

A Plug-in for the Fuzion™ Roleplaying Game



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Atomik MotorWarz

What is Fuzion?

Fuzion is a unified set of role-playing rules combining the best of the **Hero System™ (Champions)** and **Interlock (Cyberpunk, Mekton Z)**. Not only can Fuzion be adapted to cover nearly every time, place, or setting, but it also has the ability to utilize existing **Hero™** and **Interlock™** rules and materials; if it is marketed as **Fuzion Capable**, it can be used as part of the Fuzion system.

Hero Games and R. Talsorian Games, Inc., jointly developed Fuzion. Many existing games systems use Fuzion, including **Champions: The New Millennium**, **Sengoku**, **Usagi Yojimbo**, **Bubblegum Crisis the RPG**, **Shards of the Stone**, **Dragonball Z**, and many more. Fuzion uses a unique Plug-In system that allows for easy addition and removal of rules. For instance, to add Martial Arts to your campaign, you need only turn to a Martial Arts plug-in. To add Magic, Psionics, or Superpowers, these too may be easily plugged-in to the core rules (Total Fuzion).

Where Can I Get Fuzion?

The basic Fuzion rules (for character generation, combat, game mechanics, and basic plug-ins) can be found in any Fuzion product produced by **R.Talsorian**, **Hero Games**, or **Gold Rush Games**. However, as it is, these companies were kind enough to provide an on-line version of their core rules system. To obtain this file, please visit the following URL on the Internet (provided the site does not move, of course):

www.herogames.com/Fuzion/

Introduction

About Atomik Fuzion

Atomik Fuzion is collection of "Fuzionable Materials" developed by Mark Chase, for use with any Fuzion RPG gameworld from modern-day, to sci-fi, to high fantasy. These plug-ins include **Atomik Magick**, **Atomik WAR**, **Atomik Deathmatch** (made for **Atomik WAR**), the mecha gameworlds of **Vigilantian**, **Metal Storm: 2380**, and world of **Lodoss War RPG** (base on the anime), as well as generic plug-ins for LifePath, psionics, and alien creatures.

Playing Fuzion

So, you have this **Atomik Fuzion** plug-in, but how do you play **Fuzion**? First, you must get a set of Total Fuzion rules. As mentioned (see side bar), the rules to create characters and play the game can be found in any Fuzion RPG book, or at the Fuzion web site. If you are having trouble finding a **Fuzion** game book, visit your local gaming store and ask about the R.Talsorian Games, Heroes Games, or Obsidian Studios product line. I recommend **Shards of the Stone** (a fantasy world), or **Champions: The New Millennium**. For Sci-Fi, you might look into getting **Bubblegum Crisis** or **Votoms**. Eventually, a Fuzion version of **Cyberpunk** and **Mekton**, will be released, which should be excellent as well.

Atomik MotorWarz

The **Fuzion** System provides enough flexibility and customization to support any genre, plug-ins, "sub-systems", or rules expansions. Indeed, most **Fuzion** games come with rudimentary rules for vehicles and vehicular combat, and games such as **Bubblegum Crisis**, **Votoms**, and **Mekton**, take this one step further (though centered upon Mecha rather than vehicles). There are other vehicle construction systems available for **Fuzion**, used to build everything from tanks, to jets, to hydrofoils. But **Atomik MotorWarz** is not a generic vehicle construction system.

What is this Plug-In? **Atomik MotorWarz** is a "Real World" vehicle *modification* and combat system. All vehicles are real vehicles. All modifications are real modifications (well, most are, anyway). All prices and weights are real. Performance and vehicle specs are real. Vehicles are not built from the ground up, rather, an existing model is purchased and then modified. **Atomik MotorWarz** is only designed for motor vehicles (as the name implies) -- there is no support for helicopters, fighters, or mecha, though it should be compatible with existing vehicle and mecha plug-ins.

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Introduction

"I'm on the Highway to Hell!" - AC/DC, Highway to Hell

Atomik MotorWarz presents a new system for handling vehicles in **Fuzion**, more "Real World", customizable, hands-on, and "nitty-gritty" so to speak. The vehicle catalog, in the following chapter, contains all real world vehicles, with their actually specs and prices (researched to the best of my ability). It is intended for use in modern day to near-future campaigns, where it is more likely for a character to buy a car and modify it, than build a car from scratch (as most other vehicle plug-ins assume). Other vehicles can be imported (for example, new cars, or vehicles not listed) as long as you know its specs. This includes machines made in other vehicle plug-ins, again, assuming the required specs are known.

Motor Vehicle Combat

The Vehicle Combat System is an extrapolation of the sparse vehicle combat rules in basic **Fuzion**, combined with a few rules from **Mekton**, and a collection of house-rules designed to better and more realistically portray vehicular combat. The system allows for special maneuvers, driving rolls, stunts, and various types of vehicular attacks. Vehicles made in **Atomik MotorWarz** do not have to use this combat system, and the Vehicle Combat System can be used as a stand-alone plug-in, which can likewise be used with vehicle made in other systems.

Other Vehicles and Plug-Ins

Atomik MotorWarz does not go beyond motor vehicles in its catalog or modification system, though any vehicle can be used in the Combat System. Such vehicles as tanks, mecha, fighters, boats, and spacecraft must be created in other systems, such as with **Mekton** or another vehicle plug-in. Because vehicle specs are translated to RPG stats (SDP, KD, MV, MP, etc.), cars and trucks made in **Atomik MotorWarz** should be able to clash head to head with a mecha or tank made in **Mekton** (though that is not to say such a fight would go well for the car).

Real World Objective

The basic objective of **Atomik MotorWarz** is to present a vehicle plug-in for **Fuzion** which complies with the Real World, as close as possible, while keeping complexity to a minimum. Because these two goals are often mutually exclusive, **Atomik MotorWarz** is somewhat complex and not absolutely Real World accurate. If realism is not your primary concern, or if this system seems overly complex, then it is not for you. **Mekton** and other vehicle plug-ins currently available, offer simplified construction and combat rules for vehicles and machines of all sorts. If **Atomik MotorWarz** does not suit your needs, there are several other **Fuzion** plug-in for vehicles and machines can be found on the web.

Near-Future Adjustments

Many **Fuzion** campaigns take place not in the present day, but in the near future (meaning, 2005 to 2030). It is of course impossible to foresee what sort of vehicles we will have in 2020 or 2030 -- we may still be using petroleum (or some artificial petrol), or all electric, hydrogen fuel cells, or something we haven't even invented yet.

To use **Atomik MotorWarz** in a campaign taking place in the "foreseeable" near-future (within the next five to seven years), simply "up" the models of the cars in the Catalog from 2000 or 2001 to 2007, or, alternatively, you can buy 2000 year models at a reduced price (see Chapter 2). A few may be hybrid electric, but we will assume the only models you are concerned with are petrol fuel vehicles (for performance reasons). Vehicles of 2007-10 will probably have integrated computers and GPS systems, but these can still be purchased as Manufacturer add-ons.

In the near future (2010 to 2030), things may change too much for the basic concept of year 2000 cars to be applicable. For example, all cars may run on batteries or hydrogen cells, radically changing their weight, performance, top speed, mileage, and other specs. Furthermore, some cars may be completely automated, highways may be "smart", and satellites may be able to

track every vehicle on the road. For this the GM should create a new "2030 Vehicle Catalog", which a dozen or so sample cars from that time, create by him based on the vehicles shown in the following Vehicle Catalog, but adjusted to fit the "world of tomorrow" as he foresees it. For example, an all battery-electric car will have a lower top speed (probably about -30%), lower acceleration (-30%), and only 100 to 200 mile range. Furthermore, battery powered cars cannot have nitro-injectors or other ICE (Internal Combustion Engine) mods. It could be assumed that artificial petrol or hydrogen fuel cell cars will be "basically the same" as ICE vehicles, just with different "greener" technology. Hydrogen fuel cell charges are a great deal more expensive than gasoline (or artificial petrol), but nearly 10x the "mile per gallon" efficiency. These are just a few things you should consider.

Pricing and Points

The choice between used Points (OP / CP) or real world prices (US\$) was a difficult one. All other **Atomik** plug-ins, and many other plug-ins, use Points (OP) which can then be translated to \$ amounts. However, it was decided to use US\$ for all prices in **Atomik MotorWarz** because not all plug-ins treat vehicle points the same. US\$ were chosen because it will be familiar to most players of **Fuzion**. Euros (€), the other major world currency, have essentially the same value (it may fluctuate slightly), and Yen has a rough conversion rate of 100 to 120 to the Dollar. For other world currencies, consult the current exchange rates.

