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PHOENIX COMMAND

High-Speed Pursuit System

FIXATING

PRODUCTIONS

PHOENIX COMMAND

HIGH-SPEED PURSUIT SYSTEM

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Introduction

The **Phoenix Command High Speed Pursuit System (PCHSPS)** is designed to let you simulate the use and abuse of common civilian wheeled motor vehicles, especially those involved in high-speed pursuits, while providing a realistic sense of the dangers and decisions involved. It is compatible with other **Phoenix Command** products, but the game stands alone and requires little or no familiarity with them. Players should find the rules satisfy both role-play and miniatures purposes, and can be modulated to taste.

Play requires only paper, writing implements, and at least one six-sided and one ten-sided die. We recommend using 1:60 to 1:70 scale toy cars, if possible. Advanced play may require a calculator, rulers, protractors, detailed maps and GM preparation. Players should be able to think in terms of degrees (e.g. perpendicular lines are 90^{o}, a circle reads 360^{o}, etc.) as these are used fairly often.

For those familiar with the **Phoenix Command Combat System (PCCS)**, we recommend getting used to thinking one step up in terms of time. That is, in PCCS, the basic time units are second Impulses, with advanced play employing $1/10^{th}$ second Master Phasing Counts. Here, the basic time unit is the 2-second Phase, with advanced play employing Impulses.

Note that the Turns used here span 10 seconds, distinct from the 8 second Turns used in the Phoenix Command Mechanized Combat System. To combine the two systems, all one needs to do is prorate any given vehicle's performance per Phase.

And lastly, when rolled singly, a six- or ten-sided die is written (6) and (10) respectively. Four six-sided dice would be written 4(6), and so forth. When two ten-sided dice are rolled in sequence to produce a number from zero to ninety-nine, they are termed 0-99.

It is important to note, right from the beginning, that this system is still in its **beta stage**, meaning that it is still **unfinished**. The system hasn´t been fully playtested and some (if not many) of the rules may still need modifications for them to work realistically and smoothly. Some portions of the tables and rules were intentionally left blank or unfinished, as the designers didn´t have proper knowledge or just wanted to see what would come out of this frame of rules as more people got their glance at it. Thus, if you (the reader) have any ideas concerning this product, feel free to come out with them.

Before reading any further, you should notice that there is a rough Basic System in the back of this book, that lets you simulate and play with maximum speed and minimum effort. You have to, however, be familiar with some of the rules in this system, in order to go with those "lite" rules.

Welcome to the **Phoenix Command High Speed Pursuit System**!

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1 THE BASICS

The purpose of this first chapter is to familiarize the reader with the basic terms and the Character Creation process of **Phoenix Command High Speed Pursuit System**. Those already familiar with the **Phoenix Command** system may want to skip some of the text, but you should at least note all the new concepts. Suggestions and ideas for ways to use this book are also provided here.

1.1

HOW TO USE THIS BOOK

First, elect a referee, who will familiarise himself with the rules, and design the scenario to be played, whether as an independent scene, or as part of a greater RPG intent.

As the rules are quite extensive, many have been designated as optional. Prior to play, all participants should decide what optional rules should be included, if any. We recommend you start with only the Basic Rules (see **here**), and add the rest as desired. While the basic game is more like a boxy Buick, treat the advanced system and optional rules like a huge, honkin' 18-wheeler – doing anything fancy requires training, or else it's going to get ugly.

One thing you should notice with this book is that all the Optional Rules are in their related chapters instead of a chapter of their own, unlike in other **Phoenix Command** products. This is mainly because a relatively large part of the rules in **Phoenix Command High Speed Pursuit System** are optional, and many are probably ones that you will want to use anyways. If you still want to get a very basic, yet realistic rules for your system, you may skip everything that is titled as Optional.

Once a scenario is ready, each player should be given his own **Vehicle Data Sheet** (**1.4**). Each player controls either a premade driver, or one he rolls up himself (**1.2**). So, ordinarily, each player will control one vehicle and driver, but in especially dangerous pursuits each player might control multiple vehicles at once, or retain backup vehicle to be brought into play should their first vehicle be disabled. The referee might also control one or more vehicles, depending on the scenario.

“I am the Nite Rider! I am a fuel-injected suicide machine!”

Nite Rider, last words to the Bronze via CB radio

Pencils, erasers, and dice should be available to all.

The referee should then establish the play area and opening situation using maps and miniatures, as he decides is appropriate. He will give initial speeds, fuel, traffic, and so forth, and declare the time, speed, and distances scales currently in use (see **1.3**). The scenario will also provide the motivations and goals for the various characters/vehicles, both those controlled by the players, and those controlled by the referee.

Because of the nature of such chases, it will usually prove unfeasible to map out the entire play area on a large (e.g. 1:60) scale. When not involved in a close confrontation, then, the referee can switch from tabletop play involving scale maps or miniatures, to narrative play where the action is described mostly verbally and numerically, or with simple non-scale diagrams. As specific situations demanding more accuracy or special rules crop up, play can be returned to the table.

Each unit of time (see **1.3**) players and the referee decide what the vehicles they control will do. In cases where simultaneity is important, such as ramming attempts, the referee may ask everyone to write down their actions secretly, to be revealed and executed simultaneously. After everyone decides what to do, the referee may shift the time, speed, and distance scales to one more appropriate to the action. The referee applies the rules to the emergent situations, and the results (speed changes, skidding, etc.) noted.

Play proceeds in this way, until the scenario’s predefined end-conditions are fulfilled. What this entails is left to you, depending on the motivation, skill, luck, courage, and/or sanity of the drivers.

1.2

CHARACTER CREATION

Generating characters for **Phoenix Command High Speed Pursuit System** is basically similar to the system provided in all the other **Phoenix Command** products, but there are some new concepts introduced here. When compared to **Phoenix Command Small Arms Combat System** for instance, the Characteristic Health (HLT) isn´t used with this system as any kind of medical rules are not included. The Charcteristic Perception (PER) however has a strong emphasis here. The basics of the character creation process do not need any explanation as readers are expected to be familiar with the **Phoenix Command** system.

Here is a quick method for creating drivers from scratch, as well as some needed explanations for new stats.

Step 1 Characteristics

The Characteristics used with this system are Strength (STR), Intelligence (INT), Will (WIL), Agility (AGI) and Perception (PER). In **Phoenix Command** each Characteristic is typically represented with a value ranging from 3 to 18. Each value is determined separately by rolling 3(6) and then recorded to your Status Sheet. If your gaming group wishes, you may also roll each Characteristic twice, keeping the higher sum in each case.

Each Characteristic = Total of three six-sided dice

Step 2 Skill Level

The skills used with this system are found on the table below. Notice that even though the standard **Phoenix Command** skill, Gun Combat, is also used with our system it is only used for determining the characters´ Knockout Value. If you want, you can of course use your own skill system. The skills used here, are only for the purposes of this book. A quick random method for generating drivers is also given here.

Roll 2(6) for each skill to find your Skill Level on the table below. If a skill is rated Y(es) or N(o), it simply means that you are or are not Qualified to perform safely all that falls under the skill.

	2(6) Roll										
Skill	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Drive Automobile	0	1	2	3	3	3	4	5	6	7	8
Drive Motorcycle	0	1	2	3	3	3	4	5	6	7	8
Drive Light Truck	0	1	2	3	3	3	3	4	4	5	6
Drive Heavy Truck	0	1	1	2	2	2	3	3	4	5	6
Drive Heavy Equipm.	0	0	0	1	2	2	2	3	4	5	6
Fall Recovery	0	1	1	1	2	2	2	3	3	3	4
Gun Combat Skill	0	1	2	3	3	3	4	5	6	7	8
Manual Transmission	N	N	N	N	Y	Y	Y	Y	Y	Y	Y
Mechanical Repair	0	0	0	1	1	1	1	2	2	3	4
Medical Aid	0	0	0	1	1	2	2	3	4	5	6
Scouting	0	0	1	2	2	3	3	3	4	5	6

Step 3 Driving Accuracy Level

Enter your highest driving skill level into the **Driving Accuracy Table (1A)** to find your **Driving Accuracy Level (DAL)**. This is the equivalent of **Skill Accuracy Level** of **Phoenix Command Small Arms Combat System** and even though it is used in many various situations, it is used to determine how well a character performs in situations requiring driving skill checks.

Driving Accuracy Level is found on Table 1A opposite the Driving Skill Level (Step 2)

Step 4 Driving Bonus

Driving Bonus reflects a character´s ability to make tiny adjustments in speed, steering, and executing quick controlled skids to make otherwise impossible dodges in traffic. To get your **Driving Bonus** divide your Driving Accuracy Level (DAL) by ten, keeping the fraction.

Driving Bonus = Driving Accuracy Level (Step 3) / 10

Step 5 Speed Thresholds

Every character has four **Speed Threshold** levels that all represent how comfortable he feels in high speeds and under the influence of G-forces. More on this is found later in this book. To find your four **Speed Thresholds** in Hexes Per Phase (HPP), multiply your **Driving Accuracy Level (DAL)** by 2.5, 3.5, 4.5, and 7 respectively.

Speed Threshold Level 1 = Driving Accuracy Level (Step 3) x 2.5
Level 2 = Driving Accuracy Level (Step 3) x 3.5
Level 3 = Driving Accuracy Level (Step 3) x 4.5
Level 4 = Driving Accuracy Level (Step 3) x 7

Step 6 Combat Actions

Combat Actions define a character´s effectiveness in combat situations. Its function is basically the same as in other **Phoenix Command** products, to measure how quickly a character performs a given task, but in this system **Combat Actions** are treated in a somewhat different manner. To find your **Combat Actions Per Phase**, enter the total of your Intelligence and Driving Accuracy Level (DAL) into the **Combat Action Table (1B)**. If you are using the system with other **Phoenix Command** products, you may also use the standard method for calculating **Combat Actions**.

Combat Actions = Enter Intelligence (Step 1) + Driving Accuracy Level (Step 3) into Table 1B

Then, enter your Agility into the **Agility Modifier Table (1C)** to modify your Combat Actions.

Step 7 Knockout Value

Determines how a character is affected by wounds and shock. This equals one-half of the Will characteristic times the Gun Combat Skill Level (rounded off).

Knockout Value = .5 x Will (Step 1) x Gun Combat Skill Level (Step 2)

Step 8 Morale Level

A driver's initial morale state during a crisis depends on his driving experience and is modified by the type of instruction he has received. The highest level a driver may start at is Bold. The Morale Level is found opposite the character´s highest Driving Skill Level on the following table.

Skill Level	Morale State
0	Frightened
1-2	Cautious
3	Bold
4-8	Cautious
9+	Bold

Any character has a 25% chance of being taught to drive by their friends or family, and a 5% chance of being a natural hotshot. Both of these cases will give a bonus to the Morale Level of the character.

Morale State Modifiers	
Taught by friends / family	+1
Natural Hotshot	+1

1.3

PLAY SCALES

Time

Impulse (half second) – abbr. “Imp.”
Phase (two seconds)
Turn (twenty seconds)
Minute (sixty seconds)

Distance

Foot
Hex (six feet) – abbr. “hx”
Mechanised Hex (sixty feet) – abbr. “mx”
Mile (5280 feet) – abbr. “mi”

Speed

Feet Per Impulse (FPI)
Hexes Per Phase (HPP)
Mechanised Hexes Per Turn (MPT)
Miles Per Minute

The three scale categories are horizontally germane; for instance, when measuring time in Phases, one will usually also measure distance in Hexes and speed in Hexes Per Phase.

For convenience, think of these horizontal scales as gears, which the referee shifts among throughout play to maintain a pleasing pace.

The first gear (Impulse / Foot / FPI) is used mainly in both hairsplitting and complex situations, such as during collisions, skids, firefights, photographic finishes, and multiple obstacle evasion.

The second gear (Phase / Hex / HPP) is used mainly whenever two competing vehicles are 10 or less Hexes away from each other, or when a vehicle attempts to corner, evade a lone obstacle, or changes speed.

The third gear (Turn / Mechanised Hex / MPT) is used mainly when two competing vehicles spot each other and close toward 10 Hexes of each other.

The fourth gear (Minute/Mile/Miles Per Minute) is used for long-distance chases, such as when a police car dispatched from a nearby town is told to try to cut off a suspect coming from a perpendicular direction, at the state border several miles away.

VEHICLE AND DRIVER CHARACTERISTICS

At the back of this book there are several vehicles listed which all have their own multi-page **Vehicle Data Sheet**. A Vehicle Data Sheet consists of all the important gameplay data for the specific vehicle, as well as its driver. These datasheets are explained here and even though it is not necessary to remember everything right away, the following terms are used throughout this book.

For making things clearer, the Vehicle Data Sheets provide information in four areas, which are Logistical Data, Pursuit Data, Combat and Collision Data, and Driver Data. In addition to these, the vehicle´s type (e.g. motorcycle, sedan, light truck, etc) and its model specification (e.g. Interceptor V8, with custom supercharger) are given in the beginning of each sheet.

Here are listed all the various data given in these sheets:

VEHICLE TYPE / Special Features

LOGISTICAL DATA

Passenger Capacity: Maximum passenger seating capacity.
Doors: The number of doors, including cargo loading doors.
Fuel Type: The vehicle runs on one or more of these fuels types
- **Gasoline**,
- **High-Octane Gasoline**,
- **Diesel**,
- **Methanol / Ethanol**,
- **Electric**, or
- **Hydrogen**

Range: Distance in miles the vehicle can travel on one fuel load.
Fuel Load: Weight of a full load of fuel.
Fuel Efficiency: Miles per gallon.
Refueling Time (RT): The time, in minutes of flow, required to fully refill the vehicle's fuel tank.

PURSUIT DATA

Start Time: The time, in Impulses, required to start the vehicle's engine after the key is turned.
Size: In feet
- **Length**,
- **Width**,
- **Height**, and
- **Clearance** (distance between chassis and ground)

Effective Length (EL): Phases taken for the entire vehicle to cross any given boundary; used in traffic. Given for various speeds.

HPP	EL
5	
10	
20	
30	
40	
50	
60+	

Time (t): Phases taken for the vehicle to reach the intersection of its own and another car's vectors; used in traffic. Given for various speeds, and various passing window widths.

	Road Width		
HPP	≤ 25'	26-39'	40'+
5			
10			
20			
30			
40			
50			
60+			

Weight: In tons

Gross laden weight, and

Cargo capacity

Impact Damage (ID) Modifier: Measure of the vehicle's inertia in a collision.

Qualified Skill Level: The minimum model-specific skill level required to operate the vehicle safely.

Maximum Speeds: The Max Speeds gives the vehicle's maximum speeds in Hexes Per Phase, for the various gears. The speed in miles per hour is two times the Max Speed.

On road

Reverse

Forward gears

Off road

Reverse

Forward gears

Acceleration: Acceleration rates in Hexes Per Phase.

Safe

Maximum

Deceleration: Deceleration rates in Hexes Per Phase.

Safe

Maximum

Flight Speed: The speed in Hexes Per Phase at which the vehicle risks spontaneously going airborne.

Steering Time Modifier (Steer Time Mod): The combined measure of the vehicle's handling and steering ratio. There are several Steer Time Modifiers, one for each Steer Time listed in the third column. The greater the Steer Time Modifier, the greater the vehicle's accuracy. Steer Time 0 indicates the vehicle's alignment, giving it odds for traveling in a straight line; for cornering purposes any unmanned car has a Steer Time Mod of –30.

Knockdown (KD): Measure of the steering wheel's stiffness, used to determine how difficult the driver finds it to turn the wheel.

Ballistic Accuracy (BA): The measure of the driving accuracy potential based on weight, tire traction, suspension, and terrain. The larger the BA, the greater this potential is.

Suspension: Helps determine how much the occupants are jostled in rough terrain. Rated either None, Very Poor, Poor, Fair, Good, or Excellent.

Rollover Rating: Measures the likelihood of the vehicle rolling over in an accident, on-road and off-road respectively.

Field of view: Measures the driver's field of view, including spotting penalties, based on blind spots, support pillars, glass distortion, and rear/side-view mirrors.

Drive Type: Which wheels propel the vehicle, whether:

- **Front Wheel Drive (FWD)**,
- **Rear Wheel Drive (RWD)**, or
- **All Wheel Drive (AWD)**, which is either
  - **Basic**, or **Advanced**, and also one of three types:
    - **Full-Time**,
    - **Part-Time Automatic**, or
    - **Part-Time Manual**.

Transmission Type:

- **Manual/Standard**, or
- **Automatic**.

Tire Type:

- **Summer**,
- **Winter**,
- **All-Season**, or
- **High-Performance**; all potentially augmented by
  - **Studs**, or
  - **Chains**.

Tire Condition:

- **New**,
- **Worn**,
- **Badly Worn**, and
- **Bald**.

Options: A vehicle might have any or all of the following:

- **Seatbelts** (waist, or shoulder),
- **Air Bags**,

Parking / Emergency Brake,
Cruise Control,
Power Brakes,
Power Steering, and
Antilock Braking System.

CORNERING TABLE (V1): Action Costs, distance, and maximum safe speeds for various circumferences and degrees of corner.

GEARSHIFTING TABLE (V2): Penalties incurred due to shifting gears.

COMBAT & COLLISION DATA

Target Size Modifiers: Modifier for profiles, used in firearms combat.

Front
Oblique
Side

Penetration (PEN): Aggressiveness towards other vehicles in a collision.

Closing Speed	**Front/Corner/Rear**	**Side/Oblique**
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

Protection Factor (PF): Resistance to firearms and collision damage.

	Angle of Intersection										
	8º	15º	30º	60º	75º	105º	120º	150º	165º	172º	180º
Body											
Glass											
Engine											
Interior											
Tires											

HIT LOCATION CHART (V4): Locations damageable by collisions and small arms fire.

DRIVER DATA

Name: The driver's name or nickname.

Strength (STR): Muscle power rated from 3-18.
Intelligence (INT): Mental quickness rated from 3-18.
Will (WIL): Courage and concentration rated from 3-18.
Agility (AGI): Physical coordination rated from 3-18.
Perception (PER): Sensory acuity and alertness rated from 3-18.

Skills: Rated from 0-20. As a guide, 1 is novice, 4 is certified, 8 is professional, 10+ is expert.

Drive Automobile (Car, Pickup Truck, Van)
Drive Motorcycle (Moped, Motorbike, Scooter)
Drive Light Truck (Cube Van, Delivery Truck, Recreational Vehicle, Bus)
Drive Heavy Truck (Tractor-Trailer, Front-End Loader, Garbage/Cement Truck)
Drive Heavy Equipment (Dump Truck, Bulldozer, Backhoe, Wrecking Ball)
Fall Recovery
Manual/Standard Transmission (Qualified Skill Level 2)
Mechanical Repair
Medical Aid
Scouting

Combat Actions (CA): Reaction speed and coordination when performing both ballistic and spontaneous muscle movements, given per Phase.
Driving Accuracy Level (DAL): Rated from 0-26, derived from the pertinent Driving Skill Level. This rates the driver's reaction time, and ability to steer.
Driving Bonus (DB): Rated from 0-2.6, derived from DAL (above). This rates the driver's ability to cleave through traffic, cut corners, precisely time skids, and predict other drivers' behaviour.
Speed Thresholds: Skill-based speed limits which driving rolls are required to exceed.
Knockout Value (KV): Overall toughness and courage based on nature and training.
Morale Level: The driver's confidence level, used with the experimental Morale Rules found on R.J. Andron's web-site, *PCCS Unofficial Support Page*.

Enraged
Bold
Cautious
Frightened
Panicked

Stress Level: The driver's likelihood on 0-99 of evincing road rage.
Physical Damage (PD): Wounds sustained from accidents, fights, etc.
Disabling Injuries: Limbs made unusable by wounds.

EXAMPLE DRIVER

Name: *Maximillian Rockatansky*
Strength (STR): *11*
Intelligence (INT): *16*
Will (WIL): *18*
Agility (AGI): *17*

Perception (PER): *15*
Skills: ***Drive Automobile*** *10* ***Drive Motorcycle*** *5* ***Drive Light Truck*** *5* ***Drive Heavy Truck*** *5* ***Drive Heavy Equipment*** *3* ***Fall Recovery*** *3* ***Manual/Standard Transmission*** *YES* ***Mechanical Repair*** *4* ***Medical Aid*** *3* ***Scouting*** *6*
Combat Actions (CA): *11*
Driving Accuracy Level (DAL)*: 16*
Driving Bonus (DB): *1.6*
Speed Thresholds:
40 HPP
56 HPP
72 HPP
112 HPP
Knockout Value (KV)*: 54*
Morale Level*: Bold*
Physical Damage (PD): *0*
Disabling Injuries: *None*

2 MOVEMENT

This chapter deals with rules related to vehicle movement, including such concepts as Combat Action usage, Speed and Gearshifting, Maneuver Room, Driving Accuracy, Drifting, and many more.

Notice that a large part of these rules are optional and are intended to increase the realism level of the game. You may choose which **Optional Rules** you want use and forget about the rest. When familiarizing yourself with these rules, however, it might ease the task to first just use the **Basic Rules** and when you´ve mastered them, try out some of the optional ones.

2.1 COMBAT ACTIONS

Your Combat Actions (CA) score measures how quickly you can think and act, and is granted per 2-second Phase. Unused CA cannot be saved from Phase to Phase, only used immediately or lost. Actions are used in two main ways, through allocation, and through expenditure.

Allocation

The Allocation system used in **Phoenix Command High-Speed Pursuit System** is used to reflect how a character shares his attention with the various areas of driving actions. This is like a periodic budget, where at the start of each time unit (Impulse, Phase, etc., depending on the current scale gear) your Combat Actions are divided up amongst four areas including **Steering**, **Field of View**, **Spotting**, and **Reserve** which all take place more or less simultaneously throughout the Phase. Once allocated, your choices are presumed to repeat every Phase, so that you don’t need to worry about them. This is mainly for saving playing time so that you can concentrate more on high-speed action instead of fiddling with Combat Actions. When spent or allocated Combat Actions are called **Action Counts (AC)** or simply Actions.

"We affirm that the world's magnificence has been enriched by a new beauty: the beauty of speed. A racing car whose hood is adorned with great pipes, like serpents of explosive breath – a roaring car that seems to ride on grapeshot is more beautiful than the *Victory of Samothrace*."

F.T.Marinetti, Manifesto of Futurism

Steering Time: Actions allocated to steering is called your Steering Time, and represents attention paid to the steering wheel, pedal-work, scanning the immediate area ahead of the vehicle, and estimating angles and times. Enter this number onto your **Vehicle Data Sheet** to find your **Steering Time Modifier**, applied to all driving rolls throughout the time unit.

Field of View: Actions allocated here allows you to temporarily increase your field of view, as shown.

Additional AC	Field of Vision
0	120°
1	180°
2	240°
3	360°

Spotting: Actions allocated to spotting represents attention paid to your surroundings, attempting to discern obstacles. Enter this number on the Spotting Tables throughout the entire time unit.

Reserve: Actions not otherwise allocated may be placed in reserve, to be spent as needed (see Expenditure, below). There is a -1AC penalty for spending reserve AC on steering, field of view, and spotting.

Example: In the beginning of a Phase, a driver (6 CA) allocates Driving 2AC, Spotting 1AC, and Reserve 3AC. Coming upon a dangerous oil patch, he puts all his reserve into driving, giving him 2 + 3 - 1 = 4AC worth of steering.

Expenditure

This is basically how Combat Action expenditure is normally handled in **Phoenix Command**. It involves incidental actions you spend Actions on as you need them. You can find some typical actions and their costs from the **Miscellaneous Actions Table** in the **Tables Section**. To find the cost for actions not listed, multiply by 2 the number of seconds it would take an average, efficient person to perform the action.

SPEED AND GEARSHIFTING

Acceleration & Deceleration

At the beginning of each Phase the speed of the vehicle may be adjusted, up to the **Acceleration** and **Deceleration** limits in Hexes Per Phase, listed on the **Vehicle Data Sheet**. If the resulting speed is above zero, the vehicle will travel forward (or backward, if in the reverse gear) at that rate.

If the safe **Acceleration** rate is ever exceeded, the driver suffers a **Driving Accuracy (DA)** penalty equal to the **amount accelerated multiplied by any negative Terrain Driving Accuracy (DA) penalty** with the minimum multiplier being –1.

If the vehicle's safe **Deceleration** rate is ever exceeded, the driver suffers a **Driving Accuracy (DA)** penalty equal to the **excess multiplied by any negative Terrain DA penalty** with the minimum multiplier being –1.

See **Section 2.4** for Terrain Driving Accuracy modifiers.

Example: A police officer weaves his Crown Victoria cruiser (Safe Acceleration 5 HPP, Safe Deceleration 20 HPP) through traffic on an asphalt highway (DA modifier +0) to catch a suspect vehicle. On Phase 1, he accelerates 8 HPP, then decelerates 13 HPP, so his DA penalty that Phase is -8. On Phase 2, he decelerates 30 HPP, suffering a -10 DA penalty that Phase.

Speed Thresholds

Whenever a driver exceeds any of his Speed Thresholds, the player must make a **Driving Accuracy** roll. If he fails, the driver must immediately decelerate down to the threshold, and if the Optional Rule of Morale is used, reduce the driver´s Morale state by 1 level.

Gears (Optional)

Gears represent ratios of engine speed to axle speed, with higher-numbered (high-speed) gears more suited to highways, and lower-numbered (low-speed) gears more suited to hills and city streets. Using inappropriate gears stresses the transmission and yields penalties to driving.

To determine the **Driving Accuracy (DA)** penalty for a given gear, cross-index the gear with the vehicle' s speed on its **Gearshift Table (V2)**

Example: An old sports car traveling 30 HPP in 2nd Gear, has a DA penalty of 0. If the driver then shifts to 3rd Gear without changing speed, he suffers a -3 Driving Accuracy penalty.

A driver can also use the gears to Decelerate without employing the brakes. When shifted into an engine-stressing lower gear, the listed Driving Accuracy penalty is also the **number of Hexes the vehicle decelerates per Phase**. This deceleration may be combined with braking, governed by the rules for **Acceleration and Deceleration**, above.

Example: One fine rainy day, Officer Axly (DAL 14, 50 HPP) is traveling in his latest police cruiser, in 4th Gear (using Table V2), when he spots a thirty-car pileup ahead. On Phase 1, he downshifts to 2nd Gear and brakes 30 Hexes Per Phase (HPP), for a total Deceleration of 40 HPP, and a Driving Accuracy penalty of -22 (-10 for gear-braking, and -12 for exceeding his DAL limit).

"If there was a war, I wouldn't be running away...

...But I'd be passing a lot of guys who were."

Private Roy

Note that with the optional traction rules (**Section 5.1**), decelerating 20 HPP beyond the safe deceleration limit on a wet, traffic-polished road, would give an additional DA penalty of –100, for a total penalty of –122. He would thus automatically lose control, but due to steering power and his skill, however, Axly would still only drift 7 feet (which is based on a safe deceleration of 20 HPP). He skids for 22 Impulses, across 54 hexes, at an average speed of 10 HPP. Let's hope he replaced his airbags.

Slopes and Coasting (Optional)

While on a slope, gravity pulls the vehicle downward, adjusting its speed. As well, friction between the tires and the driving surface continually seeks to slow the vehicle down, meaning that maintaining any given speed actually involves continual slight acceleration. If the driver takes his foot completely off the throttle, the vehicle will start to slowly decelerate.

To model this, cross-index the terrain's Driving Accuracy Modifier (see **Section 2.2**) on the **Coasting Table** with the appropriate column, to find the speed change per Phase. Round fractions off.

Example: A Gremlin traveling 30 HPP crests a hill and runs out of gas. As the down-slope is 30°, and the terrain DA modifier is +0, the car accelerates 30 / 9 = 3.33, rounded to 3 HPP each Phase, up to a maximum of 30 HPP. Three Phases later, the road flattens to 0 , so the Gremlin (9 HPP) coasts another 9 / 0.2 HPP = 45 Phases.

A vehicle on level terrain (0°), either on its roof or side or with its tires not turning, should use the Skidding rules instead (see **Section 5.1**). If such a vehicle is on a slope, it has half the normal speed change rates, and one quarter the normal maximum coasting speeds.

