (this is a separate roll from the roll against Pilot at the end of the combat round). For every 10 KPH the vehicle is traveling, the driver gets a –5% penalty to the roll (nudging is based primarily on speed). If either driver fails, the vehicle they were controlling crashes. See Crashing, below. |
| Running Someone or Something Down | One of the advantages of vehicle combat is that being inside of a ton of moving metal and plastic affords the passengers a little protection against people and critters who are not in a vehicle. It also means that the driver has a handy weapon at her disposal: a large, speeding missile that may not have a lot of grace, but can break bones and crunch skulls better than any melee weapon.  Running someone or something down isn’t as easy as it seems. Unless there is some way the target is unaware of the vehicle coming at him, the intended target gets to roll against Agility to avoid being hit by diving out of the way. |
| Movement at the End of a Round | A the end of every round, assuming the driver hasn’t crashed or rolled the vehicle over, the vehicles move based upon their current speeds and where the drivers were intending to take them. Although speeds are given in KPH, a little simple math will give actual distances in meters (hexes). It may help a GM to adjust the scale of a hex- sheet for vehicle combat, especially large-scale vehicle combat, perhaps making 1 hex = 5 meters, or even 1 hex =10 meters.  The GM can use the following function to determine how many meters a vehicle can move in one round of combat, at a given speed (KPH):   |  | | --- | | Meters moved = KPH X 2.78 (round down) |   When the GM has determined how far all vehicles have moved in one round, he or she should make adjustments on the hex- sheet, just like in moving critters in regular combat (the difference being, of course, that the movement is all done at once at the end of the round instead of during the round).  To simplify things, the GM might want to determine the difference between what the various vehicles have moved and adjust accordingly. It is far easier to close the distance by 5 hexes than it is to run models over enormous 1000+ hex sheets. Scenery and buildings, of course, are another matter entirely. |

### Pilot Roll Modifiers

Below are two tables of modifiers for the Pilot Roll. The first is terrain, broken down for three types of vehicles, Land Sea and Air.

The second table includes modifiers for different actions in combat. Usually terrain modifiers only have to be determined once. If the sun is down, the Pilot roll is made at -10% penalty (you just can’t see as well at night).

Note that some vehicles and vehicle enhancements give specific bonuses to certain situations, or simply to all Pilot Rolls. Those bonuses should also be taken into account when rolling against Pilot. Note also that terrain modifiers and action modifiers can be combined. If the driver attempts to turn at more than ½ the vehicle’s top speed in the rain, for instance, these modifiers would all be added together.

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| Table 1 – Terrain Modifiers |
| |  |  | | --- | --- | | Land | | | Unbroken Road | +30% | | Broken Road | +15% | | Bad Road | +0% | | Open Field | +0% | | Field with Scrub, Street with Debris | -5% | | Field with Obstacles, Wet Streets | -10% | | Light Forest, Wet Open Fields | -20% | | Muddy Ground | -25% | | Drenched Ground, Wet Sand | -30% |  |  |  | | --- | --- | | Sea | | | Calm Sea | +20% | | Gentle Waves | +0% | | Rolling Waves | -5% | | Big Waves | -15% | | Stormy Waves | -25% | | Hurricane Waves | -50% |  |  |  | | --- | --- | | Air | | | Calm Weather | +0% | | Gentle Breeze | -5% | | Gusty Winds | -10% | | Strong Winds | -20% | | Stormy Winds | -40% |  |  |  | | --- | --- | | Weather Modifiers | | | Rain | -20% | | Snow | -30% | | Ice | -70% | |

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| Table 2 - Action Modifiers | |
| Travelling at < ½ top speed | +0% |
| Travelling at > ½ top speed | -10% |
| More than doubling current speed by accelerating | -10% |
| More than halving current speed by braking | -15% |
| Turning (for every 10KPH currently travelling) | -10% |
| Driver attempting to attack | -20% |

## Crashing

### Crashing: Damage

If a driver fails a Pilot roll, then the vehicle has crashed. For every 10 KPH the vehicle was traveling, each character inside must roll a 1d10 for damage, rounded down to the lowest 10 (39 would become 30, or 3d10). If a vehicle hit a tree at 23 KPH, then everyone inside would have to roll 2d10 and take damage. For an air crash, this could easily be a lot of damage (the GM should determine about how fast the aircraft dropped to the ground like a rock). The vehicle is also subject to the same damage roll as the passengers, losing that amount of hit points, distributed throughout the five systems. Crashing should probably be avoided, if possible.

Remember that sea vehicles do not crash, and are therefore not subject to crash damage. They will overturn, however, and everyone will be forced to start swimming. For details on swimming, see Swimming under Life in the Wastes, below. The GM can determine if the craft will go to Davy Jones’ locker or float long enough for the characters to turn it over and get back into the action. Remember that anything not tied down and buoyant tends to sink in water – like guns, big metal armours, and so forth.

### Crashing: Broken Limbs

In addition, everyone inside has a chance equal to the speed of the vehicle of receiving a broken limb. If a vehicle was chugging along at 45 KPH, that’s a 45% chance of breaking something in a crash. If the character is wearing a seat belt or restraint of some kind, that character’s chances of a broken limb are reduced to half normal, rounded up – 45% becomes 23%.

### Crashing: Head Wounds

If the victim’s roll for broken limbs was 5% or less, the character has suffered a head wound and is unconscious; his or her hit points are automatically reduced to 10, and he or she will wake up in 15 full rounds, minus the character’s Endurance. A character with an Endurance of 4 would wake up in 11 full rounds. The character must roll for broken limbs *again* to see if anything else is hurt (without the seat belt bonus, if applicable).

### Crashing: After Damage is dealt

After the crash, everyone inside the vehicle must spend at least 1 full round of combat climbing out of the wreckage, and it must be the round of combat after the crash took place. If any limbs were broken in the crash, that makes climbing out much harder; a character must spend 3 full rounds climbing out, or another character or NPC must help that person out of the wreckage.

## Vehicle List

### Road Vehicles

### Sea Vehicles

### Air Vehicles