Most other vehicle and machine plug-ins, such as Mekton, use CP, Construction Points, which are equivalent to Character Points. However, 1 CP technically equals \$500,

since 1 OP equals \$100 and there are 5 OP in 1 CP. But most mecha cost between 50 to 100 CP (\$25,000 to \$50,000), and vehicles end up costing 2 or 3 CP (just a few thousand dollars). Rightly, this should be adjusted by x10 for vehicles, and x1000 for mecha and fighter planes.

The advice presented in Mekton that CP does not exactly equal a dollar amount, or the GM should set it for his campaign, leaves too much open for inconsistent interpretation, and thus, arguments between players and GMs, and difficulty in porting vehicles between campaigns and different GMs.

The table presented below shows my recommended CP to \$US conversion rate for various types of vehicles and machines.

Vehicle	CP	\$US / Euros
Motor Vehicles	1 to 5	CP x \$5,000
Tanks/APCs	10 to 50	CP x \$10,000
Aircraft	10 to 50+	CP x \$100,000
Mecha	50+	CP x \$1,000,000
Spacecraft	200+	CP x \$2,000,000
Starships	1000+	CP x \$5,000,000

So a 20 CP jet would cost 2 million dollars, a 100CP mecha would cost about 100 million, and a 500 CP interplanetary spaceship would cost 1 billion dollars. Likewise, a \$35,000 sports car should have a value of 7 CP.

Remember, these are present day prices. If interplanetary travel becomes cheaper, the cost multiplier of Spacecraft and Starships should of course go down.



Vehicle Catalog

"I Can't Drive, Fifty-Five!" - Sammy Hagar

Introduction

This is a catalog of vehicles from sports cars to pickups, to big rig trucks. Each vehicle lists a set of base stats and price tag for its class, but these are just the stock production stats. In the following chapters you will learn how to modify your vehicle, and in the final chapter, how to handle "the rules of the road" (that is, combat).

Though I would like to detail every vehicle that is of course, impossible. Instead, I have hand picked a few should be of high interest to the majority. Granted, everyone has their favorite car or motorcycle, and if I have not listed it here, I do apologize. The simple fact is, you can simply grab the basic stats of any vehicle on the market today and adapt to Fuzion using the same methodology that I used.

Stats and Spec

The first thing you need to do is get the performance specs of the car you wish to convert to Fuzion. For this, you may visit the manufacturer's website, or such places as www.kbb.com (Kelly Blue Book), and www.edmunds.com. Once you have the specs, you can calculate the Fuzion specs of the vehicle. These are not hard and fast rules - there is some variation in performance specs between models, so allocated for a +/-10% difference.

I should also note that most write-ups for these vehicles were quoted from Edmunds or from the manufacture's websites (or a combination there of).

Price: In US Dollars, as listed as of 2000

Weight: Convert to kilograms (pounds / 2)

Acceleration (0-60mph or 100kph): [Wt.(kg) / HP]

Redline Speed: As listed

Breaks: Stock (usually), **Wheels:** Stock (usually)

Transmission: As Listed

Engine: As Listed

Class: A for Autos, D for Diesel Trucks, M for Motorcycles

Base Engine Size: as listed (in Liters)

Horsepower: listed HP @ Redline RPM

Weight: As Listed (kilograms)

Value: As Listed (US \$)

Fuel Tank Capacity: as listed

Mileage Estimates: City/Highway

Range in Miles: City/Highway

Maneuvering Value: Educated Guess

SDP and KD: Educated Guess

Automotive Catalog

Sports Cars

Fast, sleek, and sexy - Sports Cars are the legends of the highway and warriors of the road. Nothing else is faster. nothing else is cooler. Nothing else carries this price tag...

BMW M series (Sports Coupe)

Price: \$42,000

One thing BMW knows how to do is a build sporty car. The company released its M roadster, a heavily breathed-upon



version of the Z3 roadster that was designed to compete head-to-head with the Porsche 911, as an early-1999 model - BMW made headlines with the introduction of its "funky-looking" M series coupe. By now, both M cars have established reputations as the cool, good-looking, fast and fun sports cars that everyone wants to have parked in their driveways.

Weight: 1300kgs

Acceleration (0-60mph or 100kph): 5.4 sec

Redline Speed: 240kph (150mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual

Engine: Inline 236 kW, 3.2 Liter

Base Engine Size: 3.2 Liters

Horsepower: 240 @ 6000 rpm

Fuel Tank Capacity: 13.5 gallons

Mileage Estimates: (City / Highway) 19 / 26

Range in Miles: (City / Highway) 257 / 351

Maneuvering Value: -1 MV

Class: A

Weight: 200kgs

Value: \$5200

Location	SDP Value	KD	Pen. Point
Chassis	80	4	N/A
Engine	60	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

BMW Z8 (Roadster Convertible)

Price: \$128,000

The stuff that dreams are made of: an engine that is nothing less than a work of art, encased in a brilliantly-designed aluminum frame and open to the heavens. A two-seater sports car in the tradition of the legendary BMW cars of the twentieth century. A classic based on the essential principles of car design, made with the best engineering on earth and the finest technology available. The BMW Z8. Experience a car that is the embodiment of mobility.



Comes with: Luxury Package, All Weather, & Deluxe ?

Weight: 1750kgs

Acceleration (0-60mph or 100kph): 4.6 sec

Redline Speed: 256kph (160mph)

Breaks: Stock, **Wheels:** Roadster RF-5

Transmission: 6-Speed Manual w/ Auto Override

Engine: 294 kW, V8 5.0 Liter **Class:** A

Base Engine Size: 5.0 Liters

Weight: 225kgs

Horsepower: 380 @ 6000 rpm

Value: \$16,500

Fuel Tank Capacity: 13.5 gallons

Mileage Estimates: (City / Highway) 17 / 23

Range in Miles: (City / Highway) 230 / 310

Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	6	N/A
Engine	70	6	N/A
Doors	30	6	6
Windows	10	0	2
Trunk	35	6	7
Top	0	0	0
Wheels (4)	20Hub/10Tire	2	3

Chevrolet Camaro Z28 (Sports Coupe)

Price: \$22,200

These Camaros are blazingly quick, hold the road tenaciously, cost less than the average price of a new car in this country and get decent gas mileage when they're not being hammered along a twisty, two-lane road. The Z28 is the go-faster Camaro. Equipped with a detuned Corvette 5.7-liter V8, the Z28 makes 310 horsepower, 50 more horses than the Mustang GT, thanks to forced air induction through an aggressive-looking hood scoop.



Weight: 1720kgs

Acceleration (0-60mph or 100kph): 5.5 sec

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual

Engine: LS1 310HP V8 Corvette **Class:** A

Base Engine Size: 5.7 Liters

Weight: 240kgs

Horsepower: 310 @ 5200 rpm

Value: \$9700

Fuel Tank Capacity: 16.8 gallons

Mileage Estimates: (City/Highway) 20 / 28

Range in Miles: (City/Highway) 336 / 470

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	4	N/A
Engine	50	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	30	4	6
Top	25	4	5
Wheels (4)	20Hub/10Tire	2	3

Chevrolet Corvette Z06 (Sports Coupe)

Price: \$48,500

Nearly 45 years after the 1953 Corvette debuted, Chevrolet introduced the fifth-generation Corvette for 1997. With the addition of a hardtop model to the lineup in 1999, Chevrolet brings forth an ace in 2001 with the race-ready Z06. Backed by a new 5.7-liter LS6 V8 producing a pavement-melting 350 horsepower at 6,000 rpm and a standard issue M12 six-speed manual transmission, the Z06 rips from 0 to 60 in 4.3 seconds flat, and corners at one full G!



Weight: 1550kgs

Acceleration (0-60mph or 100kph): 4.3 sec

Redline Speed: 227kph (142mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual w/ Auto Override

Engine: LS6 350HP V8 Corvette F-1 **Class:** A

Base Engine Size: 5.7 Liters

Weight: 240kgs

Horsepower: 350 @ 5600 rpm

Value: \$9,800

Fuel Tank Capacity: 18.5 gallons

Mileage Estimates: (City/Highway) 16 / 20

Range in Miles: (City/Highway) 300 / 370

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	5	N/A
Engine	50	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	30	4	6
Top	35	4	7
Wheels (4)	20Hub/10Tire	2	3

Chrysler Prowler (Roadster Convertible)

Price: \$45,000

The Prowler is a concept car that has magically seen the light of day, and though it's not the most impressive car performance-wise, it is an impressive display of Chrysler's commitment to fun. Modeled after traditional hot rods of the 1950s, this car will turn heads, even in exotic car-jaded towns like Los Angeles or Palm Beach. If you're not a celebrity but you want to feel like one, here's the recipe: buy a Prowler. Drop the top. Cruise up and down your local strip. Wave at the girls. Just don't try to drag race any real muscle cars.