Example: A delivery truck has gone off the road onto a 50° slope without rolling. Instead, it begins sliding downhill, accelerating 3 HPP per Phase, up to a maximum of 9 HPP.

Stalling (Optional)

When a vehicle´s engine suddenly turns off of its own accord, it is called stalling.

Whenever a driver is accelerating or decelerating, and he rolls doubles on a Driving Accuracy roll, the player rolls a 0-9 number twice. If both results individually exceed your Driving Skill Level, you stall. If the vehicle is ascending a hill sloped >15°, merely not coasting counts as acceleration, and a stall results if either die exceeds the character´s Skill Level. If an unqualified character is operating a manual/standard transmission, roll 00-99 against his Skill Level instead.

Example: Axly (SL 8) rolls 22 on his DA roll while accelerating up a 25° hill at 20 HPP. He rolls 0-9 twice, scoring 9 and 2. As at least one number rolled exceeds his SL, his engine suddenly quits.

While stalled, the vehicle starts coasting and cannot be accelerated, but the driver can brake and steer normally. All power functions (e.g. power steering, power windows) are disabled. To restart the vehicle, the key must be turned off and on (2AC), wait the Start Time in Impulses, and then re-roll your stall chance to see if the engine starts.

Example: Cursing invariably, Axly tries to restart his car as it coasts up the hill. Six Impulses later he re-rolls two 0-9 dice, scoring 3 and 4. The car comes to life, and he accelerates aggressively to compensate for the slope reducing his speed to 20 – 5 = 15 HPP. His DA roll is 00, and he rolls 9 and 8 on his stall chance, stalling again!

Cold Weather: In subzero temperatures, anyone with an old-style vehicle (1980s or earlier) must warm it up for 1 Turn prior to moving out. If not warmed up, the vehicle has a 50% stall chance.

Unqualified Driver: If the driver lacks the **Qualified Skill Level** required for a given vehicle, he has only a 25% chance of starting the vehicle on each attempt, and 75% chance of stalling if not warmed up. All stall chances are rolled against the lower of either, his appropriate Driving skill, or his Qualified skill.

Parking/Emergency Brake (Optional)

If a vehicle has a parking brake, it may be engaged for 2 Actions. The vehicle will then begin decelerating 15 HPP each Phase, provided the vehicle is not skidding.

While on a slope with the parking brake engaged, the vehicle will still begin to slide downhill, but the maximum downhill coasting speed is reduced by 50 HPP, to a minimum of 0.

Example: While ascending a 25^{o} hill at 15 HPP, a vexed Axly's car has stalled for the second time in a minute. He pulls the parking brake, screeching to a halt, with a maximum downhill coasting rate of 0 HPP.

2.3

MANEUVER ROOM

One of the most important and often-used concepts in the game is that of **Maneuver Room (MR)**. Maneuver Room measures the distance in feet from the side of a vehicle to the nearest impassable or perilous boundary, commonly the edge of the road, but which may include obstacles on the road, or other vehicles as well. Maneuver Room will deplete and replenish continually throughout the game, so it is a good idea to become very familiar with how to determine it.

To find a vehicle´s Maneuver Room for any given moment, first find its current **Window Width** in feet. This measures the lateral space between the nearest two boundaries, perpendicular to your direction of travel. For simplicity, each Lane is presumed to be 10 feet wide.

"Where´d that old lady come from? Oh hell, I better drive around her…

… On a second thought, that would draw my Maneuver Room awfully narrow."

Psycho-Billy, on his way to the grocery store

Maneuver Room equals Window Width minus the vehicle's Width in feet, divided by two, rounded off. Whenever the Window Width changes, adjust your Maneuver Room by half the difference; adjust up if the new window is wider, or down if the new window is narrower. Also, if measuring against boundaries other than the road, designate what they are.

Maneuver Room = (Window Width - Vehicle´s Width) / 2

Example: A car (Width 5') on a two-lane freeway (Width 20'), therefore has an MR of (20 – 5) / 2 = 7.5, rounded to 8. The car moves into a single lane due to construction (Width 10'), and so reduces its MR by (20 – 10) / 2 = 5, down to 3.

Immediately beyond the construction zone the car reaches a three-lane freeway (Width 30'), and so its MR increases by (30 – 10) / 2 = 10, up to 13.

Up ahead is a transport truck (Width 8', MR 11). In order to pass it, the car moves to the outside lane, between the truck and the road edge (Width 11'), and so the car's MR goes down by (30 – 11) / 2 = 10 to 3. This is written "3-truck".

If a driver drives off-centre in his window, his Maneuver Room will be reduced below its maximum. Designate which side of the driver´s window his Maneuver Room is measured from; either "right" or "left". Note that when driving off-centre, the available window on a driver´s opposite side equals double his maximum MR, minus his current MR.

Example: Continued from above, the car passes the truck, but stays in the outside lane with MR 3-right. If there are no cars on its other side, the available window is 13 x 2 – 3 = 23'.

Switching Sides

If a vehicle drifts past the middle to the side opposite that which its MR is measured from, once it reaches maximum MR, subtract any further drift from that MR, and **switch side designations**.

Example: Continued from above, the car (MR 3-right) drifts 20' left. Its MR increases by 10 to 13, then is reduced by the remaining 10 back down to 3-left.

2.4

DRIVING ACCURACY

Driving Accuracy

A driver´s **Driving Accuracy (DA)** is the sum of the factors determining his likelihood of traveling stably in the middle of the available road width. In use, it is very similar to the **Accuracy Level Modifier (ALM)** system of **Phoenix Command** and **Driving Accuracy** rolls are made whenever in a situation requiring skill and effort to control a vehicle.

To begin with, find your **Steering Time Modifier**, by entering the number of Actions you allocated to Steering Time, on your **Vehicle Data Sheet**. To the Steering Time Modifier, add your **Driving Accuracy Level (DAL)**, along with the Modifiers for weather, terrain, and such listed in the **Driving Accuracy Modifiers Tables** in the Tables Section.

Cross-index the total Driving Accuracy with your speed in Hexes Per Phase on the **Odds of Steering Table (2A)** to find the **Odds of Success** on a 00-99 roll. When you make this roll, record the amount you succeeded or failed by, as appropriate. This means that you subtract your 00-99 roll from your Odds of Success. If the result is negative, you record it as a failure, otherwise as a success.

Unmanned Vehicles: An unmanned vehicle always has a **Steering Time of 0** while on a straightaway. The Steering Time Modifier for 0AC reflects the vehicle's wheel alignment, whether unstable (negative), perfect (zero), or self-correcting (positive).

Knockdown: If the vehicle's Knockdown exceeds your Strength score, all your steering and recovery AC are doubled. E.g. If your Strength was 9, and your vehicle had Knockdown 12, then to achieve a Steering Time of 3, you would have to spend 6 Actions.

When To Make A Driving Accuracy (DA) Roll

Ordinary commuters or Sunday drivers will rarely make Driving Accuracy rolls, which are usually reserved for crises or skill-testing situations. While in a pursuit, however, ordinary actions become fraught with risk and adrenalin, and you must make a Driving Accuracy roll whenever you:

- Pass a speed threshold
- Take a corner
- Drift sideways (+30 DA mod if performing no other maneuver that Phase)
- Exceed your safe acceleration/deceleration rate
- Collide
- Suffer an injury
- Suffer an unexpected terrain or weather modifier (e.g. black ice, sudden rainstorm).
- Attempt a stunt or ram
- Attempt to recover from a skid

**"Toolin' down the highway doin' 79,
I'm a twin-pipe papa and I'm feelin' fine,
Hey man, dig that – was that a red stop sign?"**

**SQUEEEEEEEAL...
…KEE-RASH!**

**"Transfusion, transfusion,
I'm just a solid mess of contusions,
Never-never-never gonna speed again...**

...Slip the blood to me, Bud."

Nervous Norvus, Transfusion

Accuracy Level Modifiers

Accuracy Level Modifiers (ALM) are all the various factors that affect a driver´s Odds of Success. As already noted before, all the various Accuracy Level Modifiers (ALM) are added together to get the **Effective Accuracy Level (EAL)** which is then entered into the **Odds of Steering Table (Table 2A)** and cross-indexed with the vehicle´s current speed in Hexes Per Phase, to get the Odds of Success for the driver. The various ALMs are described as follows.

Steering Time ALM

This is the amount of " time" or attention the driver spends on steering the wheel, working the pedals, and pretty much everything that is related to maneuvering the vehicle. The **Allocation System** (**Section 2.1**) already explained how this works, so all you need to do, is enter the **Vehicle Data Sheet** of the vehicle in question, and enter the player´s **Steering Time Actions** allocation (plus all the Actions, minus one, that are spent on Steering from the character´s Reserve (See **Section 2.1**) into the **Steering Time Modifier Table** to get the **Steering Time ALM**.

Vehicle / Driver ALM

These Accuracy Level Modifiers represent modifiers based on how the driver acts in the vehicle as well as on the situation the vehicle is in. The Vehicle / Driver ALMs are given in **Table 2B**.

Weather Visibility ALM

Weather Visibility ALMs are based on the current weather, which may have dramatic effects on the visibility of the driver. The Weather Visibility ALMs are given in **Table 2C**.

Lighting Visibility ALM

Lighting also greatly affects the visibility of the driver and the Lighting Visibility ALMs are found on **Table 2D**.

Accoutrements Visibility ALM

These ALMs are based on equipment as well as the condition of the vehicle´s windshield, and they also affect the driver´s visibility. The Accoutrements Visibility ALMs are given on **Table 2E**.

Road Condition ALM

Road Condition ALMs are the result of the road´s slipperiness and condition. Losing control of a car in slippery road can be deadly, and whether the surface is soft or hard can have a huge effect on the maneuverability of a vehicle. The Road Condition ALMs are found on **Table 2F**.

Special ALM

Various types of Special ALMs can result from the equipment used as well as the maneuver attempted. Whenever the rules indicate a modifier to the **Driving Accuracy**, these modifiers are applied as Special ALMs. These ALMs can be found all over this system, mainly from Optional Rules.

Effective Accuracy Level (EAL)

The **Effective Accuracy Level (EAL)** is the sum of all applicable ALMs and determines the **Odds of Hitting**. The Odds of Hitting are then found on the Odds of Steering Table (**Table 2A**), as mentioned before. Notice that the speed of the vehicle is also a factor in the Odds of Steering Table, and it affects the Odds greatly.

2.5

DRIFTING

Drifting refers to very soft cornering, which allows a vehicle to move laterally across its Window Width, but overall continue in the same direction as before. Drift is expressed in feet, and is fundamentally related to the vehicle´s Maneuver Room (MR).

Ordinary DA Rolls

If **less than the Odds of Success** is rolled, deduct the amount failed by from the vehicle´s current MR. If the MR ever goes below zero, the vehicle has drifted the excess in feet out of its window width. This may have drastic consequences, such as driving off the road, or colliding with an obstacle, retaining wall, or other vehicle.

If **equal or less than the Odds of Success** is rolled, the amount succeeded by is added to the current MR, up to the maximum allowable based on the Window and vehicle widths. This reflects drifting back towards the vehicle´s Window center.

Drifting DA Rolls

To Drift intentionally, the player chooses how many feet and which direction the driver wishes to Drift. The driver may Drift to one side, then another, and so forth, but must make a separate DA roll for each new direction drifted in.

If Drifting is the driver´s only maneuver that Phase, he gets a DA modifier of +30.

If **half or less than the Odds of Success** is rolled, the vehicle drifts the chosen amount exactly.

If the roll succeeds but **more than half the Odds of Success** is rolled, the driver overshoots or undershoots by 10%, rounded up, and decided randomly.

If the roll fails, the amount failed by is added to the amount drifted in the chosen direction.

Facing Change

On the Drifting Table (Table **2G**) read across on the row for the vehicle´s current HPP, to the column that equals or exceeds the amount drifted. At the bottom of that column is listed:

- Facing change in degrees, made in the direction drifted.
- MR penalty, applied per Phase until you change facing or leave the road.
- Effective Corner C (see **Section 2.6**).

Enter the effective **Corner C** on the vehicle's Cornering Table (**Table V1**) to find both the **Safe Speed**, and the drifting Action Cost (AC), which reflects how far the steering wheel must be turned to move the tires the needed amount. The AC must be paid in full **twice**:

- First, during the first Phase of drifting (to start drifting), and
- Second, during the first Phase after the drift is completed (to stop drifting)

If the AC is only partially paid, prorate the actual drifting.

Example: Stan tries to drift 30' while going 10 HPP, but only pays 1AC. As the most he could drift on that row with 1AC is 14', he uses that column instead.

Steering Wheel Limits (Optional)

The amount a vehicle can unintentionally drift due to a failed DA roll is limited by how rigidly the driver is capable of holding the steering wheel. This also models skids where traction is lost, but the vehicle does not move laterally.

For vehicles with **Power Steering**, the maximum number of columns the drift may shift it, on the Drifting Table (**Table 2G**), equals six minus the driver´s Driving Skill Level, with a minimum of 1.

For vehicles without **Power Steering**, the maximum number of columns the drift may shift it, equals five, minus one-fifth the driver´s Strength, rounding off (see the table below).

Strength	Modifier
3-7	-1
8-13	-2
14-17	-3
18	-4

If in the midst of cornering, the vehicle´s cornering begins in the column for its appropriate **Corner C** (see **Section 2.6**), and the number there is added or subtracted from the drift, as appropriate.

Example: Officer Axly (SL 8) takes his police cruiser (12 HPP, MR 4, Power Steering) around a C283 corner. He fails his DA roll by 40. Ordinarily this would carry him three columns to the right. That is, starting in column C283 for 12 HPP, the drift number is 5 + 40 (amount failed by) = 45, which is in the C38 column. Because of power steering, Axly can only drift 6 – 8 = -2, so a minimum of 1 column. Therefore, he drifts one column right, to C113, which still means he drifts 18' – still better than drifting 40'.

2.6

BASIC CORNERING

Drifting in this system only deals with tiny direction adjustments. Any bend in the roadway beyond a few degrees is termed a **Corner**. Corners are rated in five ways:

- **Bend** (degrees turned from beginning to end)
- **Width** (in feet).
- **Length** (in Hexes. Divide lengthy by your HPP to find Phases taken cornering).
- **C** (**Hypothetical maximum circumference** in Hexes, were the corner's curve extended into a circle. C is based on corner length and banking, for a **5' wide vehicle**).
- **Lead in/out** (**OPTIONAL**. How many Hexes prior the corner proper, vehicles with less than ideal trajectories must begin and finish turning.).

Example: A highway exit with the values "90°, Width 15', Length 35hx, C 138, Lead 8, means the exit bends at 90 degrees, is 15' wide, 35 Hexes long in the middle, would hypothetically extend to form a circle 138 Hexes in circumference, and vehicles with poor trajectories begin and end turning 8 Hexes early, and late, respectively.

Action Cost

Your **Vehicle Data Sheet** will list the Action Cost (AC) for various **Corner C**. This cost reflects how far the driver must turn the steering wheel to move the tires the needed amount. It must be paid in full twice:

- First, during the first Phase of cornering, and
- Second, during the first Phase after the corner is completed.

If the AC is only partially paid, prorate the actual cornering. Thus, if the driver does not spend the needed amount to begin the corner, the amount the vehicle´s facing change diverges from the needed amount, yields an MR modifier that is applied every Phase (see **2G**). The same will happen (in the opposite direction) if the needed amount is not spent to end the corner.

Example: Stan tries to make a C57 corner in his old sports car but only pays 1AC. As the most he could turn with 1AC is C113, he uses that row instead. His MR modifier is -(21-10) = -11 per Phase, toward the outside of the corner.

Safe Speed

The **Vehicle Data Sheet** will list the safe speed in HPP for various **Corner C**. If the vehicle exceeds that speed, the driver suffers a DA penalty equal to the excess squared.

HPP Over	DA penalty
1	-1
2	-4
3	-9
4	-16
5	-25
6	-36
etc.	etc.

2.7

ADVANCED CORNERING (Optional)

Basic cornering presumed, rather unrealistically, that all routes through a corner were equal. In reality, the **innermost** route will be shorter and sharper, while the **outermost** route will be longer and softer. The ideal route is that which describes the largest hypothetical **circumference**, and it is that route which is used as the initial **Corner C**.

Effective Corner C

To find the **Effective C** of a Corner, enter the vehicle´s MR under the column for the **Corner's Width**, on the **Corner Distance Table** (**Table 2H**). Read across that row to the right side of the table, to the area marked "**No Lead In**". If the vehicle´s MR is measured from the outside use the "**Outside**" column; if your MR is measured from the inside, use the "**Inside**" column. You may then select any number in that column, your

row or lower. Multiply the number selected by the **Corner C** to find the **Effective C**.

Example: A fleeing car (MR 5-outside) takes a highway exit (90o, Width 15', C 133). Entering MR 5 into the 15' column on Table A2, and reading across to the Outside column, shows the car may pick a C modifier of 1, 0.9, 0.81, 0.76, or 0.62. Desiring high speed, it picks a modifier of 1, and so has effective C 133.

Effective Corner Length

To find the **Effective Length** of the Corner in Hexes, cross-index the **Effective C** with the Corner's **Bend** in degrees, on the vehicle's Cornering Table (V1). Divide the distance by the vehicle´s HPP to find Phases taken cornering.

Example: Continued from above, the fleeing car (18 HPP) enters 90^{o} and C 138 onto the C 114 line of its cornering table, indicating safe speed 15 HPP, and specific distance 28 hexes. Cornering will take 28 / 18 = 1.6 Phases. Since the car is traveling 3 HPP over the safe speed, the DA penalty is $-3^2 = -9$.

Drifting While Cornering

If a vehicle Drifts while Cornering, cross-reference the new MR with a road Width 5' greater than normal.

Example: Continued from above, the fleeing car takes an optimal course (MR 5, C Modifier 1.0), but is forced to drift 3' outward to avoid a puddle of oil. Entering MR 2 in the 20' Width column, and reading across to the Outside column yields a new C Modifier of 0.62. The car's effective C is therefore 0.62 x 138 = 86.

Example: If instead the car had drifted 1' inward, it would have entered MR 4 on the Inside column, yielding a new C Modifier of 0.74 for an effective C of 0.74 x 138 = 102.

If a vehicle drifts past the middle to the side opposite that which its MR is measured from, once the vehicle reaches maximum MR, any further drift is subtracted from that MR, and side designations are switched.

Example: If a car (MR 2-outside, Outside C Modifier 0.62) on the same corner, drifts 5' inward, its MR would increase to 5, then the excess would subtract from it, reducing it down to MR 3-inside. MR 3 entered on the 20' Width column, and reading across to the Inside column, yields a C modifier of 0.47, for an effective C of 0.47 x 138 = 65.

Lead-In/Out

The **Lead-in** and **Lead-out** are extra distances that all vehicles with a **C Modifier** of less than **1.0** must drive through, when **entering** (Lead-in) and **exiting** (Lead-out) a Corner, respectively. The reason for this is that when a Corner is connected to a straightaway, a vehicle taking the optimal course (C modifier 1.0) will begin Cornering earlier, before the road itself begins bending, in order to maximise its hypothetical circle circumference.

When traversing a Corner with a **Lead-in**, use the "Lead-In" area on the Corner Distance Table (**Table 2H**).

Those vehicles not taking the optimal course – i.e. those with a **C Modifier < 1.0** – begin cornering only when the road actually begins bending, and therefore must first traverse the Lead-in. Likewise, after the Corner, they must traverse the **Lead-out**.

Example: Continued from above, a pursuing car (MR 2-outside) takes the same highway exit. Entering 2 into the 15' column, and reading across to the Outside column, yields a C Modifier of 0.62, for an Effective C of 0.62 x 138 = 86. Because its C Modifier is < 1, the pursuing car must first traverse the 8 hex Lead-in, and afterward must traverse the 8 hex Lead-out.

For corners without Lead-ins, use the "**No Lead-In**" area on the Corner Distance Table (**Table 2H**).

Cornering Example (including DA rolls)

The fleeing car (MR 5, 18 HPP) enters the corner with the following DA modifiers

Circumstance	DA Modifier
Driver SL 3	9
Steering Time 3AC	0
Disabled Arm	-4
Traveled Asphalt	0
3 HPP > safe speed	-9
TOTAL	-4 DA

Cross-indexing –4 DA with 18 HPP on the Steering Odds Table (**2A**) gives an Odds of Success of 18 or less. The fugitive car rolls 04, and zooms around the corner perfectly, jetting onto the 20' connecting highway 6 Impulses later with MR 8.

The pursuing car (MR 2-outside, 18 HPP) enters C 86 onto the C 57 line of its cornering table, indicating 2AC, safe speed 10 HPP, and specific distance 14 hexes (for 90°). It doesn't dare take the corner at that speed, but doesn't want to lose its quarry either, so during the 2 Impulses

spent traversing the 8 hex Lead-in, it brakes down to 14 HPP. 14 hexes / 14 HPP = 1 Phase to corner. Since it's 4 over the safe speed, it suffers a -4^2 = -16 DA penalty!

The pursuing car then enters the corner with the following DA modifiers:

Circumstance	DA Modifier
Driver SL 8	14
Steering Time 3AC	0
Traveled Asphalt	0
4 HPP > safe speed	-16
TOTAL	-2 DA

Cross-indexing -2 DA with 14 HPP on the Steering Odds Table gives an Odds of Success of 27 or less. The pursuing driver´s player rolls a 28, reducing the vehicle´s MR to 1-outside as it barely rounds the corner in 4 Impulses, tires squealing! It accelerates 4 HPP during the 2 Impulses it spends in the Lead-out, exiting onto the highway at 18 HPP.

VEHICLE DETAILS (Optional)

These rules model key vehicle details such as Power Steering, Power Brakes, and so on.

Brakes

Power Brakes: While operative, these function normally. If Power Brakes fail, the vehicle's maximum braking rate is its original rate, minus 10, plus one-third the driver's Strength score, rounding off.

Non-power Brakes: The vehicle's maximum breaking rate is instead the original maximum rate minus 8, plus one-third the driver's Strength score.

Antilock Braking System: While operative, braking is normal. If the Antilocking system fails, reduce the safe braking rate by 20.

Steering

Power Steering: While operative, this functions normally. If Power Steering fails, you suffer a penalty of -3AC, reduced by your Strength modifier, to all **Steering Times**.

Non-power Steering: This functions normally.

Cruise Control: When activated, the vehicle's gas pedal is disabled, and the vehicle will continue at its current speed until the brake pedal is pressed, or Cruise Control is disabled, or the gas pedal is pressed twice.

Transmission

Manual/Standard: This means that to shift gears, you must first disengage the clutch (a lever connected to gears which transfer mechanical energy from the engine to the wheels). Shifting gears without first disengaging the clutch for the duration automatically stresses the engine (see **Section 6.3**). While the clutch is disengaged the vehicle may not accelerate. It is possible to use the clutch to decelerate even if the brakes have been disabled (see Section 2.2, under "**Gears**").

Automatic: Gear-shifting is done directly, without a clutch.

Wheel Drive Type

There are three types of Wheel Drive: Front, Rear, and All. A vehicle's Wheel Drive type determines whether the tires tend to overcompensate, undercompensate, or perfectly compensate when the steering wheel is turned. These tendencies are termed **Oversteer**, **Understeer**, and **Neutral Steer** respectively.

A driver of a vehicle with Power Steering may render steering neutral by allocating 2AC per Phase. A driver of a vehicle with Non-Power Steering may render steering neutral by allocating 3AC per Phase.

Front Wheel Drive: Tends to Oversteer. Unless compensated for, always use the **Inside** column on the **Corner Distance Table** when determining **Effective C**. (See **Section 2.7**)

Rear Wheel Drive: Tends to Understeer. Unless compensated for, always use the **Outside** column on the **Corner Distance Table** when determining **Effective C**. (See **Section 2.7**)

All Wheel Drive: Tends to Neutral Steer. When determining **Effective C**, you may pick either the **Inside** or the **Outside** column. (See **Section 2.7**)

2.9

JOSTLING AND G-FORCE (Optional)

Jostling Due To Irregular Terrain

While traveling, the driver and the vehicle's other occupants will be jostled about to a degree dependent on the terrain's roughness and the vehicle´s suspension system's efficacy. This is expressed as a CA reduction, applied at the beginning of each Phase, for as long as the terrain conditions remain.

To find each occupant's CA reduction per Phase, cross-index the vehicle's **Suspension** rating with the **Terrain Regularity** on the **Jostling Table** (**Table 2I**). There are five categories of terrain:

Terrain Regularity	Examples
Smooth	typical road, parking lot, golf course
Gritty	crumbling road, dirt road, grassy lawn
Bumpy	potholed road, open field
Rocky	rock-strewn field, flood-damaged road, staircase
Craggy	hillocky field, artillery range

Example: An off-road 4x4 enthusiast drives his pickup truck with Good suspension through Craggy terrain. This reduces his CA by 2 for the duration.

G-Force

A traveling vehicle's occupants will also be impressed by gravity (g) force when it suddenly Accelerates/Decelerates, or Corners at high speeds. This is also expressed as a CA reduction.

Acceleration/Deceleration: To determine CA reduction per occupant per Phase, for the duration of the gravitational event, cross-index the vehicle's total combined speed change that Phase with the **None** column on the Jostling Table (**Table 2I**). Use the **Poor** column instead, if the occupants are in bucket seats while accelerating, or wearing seatbelts while decelerating, respectively. Apply the penalty per continuous speed change.

Example: A car with bucket seats but no seat belts, accelerates 2 HPP, brakes 7 HPP, and then accelerates 1 HPP in a single Phase, for a total speed change of 10 HPP. Cross-indexed with the Poor column (bucket seats) equals no CA reduction.

Cornering: To determine CA reduction per occupant while cornering, cross-index the vehicle's current speed with its **Facing Change per Phase**, on the Jostling Table (**2I**). If the vehicle's Suspension falls in a different column, shift one column toward its Suspension value.

Example: A seat-belt equipped race car with Fair suspension going 110 HPP, slows down 30 HPP to take a 90^{o} Corner in a single Phase. Cross-indexing 80 HPP with 90^{o} yields –10 CA, which is shifted one column toward Average suspension, to –7 CA. The driver's total CA reduction that Phase will be –7 – 2 (30 HPP deceleration with bucket-seats) = -9. Only a pro could make this Corner!

3

AWARENESS (Optional)

One of the most vital attributes of a good driver is constant awareness and this chapter deals with how it is treated in game terms. Before a driver can react to road changes, other vehicles, pedestrians, and obstacles, he must first notice them.

Notice that all of these rules are titled as optional. These rules take the game deeper into realism and gamers that wish to speed up their game may wish to skip some or even all of these rules, simply assuming that drivers are aware of their surroundings.

3.1

SPOTTING

A driver´s **Allocated Spotting AC** is applied to his **Field Of Vision**. Field Of Vision starts off including the front 120º, but as already stated in **Section 2.1**, for every AC allocated to Field Of Vision, it may be increased as follows:

Additional AC	Field of Vision
0	120º
1	180º
2	240º
3	360º

If any **Steering Time AC** is allocated at all, the driver automatically gains **+1 Spotting AC** exclusively in his front 120º Field Of Vision, extending out to **20 hexes**.

To find whether the driver spots any or all of the targets in his Field Of Vision, the allocated Spotting AC is compared to the cost listed on the **Spotting Table (3A)** for the target's distance in Hexes, cross-indexed with the driver's current **Visibility DA Modifier**. If the target is smaller than a man, shift one column right. If the target is larger than a man, shift one column left. When Spotting CA equals or exceeds cost, the target is spotted. Spotting AC is applied to all targets simultaneously, but note that not everything is in focus at once (see **Section 3.3**).

Passengers may spot in the same manner, and relay the information they glean to all others in the same vehicle, giving those others **+2 Spotting AC per Phase** versus any one target they indicate. If multiple targets are relayed, no spotting bonus is gained.

Example: One blue-skied day the Nite Rider (Steering Time 9AC, Spotting 1AC, 50 HPP) tears along the highway. Half a mile ahead (440 hexes) a toddler wanders out onto the road (spotting cost 6AC). Nite Rider doesn't spot the child until 8 Phases later, when the child is only four seconds away (100 hexes, spotting cost 1AC).