Weight: 1300kgs

Acceleration (0-60mph or 100kph): 8.5 sec

Redline Speed: 192kph (120mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: V6 3.5 Liter 24V SOHC alum. **Class:** A

Base Engine Size: 3.5 Liters

Weight: 180kgs

Horsepower: 253 @ 6400 rpm

Value: \$5400

Fuel Tank Capacity: 12.2 gallons

Mileage Estimates: (City/Highway) 20 / 29

Range in Miles: (City/Highway) 244 / 354

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	4	N/A
Engine	50	3	N/A
Doors	40	3	8
Windows	10	0	2
Trunk	30	3	6
Top	0	0	0
Wheels (4)	20Hub/10Tire	2	3

DMC-12 DeLorean (Sports Coupe)

Price: \$50,000

It's a blast from the past, the car made famous by the "Back to the Future" trilogy. The 1982 (or 83) DMC-12 DeLorean is a one of kind sports car, unique in design and sure to draw attention anywhere it goes. The DeLorean featured here is a totally refurbished DMC-12 with a new engine and new transmission, and polished up body. This DMC-12 does not mount the stock PRV V6 engine (and no, it does not have a nuclear powered flux-capacitor either). Instead, a new 255HP Vortec 5700 V8 was selected to power this machine, being more powerful than the original 200HP PRV engine, and lighter (it's a computer controlled fuel-injection system, rather than the old carburetor engine). The engine is, of course, mounted in the back. The entire vehicle is made of machine-pressed stainless steel (unpainted), which offers a higher level of protection than most modern automobiles (which use plastic and aluminum).



Weight: 1880kgs

Acceleration (0-60mph or 100kph): 7.3 sec

Redline Speed: 237 kph (148 mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual

Engine: Vortec 5700 V8 5.7 Liter

Base Engine Size: 5.7 Liters

Horsepower: 255 @ 4600 rpm

Fuel Tank Capacity: 16 gallons

Mileage Estimates: (City/Highway) 14 / 22

Range in Miles: (City/Highway) 224 / 352

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	100	8	N/A
Engine(back)	90	8	N/A
Doors	50	5	7
Windows	10	0	2
Trunk(front)	50	5	6
Top	50	5	7
Wheels (4)	20Hub/10Tire	2	3

Dodge Viper GTS (Sports Coupe)

Price: \$70,500

Designed to be the modern incarnation of the Cobra, Viper debuted at the 1989 North American International Auto Show in Detroit as a show car. Enough people wrote to Chrysler requesting street versions that plans for production of the stylish roadster were set into motion soon thereafter. Viper was introduced for public sale in 1992, and became the darling of the automotive press, not to mention high-profile stars like Jay Leno and Kelsey Grammer. The 8.0-liter V10 was substantially reworked, featuring a new block, new heads, shorter cooling jackets and a revised sump. These changes resulted in a 35-horsepower jump to 450.



Weight: 1780kgs

Acceleration (0-60mph or 100kph): 4.5 sec

Redline Speed: 296 kph (185 mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual

Engine: V10 10-Cylinder, 8.0 Liter

Base Engine Size: 8.0 Liters

Horsepower: 400 @ 5000 rpm

Fuel Tank Capacity: 19 gallons

Mileage Estimates: (City/Highway) 11 / 20

Range in Miles: (City/Highway) 209 / 380

Maneuvering Value: -1 MV

Class: A

Weight: 300kgs

Value: \$17,000

Location	SDP Value	KD	Pen. Point
Chassis	70	4	N/A
Engine	70	4	N/A
Doors	35	3	7
Windows	10	0	2
Trunk	30	3	6
Top	35	3	7
Wheels (4)	20Hub/10Tire	2	3

Ferrari 550 Maranello (Racing Coupe)

Price: \$203,800

The 550 Maranello is Ferrari's interpretation of the 12-cylinder berlinetta, with a front engine and a pronounced sports personality, for the 21st century. The Ferrari 550 is one of the hottest cards on the road, and one of the most expensive. If you have to ask about price, you can't afford it.



Weight: 1790kgs

Acceleration (0-60mph or 100kph): 4.3 sec

Redline Speed: 320kph (200 mph)

Breaks: Advanced, **Wheels:** Roadster RF-5

Transmission: 6-Speed Manual w/ Auto Override

Engine: Ferrari Maranello V12 8.0

Class: A

Base Engine Size: 8.0 Liters

Weight: 220kgs

Horsepower: 420 @ 6000 rpm

Value: \$18,200

Fuel Tank Capacity: 18 gallons

Mileage Estimates: (City/Highway) 8 / 13

Range in Miles: (City/Highway) 144 / 234

Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	90	8	N/A
Engine	80	6	N/A
Doors	45	4	9
Windows	10	0	2
Trunk	45	4	9
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Ford Mustang GT (Sports Coupe)

Price: \$25,000

In 1964, a sports car that anyone could buy and enjoy was born. It was a breakthrough in design and lived to become a legendary sports cars. Today, the Mustang continues to spark the imagination with its powerful blend of beauty and brawn.



Weight: 1550kgs

Acceleration (0-60mph or 100kph): 5.8 sec

Redline Speed: 214kph (134mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual

Engine: 4.6-L 2V SOHC V8 engine

Class: A

Base Engine Size: 4.6 Liters

Weight: 240kgs

Horsepower: 260 @ 5200 rpm

Value: \$5600

Fuel Tank Capacity: 15.7 gallons

Mileage Estimates: (City/Highway) 18 / 25

Range in Miles: (City/Highway) 282 / 392

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	65	4	N/A
Engine	50	4	N/A
Doors	40	4	8
Windows	10	0	2
Trunk	40	4	8
Top	35	4	7
Wheels (4)	20Hub/10Tire	2	3

Jaguar XK8 (Sports Coupe)

Price: \$68,000

The Jag has a powerful 32-valve, 290-horsepower AJ-V8 engine; elegant Connolly leather and walnut-trimmed interior;



taut suspension and precise road-feel... The muscular good looks of the XK8 coupe make it an irresistible choice for assertive drivers. Stylistically, the XK8 is one of the best-looking luxury coupes available. Headlights slope off with a feline's squint and lead to lines that hark back to earlier Jags. The hood's subtle contours form two long, graceful indentations that, from inside, conform nicely to the driver and passenger positions.

Comes with: Luxury Package

Weight: 1690kgs

Acceleration (0-60mph or 100kph): 5.6 sec

Redline Speed: 275kph (172mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual

Engine: V8 Alum. Twin DOHC, 32-valve **Class:** A

Base Engine Size: 4.0 Liters

Weight: 220kgs

Horsepower: 300 @ 6100 rpm

Value: \$12,000

Fuel Tank Capacity: 19.9 gallons

Mileage Estimates: (City/Highway) 17 / 22

Range in Miles: (City/Highway) 340 / 440

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	5	N/A
Engine	65	4	N/A
Doors	35	4	7
Windows	10	0	2
Trunk	30	4	6
Top	30	4	6
Wheels (4)	20Hub/10Tire	2	3

Lamborghini Diablo SE 30 "Special Emotion"

Price: \$255,000

The SE 30 was introduced in 1994 to celebrate the 30th anniversary of Lamborghini, the engine is tuned, and more carbon-fiber is used reducing the weight by



150 kg. less than a standard Diablo. It's interior is clothed with alcantara, it has 4 point instead of 3 point safety-belts. Standard is a traction control system, active suspension, and a fire-extinguisher system. The SE 30 has a variable in and outlet system and a straight-through exhaust. To get enough air to the engine-compartment it has two air-intakes on the roof. Engine is rear mounted, as on all Lambos. This version delivers 500 hp and has a maximum torque of 600 Nm. at 5200rpm! Price? Try a quarter of a million dollars...

Weight: 1850kgs

Acceleration (0-60mph or 100kph): 3.7 sec

Redline Speed: 330 kph (206 mph)

Breaks: Advanced, **Wheels:** Advanced

Transmission: 5-Speed Manual

Engine: Air Cooled V12 Turbo (rear) **Class:** A

Base Engine Size: 6.0 Liters

Weight: 300kgs

Horsepower: 500 @ 5200 rpm

Value: \$50,000

Fuel Tank Capacity: 24 gallons

Mileage Estimates: (City/Highway) 8 / 12

Range in Miles: (City/Highway) 192 / 288

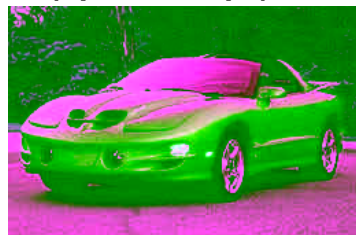
Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	8	N/A
Engine(back)	80	6	N/A
Doors	50	4	10
Windows	10	0	2
Trunk (front)	45	6	9
Top	30	4	6
Wheels (4)	20Hub/10Tire	2	3

Pontiac Firebird Trans Am (Sports Coupe)

Price: \$27,800

Hardcore driving enthusiasts, step right up - the Trans Am is for you. The ultimate muscle car is equipped with a standard 310-horsepower LS1 Corvette engine that features an available traction control system to maximize traction during



acceleration on slippery surfaces. The Coupe's removable hatch roof is the perfect accessory on a sunny day. And the two-sided galvanized steel doors resist dents, dings, and rust. In fact, there are many great rewards to being behind the wheel of this legend.

Weight: 1700kgs

Acceleration (0-60mph or 100kph): 5.4 sec

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual w/ Override

Engine: LS1 310HP V8 Corvette **Class:** A

Base Engine Size: 5.7 Liters

Weight: 240kgs

Horsepower: 310 @ 5200 rpm

Value: \$7,700

Fuel Tank Capacity: 16.8 gallons

Mileage Estimates: (City/Highway) 20 / 28

Range in Miles: (City/Highway) 336 / 470

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	4	N/A
Engine	50	4	N/A
Doors	40	4	8
Windows	10	0	2
Trunk	40	4	8
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Porsche 911 Carrera (Sports Coupe)

Price: \$111,800

The Porsche 911 is the stuff of legends and continues to be one of the world's top sports cars. Porsche has the uncanny ability to build a car that has stunning performance, legendary mystique, and real-world functionality. Longer, wider and sleeker than



any previous 911, the new Carrera maintains the unmistakable 911 profile and classic styling cues. Like all previous 911s, the current models feature a rear-mounted, horizontally-opposed six-cylinder engine. The all-aluminum 3.4-liter engine generates 400 horsepower.

Weight: 1700kgs

Acceleration (0-60mph or 100kph): 4.2 sec

Redline Speed: 280kph (175mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual

Engine: V6 3.4 Liter all-aluminum (rear) **Class:** A

Base Engine Size: 3.4 Liters

Weight: 220kgs

Horsepower: 400 @ 6000 rpm

Value: \$18,200

Fuel Tank Capacity: 16.9 gallons

Mileage Estimates: (City/Highway) 16 / 20
Range in Miles: (City/Highway) 270 / 338
Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	75	6	N/A
Engine (rear)	65	6	N/A
Doors	40	4	8
Windows	10	0	2
Trunk (front)	40	4	8
Top	35	3	7
Wheels (4)	20Hub/10Tire	2	3

Porsche Boxter S (Roadster Convertible)

Price: \$52,200

The Boxster's strengths lie in its handling and driver comfort, but its horsepower has always been considered rather average. Good thing for Porsche the new Boxster S has arrived. The Boxster S offers a higher level of performance and standard features. With power-boosting technologies like a dual-resonance air intake and variable valve timing, the Boxster S produces 250 horsepower at 6,250 rpm and 225 foot-pounds of torque at 4,500 rpm. The Boxter is equipped with a five-speed Tiptronic automatic transmission which allows the drivers to manually select gears via steering wheel thumb switches.



Weight: 1400kgs

Acceleration (0-60mph or 100kph): 5.6 sec

Redline Speed: 248kph (155mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual with Tiptronic S automatic

Engine: 3.2 Liter 6-Cylinder engine

Class: A

Base Engine Size: 3.2 Liters

Weight: 210kgs

Horsepower: 250 @ 6250 rpm

Value: \$5200

Fuel Tank Capacity: 17 gallons

Mileage Estimates: (City/Highway) 20 / 28

Range in Miles: (City/Highway) 340 / 476

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	5	N/A
Engine (rear)	55	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk (front)	30	3	6
Top	0	0	0
Wheels (4)	20Hub/10Tire	2	3

Toyota Celica GT-S (Sports Coupe)

Price: \$22,800

An all-new 1.8-liter, four-cylinder, DOHC aluminum engine powers the Celica GT-S. The engine generates 180 HP at 7,600 rpm and 133 foot-pounds of torque at 6,800 rpm. The GT-S powerplant, co-developed with Yamaha, utilizes Toyota's new VVTL-i engine technology. Celica's interior is stylish, functional and comfortable for two adults and a healthy amount of their gear. A simple, downswept dash layout, big analog gauges, sporty bucket seats, drilled metal pedals and fashionable metallic silver accents add to Celica's cockpit ambience. The GT-S offers a center console big enough to hold eight CD cases. The rear seatbacks also can be folded forward, providing additional cargo space. Driver and front-passenger airbags are standard. And they are very affordable.



Weight: 1200kgs

Acceleration (0-60mph or 100kph): 6.7 sec

Redline Speed: 227kph (142mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual

Engine: Yamaha 1.8 Liter (DOHC)

Class: A

Base Engine Size: 1.8 Liters

Weight: 150kgs

Horsepower: 180 @ 7600 rpm

Value: \$4500

Fuel Tank Capacity: 14.5 gallons

Mileage Estimates: (City/Highway) 23 / 32

Range in Miles: (City/Highway) 333 / 464

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	55	4	N/A
Engine	50	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	30	3	6
Top	25	3	5
Wheels (4)	20Hub/10Tire	2	3

Toyota Spyder MR2 (Roadster)

Price: \$24,000

The Spyder rides on a low-slung, long-wheelbase platform with MacPherson struts supporting each corner. The rear-drive wheels are attached to a five-speed manual transmission, and an amazingly sharp and responsive electric hydraulic power steering system makes this little guy a blast when ripping along canyon roads. The Spyder's 1.8-liter, twin-cam, 16-valve, four-cylinder engine produces 140 horses at 6,400 rpm and 127 foot-pounds of torque at 4,400 rpm, thanks in part to VVTL-i variable valve timing technology. Weighing in at a diminutive 1000kgs, it provides plenty of room from the get-go, reaching 60 mph in about 7 seconds. Not to worry, because a wide track and sticky tires will keep you firmly planted to the asphalt. With the rear-engine design and its speedy recovery ability, acrobatics on curvy roads equal good times.



Weight: 1000kgs

Acceleration (0-60mph or 100kph): 7.1 sec

Redline Speed: 216kph (135mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual

Engine: Yamaha 1.8 Liter DOHC (rear)

Class: A

Base Engine Size: 1.8 Liters

Weight: 150kgs

Horsepower: 140 @ 6,400 rpm

Value: \$4000

Fuel Tank Capacity: 12.7 gallons

Mileage Estimates: (City/Highway) 25 / 30

Range in Miles: (City/Highway) 317 / 381

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine (rear)	50	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk (front)	35	3	7
Top	0	0	0
Wheels (4)	20Hub/10Tire	2	3

Coups

Coups are a class of cars with two doors, instead of four. Many coups are sports cars (see the previous section), so this section features non-sports coups (some are indeed sporty, but not true sports cars).

Chevrolet Monte Carlo SS (Coupe)

Price: \$23,100

Heritage design is popular these days, and Chevrolet has employed this styling trend on the Monte Carlo. From the traditional "Knight's Crest" badge, script lettering and distinctive headlight treatment to the sculpted fenders and vertical taillights. A tower-to-tower structural brace under the hood, combined with a magnesium dashboard support beam, contributes to a rigid platform. Large four-wheel-disc ABS brakes with front cooling ducts provide confidence-inspiring stopping ability. A four-wheel independent MacPherson strut suspension is matched to front and rear stabilizer bars and Goodyear Eagle RS-A performance tires to help make Monte Carlo fun in the curves. But you're going to have to settle for an automatic transmission in this Chevy.



Weight: 1700kgs

Acceleration (0-60mph or 100kph): 8.5 sec

Redline Speed: 208kph (130mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: V6 Air 3.8 Liter SEFI

Base Engine Size: 3.8 Liters

Horsepower: 200 @ 5200 rpm

Fuel Tank Capacity: 17 gallons

Mileage Estimates: (City/Highway) 20 / 29

Range in Miles: (City/Highway) 340 / 493

Maneuvering Value: -3 MV

Class: A

Weight: 200kgs

Value: \$4550

Location	SDP Value	KD	Pen. Point
Chassis	75	6	N/A
Engine	50	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Ford Escort ZX2 (Coupe)

Price: \$12,400

You want a hot car? You want a cool car? You want a car that will turn heads without turning your pockets inside-out? Then the Ford Escort ZX2 is the car for you. The sleek and stylish ZX2 is a sweet ride yet still offers the durability and dependability people expect from Ford at an affordable price.