3.2

REACTION TIME

Once a target is spotted the driver´s **Reaction Time** is determined by rolling **4(6)** and comparing the sum to his Driving Accuracy Level (DAL). If the roll is equal to or less, the driver may respond normally and without further delay to all spotted targets. If the roll exceeds the DAL by up to 3 points, the driver may reflexively Brake. If the roll exceeds the DAL by 4 or more points, the driver may not react the newly spotted targets for **1 Impulse**. On the next Impulse, a new roll may be made again using 3(6), and so forth, each Impulse reducing one die, until the driver is able to react.

So long as a target remains in the dirver´s Field Of Vision (**Section 3.1**), and he has at least **1 Spotting AC** allocated there each Phase, he may subsequently react to it without making a roll. If the target leaves the driver´s Field Of Vision, however, a new Reaction roll must be made to react to it, if it changes speed, direction, or location before returning to the driver´s field of view . Thus, constant traffic, for instance, does not require new Reaction rolls.

3.3

TARGET IDENTIFICATION

Initially, when a target is spotted only its general size (traffic sign, smaller than a man, man-sized, and larger than a man) and general trajectory (coming from behind, from ahead, from the side) is known.

The exceptions to this are traffic lights, and the basic iconic traffic signs, listed below, which are instantly identifiable once spotted. "**Unspecified**" means that only the category is instantly identified, not the specific sign content.

Instantly Identifiable Signs:

STOP
DO NOT ENTER
WRONG WAY
ROAD CLOSED

YIELD
SCHOOL ZONE
SPEED LIMIT
SLOW MOVING VEHICLE

CONSTRUCTION (unspecified)
STREET SIGN (unspecified)
RECREATIONAL (unspecified)
CROSSING (unspecified)
TURN AHEAD (right, left, or squiggle only)

To properly identify the target as a specific pedestrian, type of vehicle, or obstacle, with a specific trajectory (in degrees) and estimated speed (rounded to the nearest 10 HPP), the target must be kept in field of view for at least **1 Impulse**. At the end of the Impulse, the driver must roll equal to or less than his **Perception** characteristic on **4(6)** to identify the target. If he fails, he may try again on subsequent Impulses, provided the target is kept in field of view, until the driver identifies the target or loses sight of it.

A driver may only attempt to identify **one target at a time**. Targets within 10 hexes of each other may be identified as **a group** (e.g. “group of people”, “people & cars”, “biker parking lot,” etc.).

Passengers may also attempt to identify targets in the same manner. People in the same vehicle as each other may relay target identities to the whole vehicle in **1 Phase**, but only one person may relay information at a time, or else they cancel each other.

3.4

SCOUTING

Often hazards lurk unseen, hidden by the lay of the land, and can only be anticipated by a mental effort on the part of the driver to scout out the terrain by interpreting its clues.

If the driver has allocated at least **1 Spotting AC**, he may spend an additional **1AC per Phase** on **Scouting**. Whenever a potential hazard approaches, the referee will ask the player to roll **4(6)**. If the result is equal to or less than the driver´s **Intelligence** characteristic, he gains any information to be had concerning the layout and possible dangers of the terrain, out to the maximum Visibility Distance for his **DA Modifier** (see **Table 3A**).

Passengers may also attempt to scout terrain in the same manner. People in the same vehicle as each other may relay scouting information to the whole vehicle in **1 Phase**, but only one person may relay information at a time, or else they cancel each other.

Example: A motorcyclist (Intelligence 13), traveling through paved, hilly woods decides to indefinitely allocate 1AC to scouting. A few minutes later the referee calls for a 4(6) roll, and the motorcyclist rolls a 13, succeeding. The referee tells him he notices a skid mark on the road ahead possibly indicative of an impending sharp bend.

Sample Clue	Possible Hazard
WEATHER	
Springtime	Farm animals looking for their offspring
Summertime	Beware of new drivers, hikers, insecure loads on roof racks, tour busses, trailers, campers, tarry roads
Autumn	Fallen branches due to high winds; drifts of leaves
Wintertime	Black ice, toboggans, ice-skaters, car accidents
Rain on old roads	Dust/oil mixtures
Frosty mornings	Ice buildup on bridges and culverts
HABITATION	
Town festival	Slow traffic, jay-walkers, pets, excited children
Unfenced roads	Wandering animals
Old roads	Potholes
Vehicle emerging from side-road	A second vehicle from the same road
Cow patties	Cattle ahead
Skid marks on road	Bad bend ahead
Construct. materials	Machinery and/or workers ahead/around corner
Hospitals	Ambulances, distressed/preoccupied drivers
Unnaturally low signs/fences/etc.	Flooding ahead
Undulating road, railway bridge	Flood point
TERRAIN	
Farm country/ berry bushes	Tractors, fruit pickers, fruit stands, badly parked cars
Flocks of sea/ marsh birds	Flooding
Fresh hedge/ grass clippings	Men at work, ride-on lawnmowers
Rocks on road	Water, flooding (in winter this may indicate ice)
Mountains	Falling rocks
Swaying trees/ shrubs/grass	Strong wind

4

INTERACTION (Optional)

Now that you have learned the basics of this system, including vehicular movement, as well as the optional rules of being aware of a situation, it is time to look into interaction with other vehicles and the surroundings. The very basics of this system have already been dealt with in the rules of how to move around. Like Chapter 3: Awareness, this chapter also is marked as Optional, which means that these rules are made to provide extra elements to play, but they are not essential if you just want to know how to take your family car to a picnic. Included are rules for driving in traffic, dealing with stationary obstacles, offensively crashing other vehicles, doing breathtaking stunts, and how to deal with the driver´s Morale in high-speed driving.

4.1

TRAFFIC

Traffic presents one of the most common and riskiest hazards to high-speed pursuit. Drivers must exercise extreme caution in negotiating through traffic at unconventional speeds and vectors. For simplicity, traffic is treated as a single hazardous entity, with the following information:

Road Width: The road's width in feet, given for the entire road going in one direction. Highways with traffic flows going in opposite directions are considered two separate roads.
Density: Rare, **Light**, **Moderate**, **Heavy**, **Very Heavy**, **Gridlock**.
Vehicle Width: The width in feet of an average vehicle on the road.
Vehicle Length: The length in feet of an average vehicle on the road.
Speed (HPP): The speed in HPP of an average vehicle on the road.
Spacing (in hexes): Distance between two vehicles in adjacent lanes. (Double to find distance between vehicles in the same lane.)
Window Width: The width in feet of the available room while:
Pacing
Passing
Cutting (perpendicularly across traffic)

Blocking Chance: Percentage odds of encountering an impasse, given per pass, per Turn.

Effective Length (EL): Phases taken for an average vehicle to cross any given boundary. Given for:

Normal Speed

Braking Speed (1/2 speed)

Time (t): Phases taken for an average vehicle to reach the intersection of its own and another car's vectors, accounting for traffic density. Given for:

Normal Speed

Braking Speed

Example:

2-Lane Highway (Width 20')

Moderate Traffic (Vehicle Width 5', Length 15', 30 HPP, Spacing 10hexes)

Window Width:

Pacing 12'

Passing 8'

Crossing 20'

Blocking Chance: 10%

	Normal	Braking
EL	0.08	0.17
t	0.33	0.67

"You call THAT a handgun? Check THIS out."

Eli MacNeil, last words to Texas Highway Patrol

Windows

Openings in traffic are called Windows. A Window's width depends on the angle you are approaching it, either **Pacing** (moving up alongside another vehicle), **Passing** (moving diagonally between lanes and vehicles), or **Cutting** (cutting across traffic at a 45° to 135° or greater angle); widths are listed with the traffic's other information.

In order to drive in traffic, you must make a Driving Accuracy (DA) roll per Window you enter, to determine your new **MR**, as usual. If your **MR** goes below 0, you have drifted either into another vehicle or other obstacle, a retaining wall, or off the road, as determined by the referee.

Time Lag

Instead of recording actual hex distances, record only the **Time Lag** between vehicles. Typically Time Lag between you and the nearest vehicle ahead of you, and/or behind you, equals **half the Traffic Time (t) each**.

Going With Traffic

If you are traveling in the same direction as traffic, you are said to be **Going With Traffic**. So long as you keep to your own lane, you will not collide with vehicles on either side of you.

You will collide with the vehicle ahead of you if your **t** is lower than the **Traffic t**. Each Impulse, subtract the difference from the Time Lag between the two vehicles; when it equals zero, the vehicles collide.

You will collide with the vehicle behind of you if your **t** is higher than the **Traffic t**. Each Impulse, subtract the difference from the Time Lag between the two vehicles; when it equals zero, the vehicles collide.

Example: Officer Axly (t 0.25) is driving along a 2-lane highway with moderate traffic (t 0.33). Time Lag = 0.165, rounded to 0.17. Each Impulse, the Time Lag is reduced by 0.33 – 0.25 = 0.08. If he doesn't brake or drift, Axly will rear-end the car ahead of him on Impulse 3.

If you try to pass the vehicle beside you in order to avoid the vehicle in front of you, compare your **t** to the **Traffic t**:

If your **t = Traffic t**, you collide.

If your **t** is higher than the **Traffic t**, you aren't fast enough to pass, and will collide into another vehicle's side or rear if the sum of the **Traffic t** and **EL** is equal to or higher than your **t**.

If your **t** is lower than the **Traffic t,** you may be fast enough to pass, but another vehicle will collide with your side or rear if the sum of your **t** and **EL** is equal to or higher than **Traffic t**.

Example: Continuing from above, Officer Axly accelerates (t 0.25, EL 0.10) and tries to pass the nearby car (t 0.33, EL 0.08). Axly's t + EL = 0.25 + 0.10 = 0.35, which is greater than 0.33, meaning Axly knocks the other car's bumper off in passing.

Going Against Traffic

If you are traveling in the opposite direction as traffic, you are said to be **Going Against Traffic**. To avoid colliding with other vehicles you will have to Pass continually. Each Pass involves evading an oncoming vehicle.

If you do not Pass, you collide head-on with an oncoming vehicle in the **lower** of either your **t,** or **Traffic t** divided by **0.25** in Impulses, rounding off.

For evading, if **Traffic t** is equal or lower to the sum of your **t** and **EL**, the oncoming vehicle collides with your front or side.

Example: Continued from above, Officer Axly (t 0.25, EL 0.10) cuts across the median into oncoming traffic. Immediately he must pass an oncoming car (t 0.33, EL 0.08). Axly's t + EL = 0.35, meaning he must accelerate out of the way. He accelerates to t 0.20, so that his t + EL = 0.30, barely avoiding the car.

The above rules, of course, presume that the oncoming vehicles are surprised and fail to react, or else always dodge opposite to your passing attempt. To reflect driver error, roll **(6)** for each passing vehicle. On a **1** or **2**, the vehicle drifts in the wrong direction, effectively increasing your **t** by one row.

Cutting Across Traffic

If you are driving perpendicularly (45^o to 90^o) across the direction of traffic, you are said to be **Cutting Across Traffic**. Doing so successfully may require changing speed.

If the absolute value of (your **t** - **Traffic t**) is lower than your **EL**, another vehicle collides with your side.

If the absolute value of (your **t** - **Traffic t**) is lower than the traffic's **EL**, you collide with another vehicle's side.

If both vehicles are eligible for collision, determine randomly to decide who hits whom.

Example: Continued from above, unable to turn back into traffic in time, Officer Axly (t 0.30, EL 0.06) careers across the freeway at a 75^o angle, braking down to t 025 EL 0.09. The absolute value of Axly's t - Traffic t = | 0.25 – 0.33| = 0.08. This is barely equal to or less than both ELs, so Axly smashes out the rear corner taillights of another car as he passes, losing control and going into a spin across the shoulder.

Driving Bonus

A driver's **Driving Bonus (DB)**, equals his **DAL / 10** (keeping the fractions), and reflects his ability to anticipate and cleave through traffic with precision, practically minimising his own vehicle's presence. This value also accounts for Vehicle Width affecting collision odds. Prior to play, divide your **EL** at each speed by your **DB**, to get your **Effective EL** used throughout the game.

Example:

Dapper Dalt (DAL 12) has a DB of 12 / 10 = 1.2. Prior to play he divides his car's EL values by 1.2, giving him:

HPP	Old EL	New EL
< 5	2.5	2.08
5	0.53	0.44
10	0.26	0.22
20	0.13	0.11
30	0.09	0.08
50	0.06	0.05
60+	0.05	

STATIONARY OBSTACLES

A wide variety of stationary obstacles can imperil motorists. All are described with the following information:

Road Width: The width of the containing road or track in feet.
Density: Rare, **Light**, **Moderate**, **Heavy**, **Very Heavy**, **Gridlock**.
Obstacle Width: The width of the obstacle in feet.
Obstacle Height: The height of the obstacle in feet.
Spacing (in hexes): Distance between two obstacles one after the other in direction of travel.
Window Width: The width in feet of the available room while passing between obstacles.
Blocking Chance: Percentage odds of encountering an impasse, given per obstacle passed.

For example:

Rubber Pylons on road
Density: Moderate
Obstacle Width: 1’
Obstacle Height: 2.5’
Window Width: 5’
Blocking Chance: 20%

For obstacles, always use your **t** value given for **Road Width 25 or less**. Unless you spot the obstacles in advance, your **t / 0.25** = Impulses to collision with each. If the obstacles are both low and narrow enough for your vehicle to clear them, then multiply your **t** by **2**, and divide your required drift by **2**.

To avoid obstacles you can’t clear, you must make a Driving Accuracy (DA) roll to determine your **MR** using the available Window Width, as

usual, drifting at least **(your width + obstacle width) / 2**. If your **MR** is **less than 0**, you either collide with an obstacle, the retaining wall, or go off the road, as determined by the referee.

Example 1:

A car (MR 4, t 0.17, Width 5', Clearance 1') on a highway (Width 30') closes with a discarded lawn chair (Width 2', Height 2', Window Width 14'). This gives an MR modifier of -7, and a required drift of 8' (4' normally, x 2 for t being half an Impulse). Failing to react in time, the driver can't make a DA roll, and therefore drives right over the chair.

Example 2:

A motorcycle (MR 7, Width 2.5', t 0.25) on a country road (Width 20') approaches a sideways-parked car (Width 15', Window Width 5'). This gives an MR modifier of -8, and a required drift each Impulse of 9'. With 1 Impulse to react the motorcyclist brakes and drifts frantically. His Driving Accuracy roll manages to increase his MR by 1 to an 8, so he dodges the car with an MR of 0. On the other side, his MR immediately goes back up by 8, to finish at 8.

Different types of obstacles can also be layered overtop one another. If there is no road, use the highest Window Width available to calculate basic MR. Otherwise, the rules are the same.

Example 3:

A pickup truck (MR 5, t 0.50, Width 6', Clearance 1.5') drives through a forest (Light, Width 1', Window Width 15', Blocking Chance 10%), strewn with large rocks (Moderate, Width 3', Height 2', Window Width 7', Blocking Chance 25%). The rocks each have an MR modifier of -4 and a required drift of 5' every 2 Impulses. If the pickup accelerates to t 0.25, every Impulse it will lose 4 MR and have to drift 5'.

4.3

OFFENSIVE DRIVING

Time Lag

As with traffic, when involved in a close-range pursuit (i.e. 10 hexes or less) it is often more convenient to record Time Lag between vehicles rather than hex distances. Typically, the initial Time Lag between two vehicles involved in a pursuit equals the pursuer's **t**.

Whenever the Time Lag exceeds 1, the trailing vehicle is deemed **1 full mechanised hex (mx)** away, and the pursuit becomes medium range (1mx to line of sight).

Blocking

If you attempt to prevent another vehicle behind you from coming up alongside you, by anticipating and matching their drift, you are said to be **Blocking**.

In order for a vehicle to pass you, compare your respective Maneuver Rooms (MR), both measured from your Effective road Width. If your **MR** is higher, the trailing vehicle may attempt to pass if the difference equals or exceeds its own Width. If the trailing vehicle's MR is higher, it may attempt to pass if the difference equals or exceeds your own Width.

Example: Dapper Dalt in his hot rod (MR 4, Width 5', 40 HPP) tries to block his bitter rival DeNoit (MR 0, Width 5', 40 HPP) from cutting him off in 2-lane moderate traffic. DeNoit drifts from side to side, cursing, but with MR (4 - 0 = 4) of 4, is unable to pass.

Note that when you have an MR less than your maximum allowable for a given road, the available space on your **opposite side** equals **double your MR maximum minus your MR**.

Example: Dapper Dalt's girlfriend distracts him momentarily, causing him to drift outwards to MR 2. His opposite side now has a window of 2 x 4 - 2 = 6'.

If the required Width is available, the trailing vehicle may Accelerate in an attempt to pull up alongside and/or pass you. To prevent this, you must Accelerate and Drift in time to close the Window.

Time (**t**) for both you and the trailing vehicle, should be taken from your Effective road Width. Modify your **t** as follows, with your minimum modified **t** being one row lower than normal.

- To account for your lead, take your **t** from one row lower than normal.
- At the beginning of each Phase of blocking, each driver must secretly record how many **Spotting AC** he will spend on **anticipating** the other vehicle's movement. Expenditures are revealed simultaneously. For each AC spent by the trailing vehicle, your **t** is taken from one row higher than normal. For each AC you spend, your **t** is taken from one row lower than normal.
- For each extra multiple of the trailing vehicle's Width, contained in the difference between the two vehicles' Maneuver Rooms

(MR), beyond the minimum required Window, take your **t** from one row higher than normal.

Now compare your **t** to the trailing vehicle's **t**:

If your **t** is equal to the trailing vehicle's **t**, you block it (possibly colliding).

If your **t** is lower than the trailing vehicle's **t**, you block it.

If your **t** is higher than the trailing vehicle's **t**, it pulls up alongside you.

Example 1:

Seeing the 6' Window, DeNoit guns ahead (t 0.10, Spotting 3AC), as Dalt snaps awake (t 0.13, Spotting 2AC). Dalt's t shifts down 3 rows (his lead, plus 2AC spotting), and then back up 3 rows (DeNoit's 3AC spotting) leaving it at 0.13. As 0.13 > 0.10, DeNoit pulls up alongside him, French scarf whipping in the wind.

Example 2:

A motorcycle (33 HPP, Width 3', MR 9) is chasing a truck tractor (33 HPP, Width 8', MR 5) down a culvert (Width 20') and seeks to pass. Both vehicles spend 3AC on spotting. When the truck goes to MR 2, leaving a 10' Window on its other side, the motorcycle goes to MR 0 on that side and tries to pass. The truck's t is therefore reduced by 4 rows (lead + 3AC), and then increased by 5 (Window Width 3 x motorcycle width, +3AC), and the motorcycle squeezes in beside it.

Pacing

If you try to match speeds while alongside another vehicle, you are said to be **Pacing** it. Matching speeds requires a Driving Accuracy (DA) roll; if a successful roll is exactly **half or less of the Odds of Success**, you achieve the speed change perfectly. If a successful roll is **more than half of the Odds of Success**, you randomly overshoot or undershoot by 10%, rounding up. If unsuccessful, the amount the roll failed by divided by 10 (rounding up) is randomly added from or subtracted to your declared speed change, up to your vehicular limits; any additional penalties due to excessive speed fluctuation are applied next Phase.

Passing

Once alongside you, a Pacing vehicle may attempt to **Pass** you, and vice versa. This is done as follows:

Compare your **t** to the pacing vehicle's **t**:

If your **t** is **equal to** the pacing vehicle's **t**, you block each other (possibly colliding).

If your **t** is **higher than** the pacing vehicle's **t**, it may be fast enough to pass you. You will collide with its side or rear if the pacing vehicle's **t** + **EL** is **equal to or higher than** your **t**.

If your **t** is l**ower than** the pacing vehicle's **t**, you may be fast enough to pass, but the pacing vehicle will collide with your side or rear if your **t** + **EL** is **equal to or higher than** its **t**.

Note that for Effective Length (EL) you may choose to ignore your Driving Bonus (DB) and use your unadjusted EL instead. The trailing vehicle may do likewise.

"Being that this is the Interceptor V8 accompanied with a custom built supercharger, making it the fastest and most mean looking vehicle this side of the wastelands, and it would leave your bike far behind, you´ve got to ask yourself one question: Do I feel lucky? Well, do ya punk!?"

´Filthy´ Larry Halloran to a biker ganger

Example: A squadcar (50 HPP, MR 8, t 0.10, Spotting 3AC) is chasing a sedan (39 HPP, MR 13, t 0.17, Spotting 3AC) down an empty three-lane roadway and tries to pass. The sedan adjusts its t down 4 rows (lead + sedan's 3AC spotting), then up 3 rows (squad car's 3AC spotting), to 0.13. The squad car pulls up alongside.

The sedan accelerates (44 HPP, t 0.13), preventing the squadcar from cutting it off. The squadcar, however, decelerates (44 HPP, t 0.13) and merely paces the sedan, knowing help is on the way.

Crossing

If you are racing perpendicularly (45^{o} to 90^{o}) to the direction of another vehicle, trying to cross in front of it, you are said to be **Crossing**.

If the absolute value of (your **t** - other vehicle's **t**) is lower than your **EL**, then the other vehicle collides with your side.

If the absolute value of (your **t** - other vehicle's **t**) is lower than the other vehicle's **EL**, then you collide with its side.

If both vehicles are eligible for collision, determine randomly to decide who hits whom.

Chicken

Whenever you approach another vehicle at a 150^{o} to 180^{o} angle, you are said to be **playing chicken**. Each vehicle´s driver secretly records what actions he will take, including speed change and drift, revealing them simultaneously.

As with Blocking, compare the vehicles´ respective MRs, both measured from the same Effective road Width. If your MR is higher, you may pass the oncoming vehicle if the **difference equals or exceeds its Width**. If its MR is higher, you may pass the oncoming vehicle if the **difference equals or exceeds your Width**. Note again that when you have an MR less than your maximum allowable for a given road, the available space on your **opposite side** equals double your MR maximum minus your MR.

If there is not enough space to pass, you collide.

Ramming

As with chicken, intentionally ramming your vehicle into another vehicle at speed is one of the most dangerous acts you can take.

Before the ramming attempt is declared, both vehicles´ drivers must secretly record how many **Spotting AC** they are spending on anticipating the other vehicle's movement. For each AC spent by the target, he may adjust his own speed change that Phase by 1 HPP **after** the rammer has finished his adjusting his own speed, up to vehicular limits. Similarly, each AC you spend, allows you to do likewise in response to the other vehicle.

If a vehicle is **Pacing** you, you may ram it simply by drifting in its direction. It may avoid the ram either if prior to impact it drifts away from you successfully, or if the absolute difference between your **t** and its **t** is higher than the lower of the two **Effective Lengths (EL)**.

If a vehicle is behind you, you may ram it with your vehicle's rear by reducing your **t** below its. Each Impulse, subtract the difference from the Time Lag between you; when the Time Lag reaches zero, you collide.

If a vehicle is in front of you, you may ram it with your vehicle's from by increasing your **t** above its. Each Impulse, subtract the difference from the Time Lag between the two of vehicles; when the time lag reaches zero, you collide.

Example: Continued from above, the sedan (44 HPP, t 0.13, EL 0.09, MR 13-road) is paced by a squadcar (44 HPP, t 0.13, EL 0.09, MR 4-sedan). The sedan decides to ram the squadcar, drifting 8' toward it (MR 13 - 8 = 5). Rather than risk drifting off the road the squadcar brakes down to t 0.25, 0.13. Their spotting cancels out. As | 0.25 - 0.13 | = 0.12, which > the sedan's EL of 009, indicating that the squadcar dodges successfully.

Next Phase the squadcar accelerates back to t 0.13, following with a Time Lag of 0.13. The sedan doesn't like this, and so it brakes abruptly to t 0.25. On Impulse 1, Time Lag reduces to 0.01. On Impulse 2, the squadcar steps on the brakes, but only manages to decelerate to t 0.17, so the Time Lag reduces below zero, causing a collision.

An alternate way to find the number of Phases until two vehicles collide head-on, is below:

$$\mathbf{P = (mx)(t_1)(t_2) / t_1 + t_2}$$

Or

[(Hexes / 10) x (veh.1's t) x (veh.2's t)] / (veh.1's t + veh.2's t)

Example:

Car A (t 1) and Car B (t 0.5) are 100 hexes from each other, and decide to play chicken. They will reach each other in

= [(100 / 10) x 1 x 0.5] / (1 + 0.5)

= 5 / 1.5

= 3.33 Phases, or 13 Impulses.

4.4

STUNTS

Controlled Skidding (See Section 5.3 Advanced Skidding)

While driving a vehicle with 4+ wheels you may attempt to intentionally skid without otherwise losing control, by:

First, reducing your Driving Accuracy (DA) by up to twice your DAL for the purposes of determining skidding, but not for determining drift or facing change.

Second, braking at least **5 HPP**, any penalties of which are applied normally.

Either or both of the following options may also be attempted during the same skid, but with an additional **-10 DA** general penalty. If both options are attempted during the same skid, the amount DA was reduced by (i.e. up to twice DAL) becomes a general penalty, and the skid becomes uncontrolled.

Facing Change: You may attempt to change facing by applying the reduced DA calculated earlier to determine facing change as well. This doubles the resulting facing change. Each Phase you may discount the effective additional facing change by paying half the **Skid Recovery Cost**. If you don't pay the cost, driving penalties per Phase due to excessive facing change apply normally.

Controlled Drifting: You may attempt to drift sideways without changing facing by applying the reduced DA calculated earlier to determine drift as well. **Drift Recovery Cost** must be paid as normal to discontinue the drift. If you don't pay the cost, driving penalties per Phase due to excessive drift apply normally.

Driving a Four-Wheeled Vehicle on Two Wheels

This requires a ramp, which both wheels on one side of the vehicle must mount, and which the body and other wheels must avoid (use the rules for lone obstacles from **Section 4.1**). If the ramp tilts the vehicle

sideways at least **45º**, the driver must spend **3AC** in a single Impulse, and make a DAL roll or less on **4(6)**, in order to balance the vehicle on its lower two wheels. A DA roll is then required each Phase, with steering costs tripled, and a further **-20** modifier imposed. Any failure causing drift results in the vehicle tipping over, either, back onto its wheels (if it drifts toward the airborne wheels) or onto its side (if it drifts toward the grounded wheels).

Flight

Even vehicles not designed for flight can become temporarily airborne, when they drive too fast, or off a terminus.

Driving Off a Terminus: When you drive off a cliff, ramp, or other terminus into empty space, the vehicle's own plane will decrease **45º** per Phase, and it will be unable to drift, change facing, or change speed, except as follows:

If the vehicle drives off a **0º or lower** plane, it will continue forward while decelerating due to air resistance at a rate of 1 HPP per Phase, and also simultaneously begin accelerating downward due to gravity at a rate of 10 HPP per Phase.

If the vehicle drives off a **1º or higher** plane it will continue forward while decelerating due to air resistance at a rate of 1 HPP per Phase, and also travel upward (if inclined) or travel downward (if declined) at a rate of the vehicle's **HPP x degrees / 300**, and also simultaneously begin accelerating downward due to gravity at a rate of 10 HPP per Phase.

If a vehicle with 4+ wheels flies through empty space with an incline of **15º or more**, its surface area will act as a sail, slowing its forward speed by 2 HPP per Phase instead of 1.

Note that a vehicle's first four Impulses of downward acceleration due to gravity will take effect as below. For fractions of Impulses, prorate distance traveled.

Impulse	Total Distance Fallen	Ending Downward Speed
1	0.9 hx	2 HPP
2	2.5 hx	10 HPP
3	7.5 hx	15 HPP
4	11 hx	20 HPP

Example: Agent Dasein is fleeing the strange town of Santaroga in a pickup truck up a mountain road at 35 HPP, when he encounters a bridge under construction with a 10' gap in the middle and a 7º incline on either side, only 1 Impulse away. With not enough time to

brake, and nowhere to drift to, he instead accelerates to 40 HPP, so the truck starts with an upward speed of 40 x 7 / 300 = 0.9 HPP.

On Impulse 1 he will therefore travel upward 0.9 hexes (his speed) - 0.9 hexes (distance fallen due to gravity) = 0 hexes, so he crosses the gap successfully.