Weight: 1240kgs

Acceleration (0-60mph or 100kph): 9.5 sec

Redline Speed: 176kph (110mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: ZeTec Inline 2.0 Liter

Base Engine Size: 2.0 Liters

Horsepower: 130 @ 5700 rpm

Fuel Tank Capacity: 12.8 gallons

Mileage Estimates: (City/Highway) 26 / 33

Range in Miles: (City/Highway) 333 / 422

Maneuvering Value: -3 MV

Class: A

Weight: 140kgs

Value: \$4000

Location	SDP Value	KD	Pen. Point
Chassis	50	3	N/A
Engine	45	3	N/A
Doors	30	2	6
Windows	10	0	2
Trunk	30	2	6
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Honda Prelude SH (Coupe)

Price: \$23,100

The aptly named Prelude has always been a symbol for great things to come. Honda has long used the Prelude to showcase its latest technological developments. The Prelude was also one of the first Hondas to receive a Vtec engine. Honda continued this tradition by equipping the Prelude SH with the Active Torque Transfer System. It is powered by the VTEC 2.2-liter four-cylinder engine that, when coupled with the manual transmission, cranks out 200 horsepower at 7,000 rpm and 156 foot-pounds of torque at 5,250 rpm.



Weight: 1520kgs

Acceleration (0-60mph or 100kph): 7.6 sec

Redline Speed: 179kph (112mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual or Automatic

Engine: VTec Inline 2.2 Liter

Base Engine Size: 2.2 Liters

Horsepower: 200 @ 7000 rpm

Class: A

Weight: 160kgs

Value: \$4800

Fuel Tank Capacity: 15.9 gallons

Mileage Estimates: (City/Highway) 22 / 27

Range in Miles: (City/Highway) 350 / 430

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	3	N/A
Engine	55	3	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	35	2	7
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Honda Insight (Hybrid-Electric Coupe)

Price: \$12,400

Honda starts the new millennium by bringing the public the first production gasoline-electric hybrid. With its aluminum body structure the Insight can travel as far as 70 miles on one gallon of gas. The heart of the system is a new 1.0-liter, three-cylinder engine coupled with an ultra-thin electric motor that assists the gasoline engine under acceleration. The Insight requires no external power supply to recharge the 144-volt nickel-metal hydride batteries. Electricity for the system is generated primarily by regenerative braking and ABS-assisted disc/drum brakes. With a full charge, and the electric motor providing full assist, the Insight accelerates swiftly (0 to 100kph in 11 seconds).



Weight: 925kgs

Acceleration (0-60mph or 100kph): 11 sec

Redline Speed: 128kph (80mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: Special 3-Cylinder Hybrid Electric (cannot modify)

Base Engine Size: 1.0 Liter

Horsepower: Unknown

Weight: n/a

Value: n/a

Fuel Tank Capacity: 10.6 gallons
Mileage Estimates: (City/Highway) 61 / 70
Range in Miles: (City/Highway) 646 / 742
Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	45	2	N/A
Engine	40	2	N/A
Doors	25	2	5
Windows	10	0	2
Trunk	30	2	6
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Mercedes-Benz CL600 (Luxury Coupe)

Price: \$117,800

The CL series from Mercedes-Benz has a curvaceous shell inspired by the 220/280 SE Coupes of the early 1960s. The stylish grille and long, flat hood give the CL a racy look and a .28 drag coefficient. This, combined with a 600-pound drop in curb weight and an advanced suspension system, means that the CL's racy image extends beyond its appearance. Powering the CL600 is a 5.8-liter, SOHC V12 engine that delivers 362 horsepower to a five-speed automatic transmission. For those wishing to make their own up and downshift decisions, a "Touch Shift" manual mode can be engaged for maximum gear control. Perhaps the CL's most impressive feature is its Active Body Control (ABC), which uses a hydraulic servo mounted atop each coil spring to control body roll, dive and squat. Toss it into a tight corner and the CL will remain flat and composed.



Comes with: Luxury Package

Weight: 2160kgs

Acceleration (0-60mph or 100kph): 6.0 sec

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic w/ 5-Speed Manual Override

Engine: 5.8 Liter SOHC V12 Engine **Class:** A

Base Engine Size: 5.8 Liters **Weight:** 250kgs

Horsepower: 362 @ 5500 rpm **Value:** \$14,300

Fuel Tank Capacity: 23.2 gallons

Mileage Estimates: (City/Highway) 15 / 23

Range in Miles: (City/Highway) 348 / 533.6

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	8	N/A
Engine	75	8	N/A
Doors	40	5	8
Windows	10	0	2
Trunk	50	4	19
Top	50	4	10
Wheels (4)	20Hub/10Tire	2	3

Pontiac Grand Prix GT (Coupe)

Price: \$21,100

Wider is better. Loaded with standard features, Pontiac's Grand Prix successfully blends form, function and performance into one appealing and affordable package. GT comes as either a coupe or sedan. The GT is powered by a 200-horsepower 3800 Series II V6. The award-winning 3800 offers more power yet still delivers about 19 mpg in the city and 30 mpg on the highway,



figures that nearly match the base motor. This Pontiac packs plenty of power and a wide array of safety and convenience features in a package that's as easy to drive as it is on the pocketbook.

Weight: 1720kgs

Acceleration (0-60mph or 100kph): 8.6 sec

Redline Speed: 192kph (120mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual w/ Override

Engine: 3800 Series II V6 3.8 Liter **Class:** A

Base Engine Size: 3.8 Liters **Weight:** 190kgs

Horsepower: 200 @ 5200 rpm **Value:** \$7000

Fuel Tank Capacity: 17.5 gallons

Mileage Estimates: (City/Highway) 20 / 30

Range in Miles: (City/Highway) 350 / 525

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	4	N/A
Engine	50	4	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	35	4	7
Top	30	4	6
Wheels (4)	20Hub/10Tire	2	3

Volvo Model C70 (Coupe)

Price: \$39,000

"Safe and sturdy" describes the Volvo image. To be sure, Volvos are both safe and sturdy, boasting many safety features and feeling as though they've been cast from a single block of iron.



But, there are other reasons to buy a Volvo. A Volvo will rocket forward quickly enough to force your body back into the seat. Brakes are outstanding and steering is firm and linear. Comfort is another big Volvo advantage. The seats in these Swedish cars are the best the world has to offer. You can drive a Volvo non-stop all day long, and not feel one bit of fatigue. Volvos have the best crash survival statistics of any car in the world.

Weight: 1650kgs

Acceleration (0-60mph or 100kph): 7.0 sec

Redline Speed: 196kph (123mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual or Automatic

Engine: T-5 176kW 2.3-Liter 5-Cylinder **Class:** A

Base Engine Size: 2.3 Liters **Weight:** 210kgs

Horsepower: 236 @ 5400 rpm **Value:** \$5100

Fuel Tank Capacity: 18.5 gallons

Mileage Estimates: (City/Highway) 20 / 27

Range in Miles: (City/Highway) 370 / 500

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	90	8	N/A
Engine	60	8	N/A
Doors	45	6	9
Windows	10	0	2
Trunk	40	6	8
Top	35	6	7
Wheels (4)	20Hub/10Tire	2	3

VW New Beetle GLS (Cute Coupe)

Price: \$16,850

The New Beetle is a bundle of contradictions. It's a blast from the past and a gateway to the 21st century. It's small but it's safe. It's cute but it can also be powerful. The trademark Beetle body shape is immediately recognizable, though it shares no parts with the old Beetle. It's both larger, with 96.3 cubic feet inside, and more powerful than its predecessor and the motor is no longer in the back. The engine on the GLS is a 115-horsepower, 2.0-liter V4. Fun comes both from watching people stare and wave at you and from blasting down the highways at 120mph. The safety system features energy-absorbing crush zones, pre-tensioning safety belts, daytime running lights, dual airbags, and excellent crash-test scores.



Weight: 1260kgs

Acceleration (0-60mph or 100kph): 10.9 sec

Redline Speed: 192kph (120mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: 115 HP V4 2.0 Liter

Class: A

Base Engine Size: 2.0 Liters

Weight: 135kgs

Horsepower: 115 @ 5200 rpm

Value: \$3500

Fuel Tank Capacity: 14.5 gallons

Mileage Estimates: (City/Highway) 22 / 28

Range in Miles: (City/Highway) 319 / 406

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	3	N/A
Engine	45	3	N/A
Doors	30	2	6
Windows	10	0	2
Trunk	30	2	6
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Sedans

Sedans are a large class of 4-door cars, and there are more models in existence than coupes and convertibles combined. Only a few are listed here, but you should be able to find what you are looking for.

Audi A6 4.2 (Sedan)

Price: \$49,950

The Audi A6 4.2 Sedan features a powerful V8 engine. Obviously this is Audi's challenge to the V8-powered BMW 540i and Mercedes-Benz E430. The 4.2-liter engine produces 300 horsepower and 295 foot-pounds of torque, channeled through a five-speed Tiptronic-controlled automatic transmission. Beyond the engine, the 4.2 also comes with more aggressive styling, bigger wheels and tires, and more standard equipment. A6 buyers can choose from three different types of interiors. The atmospheres -- Ambition, Ambiente and Advance -- differ in their use of texture and appearance of the seat upholstery, and the color and type of genuine wood and aluminum trim.



Weight: 1830kgs

Acceleration (0-60mph or 100kph): 6.1 sec

Redline Speed: 224kph (140mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic w/ Tiptronic

Engine: V8 255 40V SFI 4.2 Liter

Class: A

Base Engine Size: 4.2 Liters

Weight: 230kgs

Horsepower: 300 @ 6200 rpm

Value: \$7200

Fuel Tank Capacity: 21.7 gallons

Mileage Estimates: (City/Highway) 17 / 24

Range in Miles: (City/Highway) 369 / 521

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	75	6	N/A
Engine	55	6	N/A
Doors	35	5	7
Windows	10	0	2
Trunk	40	4	8
Top	30	4	6
Wheels (4)	20Hub/10Tire	2	3

BMW 750iL Protection (Armored Sedan)

Price: \$93,200

The most remarkable of the BMW 7-class is the 750iL Protection - one of the only production vehicles which comes armored right off the



assembly line! This car features Class III-A armor all around (all locations), bulletproof glass on all windows, and run-flat tires. Powered by incredibly smooth V12 engine, this super-luxury sedan is quite possibly the finest of its kind, providing exceptional comfort, rewarding performance, and protection. Want a stereo that sounds better than a symphony hall? Want an anti-theft security system that can put Fort Knox to shame? Want a heated steering wheel? Shelling out nearly 100 grand for the supreme BMW will get you one of the best cars in world. If you can afford it.

Weight: 2200kgs

Acceleration (0-60mph or 100kph): 6.7 sec

Redline Speed: 227kph (142mph)

Breaks: Stock, **Wheels:** Run-Flat

Transmission: Automatic w/ Triptronic

Engine: V12 5.4 Liter "Whisper" Engine

Class: A

Base Engine Size: 5.4 Liters

Weight: 244kgs

Horsepower: 326 @ 5000 rpm

Value: \$8800

Fuel Tank Capacity: 25.1 gallons

Mileage Estimates: (City/Highway) 16 / 21

Range in Miles: (City/Highway) 401 / 527

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	120	26	N/A
Engine	90	26	N/A
Doors	60	25	12
Windows	20	20	5
Trunk	50	24	10
Top	50	24	10
Wheels (4)	40Hub/20Tire	5	8

Chrysler 300M (Sports Sedan)

Price: \$25,200

The 300M's styling and letter-series designation pick up where the original '55-'65 muscle cars left off - take one look at its



big center grille and fin-like taillights, and you'll be just a notch ahead of your flashback. But the sleek, fluid lines and the streamlined dash remind you that this vehicle does indeed represent the 21st century. This year the 300M gets clear lens taillamps and chrome dual exhaust outlets to further its performance car image. For this driver-oriented modernized muscle car, there's a 3.5-liter, aluminum high-output V6 (same as on the Prowler) that offers respectable power for its size: 253 horsepower at 6,400 rpm and 255 foot-pounds of torque at 3,950 rpm.

Weight: 1800kgs
Acceleration (0-60mph or 100kph): 7.1 sec
Redline Speed: 211kph (132mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic w/ Triptronic
Engine: V6 3.5 Liter 24V SOHC alum. **Class:** A
Base Engine Size: 3.5 Liters **Weight:** 180kgs
Horsepower: 253 @ 6400 rpm **Value:** \$5400
Fuel Tank Capacity: 17.2 gallons
Mileage Estimates: (City/Highway) 18 / 26
Range in Miles: (City/Highway) 310 / 447
Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	65	5	N/A
Engine	50	4	N/A
Doors	35	4	7
Windows	10	0	2
Trunk	35	3	7
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Chrysler Cruiser PT (Heritage Sedan)

Price: \$16,500

If imitation is the sincerest form of flattery, then PT Cruiser clearly celebrates an age of substance, prosperity and timeless beauty. From its powerful grille and smooth expressive hood to its bullet-shaped taillamps and elegantly sloping liftgate, Chrysler designers' latest triumph proudly pays homage to a classic era while embracing advanced technology. This is an affordable car for a stylish appearance.



Weight: 1560kgs
Acceleration (0-60mph or 100kph): 10.4 sec
Redline Speed: 176kph (110mph)
Breaks: Stock, **Wheels:** Stock
Transmission: 5-Speed Manual
Engine: 4-Cylinder 148 V16 SFI 2.4-Liter **Class:** A
Base Engine Size: 2.4 Liters **Weight:** 160kgs
Horsepower: 150 @ 5000 rpm **Value:** \$4000
Fuel Tank Capacity: 15 gallons
Mileage Estimates: (City/Highway) 20 / 26
Range in Miles: (City/Highway) 300 / 390
Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	3	N/A
Engine	40	3	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	30	3	6
Top	35	3	7
Wheels (4)	20Hub/10Tire	2	3

Dodge Intrepid (Sedan)

Price: \$25,500

Dodge deliver room, style, safety, and reliability in the modern-looking Intrepid. Equipped with a huge interior and gigantic trunk, cutting-edge cab-forward design, and proving itself dependable over the long haul, the Dodge Intrepid represents an excellent car with personality. The R/T has a higher performance engine, sport-tuned suspension, freer-flowing exhaust, and upgraded brakes, plus a 120-watt AM/FM stereo with



cassette/CD player, leather-wrapped shift knob and 17-inch alloy wheels. R/Ts get the same engine as the Chrysler 300 and Prowler's 3.5-liter V6. It is available only with an automatic transmission, though it does have an "AutoStick", which allows gears to be rowed manually for sporting driving. Plus, it doesn't improve shift response or acceleration.

Weight: 1750kgs
Acceleration (0-60mph or 100kph): 6.9 sec
Redline Speed: 204kph (128mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic w/ "AutoStick"
Engine: V6 3.5 Liter 24V SOHC alum. **Class:** A
Base Engine Size: 3.5 Liters **Weight:** 180kgs
Horsepower: 253 @ 6400 rpm **Value:** \$5400
Fuel Tank Capacity: 17 gallons
Mileage Estimates: (City/Highway) 18 / 26
Range in Miles: (City/Highway) 306 / 442
Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	50	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	35	3	7
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Dodge Neon (Sedan)

Price: \$12,700

Smile - it's a Neon. Fun seems to be the catchword for the Neon (it's used repeatedly by the manufacturer to describe the car). While the Neon has grown up, it hasn't grown old. While a fun factor still, the standard 132-horsepower 2.0-liter make a great deal of noise at high rpms, but is more powerful than the engine on older models. This model features 16-inch aluminum wheels, four-wheel disc brakes, a sport suspension and special body cladding, plus a unique steering wheel and shift knob. With a refined suspension that offers plenty of wheel travel, the Neon's ride is smooth, and it's further enhanced with premium shock absorbers and rear sway bars. The power rack-and-pinion steering and precisely tuned suspension also contribute to the Neon's cruising quality. Stopping power comes from a front disc/rear drum combo, but you may wish to add an ABS system and better wheels.



Weight: 1280kgs
Acceleration (0-60mph or 100kph): 6.9 sec
Redline Speed: 192kph (120mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic
Engine: V4 2.0 Liter SOHC **Class:** A
Base Engine Size: 2.0 Liters **Weight:** 165kgs
Horsepower: 132 @ 5600 rpm **Value:** \$4000
Fuel Tank Capacity: 12.5 gallons
Mileage Estimates: (City/Highway) 24 / 31
Range in Miles: (City/Highway) 300 / 388
Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	3	N/A
Engine	45	3	N/A
Doors	30	2	6
Windows	10	0	2
Trunk	30	2	6
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Ford Crown Victoria (Large Sedan)

Price: \$23,800

The Crown Victoria is one of the few remaining "large size" low-price vehicles. Decades-old technology allows Ford to keep the prices low, and the car is a favorite among fleet buyers for taxi companies, police departments, or just those who need space and don't want a minivan. These days the Ford Crown Victoria offers much more value than most compact and midsize cars. The Crown Victoria was never a slouch in terms of acceleration (as you would hope, seeing as how so many police departments use it), and this year Ford bumped the output of the 4.6-liter V8 engine to 240 horsepower with a special "Performance Package" which to tune up the engine (no further tuning allowed). Only a 4-speed automatic transmission is offered. This is the most common of newly-commissioned police cars (some departments still have older cars). It has good acceleration and makes an excellent highway cruiser. 80% of the time, this is the police vehicle encountered.