By this time his upward speed will be 0.9 HPP - 2 HPP (downward acceleration) = -1.1 HPP; in other words, 1.1 HPP downward, which the truck's suspension system must deal with as it reconnects with the other side of the bridge. The truck's plane will be 7^{o} (bridge incline) - 12.5^{o} (0.25 x plane change per Phase) = - 5.5^{o}, a nice angle to meet up with the bridge's 7^{o} decline on the other side.

Motorcycles Off Termini: Use normal rules, with the following exceptions:

Motorcycles are capable of jumping off of relatively shorter, steeper ramps (4´ - 8').

Ignore speed reduction due to wind resistance.

Upward speed in Hexes per Phase is equal to the vehicle's **HPP times degrees divided by 200**.

Motorbikes Off Termini: Use normal rules, with the following exceptions:

Motocross bikes are capable of jumping off very short, steep ramps (3´ - 6').

Ignore flight speed reduction due to wind resistance.

Upward speed in Hexes per Phase is equal to the vehicle's **HPP times degrees divided by 100**.

All-Terrain Vehicles (ATVs) Off Termini: Use normal rules, with the following exceptions:

ATVs are capable of jumping off very short, steep ramps (3´ - 6').

Ignore flight speed reduction due to wind resistance.

Upwards speed in Hexes per Phase is equal to the vehicles **HPP times degrees divided by 200**.

Spontaneous Car Flight: Certain rear-wheel drive cars have a "flight speed" listed on their Vehicle Data Sheet. Whenever you drive at that speed, you must roll a 00-99 number at the end of each Impulse and consult the table below. Prior to making the 00-99 roll, the driver may choose to add his DAL to the roll:

Roll	**Effect**
00-00	On the next Impulse, roll (10) instead of 00-99.
01-10	The car's front-end rises degrees equal to the 00-99 roll made (i.e. 01 = 1^{o}). On the next Impulse, roll (10) instead of 00-99.

11-50	If the car is accelerating or driving on terrain with a DA modifier of less than +0, roll (10) next Impulse instead of 00-99.
51-97	No effect.
98-99	Car's front end lowers (6) degrees.

If the car's rear wheels remain in contact with the ground, and its front end rises 1-14 degrees off the ground, the vehicle's front end will slow due to air resistance by 1 HPP per Phase. Each Impulse add **ten times** the difference between the current front end and the faster rear end speed, to the degrees inclined, and subtract any rear-wheel deceleration that Impulse from the degrees inclined. If the vehicle´s front wheels ever rise to **15º or more** off the ground, the car's front end will catch the wind and rise up another 45º per Impulse, causing the car to roll (see **Chapter 5: Mishaps**).

Example: Renegade Red (DAL 12) speeds down the highway from the pursuing police in his rear-wheel drive funnycar roadster accelerating to 65 HPP, attaining flight speed on the last Impulse of Phase 1. He rolls a 00-99 number, deciding to add his DAL, and scores 00 + 12 = 12º, so because he accelerated this Impulse, next Impulse he rolls a (10) instead of a 00-99.

On Phase 2, Impulse 1 he rolls a (10), scoring 7, so his front end inclines 7º and his front end decelerates by 0.25 HPP, to 64.75 HPP.

On Impulse 2 he fails his reaction roll and can't respond. He then rolls a 5 + 7 (front end incline) + 2.5 (rear-end overspeed x 10) = 14.5º, and his front end is now going only 64.5 HPP.

On Impulse 3 he makes his reaction roll and slams on the brakes, decelerating 40 HPP. Mercifully he rolls a 4. 4 + 14.5 (front end incline) + 5 (rear-end overspeed x 10) - 10 (deceleration that Impulse) = 13.5º, and his front end is now going 55 HPP along with the rest of the car.

On Impulse 4, he rolls a 5. 5 + 13.5 (front end incline) - 10 (deceleration) = 3.5º.

Phase 3, after decelerating to 45 HPP, his front wheels once again touch the road. With sirens in the air he immediately stops braking and accelerates again back up to 65 HPP, this time rolling a 49 and adding his SL of 12 for a total of 61 and laughing at the cops through his CB radio.

Accelerating In Place

See **Section 5.3**.

MORALE

This section adapts the Morale rules devised by R.J. Andron and featured at this link: http://www.phoenixcommand.com/sacmorl.htm .

Initial Morale

A driver's initial morale state during a crisis depends on his driving experience and is modified by the type of instruction he has received. The highest level a driver may start at is **Bold**.

Skill Level	Morale State
0	Frightened
1 – 2	Cautious
3	Bold
4 – 8	Cautious
9+	Bold

Morale State Modifiers

Taught by friends/family	+1 level (e.g. Cautious to Bold, etc.)
Hotshot	+1 level

Morale Effects

CA Modifier: Applies normally. All driving actions are considered offensive, except spotting, braking and drifting to pass/avoid vehicles and other obstacles.

DSL Bonus: The absolute value (e.g. -2's absolute value = 2) indicates the number of Spotting AC which must be spent each Phase to avoid being rammed.

Spotting CA Bonus: Applies to front 20 hexes, 60^{o} field of vision only.

Morale Reduction

A driver's morale state drops when any of the following occur:

Going Too Fast: If you exceed any of your speed thresholds and fail the required Driving Accuracy roll, your morale drops by **1 level**.

Driver Wounded: If you have never been in an accident before, your morale state immediately drops to **Panicked**. If you have been in an

accident, your moral state drops by **2 levels**. (Advanced rules finely modeling injury response are optional.)

Vehicle Damaged: If the vehicle suffers any sort of non-Superficial damage, your morale state drops by 1 level.

Near-Miss: If your vehicle comes within the following critical distance of another vehicle or deadly obstacle at a closing speed **equal to or greater than** your first Speed Threshold, your morale drops by **1 level** if you have been involved in a high-speed pursuit previously, or **2 levels** otherwise.

Skill Level	Critical Distance
0	5 feet
1	3 feet
2	2 feet
3 – 4	1 foot
6+	0 feet

Rallying Courage

The driver must wait 1 full Turn (4 Phases), after which he may roll a 00-99 number. If he rolls his Knockout Value (KV) or less his morale goes up by **1 level**. He may only attempt to rally again once he has accomplished something, such as disposing of an enemy, or reaching a safe area. If he fails, he is too shaken to continue and will only participate further if lacking any other survivable option.

For more detail, see the **Phoenix Command Advanced Rules Supplement**.

Road Rage

Whenever you are cut off, tailgated, insulted, challenged, or had an object pass within your Critical Distance, you must roll a 00-99 number and compare it to your **Stress Level**, totaled from the factors listed below.

If the roll is equal to or less than your stress level, your morale state immediately jumps to **Enraged**. While **Enraged**, you may voluntarily drop below your first Speed Threshold, your **CA** is multiplied by **1.25**, you suffer a spotting AC penalty of -1, and you must ignore your Driving Bonus (DB), using your unadjusted EL instead. You also experience a powerful desire to murder anyone within a radius of 10 hexes outside your vehicle.

Factor	Stress Level
Got up on wrong side of bed that day	+10
Hours' worth of heavy traffic	+10
Impressible friends/beau on board	+15
Grew up in an aggressive car culture	+20
Panicked morale state	-60
Frightened morale state	-40
Cautious morale state	+0
Bold morale state	+40
Type A personality	+25
Mother-in-law in vehicle	+30 (hated) / -30 (feared)

5 MISHAPS

This chapter deals with the hazards of driving. These rules are very essential especially when a game involves high-speed car chases. Many different mishaps can occur if the driver can´t handle the physics involved in such situations, and these rules try to simulate those hazards. While most of these rules are, again, treated as optional, you should read through them, as they may prove useful in certain situations.

5.1

BASIC SKIDDING

All previous rules have presumed that a vehicle is able to maintain perfect traction. However, loss of traction is one of the most common hazards of driving. A skid occurs when the vehicle's tires lose traction and begin sliding across the surface of the terrain without spinning. When this occurs, the driver´s ability to control his vehicle approaches nil.

You risk skidding whenever you fail a Driving Accuracy (DA) roll. If you fail your roll, **note down the amount you failed by, divided by ten and rounded off**. On the **Skidding Column Shift Table (5A)** enter the sum of this number plus a 0-9 roll, together called the **Skid Number**, to find a "column shift" number.

Turn next to the **Skidding Table (5B)** and find the column for the **Terrain's DA Modifier**. Apply the column shift determined above. If the column shift goes off the right side of the table, no skid occurs. Cross-index the appropriate column with your speed in HPP, to find the following:

- Skid distance in Hexes
- Skid time in Impulses
- Recovery Cost in AC
- Average skid speed in HPP (listed at the table's far-right)

Example: An old sports car (12 HPP, MR 5) rounds a corner while traveling on ice (-14). The driver fails his DA roll by 40. Entering the table with 40 / 10 = 4 + 7 (rolled on 0-9) = skid number 11, meaning no

column shift. The car will skid 50 Hexes to a stop in 50 Impulses, at an average speed of 4 HPP. Its Recovery Cost is 12AC.

While skidding you may not change speed, intentionally drift, or corner.

Further modifiers to on-road skidding vehicles are found below. Apply these to the Skidding Table (**5B**):

Vehicle Type/Condition	**Column Shift**
Vehicle on its side	1 left
Vehicle on its irregular roof	1 left
Vehicle on its smooth roof	2 left
Tanker truck on its side	3 left
Badly worn tires in rainstorm	3 left

Skidding While Cornering (Optional)

If you skid while cornering, you will begin drifting in the direction you were going when you first entered the corner. To determine your drift, enter your speed in HPP into your vehicle's **Cornering Table (V1)**, on the row for the corner **C**, to find your facing change. Enter this into the **Drifting Table (2G)**, to find your **MR Modifier per Phase**, applied from the start of the corner.

Example: Continued from above, the old sports car enters its (HPP 12, MR 5) along the C 283 row of its Cornering Table and finds it has changed facing only 15°. On its Drifting Table, 15° gives a -7 MR reduction per Phase. At the end of Phase 1, then, the car has MR 0.

The vehicle will continue to drift until you **first**, stop skidding, and **second**, pay the cost to stop drifting, as normal (see **Section 2.5**).

Recovery

Each Phase in which you have finished paying the skid **Recovery Cost**, you may attempt to cease skidding by making a DA roll, calculated normally. If successful, you regain traction and can once again corner, drift, and change speed. Note that, even while no longer skidding, you may have to deal with skid-induced drift, as explained above.

If you have any AC allocated in Reserve during the Phase in which you skid, you may spend it immediately on the Recovery Cost.

If, by spending AC on Recovery Cost, you have none left to spend on **Steering Time**, you will have a Steering Time of **0 AC**, but you will not suffer the **-30** modifier applied to driverless cornering vehicles.

Example: Continued from above, on Phase 2, the old sports car´s driver (CA 10) had 3 AC allocated in Reserve the Phase before, and adds that to 9AC this Phase, paying the Recovery Cost. The driver makes a DA roll at Steering Time 0, and, amazingly, succeeds. He then pays 1AC to recover from its 15° drift. Unfortunately, by this time the car has drifted another 7', taking it solidly off the road onto the corner's outer slope. By trying to recover its facing, the car has increased its likelihood of barrel-rolling down the hill!

Recovery Speed

Your **post-recovery speed** equals half your initial speed, plus the amount you succeed by on your DA roll, divided by 10 and rounding off.

You may increase your speed this way beyond your initial speed, according to normal acceleration limits. Any speed gained that doesn't exceed initial speed does not count toward those limits.

Example: Continued from above, the old sports car´s driver succeeds by 12, regaining control on the hill with a post-recovery speed of 12 / 2 = 6 + 1 = 7 HPP.

5.2

ROLLOVERS (Optional)

All vehicles have a **Rollover Rating** listed on their **Vehicle Data Sheets**, expressed as two rollover chances, for on-road and off-road respectively. Your vehicle risks rolling whenever you do one of the following:

- Corner above Safe Speed
- Change facing 45° or more while skidding, on Gritty or worse terrain (see **2.9**).
- Drive into or along a ditch or slope banked 30° or more.
- Drive above your first Speed Threshold while in Rocky terrain (see **2.9**).
- Drive above your Driving Skill Level in HPP while in Craggy Terrain (see **2.9**).

Roll a 00-99 number each Phase in which any of the above situations apply. If you roll equal to or less than the relevant rollover chance, your vehicle goes into a roll. While on-road, if more than one of the above situations apply simultaneously (i.e. in the same Impulse), or if your vehicle is carrying an excessive load, use your off-road rollover chance instead.

A vehicle going into a roll spends the next **2 Impulses** rolling over onto its side. If it is cornering, it rolls toward the outside of the corner. If it is skidding, its skid is interrupted while it rolls. Otherwise, determine randomly which side it rolls onto. The driver of a rolling/rolled vehicle immediately loses all control.

Rollover Chance

Vehicle Type	On-Road/Off-Road
Motorcycle	15 / 55
Light/Compact Car	4 / 36
Intermediate Car	3 / 30
Heavy Car	2 / 20
Van/Delivery Truck	6 / 58
Pickup Truck (RWD)	5 / 50
Pickup Truck (AWD)	8 / 75
Sports Utility Vehicle (RWD)	9 / 80
Sports Utility Vehicle (AWD)	6 / 55
Truck Tractor (no trailer)	6 / 65
Tractor-Trailer	10 / 85
Tanker Truck to full	30 / 98

Suspension

To adjust your Rollover Chances for your suspension system quality, enter your **Suspension Rating** (see **Section 1.4**) on the table below. This yields the modifiers to your on-road and off-road rollover chances respectively.

Suspension	Modifier
None	+20 / +50
Very Poor	+10 / +25
Poor	+5 / +10
Fair/Good	+0 / + 0
Excellent	-2 / -10

Roll Distance

The distance a vehicle will roll depends on the situation and it is determined using the appropriate rules below.

Vehicle was not skidding: If the vehicle was not skidding when you started to roll over, how long you roll is determined using the **Skidding Table (5B)**. Roll a 0-9 number and enter it alone as the Skid Number into the **Skidding Column Shift Table (5A)**. For each column shifted, you spend an additional Impulse rolling. After you finish rolling, you skid

the distance listed. If the column shift goes into the **Extra Rough** column, the vehicle will roll for the number of Impulses listed there, and not skid afterward.

Vehicle was skidding: If you were skidding when you started to roll over, use the column shift you already determined for the skid, to tell if you continue to roll, as above.

Rolling down a slope: The odds of you continuing to roll each Phase, when rolling down a slope, equal your ordinary off-road rollover chance, plus the degrees of the slope beyond 30°.

Example: A delivery truck falls off the edge of a hillside road. The hillside is sloped 50°, so the truck adds 50 - 30 = 20 to its off-road Rollover Chance of 58, giving it an effective chance per Phase of 78 or less. On Phase 1, it rolls a 99 and stops rolling.

Jostling

Occupants in a rolling vehicle suffer a **-4 CA** penalty, applied each Impulse.

5.3

ADVANCED SKIDDING (Optional)

Changing Speed Before Skidding

The following rules deal with speed change before skidding.

Decelerating: As stated in **Section 2.2**, if you ever exceed your Safe Deceleration Rate, you suffer a DA penalty equal to the excess multiplied by any **negative Terrain DA Modifier** (minimum multiplier of -1). If you decelerate *while already skidding*, use the full amount you decelerated, instead of the excess.

If your DA roll fails, and a skid results with a skid number of less than 9, you decelerate at your desired rate. If the skid number is 9 or more, you skid normally without decelerating. If you

Accelerating: As stated in **Section 2.2**, if you ever exceed your Safe Acceleration Rate, you suffer a DA penalty equal to the amount accelerated multiplied by any **negative Terrain DA Modifier** (minimum multiplier of -1).

If your DA roll fails, and a skid results with a skid number of less than 9, you accelerate at your desired rate. If the skid number is 9 or more,

you either don't move (if stationary) or skid normally without accelerating (if already moving).

Example: A stationary pickup truck (safe acceleration 5) accelerates 4 HPP on grass, for a DA penalty of 4 x -9 = -36. It fails its DA roll badly, ending up with a skid number of 13, so its wheels spin in place, chewing up the turf.

Accelerating In Place: Note that hotshots can use the controlled skidding rules (see **Section 4.4**) to accelerate while stationary, up to its maximum acceleration rate. Once the brakes are released, the entire acceleration attempts to take hold as normal, using the rules above.

Example: A stationary drag-racer (maximum acceleration 20 HPP) does a controlled skid, holding the brakes down while the vehicle accelerates in place, tires tarring the blacktop. When the audience is suitably impressed, the driver releases the brakes, suffering a DA penalty of -20.

Skid-Induced Facing Change

If you fail your DA roll, enter the amount failed by (not the amount drifted) onto the **Drifting Table (2G)** to find your effective corner **C**. Find the row for this **C** on your **Cornering Table (V1)** and enter your speed in HPP to find the column with your facing change per Phase.

If cornering, you change facing toward the inside of the corner. If not, randomly determine whether you change facing to the right, or to the left.

A skidding vehicle's facing change does not influence its direction of travel.

Example: An old sports car (15 HPP) fails its DA roll by 40, which on the Drifting Table (A0) equals C 57. On the C 57 row on its cornering table (V1), 12 HPP falls in the 75^{o} column. In other words, the car is pulling a 375^{o} doughnut every 5 Phases, while maintaining its original trajectory.

Each Phase in which you have paid the **Recovery Cost**, you may attempt to cease skidding and regain control of your vehicle, by making a DA roll. Calculate the roll normally, but with an extra DA penalty equaling the cumulative degrees of facing change, divided by 10, and squared. So, a vehicle 15^{o} off-center gets a -2 DA penalty, whilst one 45^{o} off-center gets –20, and so on.

Note that facing change is measured here from the smallest angle, so the maximum will be 180^{o}. That is, if you change facing 300^{o}, your other side will be only 60^{o} from your direction of travel (0^{o}), and therefore your penalty is derived from 60^{o}.

Jostling

Skid-induced facing change jostles a vehicle's occupants as normal. Use the rules in **Section 2.9**.

Post-Skid Facing

The following rules explain how to determine a vehicle´s facing after a skid.

Facing Change is less than 45º: If you make your **Recovery Roll**, and you have a facing deviation of **under 45º**, then your facing automatically adjusts to **0º**, so that you face the direction you are moving in.

Example: Continued from farther above, the old sports car that went over the road's edge, has a facing deviation of 15º. Since that is under 45º, it means that so long as the car doesn't roll while going down the hill, it turns to face the direction it is traveling in – diagonally down the hill!

If you started skidding while cornering, remember to measure your facing change relative to your cornering facing change (established in **Section 5.1**, "Skidding While Cornering").

Facing Change is equal to or more than 45º: If your facing deviation is **45º or more**, then when you recover you instead begin traveling in the direction you currently face. In this case, however, your drift and HPP values are swapped. To do this, **multiply your HPP by 6**, and **divide your drift by 6**, respectively.

Example: Continued from above, the old sports car swaps its speed (7 HPP) and drift (0), so that it is now going 0 HPP, and drifting 7 HPP (42') down the hill. As the hill's slope is 45º, the car accelerates 5 HPP per Phase, with a maximum speed of 8 HPP. By the end of the first Phase on the hill, the car is sliding 8 HPP down it, with a rollover chance of 36.

Fishtailing: If you recover from any skid-induced facing change and accelerate in the same Phase, then if you skid on the next Phase, any facing change will be in the opposite direction.

Deferring

For AC equaling your CA total, per Phase, you may defer application of any AC you spend that Phase paying the **Recovery Cost**. This deferral may continue for up to a **Turn**. If you wait longer than a Turn, all spent, deferred AC are lost.

Example: Continued from above, the old sports car is changing facing 75^{o} per Phase. On Phases 2-3, the driver (9AC) spends 12AC on Recovery, and 6AC on steering. Unfortunately, by Phase 3 the car has rotated 230^{o}, making the DA penalty -169. By Phase 4, the car has swung round 345^{o}, and so the DA penalty is only –2. The driver defers the recovery at a cost of 2AC, allowing him to use the recovery AC spent earlier, and so still has 7AC to steer with.

5.4

WHEEL DRIVE EFFECTS ON SKIDDING (Optional)

A vehicle's wheel drive type will affect its skidding behaviour. The possible wheel drive types are **Rear Wheel Drive (RWD)**, **Front Wheel Drive (FWD)**, and **All Wheel Drive (AWD)**.

Rear Wheel Drive (RWD)

If you have **RWD** you are prone to three types of skid, depending on circumstances. These are explained below.

Rear-Wheel Skid: This is the most common skid type, where your rear wheels lose traction and begin to slide sideways, causing your vehicle to turn around its center of gravity until it eventually slides around a full **180^{o}**.

This usually happens when you drift or corner too fast, but even slight road imperfections, such as unevenness or banking, will start a rear-wheel skid if the wheels are locked by harsh braking. All skids not meeting the requirement for any of the other skidding types, are treated as being rear-wheel skids.

In a Rear-Wheel Skid you can brake, but not accelerate or change facing.

Apply facing change normally, modified as follows:

If traveling straight, roll (6). On a 1-2, you change facing rightward, 3-4 leftward, and 5-6 means no facing change. If the road is banked, 5-6 means you change facing towards up the bank. In any case, shift 1 skidding column left on the **Skidding Table (5B)**.

If the road is banked, and you are changing facing up the bank, subtract the bank degree from your facing change. If you are changing facing down the bank, add the bank degree to your facing change.

If cornering, facing change will be toward the inside of the corner.

Front-wheel skid: During harsh acceleration, especially when drifting or cornering, your front wheels lose traction, causing your vehicle to slide forward in your previous direction of travel, driven by your rear wheels,

but out of control. This often creates the danger of a head-on collision with approaching traffic.

If you skid while accelerating more than your safe acceleration, your skid will be front-wheel.

You can accelerate or coast, but not brake or change facing.

Halve any new facing change.

If traveling straight, roll (6). On a 1-2, you change facing rightward, 3-4 leftward, and 5-6 means no facing change. If the road is banked, 5-6 means you change facing towards down the bank. In any case, shift 1 skidding column left on the **Skidding Table (5B)**.

If the road is banked, and you are changing facing up the bank, subtract the bank degree from your facing change. If you are changing facing down the bank, add the bank degree to your facing change.

Use your skid number only to determine Recovery Cost and skid time in Impulses. You will continue traveling at your original speed, minus one-tenth your facing change in degrees in HPP, applied each phase.

Example: A car (RWD, 48 HPP) gets in a front-wheel skid, changing facing 20°. On Phase 1 of the skid, it continues to move in its original direction at 46 HPP. On Phase 2 it continues at 44 HPP, and so forth.

If cornering, roll (6). On a 1-2, you change facing toward the inside; on 3-6, outside.

All-wheel Skid: This is brought about when you brake hard suddenly. All four wheels lose traction, and you will lose all control, traveling straight and influenced by road banking.

This skid occurs when you brake over your safe deceleration rate.

Your extra facing change equals the road banking in degrees, per Phase, towards down the bank.

Front-Wheel Drive (FWD)

Rear-wheel skid: Use the same rules as for RWD vehicles, except:

Use your skid number only to determine **Recovery Cost** and **Skid time in Impulses**; you continue traveling at your original speed, minus one-fifth your facing deviation (measure from dead-centre, **0°**) in HPP, applied per Phase.

If your facing change is **30° or less**, your front tires continue to point in your original direction, and thus you travel in that direction; but your back end swings around to the side. Each subsequent Phase, your back end will “fishtail” by swinging to the opposite side, by a total number of degrees equal to your previous facing change times two. Modify this by your DA roll; success reduces the amount fishtailed,

failure increases it. You will cease fishtailing if, at the end of your skid time, at least one successful post-skid DA roll is made.

Example: Fleeing Committee assassins, Karen (6AC) swings left around a corner (Width 30', DA modifier +3) in her sedan (FWD, 40 HPP, MR 3-inside), and fails her DA roll by 22. Her recovery cost is 5AC, skid time 15 Impulses. She drifts outward 22 feet (1 MR-outside), her back end swinging outward 15°, changing her speed to 40 - 3 = 37 HPP.

On Phase 2, she pays to recovery from the skid (5AC) and the drift (1AC), and makes her DA roll by 2, causing the sedan's back end to fishtail inward 15 x 2 = 30 - 2 (success) = 28°, or 13° past dead-centre. Her speed reduces again, to 37 - 3 = 34 HPP, but she stops drifting.

On Phase 3, Karen is on a straightaway again. She fails her DA roll by 10, so the car fishtails to the right 13 x 2 = 26 + 10 (failure) = 36°, or 21° past dead-center. Her speed reduces to 34 - 4 = 30 HPP, and she has 1 MR-right.

On Phase 4, she makes her roll by 4, so the car fishtails left 21 x 2 = 42 - 4 = 38°, or 23° past dead-centre. Her speed reduces to 30 - 5 = 25 HPP, 5 MR-right.

On Phase 5, she makes her roll by 5, but since the skid time expired at the start of the Phase, the sedan ceases to fishtail, leaving her at 25 HPP, and 10 MR-right. A muffled, heavy CRUNCH behind her is the only clue to her pursuer's fate.

Front-wheel Skid: Use the same rules as for RWD vehicles, except:

Halve any new facing change.

Apply your skid number normally.

While cornering, if you lose 25% or more of your speed during recovery, your **Effective C** goes up (i.e. decreases) by one row, as your tires suddenly reassert their grip and cause your vehicle to hook itself around at a much tighter angle than the corner. While cornering, if you lose 50% or more of your speed during recovery, your **Effective C** goes up (i.e. decreases) by two rows. If you fail your DA roll when hooking, you automatically go into a rear-wheel skid.

All-wheel Skid: Use the same rules as for **Rear-Wheel Drive** vehicles.

All-wheel Drive (AWD)

Types of AWD: There are three types of All-Wheel Drive:

- Full-Time AWD, which is always engaged.
- Part-Time Automatic AWD, which engages whenever the terrain's DA modifier goes below -3.

- Part-Time Manual AWD, which must be engaged or disengaged by the driver for 2AC.

Furthermore, each type of AWD is classed as one of type sub-types:

- Basic, meaning all skids are All-Wheel Skids.
- Advanced, meaning skids apply as listed below.

Rear-wheel Skid: Use the rules for **Front-Wheel Drive**, above.

Front-wheel Skid: Use the rules for **Rear-Wheel Drive**, above.

All-wheel Skid: Use the rules for **Rear-Wheel Drive**, above.

5.5

UNUSUAL ENVIRONMENTAL CONDITIONS (Optional)

This section of optional rules deals with such environmental conditions and hazards as strong wind, floods, and landing a vehicle in water.

Strong Winds

Wind can affect the speed, facing, and MR of your vehicle, depending on its strength and direction. Wind speed is measured in HPP. Note that if using Steering Wheel Limits (**Section 2.5**), that even if the vehicle doesn't actually drift, any original wind-induced drift should be used to determine rollover chance.

Blowing From Front 60º Arc: You will decelerate each Phase by the wind's speed in HPP, divided by fifty, or by 100 for motorcycles, motorbikes, and all-terrain vehicles.

Blowing From Side 60º Arc: You will drift away from the wind, a number of feet per Phase equaling the wind's speed in HPP divided by twenty, or by ten for vans, SUVs, busses, and non-pickup trucks. Apply this to the **Drifting Table (2G)** as normal. If it places you in the **Automatic Mishap** area (the shaded part) on that table, check to see if you roll over, using your second number (see **Section 5.2**).

Blowing From Side 120º Arc: Use this category only if the one above does not apply. You drift away from the wind, a number of feet per Phase equaling the wind's speed in HPP divided by forty, or twenty for vans, SUVs, busses, and non-pickup trucks. Apply this to the **Drifting Table (2G)** as normal. If it places you in the **Automatic Mishap** area on

that table, check to see if you roll over, using your first number (see **Section 5.2**).

Blowing From Rear 60º Arc: You will accelerate each Phase by the wind's speed in HPP, divided by fifty, or by 100 for motorcycles, motorbikes, and all-terrain vehicles. Maximum total wind-induced speed is wind's speed in HPP divided by ten.

Aquaplaning

Aquaplaning occurs on very wet surfaces, when your tires rise up onto a layer of water, causing a skid.

Enter the rain conditions, your speed in HPP, and your Tire Tread Condition on the table below to find your chance of aquaplaning on a 00-99 roll, per Phase. While aquaplaning, you cannot brake, but can stop accelerating (see **Section 2.2**, under "Coasting").