Weight: 1800kgs

Acceleration (0-60mph or 100kph): 7.5 sec

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual or Automatic

Engine: 4.6 Liter V8 Fully Tuned

Class: A

Base Engine Size: 2.3 Liters

Weight: 215kgs

Horsepower: 240 @ 4750 rpm

Value: \$5300

Fuel Tank Capacity: 19 gallons

Mileage Estimates: (City/Highway) 18 / 25

Range in Miles: (City/Highway) 342 / 475

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	6	N/A
Engine	55	5	N/A
Doors	35	4	7
Windows	10	0	2
Trunk	40	4	8
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Honda Accord LX (Sedan)

Price: \$18,700

The benchmark. The best-selling car in America. The highest resale value in its class. These are all statements that have been made with regularity concerning the Honda Accord, a vehicle that is always on the short list of the most popular cars in this country. The Accord won a loyal base of customers by offering notable performance, room for four, frugal fuel economy and a virtual guarantee that, if cared for properly, it would not break. While not exactly spicy, the Honda Accord is a quality, fine-tuned car exhibiting remarkable design because it is so functional and user-friendly. The bottom line is that Honda builds the ultimate midsize car. A reasonable price, a high level of refinement, a cavernous interior and a well-deserved reputation for reliability put the Accord at the top of the heap. I sound like a commercial.



Weight: 1400kgs

Acceleration (0-60mph or 100kph): 9.3 sec

Redline Speed: 188kph (118mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual or Automatic

Engine: VTec Inline 4-Cylinder 2.3 Liter

Class: A

Base Engine Size: 2.3 Liters

Weight: 160kgs

Horsepower: 150 @ 5700 rpm

Value: \$4000

Fuel Tank Capacity: 17.1 gallons

Mileage Estimates: (City/Highway) 23 / 30

Range in Miles: (City/Highway) 393 / 513

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	4	N/A
Engine	40	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	30	3	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Mazda 626 LX (Sedan)

Price: \$17,500

Mazda prides itself on building cars that are fun to drive. Aiding the 626's cause is a sporty suspension. Equipped with MacPherson struts up front and Mazda's Twin-Trapezoidal Link (TTL) suspension at the rear, the 626 grips confidently on twisty roads, while out on the highway, the suspension manages to soak up nearly every pothole without jolting passengers into instant kidney failure. The 626's steering and braking are also up to the task of providing a more rewarding experience than your average family sedan. For power, the LX feature a 2.0-liter four-cylinder engine producing 130 horsepower and 130 foot-pounds of torque. Mazda does offer a manual transmission, making the 626 one of few family sedans available with a manual transmission. Overall, the 626 is a solid alternative in the family sedan market. Its strengths lie in its sporty nature and cult appeal (well, for a family sedan, anyway). If you are in the market to buy a new family sedan, the 626 deserves some of your attention.



Weight: 1300kgs

Acceleration (0-60mph or 100kph): 10.4 sec

Redline Speed: 185kph (116mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: 4-Cylinder Inline 16V 2.0 Liter

Class: A

Base Engine Size: 2.0 Liters

Weight: 1300kgs

Horsepower: 125 @ 5500 rpm

Value: \$4000

Fuel Tank Capacity: 16.9 gallons

Mileage Estimates: (City/Highway) 23 / 30

Range in Miles: (City/Highway) 393 / 513

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	4	N/A
Engine	40	3	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	30	3	6
Top	30	2	6
Wheels (4)	20Hub/10Tire	2	3

Mercedes-Benz E55 (Luxury Sedan)

Price: \$69,800

What makes the E55 special? How does 349 horsepower from a 5.5-liter V8 grab you? From a standstill, 60 mph comes up in just 5.4 seconds, and the E55 keeps pulling strong well into triple-digit territory, topping out at 155 mph. But the E55 isn't just fast. It handles too. The double-wishbone front and five-link rear suspensions are beefed up with thicker solid stabilizer bars for a flatter cornering stance. Like other E-Class models, the E55 is equipped with standard ABS and Brake Assist working



through massive vented discs front and rear. Deceptively fast, with exceptional handling and astounding braking, this E55 is the Benz for those who love to drive. But the competition has enticing, though not as exclusive, sedans at this price too.

Comes with: Luxury Package

Weight: 1870kgs

Acceleration (0-60mph or 100kph): 5.4 sec

Redline Speed: 250kph (155mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: V8 24V 5.5 Liter

Class: A

Base Engine Size: 5.5 Liters

Weight: 240kgs

Horsepower: 349 @ 5500 rpm

Value: \$9800

Fuel Tank Capacity: 21.1 gallons

Mileage Estimates: (City/Highway) 16 / 23

Range in Miles: (City/Highway) 338 / 485

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	8	N/A
Engine	60	6	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Nissan Maxima GXE (Sedan)

Price: \$21,500

The Nissan Maxima is one of the top selling cars in the US. This car is sheer joy to drive. The V6 makes 222 horsepower at



6,400 rpm. Helping to produce that level of motivational force is a specially designed exhaust system that reduces backpressure when the engine is revved hard. And rev it hard you will, regardless of whether you select the standard five-speed manual transmission or the available four-speed automatic. Handling is also a Maxima strong point, despite the lack of a true rear independent suspension. Four-wheel disc antilock brakes are standard, and traction control is available with the automatic gearbox. Inside, a sport-oriented theme greets occupants, with the usual luxury enhancements to make the cabin more appealing. A long wheelbase creates a large interior; rear seat riders get plenty of legroom, and trunk space measures 15.1 cubic feet.

Weight: 1600kgs

Acceleration (0-60mph or 100kph): 7.2 sec

Redline Speed: 217kph (136mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: 222-HP 3.0 Liter 24-v DOHC

Class: A

Base Engine Size: 3.0 Liters

Weight: 205kgs

Horsepower: 222 @ 6400 rpm

Value: \$5300

Fuel Tank Capacity: 18.5 gallons

Mileage Estimates: (City/Highway) 21 / 27

Range in Miles: (City/Highway) 389 / 500

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	55	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	35	3	7
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Volvo Model S80 T6 Executive (Luxury Sedan)

Price: \$46,800

Are you looking to buy a well-appointed luxury sedan with enough horsepower to humble most of today's sporty coupes? Volvo's flagship sedan, the S80, might just be your car. For the T6 models,



Volvo takes the a 2.9 engine and bolts on two turbochargers. The T6 engine belts out 268 horsepower at 5,400 rpm. A MacPherson strut suspension handles duties up front, while a fully independent multi-link setup keeps the rear planted. Front and rear antiroll bars help the S80 maintain a flat attitude in corners. Comfort is a Volvo hallmark, and the S80 is no exception. If that still isn't good enough, T6 Executive features wider rear door openings, heated rear seats, extra padding in the rear seat and bottom cushion, a multi-functional rear center armrest/console, an electric rear window sun shade, a small refrigerator, and a DVD player connected to a video screen mounted in the rear console. As with all Volvo cars, safety is paramount. There is little wrong with the S80. As a luxury car with cutting-edge safety and technology, the S80 is unmatched.

Weight: 1800kgs

Acceleration (0-60mph or 100kph): 6.7 sec

Redline Speed: 224kph (140mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed Manual or Automatic

Engine: T-6 2.8-Liter 6-Cylinder DOHC

Class: A

Base Engine Size: 2.8 Liters

Weight: 190kgs

Horsepower: 268 @ 5400 rpm

Value: \$6800

Fuel Tank Capacity: 21.1 gallons

Mileage Estimates: (City/Highway) 17 / 25

Range in Miles: (City/Highway) 358 / 527

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	85	8	N/A
Engine	70	7	N/A
Doors	40	5	8
Windows	10	0	2
Trunk	40	5	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Trucks and Vans

Trucks and vans are among the most common utility vehicles around. Though both vans and pickup trucks they are now being displaced by SUVs, but they are still as popular as ever.