		Tire Tread Condition			
Rain	**HPP**	**New**	**Used**	**Old**	**Bald**
Moderate	17-29	00	01	04	20
	30-44	09	12	15	25
	45+	19	25	35	50
Heavy	17-29	10	35	40	60
	30-44	25	45	55	75
	45+	40	50	65	85

Floods

Driving into flood water equaling or exceeding your **Clearance** (see **Section 1.4**) is treated as a Collision with an obstacle (see **Section 5.6**). You immediately lose control, decelerating at a rate equal to the water's depth in inches, in HPP. Your maximum speed while in water equals 16 HPP, minus 5 HPP per foot of water.

If the water exceeds your vehicle's **Clearance** by **3 or more** inches, you automatically soak your electronics in **1 Turn**, soak your brakes in **1 Phase**, and stall in **1 Impulse**.

If the water equals or exceeds your vehicle's **Clearance** by **no more than 2** inches, you risk getting your electrical components wet, soaking your brakes, and stalling from water in the exhaust pipe, but these things do not happen automatically.

Soaking Electrics: Each Turn or fraction thereof you spend in such depth of water, you have a **5%** cumulative chance of wetting your electrical components, disabling them. Thus, while your brakes and engine may still be able to work, your battery would not, preventing you from starting your vehicle, and so on.

Soaking Brakes: Each Phase you spend in such depth of water, you have a **5%** chance of soaking your brakes, halving their efficacy until dried. In normal conditions it will take **(6) x Phases spent** soaking to dry your brakes after you win free of the flooding; in wet conditions it will take (10) hours to dry them.

Stalling: Each Phase you spend in such depth of water, you must roll 2(10). If the result equals or exceeds your **Skill Level (SL)**, water gets in your exhaust pipe and you stall. The engine will not start until win free of the flooding, and dry it out, which will takes (10) hours.

Submersion

When a vehicle lands in water over its windshield, it will float until it fills up with water, and then sink at 1 HPP, engine-end first. A vehicle stalls in 1 Impulse from contact. Roll **Brake and Electric Soaking** chance normally (see "Floods," above), until the vehicle submerges, whereupon they soak automatically in 1 Phase.

If you are in a covered vehicle, roll a **0-9** number. If you roll above your highest driving **SL**, you panic for 1 Turn, whereupon you may roll again.

Motorcycles: Motorcycles and All-Terrain Vehicles (ATV) begin sinking immediately.

Unsealed Four-Wheeled Vehicles: An unsealed four-wheeled vehicle begins filling up with water. If no window has suffered worse than **MIN** damage, or is open more than a few inches, then it fills up in **10 Turns**, **minus 2 Turns per** aperture. If any window has suffered **MAJ or worse** damage, then it fills up in **10 Phases**, **minus 2 Phases per** side window damaged (MAJ+), front/rear window (MAJ), and firewall damaged (MAJ+); **and minus 4 Phases per** front/rear window, and firewall damaged (REP+); e.g. a car missing its front windshield and side window, floods in 6 Phases.

Sealed Four-Wheeled Vehicles: An old-style (1980s or earlier) sealed four-wheeled vehicle fills up with water in **(3)+1 minutes**. A newer (1990s+) sealed four-wheeled vehicle fills up with water in **(6)+4 minutes**. For each firewall or door SUP damaged, halve flood time; for MIN damage, quarter flood time.

Opening A Door: To open a submerged door before the vehicle sinks, you must roll equal to or less than your **Strength score minus 14**. On subsequent Phases of submersion the door is impossible to open until the pressure is equalised by filling the entire passenger compartment with water.

Rolling Down A Window: If the vehicle is submerged, roll a 0-9 number. If the number rolled is lower than the current depth of the vehicle in Hexes, the water pressure holds the window shut.

Kicking Out A Window: To kick out a side window before the vehicle sinks, you must pay **10 AC**, and roll equal to or less than your **Strength** score minus **12**, or minus **8** if the window is partly open. After the vehicle sinks, odds are **Strength** minus **14** (or **10** if the window is partly open) instead. Kicking out a front or rear window is impossible.

Snow

While driving through snow, halve all your **Safe** Acceleration / Deceleration rates, and quarter your **Maximum** Acceleration / Deceleration rates.

Chains & Studs: If you have chains or studs on your tires, use your normal Safe Acceleration / Deceleration rates, and only halve your Maximum rates.

Gear Braking: If you decelerate using only the gears (see **Section 2.2**), roll (10). If you roll equal or less than your Braking Rate from said, (e.g. if you brake at –3, and you roll a 1-3), you go into a Rear-Wheel Skid (if Rear-Wheel Drive) or Front-Wheel Skid (if Front-Wheel Drive), or All-Wheel Skid (if All-Wheel Drive).

Deep snow: It is usually impossible to drive your vehicle through deep snow, because the snow builds up in a heavy heap before you. Each Phase in snow above the vehicle´s **Clearance**, reduce your speed by the inches beyond your Clearance, in HPP.

Stationary: If you are stationary in snow, and your first acceleration-base DA roll fails, you cannot advance. You may attempt to reverse out of the snow, but suffer a **-20** DA penalty; also, if successful you have a **10%** chance of tearing your exhaust pipe and muffler off, if they are below the level of the snow. If this fails, you are stuck, tires spinning uselessly.

One method to win free is for you to turn the steering wheel (**16AC**) and rock the tires back and forth to find a better rut. Another DA roll may then be made to accelerate (either forward or reverse). If this fails,

you may try rocking again, making another roll, but at a **-20**. If you fail this too, you are completely stuck.

Emergency Grips: These are either short chains clipped onto your tire tread, or segmented crampons laid in the direction of travel. They give **+40** Modifier to Driving Accuracy rolls for the purpose of getting out of a rut. All other DA rolls with them attached are at -15, and on asphalt they will break off after **(4)** miles.

Ice & Frost

While driving on ice, quarter your **Safe** Acceleration / Deceleration rates, and decimate your **Maximum** Acceleration / Deceleration rates.

While **drifting** intentionally, the feet drifted squared, equals an extra DA penalty.

If your vehicle had been left in freezing weather longer than twelve hours, your brakes have a **20%** chance of being frozen and inoperable. With the engine running they will thaw in **(6)** minutes.

Chains & Studs: If you have chains or studs on your tires, then instead of quartering, only halve your Safe Acceleration / Deceleration rates; and only fifth your Maximum rates.

Gear Braking: If you decelerate using only the gears (see **Section 2.2**), roll (10). If you roll equal to or less than your Braking Rate from said, (e.g. if you brake at –3, and you roll a 1-3), you go into a Rear-Wheel Skid (if Rear-Wheel Drive) or Front-Wheel Skid (if Front-Wheel Drive), or All-Wheel Skid (if All-Wheel Drive).

Stationary: Use the rules for snow, above.

Emergency Grips: Use the rules for snow, above.

Mud

Use the rules above, for snow and flood combined, except **double** the times until possible electrical and break soakage. If mud gets in your exhaust pipe, your vehicle will stall until it can be thoroughly cleaned at a garage.

Sand

Use the rules for snow, above, using the depth equivalency below. Note that chains and studs on your tires offer no help in sand.

Sand Description	Equivalent Snow Depth
Beach sand	4 inches
Gritty desert sand	6 inches
Fine desert sand	8 inches
Slope > 15°	depth x 2

Implement Tires: Commonly used on dune buggies, these provide the equivalent efficacy on sand as chains and studs do for regular tires on snow.

Fields

Treat ordinary three-foot high grass like a **10 HPP** wind constantly approaching you head-on, wherever you move. It has no acceleratory effect.

Treat tough, thick, or dense grass, weeds, or crops like a **20 HPP** wind.

Treat crops six feet or higher like a **40 HPP** wind.

5.6

COLLISIONS (Optional)

Each collision is handled as two separate collisions: the first object striking the second, and the second object striking the first. The rules below are written with respect to a single collision between a "striking object" and a "struck object," but bear in mind that the described procedure also applies vice versa, and that in some cases a feedback arises where damage to one vehicle affects the damage to the other.

Remember also that anytime a vehicle is involved in a collision, the driver must make a DA roll to maintain control.

Pre-Collision Values

Each vehicle has the following values and tables, rating its behavior in collisions.

Penetration (PEN): Given on the **Vehicle Data Sheet**, for various speeds and facings, this measures your vehicle's "aggressiveness" toward other vehicles, as a function of speed, mass, structural integrity and design idiosyncrasies.

Protection Factor (PF): Given on the **Vehicle Data Sheet**, for various **Hit Locations** and **Collision Angles**, this measures your vehicle's

resistance to puncture and deformation, as a function of structural integrity, sloping, density, armor, and bumpers.

Torque Rating: Given on the **Hit Location Table (V4)** for various **Hit Locations** and **Collision Angles**, this rates how far the location is from your vehicle's center of mass, and thus, how well that location serves as a lever translating collision energy into facing change.

Underlay (V3a): Each vehicle type (motorcycle, hatchback, coupe, sedan, sports car, pickup truck, van, light truck, tractor-trailer, bus) has its own **Underlay**, showing three possible collision angles, and the various hit locations marked with letter codes.

Overlay (V3b): Each vehicle type has its own **Overlay**, placed on the other vehicle's Underlay to show how the vehicles collide.

Hit Location Table (V4): Each vehicle type has its own table listing its **Hit Locations**, a letter code relating to the vehicle's **Underlay (V3a)**, **Torque Rating**, the components and systems contained in each location, and their respective **Protection Factor (PF)**.

Outcome Aspects

When you collide with any object, whether it be a stationary obstacle, a pedestrian, or another vehicle, there are three aspects to the outcome:

- Vehicle / obstacle damage and deformation (see "Vehicle Damage Effects," below).
- Vehicle / obstacle dislocation, speed change, facing change, and rollover
- Occupant / pedestrian injuries (see **Section 5.7**).

As the aspects are interrelated, apply the rules below in the order presented, to find all three.

Hit Locations

To find which location(s) your vehicle is struck in, first consult the appropriate **Underlay (V3a)** for your vehicle type, and also for the general collision angle from your perspective. Obstacles and pedestrians have no Underlays, but otherwise the procedure described below is the same.

Motorcycle
Hatchback
Coupe

Sedan
Sports Car
Pickup Truck
Van
Light Truck
Tractor-Trailer
Bus

Front/Rear	0^o to 30^o
Oblique	31^o to 59^o
Side	60^o to 90^o

Each Underlay divides the struck vehicle type up in feet perpendicular to the general collision angle. Next, take the striking vehicle's **Overlay (V3b)**, and use it to enter its **Width** onto the **Underlay**, starting it centered but shifting sideways if needed to accommodate any drift on the striker's part. This shows whether the obstacles strike each other dead-center, or off-center, or even barely clip each other.

Example: A sedan (large car, Width 6') t-bones a hatchback (small car, Length 12'). On the Small Car—Side Hit Location table, Width 6 is entered with no drift, so the hatchback's Front Wheel, Door, Body, and Rear Wheel locations are struck.

Next, on the Large Car—Front hit loca tion table, effective Width 12 (the hatchback's length) is entered, also with no drift, so the sedan's Front Corner (right), Front Bumper, and Front Corner (left) are all struck.

Oblique: For vehicles colliding obliquely, as in a failed passing attempt, randomly decide which location the passed vehicle's corner strikes, and simply fill in the passing vehicle's remaining **Width**.

Example: Car A (Length 15') attempts to pass Car B on the left, and fails. A random number is generated from 1 to 15, coming up 12. This means that Car B's Front Corner (left) location strikes a location 12' from the front of Car A's right side, or Rear Wheel (right).

Collision Speed

Collision Speed means how fast the two colliding objects come together. Determining Collision Speed is easy. Simply multiply the sum of the speeds of the two colliding objects toward their intersection, by the factor corresponding to their Angle of Intersection, found on the table below.

Description	Angle of Intersection	Factor
Rear-end	0°	*
Side-swipe	0° to 8°	0.05
Side-swipe	9° to 15°	0.1
Side-swipe	16° to 30°	0.2
Oblique	31° to 60°	0.4
Side/t-bone	61° to 120°	0.7
Oblique	121° to 150°	0.9
Head-on	151° to 180°	1.0

* Collision Speed equals the difference in speeds between the two objects.

Example: A sedan (20 HPP) collides with a hatchback (16 HPP) at a 90^{o} angle. Collision Speed equals (20 + 16) x 0.7 = 25.2, rounded to 25 HPP.

Center of Mass

A crucial element in collision outcome is the concept of **Center of Mass**. This refers to the point in an object relative to which the object's mass is as symmetrically distributed as possible.

The further an object is struck from its **Center of Mass**, on the Hit Location tables, the more likely the struck object is to begin changing facing, and the less likely the striking object will be to completely crush the locations hit.

For each object, find the middle of the locations they are hit in (if there are two middle locations, pick one of them randomly). Note that location's **PEN Modifier** and **Torque Rating**, for application below. Both objects' values are needed for each collision. Note that Torque is rated for Front/Rear, Oblique, and Side striking angles.

Front/Rear	0^{o} to 30^{o}
Oblique	31^{o} to 59^{o}
Side	60^{o} to 90^{o}

Penetration (PEN)

Find the **PEN** value for the striking object for its speed at the time of impact, and the general area.

Front/Corner/Rear
Side/Oblique

Multiply this by both vehicles' respective **PEN Modifiers**, to find the **Effective Penetration (EPEN)**, meaning the total force of the striking object on its target.

Protection Factor (PF)

Find the **PF** value for the struck object, for the location struck, and the Angle of Intersection it is struck at. Use the next higher Angle of Intersection, if the actual angle falls in between of two columns. For instance, if the Angle of Intersection was 22°, you would use the column for 30-degrees.

Front/Bumper							
Side							
8°	15°	30°	45°	60°	75°	90°	

Cross-index a **0-9** roll with the struck object's PF, on the **Collision Glancing Table (5C)**, to find the struck object's **Effective Protection Factor (EPF)**.

Damage (see also "Vehicle Damage Effects," below)

For each location struck, compare **EPEN** to **EPF**. If **EPEN** exceeds **EPF**, the location must roll for damage. If **EPEN** is equal to or less than **EPF**, the location suffers no significant damage.

Each Hit Location lists the systems and components present within it. For each system and component in each location, a separate **0-9** roll is made on the **Collision Damage Table (5D)**. The result tells how damaged the item is, whether it continues to operate, and if it can be repaired.

All damage should be rolled in the order the systems and components are listed. If the system "**Structure**" is damaged, this indicates an actual compression of the location from the impact. Any systems and components in that location have their damage rolls modified to account for the compaction. Furthermore, no system or component can be damaged to a higher level than its location's **Structure**, by a collision.

Note that a damaged area, subsequently damaged again, combines its damage by summing the collapse. Thus, a bumper which is Superficially (SUP) damaged thrice (10% + 10% + 10% = 30%) suffers Minor (MIN) damage instead. If the fender then suffered REP damage (75%), it would be destroyed (75% + 30% = 110% = DES).

Structural Crush Limits (Optional)

If an object is struck in multiple locations simultaneously from the same angle, then no location's **Structure** may be damaged more than any other's. That is, Structural damage is limited to the minimum damage rolled. There is an exception however:

Oblique Crashes: The exception to this is in oblique collisions, where, for instance, a striking car's corner will connect first, like a plough or wedge. In this case, roll **Structure Damage** for the initial location struck (i.e. by the corner). If that location collapses **75% or more**, then an additional **2'** of the striker's Width connects (i.e. as the wedge widens), and so forth, until the connection is finished or blocked. If blocked, then determine **Structure Damage** for the striker; if the combined collapse for the respective connecting locations are all **75% or more**, then an additional **2'** of the striker's Width connect, as above.

Example: A Ferrari tries to pass a Buick and fails. The Buick's front left corner strikes it in the passenger side body, crushing it 50%. This is not enough for the rest of the Buick to connect. However, in the process, the Buick's corner collapses 25%. As the total collapse is 75%, 1' on either side of the Buick's corner proceed to connect with the Ferrari's side door and front right tire respectively.

Displacement (Optional)

The contents of a partially or fully crushed location are pushed directly away from the striking object. Any locations they are pushed into, suffer damage rolls, at the penalty listed on the **Damage Roll Modifiers Table** (**5E**). If that location only has **Structure** (e.g. trunk, passenger seat), then these rules do not apply.

To reflect air cavities being compressed, subsequent hit locations affected in this manner are crushed one level less than usual.

Example: Continued from above, the Ferrari's front left wheel bay is crushed 25%. It rolls 0-9, scoring a 9 - 6 = 3, for Minor damage to its engine, and 10% crush (one level below 25%), meaning that there is no further displacement.

Entanglement (Optional)

For every separate pair of locations between the striker and struck object, with a crush damage of 100%, there is a 10% cumulative chance of **Entanglement**. Entangled vehicles move and change facing as a unit. See **Chapter 6**, under "**Towing Loads**".

To become untangled, the objects must relatively be traveling away from each other. Using the separation speed and normal locations, apply

PEN to PF as normal, to determine Crushing Damage. If the Crushing Damage inflicted exceeds the original Crushing Damage, the objects disentangle.

Example: Continuing from above, as the total crush damage between connecting pairs of locations, do not reach 100%, there is no chance the Ferrari and the Buick will entangle.

Facing Change

To find whether the struck object changes facing, subtract its highest unadjusted **PF** in the middle location struck, from the product of the **Torque** ratings for both objects (see "**Center of Mass**" above). If the result is zero or negative, there is no facing change. If the result is positive, multiply it by **(6)** to find the struck object's facing change in degrees, rotating around **Center of Mass**, away from the point of impact.

Example: Continued from above, the Ferrari's facing change will be 5 (Ferrari's Torque) x 6 (Buick's Torque) = 30 - 20 (Ferrari's unadjusted PF for its middle) = 10 x (6)° counterclockwise. The (6) roll is a 2, and so the Ferrari changes facing by 20°.

Terrain: If the terrain's DA modifier is negative, reverse the sign, and multiply it by the Torque product found above (count **Extra Smooth** as **20**). If the Terrain's DA modifier is **0**, there is no change. If the Terrain's DA modifier is **positive**, divide it into the Torque product found above (count **Extra Rough** as **10**).

Entanglement: If the object is **Entangled**, its Terrain DA modifier is automatically **10** for these purposes. Multiple entanglements use a cumulative modifier; e.g. If an object is entangled with two other objects, its DA Modifier becomes 20, and so forth.

Speed Change

A struck object's speed is reduced as a consequence of its momentum being absorbed by the other object. To find speed reduction, you must first determine the total damage to the striking object. As it's easy to get things mixed up, remember that the other vehicle's damage reduces your speed, and vice versa.

Subtract the sum of the **Compaction Damage Roll Modifiers** incurred for all systems and components on the striking object, from the struck object's speed in HPP, to find its **Residual Speed**.

Residual Speed in HPP = Struck vehicle´s speed in HPP - Striking vehicle´s Damage Modifiers

Multiply the striking object's Residual Speed, by the factor listed on the **Post-Collision Speed Table (5F)** below beside the Angle of Intersection. Subtract the product from the struck object's speed, to find its **Post-Collision Speed**. If the result is negative, the struck object begins moving **backwards**.

Post-Collision Speed in HPP = Struck vehicle´s speed in HPP - (Striking vehicle´s Residual Speed in HPP x Speed Factor)

Example: Continued from above, the Ferrari (40 HPP), collided with the Buick (35 HPP) with a closing speed of 14 HPP, at a 40° angle (speed Factor 0.4). The Buick's Residual Speed is 35 - 5 (Ferrari's Damage Modifier sum) = 30 HPP; the Ferrari's Residual Speed is 40 - 1 (Buick's Damage Modifier sum) = 39 HPP.

The Buick's Post-Collision Speed is therefore 30 - (39 x 0.4 = 15.6) = 14.4, rounded to 14 HPP. The Ferrari's Post-Collision Speed is 39 - (30 x 0.4 = 12) = 27 HPP.

Immovable Objects

If the striking object's **EPEN** is one quarter or less of the struck object's **EPF**, then the struck object does not change speed. Calculate Speed Change for the struck object normally, however, as the struck object's total Speed Change is applied to the striking object instead.

Note that for **Delta V** purposes (see "**Occupant Injuries**" below), the Speed Change is always measured relative to Residual Speed. Thus, the second example paragraph below details only a calculation procedure, not actual Speed Change, which would be **25** (not 35).

Example: A car (25 HPP, EPEN 8) collides head-on with a concrete wall (0 HPP, EPF 40) at a closing speed of 25 HPP. The car's front end crumples, for a damage roll modifier sum of 10; the wall suffers no damage. The wall's Residual Speed is therefore 0 - 10 = -10 HPP, while the car's is 25 - 0 = 25 HPP.

The car's Post-Collision Speed is 25 - (-10 x 1) = 35 HPP. The wall's Post-Collision Speed is -10 - (25 x 1) = -35. Because the car's EPEN is a quarter or less than the wall's EPF, however, the wall's Post-Collision Speed is instead applied to the cars, so the car ends at 35 - 35 = 0 HPP, and the wall ends at 0 HPP.

Rollover (Optional)

Normal Rollover rules apply (see **Section 5.2**). Collision-induced facing change counts toward rollover conditions.

An Entangled vehicle (see above) on-road, cannot roll; off-road, it uses its on-road Rollover Chance.

A rolling vehicle essentially collides with its own weight. To model this simply, apply the vehicle's **EPEN** for a **Side**, **90º** impact, to each of its Hit Locations, once only for the entire rolling event. For every complete four-quarter roll beyond the first, add **1** to all damage rolls; so an SUV rolling four times would suffer **+3 Damage Modifiers** to each location.

Fires (Optional) (See also "Vehicle Damage Effects," below)

Only a few areas on a vehicle are capable of actually combusting. Any area on fire has a percent chance of spreading to each adjacent area, as shown below:

System/Component	Fire Spread Chance
Engine	50%
Battery	15% (80% if it explodes)
Fuel Line	10%
Fuel Tank	50%
Passenger Compartment	75%
Tires	10%

Note that an engine fire will not spread to front tire unless the tire has been stoved in, suffering **Major (MAJ)** damage. Also, a passenger compartment fire will not spread to the fuel line, or fuel tank, or vice versa, unless the appropriate firewall has suffered **Major (MAJ)** or worse damage.

For purists, check for fire spreading to non-combustible areas as well. This inflicts **Superficial (SUP)** damage on the first **Turn** of burning, and Minor (MIN) damage on the second.

Burn Duration: A fire in a combustible area will burn for **20 Phases**, after which Injury damage (see "**Passenger Injury**" below) is halved, and halved again after another **20 Phases**, and so on. The fire goes out after **120 Phases**. Non-combustible areas have a burn duration of **5 Phases**, used likewise.

Fire Extinguishers: Anyone grabbing (**4AC**) and breaking the seal on (**1AC**) a hand-held fire extinguisher may use it to try to extinguish a fire in the same or adjacent location into which they can see. A small fire extinguisher has enough fire suppressant to last **1 Turn**; a medium sized one has **2 Turns**' worth. For every **Turn** used on a fire, **(6)-1** locations may be extinguished.

Passenger Injury (listed here for conciseness): Anyone inside a passenger compartment on fire, or in a passenger compartment with a nearby (i.e. 1 or 2 locations away) fuel tank or engine on fire, or who is lit on fire by a fuel tank explosion, suffers fire **PD**, dependent on the exposure time, and how much of the person's body is alight, termed **Target Size**; "**0**" means approximately one or two limbs, "**4**" means 3 limbs and/or the torso, and "**7**" means the whole person is aflame.

Target Size	Exposure Time in Impulses									
	1	**2**	**3**	**4**	**5**	**6**	**8**	**10**	**15**	**20+**
0	14	44	67	84	100	120	140	170	200	230
4	100	330	500	630	740	900	10H	13H	15H	17H
7	57H	19K	28K	35K	41K	51K	58K	72K	82K	96K

The damage is inflicted once per Phase until the fire is extinguished.

Stop, Drop & Roll: A person on fire must immediately roll their **KV** or less on a 00-99, or panic for **1 Phase**. Continue, until the person stops panicking or goes unconscious. Anyone who can escape a vehicle, and reach flat ground, can drop prone (**1AC**) and roll around on the ground. For every **Phase** of rolling, there is a **40%** chance the fire will reduce its **Target Size** by **one row**; e.g. TS 4 becomes TS 0, and TS 0 extinguishes.

Smoke: If you are inside a burning passenger compartment, you will suffer smoke inhalation damage unless you hold your breath. You can hold your breath for your **Health + (10) Phases**, after which you must breath. Smoke inflicts **10 PD** per Phase of inhalation, and cuts your **CA** in half.

Battery Explosions: If the battery catches fire, its **Crush %** is its chance of exploding per **Turn**. Anyone not behind cover, and within 1 hex, gets splattered with **(10) x 10 PD** worth of concussive battery acid, with a **15%** chance of being blinded, and gets hit by **(3)-1** pieces of shrapnel (for PCCS players, DC 2, PEN 0.5).

Fuel Tank Explosions: (See "**Vehicle Damage Effects**," below, for explosion chances.) If the fuel tank explodes, its location, and any adjacent locations, make damage rolls and automatically catch fire. All other locations (including passengers) have a **90%** chance of catching fire. Each passenger also suffers **300 PD** in concussion.

Obstacles

Obstacles are rated in terms of **Protection Factor (PF)**, **Speed in HPP** (if moving), **Penetration (PEN)**, and Hit Locations, and collision effects are resolved normally. Some obstacles, such as safety barriers and walls, are rated for different **Angles of Intersection**.

Also, some obstacles such as forklift forks and unshielded guard-rails approached from the end, can impale a striking vehicle, rather than crush it. Such implements will have a **Damage Modifier**, added to all damage rolls. Apply the rules in **Oblique** hits, to whatever hit location angle, to find penetration depth.

Animal (Deer):
Animal (Moose):
Animal (Raccoon):
Baby Carriage:
Barricade (Construction/Parking Sawhorse):
Barrier Cylinder (3' high, 12" thick Concrete):
Bicyclist (Adult):
Bicyclist (Child):
Bridge (Metal):
Bridge (Wood):
Building (Brick Wall):
Building (Glass Storefront):
Building (Barred Glass Storefront):
Building (Wood Frame):
Bus Shelter:
Chain (3' high):
Chain (1' high):
Copse (3' deep):
Crash Cushion:
Door (Ordinary Garage):
Door (Armoured Garage):
Door (Warehouse Vehicle Entrance):
Drain:
Dumpster (8' long):
Dumpster (18' long):
Embankment:
Fence (1" slat, 3' high Red Wooden Construction):
Fence (3' high Orange Plastic Construction):
Fence (3' high Barbed Wire):
Fence (4' high Wire Farm):
Fence (4' high Metal Chain Link Suburban):
Fence (6' high Wooden Suburban):
Fence (13' high Barbed Wire Security):
Fence (20' high Razor Wire Prison):

Fruit Vendor Stall:
Garbage Can (Empty):
Garbage Can (Full of Trash):
Garbage Can (Full of Water):
Guard Rail (3’ high Corrugated Metal):
Guard Rail (3’ high Sloped Concrete):
Hay Roll (7’ high):
Hot Dog Stand:
Lateral Shift Marker Sign:
Light Pole:
Manhole (Uncovered):
Milk Loading Platform (Concrete):
Old Wagon Fixed as Advertising on Private Property:
Pedestrian (Adult):
Pedestrian (Child):
Railway Signal Pole:
Recycling Bin (18” high, Plastic):
Rock (1’ high):
Rock (2’ high):
Rock (4’ high):
Rock (6’ high):
Sidewalk Curb:
Sofa:
Speed Bump (4”):
Speed Bump (6”):
Spiked Barrier Strip (Non-Retractable):
Spike Barrier Strip (Retractable):
Storm Drain Cover (Raised Concrete):
Street Sign:
Telephone Booth (Full):
Telephone Booth (Partial):
Telephone Pole:
Traffic Signal Pole:
Tree (1” bole):
Tree (2” bole):
Tree (4” bole):
Tree (8” bole):
Tree (12” bole):
Tree (18” bole):
Tree (24” bole):
Tree (36” bole):
Trashbag:
Utility Cable (75^{o} diagonal, Metal, Attached to Telephone Pole):
Utility Pole:

Wall (3' high, 8" thick Brick):
Wall (6' high, 8" thick Brick):

Multiple Collisions (Optional)

Usually, collisions are fairly rare, and so can be handled on a case-by-case basis. However, sometimes several collisions will occur simultaneously, and/or within a few seconds of each other, or the exact layout is important for the sake of oncoming vehicles.

In these cases, immediately shift to using **Impulses**. Each collision impact takes **1 Impulse** to occur. Facing and speed changes are applied immediately, so that the objects will be traveling at their new speeds starting **Impulse 2**.

In simultaneous collisions, all damage, and facing and speed change, is applied simultaneously. Facing and speed changes may thus cancel each other out, and even travel through; e.g. Car A strikes Car B, and Car B's increased speed affects Car C. Damage may be compounded, as for a car t-boned from opposite sides, for instance.

Vehicle Damage Effects (Optional)

To find which systems and components are damaged in a collision, consult the vehicle's **Hit Location Table (V4)**. The letter-codes from the struck vehicle's **Underlay (V3a)** indicate specific locations. Each location lists which systems and components it contains. Roll damage as described in **Section 5.6**, and apply the effects listed below, for any systems or components, which have been disabled. The following list goes through the various systems and components, and the effects of damage on them. Notice that unless otherwise stated in the description of the specific system or component, Superficial (SUP) damage has no effect on it, other than cosmetic damage.

Battery: Vehicle will not start. If engine is idling, then no lights or accessories (radio, cigarette lighter, power windows, etc.) work. A battery's **Crush %** equals its chance of catching exploding each Turn if it catches fire. (See "**Fires**," above).

Bumper: Reduce **PF** by **Crush %**.

Brakes: Vehicle cannot pedal-brake (gear-braking is unaffected).

Cargo Compartment: Cargo might be damaged.

Door: SUP or MIN damage have a 50% chance of opening the door. If door doesn't open, Crush % equals chance of door being jammed shut.

Driver Compartment: Driver might be injured (see **Section 5.7**).

Electronics: Signals, battery-charger, electronic ignition, gauges, idiot lights, and alarm are all disabled.

Engine: Vehicle stalls. There is a chance the engine will catch fire, equal to the **Crush % minus 8**. (E.g. REP damage has a 67% chance of

fire.). Fire has a **50%** chance per **Turn** of spreading to the fuel line. If on fire but otherwise undamaged (see **Structure**, below), the engine has a **40%** risk of MIN damage **every minute**.

Exhaust Manifold: There is a **20%** chance the exhaust manifold is pinched shut, causing engine stall in **1 Phase**. Otherwise, the manifold is severed, disabling the muffler; if the front firewall is MIN damaged or worse, there is a **15%** chance the exhaust is rerouted into the passenger compartment.

Fender: There is a **20%** chance the fender is bent down into the tire, sawing it flat.

Fire Extinguisher: If it suffers MIN damage, it begins spraying fire foam into the car for the next **Turn**. If it suffers MAJ or greater damage, it explodes, filling the passenger compartment with fire foam.

Firewall: If it sustains MIN or greater damage, it no longer blocks a spreading fire or smoke.

Fuel Line: There is a **10%** chance the fuel line is pinched shut, causing engine stall. Otherwise, at SUP damage the line suffers a leak, losing **1 gallon** of fuel per **minute**; there is a **50%** chance the vehicle stalls in **1 Phase** if it accelerates. At MIN or greater damage, the line is severed, stalling the engine in **1 Phase**, and losing **1 gallon** of fuel per **Turn**. For gasoline lines only, there is a **1%** chance the fuel line catches fire, causing engine stall. Each **Turn**, the fire has a **10%** chance of spreading to the engine and the fuel tank respectively.

Fuel Refill Tube: The fuel tank cannot be refueled.

Fuel Tank: If it sustains SUP damage, there is a **20%** chance of a leak, losing **1 gallon** of fuel per **minute**. At MIN damage, there is a **75%** chance of a leak, losing **1 gallon** of fuel per **Turn**. If the tank empties, the engine stalls in **1 Phase**. For gasoline tanks, at MAJ or worse damage, there is a **5%** chance the tank will catch fire immediately. Every **Turn** alight, **(6) x 10%** of the total tank capacity in fuel is burned away, and there is a **5%** chance the tank explodes. For diesel tanks, at MAJ or worse damage, there is a **1%** chance the tank will catch fire immediately. Every **Turn** alight **(6) x 10%** of the total tank capacity is burned away, and there is a **5%** chance the tank explodes. (See also "**Fires**," above) Every Turn, the fire has a **50%** chance of spreading to the fuel line.

Gauges: Speedometer, fuel gauge, oil gauge, charge indicator, idiot lights, etc. are disabled.

Headlight: Headlight is disabled.

Hood: There is a **75%** chance the hood pops open. If at speed, this obscures forward vision. If the hood doesn't open, **Crush %** equals chance of it being jammed shut.

Hubcap: Double **Crush %** equals the chance the hubcap comes off.

Kickstand: Kickstand disabled.

Passenger Compartment: Passengers might be injured (see **Section 5.7**).

Radiator: Vehicle begins leaking radiator fluid. At MIN damage, engine overheats and stalls in **(10) minutes**. At MAJ or worse damage, engine stalls in **(10) Turns**.

Side Mirror: SUP damage reduces mirror's **Spotting Bonus** in half. MIN or greater damage negates **Spotting Bonus**.

Signal Light: Signal light disabled.

Structure: No component or system may be more damaged than its enclosing structure. Conversely, if a structure suffers DES damage, the area collapses and all enclosed components and systems are shed – treat them as suffering DES damage also.

If structure enclosing the engine suffers MIN or worse damage, there is a **10%** chance of an oil leak causing an engine fire in **1 Phase**.

Suspension: For each level of damage beyond SUP, reduce vehicle's **Suspension Rating** by one level (e.g. If a car had Excellent suspension, then MIN damage reduces it to Good, etc.).

Spare Tire: Tire deflated.

Spare Wheel: Wheel warped.

Steering: At SUP damage, double **Steering costs**. At MIN damage, maximum **Steering Time** equals **1AC**, and costs **4AC**. At MAJ or worse damage, the vehicle may **not** be steered; if damaged while cornering or drifting, there is **50%** chance the steering is locked in that position.

Taillight: Taillight disabled.

Tarp Hitch: Hitch comes loose.

Tire: Tire deflated. A tire suffering REP damage has a **50%** chance per **Turn** of tearing loose. See **Shedding Tires**, below.

Throttle: Vehicle cannot accelerate or maintain speed, and begins to coast.

Tow Hitch: Chance that anything towed comes loose equals **Crush %**.

Transmission: At SUP damage, gearshifting or gear-braking successfully requires **(6)** to be rolled equal to or under the driver´s SL. At MIN damage, no gearshifting or gear-braking is possible. At MAJ or worse damage, vehicle cannot accelerate or maintain speed, and begins to coast.

Trunk Lid: There is a **75%** chance the hood pops open. If at speed, this obscures forward vision. If the hood doesn't open, **Crush %** equals chance of it being jammed shut.

Wheel: Wheel warped.

Window: SUP means cracks and chips. MIN means a localised spiderweb crack. MAJ means a general spiderweb. REP means the window explodes. If a window is made of safety glass, and damaged MAJ or worse, anyone adjacent to it may spend **12AC** to attempt to shove it away and clear the view, succeeding by rolling **Agility (AGI)** or less on **3(6)**.

Shedding Tires

Motorcycle (1 tire): The bike risks rollover at a **-40** DA penalty.
Motorcycle (both tires): The bike rolls.
Four-Wheeled Vehicles (1 front tire): Causes a continual **-7** MR drift toward that side, a continuous **-4AC Steering Time** penalty, **-10** HPP top speed, and lowers **Suspension Rating** by one.
Four-Wheeled Vehicles (2 front tires): Causes a continual **-4** MR drift to a random side, continuous **-4AC Steering Time** penalty, **-10** HPP top speed, and lowers **Suspension Rating** by two.
Four-Wheeled Vehicles (1 rear tire): Causes a continual **-4** MR drift toward that side, **-4AC Steering Time** penalty, **-10** HPP top speed, and lowers **Suspension Rating** by one.
Four-Wheeled Vehicles (2 rear tires): Causes a continual **-4** MR drift, to a random side, continuous **-4AC Steering Time** penalty, **-10** HPP top speed, and lowers **Suspension Rating** by two.
Four-Wheeled Vehicles (3 tires): Causes a continual **-10** MR drift opposite the remaining tire, continuous **-6AC Steering Time** penalty, **-15** HPP top speed, and **Suspension Rating** is reduced to **None**.
Four-Wheeled Vehicles (4 tires): Causes a continuous **-4AC Steering Time** penalty, **-10** HPP top speed, and **Suspension Rating** is reduced to **None**.
Trucks & Busses: As four-wheeled vehicles, except that when redundant or multiple tires are close together, then ignore damage effects until **50%** or more of the tires in that area are affected.

5.7

INJURIES

These rules cover vehicle occupants first, and pedestrians later on.

Impact Damage (ID)

Physical injury potential is measured in **Impact Damage (ID)**. There are four types of **ID**: **Blunt**, **Flanged**, **Cutting**, and **Stabbing**, reflecting different injury mechanisms. Thus, airbags, seatbelts, and low-velocity projectiles such as un-belted passengers inflict **Blunt ID**, and the edge of a roof support pillar or flying hubcap would be a **Flange**, while jagged shards of non-safety auto glass would be **Stabbing** or **Cutting**. Flying glass is a special case, treated as **Shrapnel**; while rapid speed change is considered **Concussion** damage. Overall, car crashes present a variegated and highly hostile injury environment.

Physical Damage (PD)

Injury itself is measured in **Physical Damage (PD)**. To find **PD** inflicted, enter the **ID** sustained to the rolled **Hit Locations**, on the appropriate damage table (Blunt, Flanged, Cutting, or Stabbing), for the row of the person's **Blunt Protection Factor (BPF)** in that location. These damage tables are found in the **Phoenix Command Hand-to-Hand System**. This accounts for people wearing crash helmets and such. The resulting number is the **PD** sustained. In cases of Shrapnel and Concussion damage, **PD** is listed directly. Shrapnel will be given a **Penetration (PEN)** value, which interacts with the person's **PF** (if any), according to the normal **Phoenix Command Small Arms Rules** (which see).

Delta Velocity (∆V)

The greatest predictor of collision injuries is the **Delta Velocity (∆V)**, which equals the total speed change a person experiences in a single **Impulse**.

Example 1: Continuing from above, a car (25 HPP) strikes a concrete wall, decelerating to 0 HPP. It's ∆V = 25.

Example 2: A car (20 HPP) collides head-on with a train (40 HPP), suffering -60 HPP. That is, the car is now entangled with the train, going 40 HPP in the same direction as the train. The car's ∆V = 60.

Enter **∆V** into the **Occupant Injury Table (5G)** to find **Concussion PD**, basic **ID**, and the **Jostling** CA penalty (Optional--see below).

Luck: People have been known to walk away unharmed from 90+ mph car crashes in real life, demonstrating that the injury tolerance of the human body is imprecisely defined, and the factors involved in a collision are often complex enough for the various forces to cancel out in unpredictable ways.

To account for some people's incredible luck, for every **50 HPP** worth of **∆V**, roll a **00-99** number and divide the result by **100**, multiplying the **∆V** portion by this. So, if **∆V** were 64, one roll would be made for the first 50 HPP, and another for the remaining 14 HPP.

Luck has no effect on Jostling penalties.

Example: Drunken Dan drives into an oak tree, suffering ∆V 45. He makes a luck roll, scoring 05, so his effective ∆V becomes 45 x (05 / 100) = 45 x 0.05 = 2.25, rounded to 2 HPP. He staggers out of his vehicle, scratching his head and wondering where the liquor store entrance is.

Airbags: Reduce **ΔV** by the following amount, depending on collision angle and airbag locations.

Description	Angle	Front Only	Front & Side	Side Only
Front/Rear	0° to 30°	-25	-25	-0
Oblique	31° to 59°	-10	-25	-10
Side	60° to 90°	-0	-25	-25

Airbags inflict concussion and burn damage on their passengers equal to **(6)-1 PD**. For adults, there is a **1%** chance this damage directly affects the neck, multiplying it by **100**. For children (=small people), there is a **10%** chance, multiplying the damage by **500**.

Racing Harnesses: Treat these as **Front & Side Airbags**, though their benefits are incompatible with airbags and ordinary seatbelts.

Seatbelts: After adjusting for airbags, multiply **ΔV** by the following factor, depending on collision angle and belt type.

Description	Angle	Shoulder & Waist	Waist Only
Front/Rear	0° to 30°	0.5	0.75
Oblique	31° to 59°	0.75	0.9
Side	60° to 90°	0.9	1.0

Seatbelts inflict **Blunt ID** equal to **10%** of the initial **ΔV**, applied to the chest and pelvis area. If a waist belt is improperly fitted, going over the belly instead of the pelvis, use the **Flange** table instead, with an **ID** of **40%** of the **ΔV**. Do likewise for a shoulder belt improperly fitted, going over the neck or belly instead of across the chest.

Crash Suits: Crash suits, crash helmets, and other armor each have an **Armor Class** listed for them. The Armor Class indicates which row of the appropriate damage table is used when applying **ID**. Crash suits and helmets usually have no effect on **ΔV**, but see below:

Crash helmets are either stabilised or unstabilised. Stabilised helmets have no additional effect. Unstabilised helmets increase the wearer's head-weight, making whiplash injuries worse: add **10%** to airbag whiplash chances, and multiply **ΔV** by **1.25**.

Compaction (Optional)

If his **Passenger Compartment** location is crushed, an occupant's **Percent Chance** of injury equals the location's total **Collapse Percentage**. If injured, enter the total **Collapse Percentage** on the table

below to find the **PD**. Armor, airbags, seatbelts, and crash suits have no effect on this.

Amount Collapsed	PD
10%	(10)
25%	100 x (6)
50%	1,000 (6)
75%	10,000 x (6)
100%	100,000 x (10)

Intruding Objects (Optional)

Certain objects like forklift forks and unshielded guardrails approached head-on may penetrate to the passenger compartment. Treat this using the rules for **Compaction**, above, finding odds of hitting from the passenger compartment **Collapse Percentage** (i.e. induced by the impaling object).

Blunt & Flange Damage (Optional)

Any occupant not strapped in, or lacking between him and the striking obstacle, is hurled into the interior of the vehicle, sustaining the **ID** found above, to **(6)** random Hit Locations. Roll a **00-99** number on the table below to find where, re-rolling repeats:

Blunt / Flange Hit Location Table

Roll	Location	Damage Type
00-19	Head	Blunt
20-26	Head	Flange
27-44	Body	Blunt
45-51	Body	Flange
52-56	Arm (left)	Blunt
57-63	Arm (left)	Flange
64-69	Arm (right)	Blunt
70-75	Arm (right)	Flange
76-81	Leg (left)	Blunt
82-87	Leg (left)	Flange
88-93	Leg (right)	Blunt
94-99	Leg (right)	Flange

Cutting & Stabbing Damage (Optional)

If the glazing between the occupant and the striking object suffering MAJ damage or worse, and he is not belted in, and has no airbag, he risks

cutting himself on the broken glass. Roll a **0-9** number on the table below to find out how many times he is seriously cut or stabbed.

	Serious Cuts or Stabs			
Damage	**3 hits**	**2 hits**	**1 hit**	**None**
MAJ	0	1	2 - 3	4 - 9
REP	0	1 - 2	3 - 5	6 - 9
DES	0 - 1	2 - 4	5 - 8	9

If injured, the character sustains the **ID** found above to **(3)** random hit locations. Roll a **00-99** number on the table below to find where, re-rolling repeats

Cutting / Stabbing Hit Location Table

Roll	Location	Damage Type
00-13	Head/Face	Stabbing
14-15	Eye	Stabbing
16-19	Mouth	Stabbing
20-34	Head/Face	Cutting
35-37	Neck	Stabbing
38-40	Neck	Cutting
41-44	Shoulder	Stabbing
45-48	Shoulder	Cutting
49-54	Arm (left)	Stabbing
55-60	Arm (left)	Cutting
61-66	Arm (right)	Stabbing
67-72	Arm (right)	Cutting
73-80	Body	Stabbing
81-99	Body	Cutting

Safety Glass: Virtually every modern vehicle's glazing is safety glass, designed to crumble into small particles when shattered. If a vehicle has safety glass, halve the **ID** and treat all damage rolled above as **Cutting**.

Ordinary Glass: Old vehicles' glazing was ordinary glass, which shatters into long shards easy capable of impalement. If a vehicle has ordinary glass, increase the damage level by **1** for injury purposes, so MIN becomes MAJ, and so forth.

Shrapnel (Optional)

When a vehicle's glazing is damaged at MAJ or worse, small pieces of broken glass spray like bomb shrapnel.

Safety Glass: This inflicts **(6)-1 PD** worth of small cuts. If the person is in a crash suit or other armor, safety-glass shrapnel has no effect. Airbags halve any damage.

Ordinary Glass: If the vehicle has ordinary glass, this inflicts **2** hits, for **ID** each, to locations rolled randomly on the **Cutting & Stabbing Hit Location Table**, above. If the person is in a crash suit or other armor, this ID still applies. Airbags allow only **1** hit, at **2 ID**.

Flying Objects (Optional)

Any object not secured by a seatbelt, bungee cord, rope, bolt, bracket, or other restraint, becomes a projectile in a collision. Common examples of this include coffee cups, compact disc cases, infants, dogs, and umbrellas.

For simplicity's sake, instead of tracking each individual object, the passenger environment is rated for its aggregate hostility. Enter a **0-9** roll onto the row for the appropriate threat level on the **Collision Projectile Table (5H)** below, to learn how much **PD** the victim sustains.

Collision Projectile Table / 5H

Description	Armour	Die Roll 0	1-3	4-6	7-9
Packed (many heavy, hard objects)	None	0	28	96	96
	Crash Helm	0	8	22	22
	Crash Suit	0	3	9	9
Cluttered (Some big things, many small sharp things)	None	0	0	12	36
	Crash Helm	0	0	3	9
	Crash Suit	0	0	1	4
A few objects (some sharp or hard)	None	0	0	0	1
	Crash Helm	0	0	0	1
	Crash Suit	0	0	0	0

Fires (Optional) (See 5.6, under "Fires")

Jostling (Optional)

Collision-induced facing change jostles the occupants as normal (see **Section 2.2**), while Δ**V** jostling penalties are given on the **Occupant Injury Table (5G)**.

Entrapment (Optional)

The percentage chance you will become trapped, equals the highest **Crush %** of your passenger compartment, or any adjacent location, minus **10**, or minus **20** if you are not wearing your seatbelt; add **5** if airbags deploy for you, and add **10** if you are wearing excess jewelry or baggy clothes. If you roll half or less the % chance, you are inextricably trapped.

If not inextricably trapped, to escape you must spend **10AC** and roll **3(6)**, scoring equal to or less than the lower of either your **Strength** or **Agility** characteristic. If you fail, you may try again once, by spending another **10AC**.

Ejection (Optional)

Find the 00-99 odds of an unbelted passenger being ejected from the vehicle at a random time throughout the collision, below. For non-rollovers, the Δ**V** must be at least **10** HPP for ejections to occur.

Situation	**Ejection Odds**
Rear collision	15
Side collision	25
Oblique collision	25
Head-on collision	40
Rollover	50
Convertible	75
Motorcycle/ATV	90

An ejected non-rollover passenger exits toward the striking object, through a window if necessary. A rollover passenger exits by a random window. Any door damaged in the collision, but not directly crushed by the striking object, opens, potentially saving an ejected passenger a trip through the window.

Ejection Injury: If the ejectee goes through a window, he suffers **Cutting ID** as normal, but twice the number of injuries, the glazing suffers REP damage, and hit location is rolled on the **Blunt** table instead.

Flight: The ejectee travels a number of Hexes away from his vehicle equal to half his vehicle's **Residual Speed** (see "**Speed Change**" above), minus any ID he suffered from Blunt attacks prior to exiting. His flight time is **2 Impulses**.

Landing Injury: The character´s Blunt ID equals his flight distance in Hexes, applied to a random Hit Location. If he lands on something relatively soft, like turf, halve the damage. If he lands on something very soft, like shrubs, or another person, quarter the damage. Crash suits and helmets apply.

Post-Landing Roll: After landing he will continue to roll or slide along, for a like number of Hexes (i.e. equal to the distance flown). On turf or

other soft terrain, this inflicts **Blunt ID** equal to one quarter his maximum roll distance. On asphalt, gravel or other hard, sharp terrain, this inflicts **Flange ID** equal to one half his maximum roll distance. Crash suits and helmets apply.

Pedestrians (Optional)

Pedestrians suffer ID and Jostling CA listed for their **ΔV** (**Table 5G**). Apply ID for **(6)** separate injuries, rolling hit location on the **Blunt Table**.

If the pedestrian was struck by the front or rear of the vehicle, roll a **00-99** number on the table below to find where he goes from there.

Roll	Result
00-49	Goes up onto the hood/trunk
50-84	Bounces
85-99	Goes underneath vehicle

Flight: If the pedestrian goes up on the hood/trunk, or bounces, flight distance equals the **ΔV / 4** in Hexes. Flight time equals **2 Impulses**. If the striking vehicle moves faster than the flying victim, the acceleration adheres the victim to the front of the vehicle until the vehicle stops accelerating; then the victim goes underneath the vehicle (if not braking), or rolls off (if braking).

Landing Injury: The pedestrian's **Blunt ID** equals his flight distance in Hexes, applied to a random Hit Location. If he lands on something relatively soft, like turf, halve the damage. If he lands on something very soft, like shrubs, or another person, quarter the damage.

Post-Landing Roll: After landing he will continue to roll or slide along, for a like number of Hexes (i.e. equal to the distance flown). On turf or other relatively soft terrain, this inflicts **Blunt ID** equal to one quarter his maximum roll distance. On asphalt, gravel or other hard, sharp terrain, this inflicts **Flange ID** equal to one half his maximum roll distance.

Being Run Over: If the pedestrian goes underneath the vehicle, then for every axle he passes beneath, roll **(100)** to determine a percentage. Enter this number on the same table as **Compaction** (see "**Compaction**" above) to find **PD**.

Old Style Hoods: Cars from the 1980s and earlier tended to have more room between the hood and the engine, allowing a crumple-cushion. If a pedestrian goes up onto the hood, halve all ID affecting him above the legs.

6

SPECIAL RULES

This chapter has special situational rules for certain vehicle types, as well as rules for including firearms in high-speed pursuits. These rules are essential when dealing with certain situations.

6.1

MOTORCYCLES & MOTORBIKES

Herein referred to as “bikes”.

Gearshifting

Shifting gears is a complex operation on a Motorcycle, so double all Gearshifting costs.

Skidding

Bikes have two brakes, one for the front tire, and one for the rear. If the vehicle has **linked brakes**, then all skids will be **All-Wheel Drive** skids. If the vehicle does not have linked brakes, then in a skid, decide randomly which wheel skids, and apply the type of skid normally. All bikes are **Rear-Wheel Drive** for the purposes of **Single-Wheel Skids**.

If either end of a bike changes facing in a skid **more than 30°** relative to the direction of travel, the bike will roll over.

Rollovers

If the passenger is not ejected, his leg will be pinned under the bike as it skids, suffering **Flange** damage in contact with the road as normal. Reroll ejection chance every **Phase**.

Leaning Into Corners

Because you must lean your bike before it begins to turn, you must begin cornering 2 Impulses **prior to actually entering the corner**. On motorbikes and light motorcycles, if the sum of your **Strength**

characteristic and **DAL** is **20 or more**, you need only begin cornering **1 Impulse** prior. On motorbikes and light motorcycles, if the sum of your **Strength** characteristic and **DAL** is **30 or more**, no prior lean is required. These modifiers reflect slamming your thigh into the bike to lean it over more quickly.

Corner C Modifiers

While on a bike, you may choose to multiply your corner **C** by **1.1** to reflect the advantage of a low vehicle **Width**. The decision to do this is made while leaning into the corner (see above).

6.2

TRACTOR-TRAILERS

Herein referred to as “trucks”.

Skidding

There are three axles on your truck that have brakes. They are your **Steering Axle**, your **Drive Axle**, and your **Trailer Axle**. Braking costs are higher for trucks than for other vehicles, because these brakes all have to be engaged.

If you possess an **Antilock Braking System (ABS)**, then treat your truck as an **All-Wheel Drive** vehicle in skids.

If you do not possess **ABS**, then roll **(6)** to find out which axle locks and causes the skid.

Roll	Axle Brakes
1-2	Steering
3-4	Drive
5-6	Trailer

Steering: You will continue to travel straight ahead, losing the ability to steer or corner. You can still accelerate, and can brake at **90%** efficiency.

Drive: Your truck will begin jackknifing. This means your tractor articulates sideways around into your trailer, like a jackknife blade folding into the knife handle. If you are cornering or drifting, your tractor changes facing toward the inside of the corner or drift. If you are going straight, decide which way you jackknife randomly. Facing change is found normally (**Section 5.3**), but is a minimum of **1**° per Phase, doubling the rate of increase every **10**°, applied even if your skid induces no facing change.

While skidding, you cannot accelerate. Your only functional brakes are your trailer brakes, which let you decelerate at **45%**.

So long as your facing change does not exceed **30**°, you have a chance to avoid disaster by making a **Recovery Roll**, subject to normal rules. If you fail, however, or if your facing change exceeds **30**°, then you will automatically jackknife.

Once jackknifed, you go into an **All-Wheel Drive** skid. Use your **Off-Road Rollover Chance**.

Trailer: Your trailer begins swinging to one side; decide which side randomly. Use the rules for a **Front-Wheel Drive** vehicle suffering a **Rear-Wheel Skid**, except that the trailer can swing out up to **90**°. Acceleration is normal; braking is at **55%** efficiency. Steering toward your trailer will cause a jackknife; steering away risks a roll (use the **On-Road** chance).

"How can you get a Yugo to do 60 miles an hour?"

"Push it over a cliff."

The Left Wing Fascists

Sometimes two of your three axles will be locked, such as if you fail a Recovery Roll after your trailer skids. Or, you may intentionally lock any or all of your three brakes. If you lock only one of them, find the result above. If you lock all three, you go into an **All-Wheel Drive** skid. If two lock, use the rules below.

Steering + Drive: Use the rules for **Drive**, above.
Steering + Trailer: Combine rules for **Steering**, and **Trailer**, above.
Drive + Trailer: If the trailer swings toward the same side as the tractor, jackknife is automatic. If the trailer swings to the opposite side, check for rollover (use the **On-Road** chance).

Wide Turns

The sharper a corner, the wider a truck will effectively be, as its trailer intrudes on the inside of the corner. The **Effective Width** of a truck is given on its **Cornering Table (V1)** for various **Corner C**s.

6.3

BUSES & RECREATIONAL VEHICLES

Wide Turns

The sharper a corner, the wider a bus or recreational vehicle (RV) will effectively be, as its midsection intrudes on the inside of the corner. The **Effective Width** of a bus or RV is given on its **Cornering Table (V1)** for various **Corner C**s.

6.4

TOWING

Common items towed by pickup trucks and cars include small collapsible campers, horse trailers, speedboats, sailboats, and flatbed trailers.

Remember to add the towed item's length to the towing vehicle's length when determining **Effective Length (EL)**.

Driver suffers a **DA** modifier of **-10** while towing. If a skid occurs, there is a **50%** chance it is the towed item, which skids; use the rules for trailer skid (**Section 6.2**).

6.5

ARMED COMBAT

Firearms

Apply **Penetration (PEN)** normally, but instead of the **Collision Glancing Table** use the firearms **Glancing Table** from **Phoenix Command Small Arms Combat System** to find **Effective Protection Factor (EPF)**.

For each penetrating hit to a location, **Superficial (SUP)** damage is inflicted. If an engine component is struck, roll a **0-9** number; on a **9** the component suffers **Minor (MIN)** damage. Bullets never inflict **Collapsing** damage, except when damaging glass.

Ricochets: Any bullet which penetrates into the passenger compartment, but which's **EPEN** is less than required to escape the compartment, ricochets. The chance it strikes a random passenger equals the **number of passengers x 10%**.

Hand-to-Hand Weapons

Attacking Vehicles & Obstacles: The referee decides which hit location you strike. When attacking a vehicle or obstacle with a hand-to-hand weapon, you inflict **PEN** equaling your rolled **ID**, divided by **10**. Use the **Collision Glancing Table**. If overpenetrating, you inflict **Superficial (SUP)** damage to the surface component. If overpenetrating by **10 times or more**, roll damage on **0-9** as normal. Hand-to-hand attacks never accumulate **Collapse** damage, except when damaging glass.

Slashing Tires: This isn't as easy as one might think. If overpenetrating damage is inflicted from a stabbing weapon, roll a **0-9** number. On a **9**

(or more), the tire is deflated. If the weapon or the tire used is dripping wet, add **1** to the die roll. Once a single overpenetration result is made, the weapon is stuck in the tire, and if you work at it each **Phase** another attempt may be made to deflate it, at a cumulative **+1** to the die roll.

Attacking From Vehicles: A character wielding a melee weapon from inside a vehicle, against a target outside, applies the following **ID Modifiers**, as appropriate:

Situation	**ID Modifier**
Stabbing Out Window	x 0.5
Leaning Far Out Window	x 0.3
Leaning Over Truck Bed	x 0.5
Striking Down	x 1.5
Vehicle Moving	x (HPP / 3)

Odds of Hitting will be reduced also (see **Phoenix Command Hand-to-Hand Combat System**).

DRIVER DATA SHEET

Name:

STR	CA	Frustration Level:
INT	DAL	Morale State:
WIL	KV	Fanatic
AGI		Bold
PER		Cautious
		Frightened
Skills:		Panicked

Drive Automobile
Drive Motorcycle
Drive Light Truck
Drive Heavy Truck
Drive Heavy Equipment
Fall Recovery
Manual/Standard Transmission YES / NO
Mechanical Repair
Medical Aid
Scouting

PD

Disabling Injuries

MOTORCYCLE / BMW F650ST

LOGISTICAL DATA

Passenger Capacity 2
Doors None
Fuel Type Gasoline
Range 181 miles
Fuel Load 5 gallons (30 lbs)
Fuel Efficiency 36 miles per gallon
Refueling Time (RT) 1.5 minutes

PURSUIT DATA

Start Time 8 Impulses
Size
- Length 8 ´
- Width 2 ´
- Height 4 ´
- Clearance 0.5 ´

Weight
- Unloaded 421 lbs
- Loaded 700 lbs
- Cargo Capacity 280 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	14 HPP	2 HPP
	2nd	25 HPP	4 HPP
	3rd	35 HPP	6 HPP
	4th	51 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.27	1.00	2.00	3.60
10	.13	.50	1.00	1.80
20	.07	.25	.50	.90
30	.04	.17	.33	.60
40	.03	.13	.25	.45
50	.03	.10	.20	.36
60+	.02	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-9 / -30
1	-20
2	-12
3	-4
4	+0
5	+4
6	+7

Acceleration
- Safe 5 HPP
- Maximum 7 HPP

Deceleration
- Safe 25 HPP
- Maximum 40 HPP

Flight Speed 308 HPP
Knockdown 6
Ballistic Accuracy
Suspension Good
Rollover Rating 15 / 55
Field of View Excellent
Drive Type Rear-Wheel Drive (RWD)
Transmission Type Automatic
Tire Type All-Season
Tire Condition New

OPTIONS

None

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
8 - 9 Hx	4	.2 Hx	.3 Hx	.5 Hx	.7 Hx	.8 Hx	2 Hx	6 HPP
28 Hx	3	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	8 HPP
38 Hx	2	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	10 HPP
57 Hx	2	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	12 HPP
113 Hx	1	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	18 HPP
173 Hx	1	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	24 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	28 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	37 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	43 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	68 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	0	0	-3	-5	-10			(Gear Braking)		
2	-5	-3	0	0	0	-3	-5	-10			
3		-10	-5	-3	0	0	0	-3	-5	-10	
4				-10	-5	-3	0	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	10
Oblique	12
Side	14

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Tire	Tire				
B	Rake	Structure Tire Wheel Fender Brakes Suspension Headlight				
C	Axial	Structure Window (optional) Gauges Electronics Signal Lights Side Mirrors Steering Throttle				
D	Body	Structure Fuel Tank Fuel Line Engine Radiator Electronics Driver Compart. Steering Side Mirrors Exhaust Manifold Kickstand				
E	Body	Structure Battery Driver Compart. Passenger Comp. Exhaust Manifold Brakes Starter Transmission				
F	Body	Structure Brakes Suspension Transmission Exhaust Manifold Passenger Comp. Cargo (optional)				
G	Rear End	Structure Fender Taillight Tire Wheel Cargo (optional) Signal Lights				

HATCHBACK / Chevrolet Geo Metro

LOGISTICAL DATA

Passenger Capacity 4
Doors 2 + hatchback
Fuel Type Gasoline
Range 495 miles
Fuel Load 10.7 gallons (63 lbs)
Fuel Efficiency 46 miles per gallon
Refueling Time (RT) 2.5 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 12.5 ´
- Width 5 ´
- Height 4.5 ´
- Clearance 0.5 ´

Weight
- Unloaded 1,808 lbs
- Loaded 2,808 lbs
- Cargo Capacity 1,000 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	11 HPP	2 HPP
	2nd	21 HPP	4 HPP
	3rd	31 HPP	5 HPP
	4th	41 HPP	7 HPP
	5th	51 HPP	9 HPP
Reverse	1st	10 HPP	2 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.42	1.00	2.00	3.60
10	.21	.50	1.00	1.80
20	.10	.25	.50	.90
30	.07	.17	.33	.60
40	.05	.13	.25	.45
50	.04	.10	.20	.36
60+	.04	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-15
2	-5
3	+0
4	+1
5	+2
6	+3

Acceleration
- Safe 2 HPP
- Maximum 3 HPP

Deceleration
- Safe 20 HPP
- Maximum 35 HPP

Flight Speed 77 HPP
Knockdown 10
Ballistic Accuracy
Suspension Fair
Rollover Rating 4 / 36
Field of View Good
Drive Type Front-Wheel Drive (FWD)
Transmission Type Manual / Standard
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake | Front Air Bags | Front Shoulder Seatbelts | Rear Waist Seatbelts

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
16 - 22 Hx	3	.4 Hx	.7 Hx	1 Hx	1.5 Hx	2 Hx	4 Hx	6 HPP
28 Hx	2	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	7 HPP
38 Hx	2	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	8 HPP
57 Hx	2	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP
113 Hx	1	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	1	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	21 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	28 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	35 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	40 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	61 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	0	0	-3	-5	-10			(Gear Braking)		
2	-3	0	0	0	0	-3	-5	-10			
3	-10	-5	-3	0	0	0	0	-3	-5	-10	
4			-10	-5	-3	0	0	0	0	-3	-5
5					-10	-5	-3	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	13
Oblique	14
Side	15

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
K, KK	Side Body	Structure Door Window Side Mirror				
L	Side Body	Structure Door (optional) Window (optional)				
M	Left Rear Seat	Structure Passenger Comp. Fuel Line Fuel Tank				
N	Right Rear Seat	Structure Passenger Comp. Exhaust Manifold Fuel Tank				
O	Side Body	Structure Door (optional) Window (optional)				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
Q	Assembly	Structure Fuel Tank Fuel Refill Tube Transmis.(if RWD) Suspension Firewall Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Trunk Lid				
T	Rear Left Corner	Structure Bumper Signal Light Taillight				
U	Rear End	Structure Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Bumper Signal Light Fuel Refill Tube Taillight				

COUPE / Volvo C70

LOGISTICAL DATA

Passenger Capacity 4
Doors 2
Fuel Type Gasoline
Range 504 miles
Fuel Load 18.5 gallons (109 lbs)
Fuel Efficiency 27 miles per gallon
Refueling Time (RT) 4.5 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 15.5 ´
- Width 6 ´
- Height 4.7 ´
- Clearance 0.4 ´

Weight
- Unloaded 3,540 lbs
- Loaded 3,740 lbs
- Cargo Capacity 1,200 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	14 HPP	2 HPP
	2nd	25 HPP	4 HPP
	3rd	35 HPP	6 HPP
	4th	51 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.52	1.00	2.00	3.60
10	.26	.50	1.00	1.80
20	.13	.25	.50	.90
30	.09	.17	.33	.60
40	.07	.13	.25	.45
50	.05	.10	.20	.36
60+	.04	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-15
2	-7
3	-3
4	+1
5	+3
6	+4

Acceleration
- Safe 4 HPP
- Maximum 6 HPP

Deceleration
- Safe 25 HPP
- Maximum 40 HPP

Flight Speed 102 HPP
Knockdown 12
Ballistic Accuracy
Suspension Fair
Rollover Rating 3 / 30
Field of View Good
Drive Type Front-Wheel Drive (FWD)
Transmission Type Automatic
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake | Power Brakes | Power Steering

Shoulder Seatbelts

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
19 - 22 Hx	4	.8 Hx	1.5 Hx	2 Hx	3 Hx	5 Hx	5 Hx	6 HPP
28 Hx	3	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	7 HPP
38 Hx	2	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	8 HPP
57 Hx	2	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP
113 Hx	1	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	1	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	18 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	24 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	31 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	37 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	57 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	0	0	-3	-5	-10			(Gear Braking)		
2	-10	-5	0	0	0	-3	-5	-10			
3		-10	-5	-3	0	0	0	-3	-5	-10	
4					-10	-5	0	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	15
Oblique	16
Side	17

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
K, KK	Side Body	Structure Door Window Side Mirror				
L	Side Body	Structure Door (optional) Window (optional)				
M	Left Rear Seat	Structure Passenger Comp. Fuel Line Fuel Tank				
N	Right Rear Seat	Structure Passenger Comp. Exhaust Manifold Fuel Tank				
O	Side Body	Structure Door (optional) Window (optional)				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
Q	Assembly	Structure Fuel Tank Fuel Refill Tube Transmis.(if RWD) Suspension Firewall Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Trunk Lid				
T	Rear Left Corner	Structure Bumper Signal Light Taillight				
U	Rear End	Structure Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Bumper Signal Light Fuel Refill Tube Taillight				

SEDAN / Ford Crown Victoria

LOGISTICAL DATA

Passenger Capacity 6
Doors 4
Fuel Type Gasoline
Range 401 miles
Fuel Load 19 gallons (112 lbs)
Fuel Efficiency 21 miles per gallon
Refueling Time (RT) 5 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 17.5 ´
- Width 6.5 ´
- Height 4.6 ´
- Clearance 0.7 ´

Weight
- Unloaded 3,917 lbs
- Loaded 5,217 lbs
- Cargo Capacity 1,300 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	15 HPP	3 HPP
	2nd	25 HPP	4 HPP
	3rd	40 HPP	7 HPP
	4th	53 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.58	1.00	2.00	3.60
10	.29	.50	1.00	1.80
20	.15	.25	.50	.90
30	.10	.17	.33	.60
40	.07	.13	.25	.45
50	.06	.10	.20	.36
60+	.05	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	+0 / -30
1	-18
2	-8
3	-2
4	+0
5	+4
6	+5
7	+6

Acceleration
- Safe 4 HPP
- Maximum 5 HPP

Deceleration
- Safe 19 HPP
- Maximum 32 HPP

Flight Speed 106 HPP
Knockdown 16
Ballistic Accuracy
Suspension Fair
Rollover Rating 2 / 20
Field of View Fair
Drive Type Rear-Wheel Drive (RWD)
Transmission Type Automatic
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake	Power Brakes	Power Steering
Cruise Control	Antilock Braking System	Front Airbags
Front Shoulder Seatbelts	Rear Waist Seatbelts	

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
19 - 22 Hx	5	.8 Hx	1.5 Hx	2 Hx	3 Hx	5 Hx	5 Hx	6 HPP
28 Hx	4	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	7 HPP
38 Hx	3	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	8 HPP
57 Hx	3	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP
113 Hx	2	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	2	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	21 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	28 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	35 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	40 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	61 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	0	0	-3	-5	-10			(Gear Braking)		
2	-5	-3	0	0	0	-3	-5	-10			
3		-10	-5	-3	0	0	0	0	-3	-5	-10
4					-10	-5	-3	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	15
Oblique	16
Side	17

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

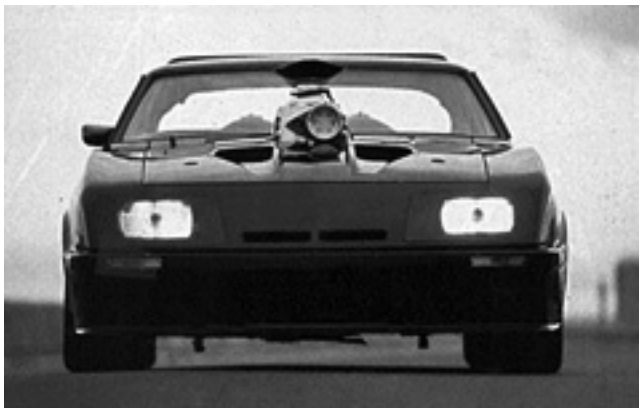
Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
K, KK	Side Body	Structure Door Window Side Mirror				
L	Side Body	Structure Door (optional) Window (optional)				
M	Left Rear Seat	Structure Passenger Comp. Fuel Line Fuel Tank				
N	Right Rear Seat	Structure Passenger Comp. Exhaust Manifold Fuel Tank				
O	Side Body	Structure Door (optional) Window (optional)				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
Q	Assembly	Structure Fuel Tank Fuel Refill Tube Transmis.(if RWD) Suspension Firewall Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Trunk Lid				
T	Rear Left Corner	Structure Bumper Signal Light Taillight				
U	Rear End	Structure Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Bumper Signal Light Fuel Refill Tube Taillight				

SPORTS CAR / Interceptor V8 (with custom supercharger)



LOGISTICAL DATA

Passenger Capacity 5
Doors 2
Fuel Type Gasoline, High Octane Gas.
Range 264 miles
Fuel Load 14.7 gallons (88 lbs)
Fuel Efficiency 18 miles per gallon
Refueling Time (RT) 3.5 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 15.8 ´
- Width 6 ´
- Height 4.3 ´
- Clearance 0.8 ´

Weight
- Unloaded 2,600 lbs
- Loaded 3,300 lbs
- Cargo Capacity 700 lbs

Qualified Skill Level 2

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	16 HPP	3 HPP
	2nd	25 HPP	4 HPP
	3rd	37 HPP	6 HPP
	4th	63 HPP	11 HPP
Supercharger +10 HPP (forward, road, gears 2+ only)			
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.53	1.00	2.00	3.60
10	.26	.50	1.00	1.80
20	.13	.25	.50	.90
30	.09	.17	.33	.60
40	.07	.13	.25	.45
50	.05	.10	.20	.36
60+	.04	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-2 / -30
1	-16
2	-6
3	+0
4	+3
5	+5
6	+7
7	+8

Acceleration
- Safe 3 HPP
- Maximum 6 HPP

Deceleration
- Safe 25 HPP
- Maximum 40 HPP

Flight Speed 126 HPP
Knockdown 14
Ballistic Accuracy
Suspension Good
Rollover Rating 3 / 30
Field of View Fair
Drive Type Rear-Wheel Drive (RWD)
Transmission Type Manual / Standard
Tire Type High-Performance
Tire Condition New

OPTIONS

Parking / Emergency Brake | Power Brakes | Power Steering

Waist Seatbelts

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
19 - 22 Hx	4	.8 Hx	1.5 Hx	2 Hx	3 Hx	5 Hx	5 Hx	6 HPP
28 Hx	3	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	8 HPP
38 Hx	2	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	10 HPP
57 Hx	2	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	12 HPP
113 Hx	1	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	1	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	21 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	28 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	34 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	43 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	66 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
1	0	0	0	0	-3	-5	-10	(Gear Braking)							
2	-5	-3	0	0	0	-3	-5	-10							
3		-10	-5	-3	0	0	0	0	-3	-5	-10				
4					-10	-5	-3	0	0	0	0	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	15
Oblique	16
Side	18

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
K, KK	Side Body	Structure Door Window Side Mirror				
L	Side Body	Structure Door (optional) Window (optional)				
M	Left Rear Seat	Structure Passenger Comp. Fuel Line Fuel Tank				
N	Right Rear Seat	Structure Passenger Comp. Exhaust Manifold Fuel Tank				
O	Side Body	Structure Door (optional) Window (optional)				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
Q	Assembly	Structure Fuel Tank Fuel Refill Tube Transmis.(if RWD) Suspension Firewall Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Trunk Lid				
T	Rear Left Corner	Structure Bumper Signal Light Taillight				
U	Rear End	Structure Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Bumper Signal Light Fuel Refill Tube Taillight				

PICKUP TRUCK / GMC Sierra 2500

LOGISTICAL DATA

Passenger Capacity 2
Doors 2
Fuel Type Gasoline
Range 331 miles
Fuel Load 25 gallons (148 lbs)
Fuel Efficiency 13 miles per gallon
Refueling Time (RT) 6 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 17 ´
- Width 5.3 ´
- Height 6 ´
- Clearance 1 ´

Weight
- Unloaded 6,100 lbs
- Loaded 7,800 lbs
- Cargo Capacity 1,700 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	14 HPP	3 HPP
	2nd	25 HPP	4 HPP
	3rd	35 HPP	6 HPP
	4th	51 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.57	1.00	2.00	3.60
10	.28	.50	1.00	1.80
20	.14	.25	.50	.90
30	.09	.17	.33	.60
40	.07	.13	.25	.45
50	.06	.10	.20	.36
60+	.05	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-16
2	-8
3	-2
4	+2
5	+4
6	+5

Acceleration
- Safe 3 HPP
- Maximum 4 HPP

Deceleration
- Safe 25 HPP
- Maximum 40 HPP

Flight Speed 153 HPP
Knockdown 17
Ballistic Accuracy
Suspension Excellent
Rollover Rating 8 / 75
Field of View Good
Drive Type All-Wheel Drive (AWD)
Transmission Type Manual / Standard
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake	Power Brakes	Power Steering
Cruise Control	Shoulder Seatbelts	

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
23 - 25 Hx	4	.7 Hx	1 Hx	1.6 Hx	2 Hx	3 Hx	6 Hx	6 HPP
28 Hx	3	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	7 HPP
38 Hx	3	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	8 HPP
57 Hx	2	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP
113 Hx	2	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	1	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	18 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	24 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	31 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	37 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	57 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	0	0	-3	-5	-10			(Gear Braking)		
2	-5	-3	0	0	0	-3	-5	-10			
3		-10	-5	-3	0	0	0	-3	-5	-10	
4				-10	-5	-3	0	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	15
Oblique	17
Side	18

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				
K, KK	Side Body	Structure Door Window Side Mirror				
L, LL	Side Body	Structure Tarp Hitch				
M,	Cab Extension (optional)	Structure Cargo Compart. Side Windows Small Seat (opt.) Exhaust Manifold Fuel Line Transmis.(if AWD) Brakes				
MM	Rear Cab Wall	Structure Window Firewall Gun Rack (option)				
N	Bed	Structure Cargo Compart. Exhaust Manifold Fuel Tank				
NN		Structure Cargo Compart. Transmis.(if AWD) Fuel Tank Fuel Refill Tube				
O, OO	Side Body	Structure Tarp Hitch Fuel Refill Tube				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
Q	Assembly	Structure Fuel Tank Transmis.(if RWD) Suspension Cargo Compart. Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Tarp Hitch				
T	Rear Left Corner	Structure Tarp Hitch Bumper Signal Light Taillight				
U	Rear End	Structure Tarp Hitch Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Tarp Hitch Bumper Signal Light Taillight				

VAN / Volkswagon Eurovan

LOGISTICAL DATA

Passenger Capacity 7
Doors 3
Fuel Type Gasoline
Range 385 miles
Fuel Load 21.1 gallons (125 lbs)
Fuel Efficiency 18 miles per gallon
Refueling Time (RT) 4.5 minutes

PURSUIT DATA

Start Time 6 Impulses
Size
- Length 15.7 ´
- Width 6 ´
- Height 6.4 ´
- Clearance 0.7 ´

Weight
- Unloaded 4,348 lbs
- Loaded 5,048 lbs
- Cargo Capacity 700 lbs

Qualified Skill Level 1

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	14 HPP	2 HPP
	2nd	25 HPP	4 HPP
	3rd	38 HPP	6 HPP
	4th	56 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	.52	1.00	2.00	3.60
10	.26	.50	1.00	1.80
20	.13	.25	.50	.90
30	.09	.17	.33	.60
40	.07	.13	.25	.45
50	.05	.10	.20	.36
60+	.04	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-16
2	-8
3	-4
4	+0
5	+1
6	+2
8	+3

Acceleration
- Safe 2 HPP
- Maximum 3 HPP

Deceleration
- Safe 12 HPP
- Maximum 20 HPP

Flight Speed 224 HPP
Knockdown 18
Ballistic Accuracy
Suspension Poor
Rollover Rating 6 / 58
Field of View Poor
Drive Type Front-Wheel Drive (FWD)
Transmission Type Automatic
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake	Power Brakes	Power Steering
Cruise Control	Shoulder Seatbelts	

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed
19 - 22 Hx	5	.6 Hx	1 Hx	1.5 Hx	2 Hx	3 Hx	5 Hx	6 HPP
28 Hx	4	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	7 HPP
38 Hx	3	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	8 HPP
57 Hx	3	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP
113 Hx	2	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	15 HPP
173 Hx	2	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	18 HPP
283 Hx	1	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	24 HPP
420 Hx	1	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	31 HPP
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	37 HPP
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	57 HPP

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55	60
1	0	0	0	-3	-5	-10			(Gear Braking)			
2	-5	-3	0	0	0	-3	-5	-10				
3	-10	-5	-3	-3	0	0	0	0	-3	-5	-10	
4					-10	-5	-3	0	0	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	17
Oblique	19
Side	20

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
A	Front Left Corner	Structure Bumper Headlight Signal Light				
B	Front Grille	Structure Bumper Radiator				
C	Front Right Corner	Structure Bumper Headlight Signal Light				
D	Front Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
E	Engine	Structure Engine Battery Electronics Transmission Throttle Steering Hood Fuel Line Suspension				
F	Front Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
G	Assembly	Structure Firewall Exhaust Manifold Fuel Line Electronics Steering Transmis.(if FWD) Throttle Brakes Windshield Rear View Mirror				
H, HH	Side Body	Structure Door Window Side Mirror				
I	Driver' s Seat	Structure Steering Gauges Electronics Driver Compart. Brakes Fuel Line Transmission Throttle				
J	Shotgun Seat	Structure Passenger Comp. Exhaust Manifold				

HIT LOCATION TABLE - V4						
				Torque		
Code	Location(s)	Contents	PF	Front/Rear	Oblique	Side
K, KK	Side Body	Structure Door Window Side Mirror				
L	Side Body	Structure Door (optional) Window (optional)				
M	Left Rear Seat	Structure Passenger Comp. Fuel Line Fuel Tank				
N	Right Rear Seat	Structure Passenger Comp. Exhaust Manifold Fuel Tank				
O	Side Body	Structure Door (optional) Window (optional)				
P	Rear Left Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
Q	Assembly	Structure Fuel Tank Fuel Refill Tube Transmis.(if RWD) Suspension Firewall Exhaust Manifold Brakes Window				
R	Rear Right Wheel	Structure Fender Tire Wheel Brakes Hubcap Suspension				
S,SS	Trunk	Structure Cargo Compart. Exhaust Manifold Trunk Lid				
T	Rear Left Corner	Structure Bumper Signal Light Taillight				
U	Rear End	Structure Bumper Exhaust Manifold Trunk Lid (option) Spare Tire (opt.) Spare Wheel (opt)				
V	Rear Right Corner	Structure Bumper Signal Light Fuel Refill Tube Taillight				

LIGHT TRUCK / Freightliner Business Class FL50

LOGISTICAL DATA

Passenger Capacity 3
Doors 2
Fuel Type Diesel
Range 313 miles
Fuel Load 26 gallons (153 lbs)
Fuel Efficiency 12 miles per gallon
Refueling Time (RT) 5.5 minutes

PURSUIT DATA

Start Time 10 Impulses
Size
- Length 30.8 ´
- Width 9 ´ (makes wide turns; see table V1)
- Height 12 ´
- Clearance 1.7 ´

Weight
- Unloaded 11,800 lbs
- Loaded 19,000 lbs
- Cargo Capacity 7,200 lbs

Qualified Skill Level 2

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	6 HPP	1 HPP
	2nd	12 HPP	2 HPP
	3rd	20 HPP	3 HPP
	4th	28 HPP	5 HPP
	5th	36 HPP	6 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	1.03	1.00	2.00	3.60
10	.51	.50	1.00	1.80
20	.26	.25	.50	.90
30	.17	.17	.33	.60
40	.13	.13	.25	.45
50	.10	.10	.20	.36
60+	.09	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-17
2	-8
3	-4
4	-2
5	-1
6	+0
8	+1
10	+2

Acceleration

	Full Load	1/2 or less Load
Safe	1.5 HPP	2 HPP
Maximum	2 HPP	2.5 HPP

Deceleration

	Full Load	1/2 or less Load
Safe	10 HPP	12 HPP
Maximum	18 HPP	20 HPP

Flight Speed 300 HPP
Knockdown 30
Ballistic Accuracy
Suspension Fair
Rollover Rating 6 / 65
Field of View Poor
Drive Type All-Wheel Drive (AWD)
Transmission Type Manual / Standard
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake | Power Brakes | Power Steering

Waist Seatbelts

CORNERING CHART - V1

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed	Effective Width
28 Hx	8	1 Hx	2 Hx	4 Hx	5 Hx	6 Hx	7 Hx	3 HPP	12 ´
38 Hx	6	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	5 HPP	11 ´
57 Hx	4	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP	11 ´
113 Hx	3	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	12 HPP	10 ´
173 Hx	3	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	18 HPP	10 ´
283 Hx	2	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	21 HPP	9 ´
420 Hx	2	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	28 HPP	9 ´
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	35 HPP	9 ´
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	54 HPP	9 ´

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40
1	0	0	-3	-5	-10			
2	-3	0	0	-3	-5	-10		
3	-5	-3	0	0	-3	-5	-10	
4	-10	-5	-3	0	0	0	-3	-5
5			-10	-3	-3	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	18
Oblique	20
Side	22

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

The Hit Location Data for this vehicle are not included in this version of the HSPS.

TRACTOR-TRAILER / Mack CH612

LOGISTICAL DATA

Passenger Capacity 3
Doors 2 + Trailer Entrance
Fuel Type Diesel
Range 1,410 miles
Fuel Load 217 gallons (1,280 lbs)
Fuel Efficiency 6.5 miles per gallon
Refueling Time (RT) 24.5 minutes

PURSUIT DATA

Start Time 20 Impulses

Size

	Tractor	Trailer	Tractor-Trailer
Length	18 ´	38 ´	50 ´ (due to overlap)
Width	9 ´	9 ´	9 ´
Height	13 ´	13 ´	13 ´ (makes wide turns)
Clearance	1.7 ´	1.7 ´	1.7 ´

Weight

Unloaded 22,000 lbs (8,000 lbs for tractor alone)
Loaded 35,000 lbs
Cargo Capacity 12,000 lbs (200 lbs for tractor alone)

Qualified Skill Level 3

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	5 HPP	1 HPP
	2nd	8 HPP	1.5 HPP
	3rd	11 HPP	2 HPP
	4th	17 HPP	3 HPP
	5th	22 HPP	4 HPP
	6th	27 HPP	5 HPP
	7th	35 HPP	6 HPP
	8th	43 HPP	7 HPP
	9th	51 HPP	9 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length and Time Table

	Effective Length (EL)		Road Width		
HPP	**Tractor**	**Tractor-Trailer**	**25´ or less**	**26´ - 39´**	**40´+**
5	.46	1.66	1.00	2.00	3.60
10	.23	.83	.50	1.00	1.80
20	.12	.42	.25	.50	.90
30	.08	.28	.17	.33	.60
40	.06	.21	.13	.25	.45
50	.05	.17	.10	.20	.36
60+	.04	.14	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-18
2	-9
3	-5
4	-3
5	-2
6	-1
8	+0
10	+1

Acceleration

	Tractor	Tractor-Trailer Full Load	Tractor-Trailer 1/2 or less Load
Safe	2 HPP	1 HPP	1.5 HPP
Maximum	3 HPP	2 HPP	2 HPP

Deceleration

	Tractor	Tractor-Trailer Full Load	Tractor-Trailer 1/2 or less Load
Safe	12 HPP	5 HPP	6 HPP
Maximum	20 HPP	10 HPP	12 HPP

Flight Speed 413 HPP
Knockdown 30
Ballistic Accuracy
Suspension Poor
Rollover Rating 10 / 85
Field of View Poor
Drive Type Special (see Section 6.2)
Transmission Type Manual / Standard
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake	Cruise Control	Power Brakes
Power Steering	Air horn	

CORNERING CHART - V2a

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed	Effective Width
25 - 32 Hx	8	1 Hx	2 Hx	3 Hx	4 Hx	5 Hx	6 Hx	5 HPP	18 ´
38 Hx	6	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	7 HPP	16 ´
57 Hx	4	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	11 HPP	15 ´
113 Hx	3	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	14 HPP	13 ´
173 Hx	3	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	20 HPP	12 ´
283 Hx	2	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	23 HPP	10 ´
420 Hx	2	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	30 HPP	9 ´
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	37 HPP	9 ´
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	56 HPP	9 ´

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25	30	35	40	45	50	55
1	0	-3	-5	-10							
2	0	0	-3	-5	-10						
3	-3	0	0	-3	-5	-10					
4	-5	-3	0	0	-3	-5	-10				
5	-10	-5	-3	0	0	-3	-5	-10			
6		-10	-5	-3	0	0	-3	-5	-10		
7			-10	-5	-3	0	0	-3	-5	-10	
8				-10	-5	-3	0	0	0	-3	-5
9					-10	-10	-5	-3	0	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	20
Oblique	22
Side	24

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

The Hit Location Data for this vehicle are not included in this version of the HSPS.

BUS / Mercedes Benz City Bus 0355 (custom shortened)

LOGISTICAL DATA

Passenger Capacity 110 (50 seats)
Doors 2
Fuel Type Diesel
Range 352 miles
Fuel Load 44 gallons (260 lbs)
Fuel Efficiency 8 miles per gallon
Refueling Time (RT) 9 minutes

PURSUIT DATA

Start Time 8 Impulses
Size
- Length 30 ´
- Width 8 ´ (makes wide turns; see Table V1)
- Height 9.6 ´
- Clearance 0.6 ´

Weight
- Unloaded 14,600 lbs
- Loaded 30,000 lbs
- Cargo Capacity 15,400 lbs

Qualified Skill Level 2

Maximum Speeds

	Gear	On Road	Off Road
Forward	1st	11 HPP	2 HPP
	2nd	18 HPP	3 HPP
	3rd	25 HPP	4 HPP
Reverse	1st	10 HPP	1.5 HPP

Effective Length (EL) and Time (t) Table

		Road Width		
HPP	**EL**	**25´ or less**	**26´ - 39´**	**40´+**
5	1.00	1.00	2.00	3.60
10	.50	.50	1.00	1.80
20	.25	.25	.50	.90
30	.16	.17	.33	.60
40	.13	.13	.25	.45
50	.10	.10	.20	.36
60+	.08	.08	.17	.30

Steer Time Modifier Table

AC	Modifier
0	-5 / -30
1	-18
2	-8
3	-5
4	-2
5	-1
6	+0
8	+1

Acceleration
- Safe 2 HPP
- Maximum 2.5 HPP

Deceleration
- Safe 10 HPP
- Maximum 20 HPP

Flight Speed 390 HPP
Knockdown 28
Ballistic Accuracy
Suspension Poor
Rollover Rating 8 / 75
Field of View Poor
Drive Type Rear-Wheel Drive (RWD)
Transmission Type Automatic
Tire Type All-Season
Tire Condition New

OPTIONS

Parking / Emergency Brake
Power Brakes
Power Steering
2 Roof Emergency Hatches
4 Window Emergency Hatches

CORNERING CHART - V2a

Effective C	AC	Corner Degrees 15°	30°	45°	60°	75°	90°	Safe Speed	Effective Width
23 - 28 Hx	8	.7 Hx	1 Hx	1.6 Hx	2 Hx	3 Hx	6 Hx	3 HPP	13 ´
38 Hx	6	2 Hx	3 Hx	5 Hx	7 Hx	8 Hx	10 Hx	5 HPP	12 ´
57 Hx	4	2 Hx	5 Hx	7 Hx	10 Hx	12 Hx	14 Hx	9 HPP	11 ´
113 Hx	3	5 Hx	9 Hx	14 Hx	19 Hx	23 Hx	28 Hx	12 HPP	10 ´
173 Hx	3	8 Hx	14 Hx	20 Hx	30 Hx	35 Hx	43 Hx	18 HPP	9 ´
283 Hx	2	12 Hx	24 Hx	36 Hx	47 Hx	59 Hx	71 Hx	21 HPP	8 ´
420 Hx	2	18 Hx	35 Hx	53 Hx	70 Hx	88 Hx	105 Hx	28 HPP	8 ´
556 Hx	1	23 Hx	46 Hx	69 Hx	92 Hx	116 Hx	139 Hx	35 HPP	8 ´
1112 Hx	1	46 Hx	93 Hx	139 Hx	185 Hx	232 Hx	278 Hx	54 HPP	8 ´

GEARSHIFTING TABLE - V2

Current Gear	Speed in Hexes Per Phase (HPP) 5	10	15	20	25
1	0	0	0	-3	-5
2	-3	0	0	0	-3
3	-10	-5	-3	0	0

COMBAT AND COLLISION DATA

Target Size Modifiers

Front	18
Oblique	20
Side	22

Protection Factor (PF)

	Angle of Intersection ≤ 8°	15°	30°	45°	60°	75°	90°
Body							
Glass							
Engine							
Interior							
Tires							

Penetration (PEN)

Closing Speed	Front / Corner / Rear	Side / Oblique
5 HPP		
10 HPP		
15 HPP		
20 HPP		
25 HPP		
30 HPP		
40 HPP		
50 HPP		

The Vehicle Layouts for this vehicle are not included in this version of the HSPS.

The Hit Location Data for this vehicle are not included in this version of the HSPS.

Driving Accuracy / 1A	
Skill Level	DAL
0	0
1	5
2	7
3	9
4	10
5	11
6	12
7	13
8	14
9	15
10	16
11	17
12	18
13	19
14	20
15	21
16	22
17	23
18	24
19	25
20	26

Combat Action Table / 1B	
INT + DAL	CA
6	1
7-10	2
11-14	3
15-20	4
21-26	5
27-31	6
32-40	7
41+	8

Agility Modifiers / 1C	
Agility	CA Mod
3 - 4	-1
5 - 13	0
14 - 16	+1
17 - 18	+2

COASTING TABLES

Going Uphill, or Level		
Terrain DA Mod	Speed Change Per Phase Per 9^o Slope	Per 0^o Slope
-9 or less	-0.25 HPP	-0.02 HPP
-8 to -3	-0.5 HPP	-0.1 HPP
-2 to +3	-1 HPP	-0.2 HPP
Extra Rough	-2 HPP	-5 HPP

Going Downhill		
Terrain DA Mod	Speed Change Per Phase Per 9^o Slope	Max. Downhill Coasting Spd.*
-9 or less	+2 HPP	Acceleration x 20
-8 to -3	+1.5 HPP	Acceleration x 15
-2 to +3	+1 HPP	Acceleration x 10
Extra Rough	+1 HPP	Acceleration x 3

* May not exceed 60 Hexes Per Phase.

ODDS OF STEERING TABLE / 2A

Driving Accuracy	Vehicle Speed in Hexes Per Phase (HPP)																
	2	**3**	**4**	**6**	**8**	**10**	**15**	**20**	**30**	**40**	**50**	**60**	**70**	**85**	**100**	**115**	**130**
-30	02	01															
-28	04	02	01														
-26	06	04	02	00													
-24	09	06	04	01	01												
-22	15	09	06	02	01	00						Failure					
-20	22	15	09	04	02	01	01										
-18	27	22	15	06	04	02	01	00									
-16	33	27	22	09	06	03	02	01									
-14	39	33	27	15	09	05	04	02	00								
-12	46	39	33	22	15	07	06	03	02	01							
-11	53	46	39	27	18	09	07	04	03	01							
-10	60	53	46	33	22	12	09	05	04	01	00						
-9	67	60	53	39	27	15	12	06	05	02	01						
-8	74	67	60	46	33	18	15	07	06	02	01	00					
-7	80	74	67	53	39	22	18	09	07	03	01	01					
-6	86	80	74	60	46	27	22	12	08	04	02	01	00				
-5	90	86	80	67	53	33	27	15	09	05	02	01	01				
-4	94	90	86	74	60	39	33	18	12	06	03	02	01	00			
-3	96	94	90	80	67	46	39	22	15	07	04	02	01	01			
-2	98	96	94	86	74	53	46	27	18	09	05	03	02	01			
-1		98	96	90	80	60	53	33	22	12	06	04	02	01	00		
0			98	94	86	67	60	39	27	15	07	05	03	02	01		
1				96	90	74	67	46	33	18	09	06	04	02	01		
2				98	94	80	74	53	39	22	12	07	05	03	01	00	
3					96	86	80	60	46	27	15	09	06	04	02	01	
4					98	90	86	67	53	33	18	12	07	05	02	01	00
5						94	90	74	60	39	22	15	09	06	03	01	01
6						96	94	80	67	46	27	18	12	07	04	02	01
7						98	96	86	74	53	33	22	15	09	05	02	01
8							98	90	80	60	39	27	18	12	06	03	02
9								94	86	67	46	33	22	15	07	04	02
10								96	90	74	53	39	27	18	09	05	03
11								98	94	80	60	46	33	22	12	06	04
12									96	86	67	53	39	27	15	07	05
13									98	90	74	60	46	33	18	09	06
14										94	80	67	53	39	22	12	07
15										96	86	74	60	46	33	15	09
16										98	90	80	67	53	39	18	12
17											94	86	74	60	46	22	15
18					Success						96	90	80	67	53	27	18
19											98	94	86	74	60	33	22
20												96	90	80	67	39	27
21												98	94	86	74	46	33
22													96	90	80	53	39
23													98	94	86	60	46
24														96	90	67	53
25														98	94	74	60
26															96	86	67
27															98	90	74
28																94	80
29																96	86
30																98	90
31																	94
32																	96
33																	98

Vehicle and Driver Modifiers / 2B

ALM	
	Driverless (Steering Time 0)
0	Straightaway
-30	Cornering
-10	Driver Ducking
-6	Side Steering (Driver not in driver´s seat)
-4	Driving One-Handed
- # of Grs / Phase	Gear Change WhileAccelerating
*	Wrong Gear (* see Table V2)
-5	Coasting
	Cornering
0	At Safe Speed or less
- excess squared	Above Safe Speed
+30	Driver Only Drifting (no other maneuver performed that Phase)

Weather Modifiers / 2C

ALM	
	Rain
0	Light
-2	Moderate
-4	Heavy
-4	Snow
-9	Blizzard
-12	w/ Bright Headlights
	Fog
-3	Light
-6	Moderate
-9	Heavy
-12	w/ Bright Headlights
-12	Sand Storm

Lighting Modifiers / 2D

ALM	
0	Daytime
-1	Overcast
-2	Dusk
-4	Night Full Moon
-6	Half Moon
-9	Quarter Moon
-12	No Moon
-14	No Stars
	Headlights (negates darkness penalty only)
+2	Low
+6	Bright
* -8	Looking at Bright Light, then night/darkness (* penalty reduces by -2 per Phase)
	Snow or Traffic Glare
-1	Minor
-3	Major
-8	Looking into Sun

Accoutrements Modifiers / 2E

ALM	
	Sun Visors (negates Sun/Glare only)
+2	Day
0	Night
	Sun Glasses (negat. Sun/Glare only)
+1	Day
-2	Night
	Windshield Condition:
	Tinted (negat. Sun/Glare only)
+1	Day
-2	Night
-1	Cracked
-4	Spiderwebbed
-2	Missing
-1	Missing, Driver w/ Goggles
+2	Wipers on (negates Rain or Snow only)

Road Condition Modifiers / 2F

ALM Dry	Wet		
		Asphalt	
+3	-3		New, Sharp
0	-5		Traveled
-2	-5		Traffic Polished
-5	-9		Excess Tar
		Concrete	
+1	-3		New, Sharp
0	-5		Traffic Polished
-9	-12	Grass	

ALM Dry	Wet	
-5	-9	Dirt Loose Packed
		Gravel
-3	-5	Packed / Oiled
-5	-5	Loose
		Snow
-9	-14	Packed
-14	-14	Loose, or Ice

DRIFTING TABLE / 2G

HPP	Drift Distance in Feet									
5	0	0	1	2	7	18	34	58	72	98
10	0	1	2	4	14	30	40	115		
15	1	2	3	5	23	34	45			
25	4	6	8	13	32					
35	7	13	17	24						
45	11	22	27							
55	17	31								
70	22				Automatic Mishap					
90	16									
110	13									
120	10									
130	7									
Facing Change	≤ 8°	15°	15°	30°	30°	45°	45°	60°	60°	≥ 75°
MR Penalty	-4	-7	-7	-10	-10	-21	-21	-26	-26	-28
Corner C	1112 hx	556 hx	420 Hx	283 Hx	113 Hx	57 Hx	38 Hx	28 Hx	22 Hx	≤19 Hx

CORNER DISTANCE TABLE / 2H

	Corner Width in Feet									C Modifier			
										Lead-In		No Lead-In	
	5	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**Inside**	**Outside**	**Inside**	**Outside**
	0-1	2-3	4-5	6-8	8-10	11-13	13-15	16-18	17-20	1	1	1	1
Vehicle's					6-7	9-10	11-12	13-15	15-16	0.82	0.9	0.97	1.04
Maneuver				4-5	4-5	7-8	9-10	11-12	11-14	0.74	0.81	0.94	1.07
Room		0-1					7-8	9-10	9-10	0.65	0.76	0.9	1.1
			0-3	0-3	0-3	0-6	0-6	0-6	0-8	0.47	0.62	0.87	1.13

JOSTLING TABLE / 2I

Speed Change	Cornering Speed	Terrain Regularity	Vehicle Suspension Rating					
			None	**Poor**	**Fair**	**Average**	**Good**	**Excellent**
5 HPP	10 HPP	Smooth	1					
10 HPP	20 HPP	Gritty	2	1			Jostling = 0	
20 HPP	30 HPP	Bumpy	3	2	1	1		
30 HPP	40 HPP	Rocky	7	5	3	2	1	
40 HPP	60 HPP	Craggy	10	7	5	3	2	1
50 HPP	80 HPP	(Rollover)	15	–	–	–	–	–
	Facing Change		90°	75°	60°	45°	30°	15°

SPOTTING TABLE / 3A

Visibility DA Modifier	Target Range in Hexes													
	2	**5**	**7**	**10**	**15**	**25**	**50**	**75**	**125**	**150**	**200**	**250**	**500**	**1000**
0	0	0	0	0	1	1	1	1	1	2	3	4	6	8
-1	0	0	0	0	1	1	1	2	4	6	8			
-2	0	0	0	1	1	1	2	3	6	8				
-3	0	0	0	1	2	4	6	8						
-6	0	0	1	2	4	8								
-9	0	1	3	6	8									
-12	1	4	6	8					Invisible					
-18	2	8												
-24	8													

SKIDDING COLUMN SHIFT TABLE / 5A

Skidding Total	Columns Shifted
0 or less	3 right
1-4	2 right
5-8	1 right
9+	0 right

SKIDDING TABLE / 5B

Entrance Speed	Terrain DA Modifier				Average Skid Speed
	Extra Smooth	-14	-9	-5	
10 HPP	33 Hx, 44 Imp, 15AC	22 Hx, 29 Imp, 12AC	7 Hx, 9 Imp, 10AC	4 Hx, 5 Imp, 8AC	3 HPP
15 HPP	75 Hx, 75 Imp, 15AC	50 Hx, 50 Imp, 12AC	17 Hx, 17 Imp, 10AC	10 Hx, 10 Imp, 8AC	4 HPP
20 HPP	134 Hx, 98 Imp, 15AC	89 Hx, 65 Imp, 12AC	30 Hx, 22 Imp, 10AC	18 Hx, 13 Imp, 8AC	5 HPP
25 HPP	209 Hx, 123 Imp, 15AC	139 Hx, 82 Imp, 12AC	46 Hx, 27 Imp, 10AC	28 Hx, 16 Imp, 8AC	6 HPP
30 HPP	300 Hx, 144 Imp, 19AC	200 Hx, 96 Imp, 15AC	67 Hx, 32 Imp, 13AC	40 Hx, 19 Imp, 10AC	7 HPP
35 HPP	408 Hx, 168 Imp, 19AC	272 Hx, 112 Imp, 15AC	91 Hx, 38 Imp, 13AC	54 Hx, 22 Imp, 10AC	10 HPP
40 HPP	534 Hx, 194 Imp, 23AC	356 Hx, 129 Imp, 18AC	119 Hx, 43 Imp, 15AC	71 Hx, 26 Imp, 12AC	11 HPP

Entrance Speed	Terrain DA Modifier				Average Skid Speed
	-3	+0	+3	Extra Rough	
10 HPP	3 Hx, 4 Imp, 6AC	3 Hx, 4 Imp, 4AC	2 Hx, 3 Imp, 4AC	1 Hx, 2 Imp, 3AC	3 HPP
15 HPP	7 Hx, 7 Imp, 6AC	6 Hx, 6 Imp, 4AC	5 Hx, 5 Imp, 4AC	3 Hx, 3 Imp, 3AC	4 HPP
20 HPP	13 Hx, 10 Imp, 6AC	11 Hx, 8 Imp, 4AC	10 Hx, 7 Imp, 4AC	5 Hx, 4 Imp, 3AC	5 HPP
25 HPP	20 Hx, 12 Imp, 6AC	17 Hx, 10 Imp, 4AC	16 Hx, 9 Imp, 4AC	8 Hx, 5 Imp, 3AC	6 HPP
30 HPP	29 Hx, 14 Imp, 8AC	25 Hx, 12 Imp, 5AC	22 Hx, 11 Imp, 4AC	11 Hx, 6 Imp, 3AC	7 HPP
35 HPP	39 Hx, 16 Imp, 8AC	34 Hx, 14 Imp, 5AC	30 Hx, 12 Imp, 4AC	15 Hx, 6 Imp, 3AC	10 HPP
40 HPP	51 Hx, 19 Imp, 9AC	44 Hx, 16 Imp, 6AC	40 Hx, 15 Imp, 5AC	20 Hx, 8 Imp, 4AC	11 HPP

Collision Glancing Table / 5C

Not included in this version of the HSPS.

Collision Damage Table / 5D

Roll	Damage	Operational?	Repairable?
≤ 1	Superficial (SUP)	Yes	Yes
2 - 4	Minor (MIN)	No	Yes
5 - 7	Major (MAJ)	No	Yes (-4 penalty)
8 - 10	Replace (REP)	No	Yes (-8 penalty)
11+	Destroyed (DES)	No	No

Damage Roll Modifiers Table / 5E

Structural Damage	Compaction Damage Roll Modifier	Amount Collapsed	Displacement Damage Roll Modifier
SUP	0	10%	n/a
MIN	+1	25%	-6
MAJ	+3	50%	-4
REP	+5	75%	-2
DES	+8	100%	0

Post-Collision Speed Table / 5F

Description	Angle of Intersection	Speed Factor
Rear-end	0^{o}	*
Side-swipe	$\leq 8^{o}$	0.05
Side-swipe	15^{o}	0.1
Side-swipe	30^{o}	0.2
Oblique	60^{o}	0.4
Side/t-bone	120^{o}	0.7
Oblique	150^{o}	0.9
Head-on	180^{o}	1

* The struck object's speed equals half the sum of both objects' residual speeds.

Occupant Injury Table / 5G

ΔV (in HPP)	Concussion PD	ID	Jostling Penalty (Optional)
≤ 3	None	(6)-2	-3 CA
5	3	11	-4 CA
8	9	14	-5 CA
10	24	20	-7 CA
15	30	24	-10 CA
20	36	28	-15 CA
25	45	30	-15 CA
30	60	33	-18 CA
35	75	35	-20 CA
40	90	38	-22 CA
45	120	40	No action
50	200	43	No action
60	400	45	No action
70	800	50	No action
80	1000	55	No action
90	2000	60	No action
100	5000	65	No action

Collision Projectile Table / 5H

Description	Armour	Die Roll 0	1-3	4-6	7-9
Packed (many heavy, hard objects)	None	0	28	96	96
	Crash Helm	0	8	22	22
	Crash Suit	0	3	9	9
Cluttered (Some big things, many small sharp things)	None	0	0	12	36
	Crash Helm	0	0	3	9
	Crash Suit	0	0	1	4
A few objects (some sharp or hard)	None	0	0	0	1
	Crash Helm	0	0	0	1
	Crash Suit	0	0	0	0

MISCELLANEOUS ACTIONS TIME TABLE

CA	Action
4	Draw car keys while standing
8	Draw car keys while sitting
3	Open car door
3	Get into a car‘ s front seat
6	Buckle up seatbelt
4	Unbuckle seatbelt
20	Roll down manual window
1	Roll down power window (+1 Phase)
8	Adjust car seat forward or back
2	Insert key (into ignition/door/trunk)
1	Turn key (in ignition/door/trunk)
2	Pop clutch
2	Shift gears
1	Activate a pushbutton function Windshield wipers on/off Headlights on/off Lock/unlock door Open/close glove box Pop Trunk Honk horn, etc.
11	Climb into seat next to you
30	Climb from front seat into back or vice versa
1	Turn steering wheel 90^{o}

BASIC SYSTEM

OUTLINE

Play proceeds exclusively in Turns. Round all fractions off. Use only the following sections and subsections, as described:

2.2 SPEED & GEARSHIFTING

Acceleration and Deceleration
Speed Thresholds

2.3 MANEUVER ROOM

MR equals road Width, minus vehicle Width, divided by two. If entering a differently-sized road, add or subtract half the difference in road Widths.

If your MR goes below **0**, determine randomly to find where you go. If there are no obstacles on the road, then roll **(6)**: 1-3 = right, 4-6 = left. If there is an obstacle, then 1-2 = right, 3-4 = obstacle, 5-6 = left.

Off-road has its own ratings for obstacles and terrain.

2.4 DRIVING ACCURACY

Treat all manned **Steering Time** as **3AC**.

2.6 BASIC CORNERING

Only use bend degrees, **Width**, and **C**. C is used to find **Safe Speed** only.

4.1 TRAFFIC

Use only **Pacing Width**, **Passing Width**, **Crossing Width**, and **Blocking Chance**. Make only **1** DA roll per Turn, but count every level of traffic equal to **1** HPP beyond your **Safe Speed**; thus:

Traffic Density	DA Modifier
Rare	-1
Light	-4
Moderate	-9
Heavy	-16
Very Heavy	-25
Gridlock	-36

When going against traffic, roll **(6)** per vehicle passed. Your chance of automatically colliding depend some on your skill:

Skill Level	Odds on (6)
1	1 - 3
2 - 6	1 - 2
7+	1

4.2 STATIONARY OBSTACLES

Use only **Passing Width**, **Obstacle Width**, and **Blocking Chance**. MR penalty per Turn equals obstacle Width + vehicle Width, applied at the beginning of each Turn.

4.3 OFFENSIVE DRIVING

Basic MR: Whenever multiple pursuit-engaged vehicles are side by side on the same road, the road's Width is divided by their number. The results are used by each vehicle to determine its respective MR.

Blocking

If you are in front of another vehicle, he must find his potential MR using the basic MR rules, above. If it is **0 or higher**, he may pace you, speeds permitting.

Example: A hatchback (Width 5', MR 3) is in front of a motorcycle (2') on a 10' road. The motorcycle's initial MR is irrelevant. The motorcycle's potential MR is calculated from half the road's Width, yielding 2. If the hatchback doesn't actively try to block, the motorcycle can zoom past.

If your Skill Level is twice or more your opponent's, you may treat your vehicle as being two vehicles, for the purposes of determining his potential MR. If his is twice or more yours, you are at **-10** DA to block him.

To block, make a DA roll. You may **subtract** 1/10 of your success from the pursuing vehicle's potential MR. Likewise, he may make a DA roll, and may **add** 1/10 of his success to his own potential MR, up to the maximum.

Pacing

If the other vehicle doesn't wish to be paced, he may make a DA roll, and adjust his speed by 1/10 his success. Likewise, you may adjust your own speed to compensate, by 1/10 of your success.

Prorate positions based on speed (e.g. if he is 1 HPP faster, he is 1 hex ahead).

Ramming

If you are pacing another vehicle, you can ram it by making a DA roll. Subtract 1/10 of your success from the other vehicle's MR. If he rams you at the same time, subtract the difference between 1/10 your success, and 1/10 his success, from the MR of whoever succeeded less.

If you are blocking, you may ram by decelerating to at least 1 HPP below that of the following vehicle. He may avoid by making a successful DA roll, adjusting his own speed as desired. Likewise rules apply for him ramming you. If a ram occurs, resolve normally, using the same roll results.

Damage is resolved as a Collision (**Section 5.6**).

4.4 STUNTS

Flight

Motorcycles: Jump distance equals (HPP – 10) x 0.7 hexes.
Cars/Vans: Jump distance equals (HPP – 10) x 0.5 hexes.
Trucks/Busses: Jump distance equals (HPP - 10) x 0.2 hexes.

3(6) Skill Rolls: For each task, you must roll equal to or less than the Base Odds (listed below) plus your Driving SL.

15 - N	Evasive maneuvers; subtract N from all fire at and from the vehicle.
14 - N	Dangerous maneuver to lose pursuit; choose N each 12 Phases.
8 - SL	Ram and disable opponent's vehicle, per Turn; subtract opponent's Driving SL from Base Odds.
9	Avoid an obstacle with 6 inches clearance at chase speed.
17 - SL	Run over a person on flat, clear terrain; does 200 X (10) PD; subtract target's Balance SL from Base Odds.

5.1 BASIC SKIDDING

Skid number equals a 0 - 9 number, plus 1/10 of your DA failure. Enter it on the **Skidding Column Shift Table** to find the columns shifted on the **Skidding Table**. From the Skidding Table, use only distance, time, and average speed if needed. Recovering from a skid demands a DA roll at **-20**, and takes the entire Turn.

Recovery Speed

Half your initial speed, plus your 1/10 your DA roll success.

5.2 ROLLOVERS

You risk rolling whenever you Corner above Safe Speed, start Skidding, or go off the road. Use the appropriate chance. A rolled vehicle´s driver rolls **(6)**: 1 = MIN damage, 2-3 = MAJ damage, 4-5 = REP damage, 6 = DES (explosion).

5.6 COLLISIONS

For ordinary collisions roll **(6)** for each vehicle. For rams, roll **(2)** for the rammer and **(3)** for the target.

If one vehicle is significantly larger than the other (e.g. car vs. motorcycle, or van vs. car), then the larger **subtracts 1**, while the smaller **adds 1**, to their respective damage rolls.

Die Roll	Damage
1	Superficial
2	Crew Injury, plus Superficial damage to vehicle.
3	Crew Injury, plus Minor (MIN) damage to vehicle.
4	Crew Injury, plus Major (MAJ) damage to vehicle.
5	Crew Injury, plus Replace (REP) damage to vehicle.
6	Crew Injury, plus vehicle is destroyed.

In a non-collision accident, such as going off the road, roll **(3)** for damage.

5.7 INJURIES

In a collision, when Crew Injury is indicated, each person in the vehicle suffers (6) x 5 x Collision die roll (see above) in PD. If you are not using PD, presume that anyone who takes more PD than his **SL x 10** is incapacitated.

6.2 TRACTOR-TRAILERS

Wide Turns

6.3 BUSES & RECREATIONAL VEHICLES

Wide Turns

6.4 TOWING

Apply a **-10** DA modifier while towing. If you skid, there is a **50%** chance your trailer skids also. This halves your maximum acceleration and braking, and you must check for rollover each Turn.

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