Chevrolet S-10 2WD (Compact Pickup)

Price: \$16,200

"Like a Rock". The Chevy S-10 compact pickup (two wheel drive) is the basic pickup truck. Like most of today's



compact trucks, Chevrolet's S-Series has been growing more carlike. That's the trend, and Chevy has continued transforming its small-scale pickups into everyday vehicles without blurring their identity as practical machines. The S-10 is a durable, rugged pickup, yet has the comfort of a car. The 180-horsepower Vortec 2200 V6 cranks out 245 foot-pounds of twist.

Weight: 1560kgs, or 1920kg fully loaded
Acceleration (0-60mph or 100kph): 8.6 sec, or 10.6 loaded
Redline Speed: 200kph (125mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic or 5-Speed
Engine: Vortec 2200 V6 2.2 Liter **Class:** A
Base Engine Size: 2.2 Liters **Weight:** 150kgs
Horsepower: 180 @ 5000 rpm **Value:** \$4500
Fuel Tank Capacity: 19 gallons
Mileage Estimates: (City/Highway) 17 / 23
Range in Miles: (City/Highway) 323 / 427
Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	6	N/A
Engine	65	6	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	60	4	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Chrysler Voyager LX (Minivan)

Price: \$24,150

Carlike handling, great value, attractive styling. The Voyager has long been the stable minivan of Chrysler-Plymouth, and today its not exception. Though the Chrysler Town and Country is a far more luxurious minivan, the Voyager is still one of the most popular with just the right balance of performance, features, and value. Acceleration with the 3.3-liter, 180-horsepower engine is strong from startup, with 201 foot-pounds of torque at 4,000 rpm providing a good amount of low-end grunt. Automatic transmission shifts are neat and smooth, and engine and tire sounds are virtually absent. The Voyager can seat up to six passengers plus the driver.



Weight: 1800kgs

Acceleration (0-60mph or 100kph): 10 sec

Redline Speed: 198kph (124mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: V6 3.3 Liter 24-v SOHC alum. **Class:** A

Base Engine Size: 3.3 Liters

Weight: 180kgs

Horsepower: 180 @ 5200 rpm

Value: \$4200

Fuel Tank Capacity: 20 gallons

Mileage Estimates: (City/Highway) 18 / 24

Range in Miles: (City/Highway) 360 / 480

Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	50	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	30	3	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Dodge Grand Caravan (Minivan)

Price: \$32,800

It began as a head-turner that transformed to the icon-status as one of the best selling minivans ever. The one with the most innovations, the most minivan firsts, and millions of satisfied owners over the years. Over the course of its history,



Dodge Caravan has lead the way by changing the landscape of what you expect in a vehicle. The Grand Caravan ES four-wheel ABS with front disc/rear drum setup, power windows and power door locks, three-zone climate control, power eight-way driver's seat, power sliding doors and HomeLink universal transmitter (to open the door remotely). Leather trim and 17-inch tires are optional. Powering the Grand Caravan is a 3.8-liter six-cylinder that squeezes out 215 horses of sheer power.

Weight: 1890kgs

Acceleration (0-60mph or 100kph): 8.8 sec

Redline Speed: 208kph (130mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: 3.8-Liter V6 6-Cylinder

Class: A

Base Engine Size: 3.8 Liters

Weight: 200kgs

Horsepower: 215 @ 5000 rpm

Value: \$4600

Fuel Tank Capacity: 20 gallons

Mileage Estimates: (City/Highway) 16 / 22

Range in Miles: (City/Highway) 320 / 440

Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	55	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	35	4	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

Dodge Ram 2500 4WD (Full-Sized Pickup)

Price: \$21,800

Not only can Ram boast being one of the biggest, strongest, hardest-working trucks around, but it was one of the first to combine these traits with that of an everyday vehicle for work and play. To prove its all-around prowess, Ram, with its fierce Magnum engines, took on the NASCAR Craftsman Truck Series and won four races against some pretty stiff competition. The 2500 Ram comes with a mammoth 5.9 Liter Magnum engine, with enough oomph to haul a load of concrete cinder blocks with ease.



Weight: 2620kgs, or 4000kg fully loaded

Acceleration (0-60mph or 100kph): 10.7 sec, or 16.3 fully loaded

Redline Speed: 202kph (126mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed

Engine: 5.9-Liter Magnum V8

Class: A

Base Engine Size: 5.9 Liters

Weight: 225kgs

Horsepower: 245 @ 4000 rpm

Value: \$5150

Fuel Tank Capacity: 35 gallons

Mileage Estimates: (City/Highway) 13 / 17

Range in Miles: (City/Highway) 455 / 595

Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	85	7	N/A
Engine	70	7	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	65	4	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

GMC Savana 3500 SL Extended (Full Van)

Price: \$28,000

The Savana full-sized van is available as either a passenger van for retail customers or as a cargo van for commercial use. Cargo vans come with stripped-down interiors, ready for upfitting with tool racks or parts bins. Passenger vans are available with seating 10 plus driver. There's even a choice of side-entry doors: a slider or a set of 60/40 hinged doors. GM's full-size vans feature flush glass and door handles, hidden door hinges, standard four-wheel antilock brakes and dual airbags. The center console contains two cupholders, an auxiliary power outlet and storage for items like CDs and cassettes. Inside the SL Extended Savana you'll find 317 cubic feet of volume with the rear seats removed. Rear hinged doors open a full 180 degrees for easy loading. The SL comes with the venerable 255-horse Vortec 5700 V8 (though other, more powerful Vortecs can be mounted).



Weight: 2730kgs, or 4500kg fully loaded
Acceleration (0-60mph or 100kph): 10.7 sec, or 17.6 fully loaded
Redline Speed: 186kph (116mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic
Engine: Vortec 5700 V8 5.7 Liter **Class:** A
Base Engine Size: 5.7 Liters **Weight:** 230kgs
Horsepower: 255 @ 4600 rpm **Value:** \$5200
Fuel Tank Capacity: 31 gallons
Mileage Estimates: (City/Highway) 14 / 19
Range in Miles: (City/Highway) 434 / 589
Maneuvering Value: -6 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	6	N/A
Engine	60	6	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	40	4	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

GMC Savana 3500 SL Conversion (Full Van)

Price: \$36,000

The Savana Conversion is the ultimate in spacious luxury vehicular mobility. This van is basically the Savana SE with all the fixings. There are many different types of converse available from a variety of companies, but here is list the most common additions. Raised roof area (+8"), insulated foam wall covering, carpeting, fabric window treatments, drink holders, cooler box, 12V outlet, 13" TV and VCR, central table, light fixtures and reading lights. The Savana SE conversion can hold up to six passengers in the back, one in the front, and the driver (total of eight).



Weight: 2850kgs, or 4500kg fully loaded
Acceleration (0-60mph or 100kph): 11.2 sec, or 17.6 fully loaded
Redline Speed: 186kph (116mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic
Engine: Vortec 5700 V8 5.7 Liter **Class:** A
Base Engine Size: 5.7 Liters **Weight:** 230kgs
Horsepower: 255 @ 4600 rpm **Value:** \$5200
Fuel Tank Capacity: 31 gallons
Mileage Estimates: (City/Highway) 14 / 19
Range in Miles: (City/Highway) 434 / 589
Maneuvering Value: -6 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	6	N/A
Engine	60	6	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	40	4	6
Top	50	5	6
Wheels (4)	20Hub/10Tire	2	3

GMC Sierra 4500HD 4WD (Heavy Pickup)

Price: \$21,800

Power. Economy. Reliability. The classic GMC workhorse is the Sierra 4500 Heavy Duty Pickup. Mounting a monster 340-hp 8.1 Liter Vortec 8100 V8 engine, no other pickup is more powerful, no other more versatile. The Sierra gets some styling and feature enhancements to position GMC as the "professional grade" truck. To that end, the Sierra rides on a chassis that sits 2 inches taller than the Chevy S-10 for added road stature. But looks and special content aside, the biggest draw for GMC's big pickup is its exceptional powertrains, outstanding payload capacity, and unparalleled towing and hauling ability. And at the heart of all this newfound capability is its colossal Vortec 8100 engine.



Weight: 2870kgs, or 5170kg fully loaded
Acceleration (0-60mph or 100kph): 8.4 sec, or 15.2 fully loaded
Redline Speed: 204kph (128mph)
Breaks: Stock, **Wheels:** Stock
Transmission: Automatic or 5-Speed
Engine: Vortec 8100 V8 8.1 Liter **Class:** A
Base Engine Size: 8.1 Liters **Weight:** 330kgs
Horsepower: 340 @ 5000 rpm **Value:** \$6880
Fuel Tank Capacity: 34 gallons
Mileage Estimates: (City/Highway) 12 / 16
Range in Miles: (City/Highway) 408 / 544
Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	80	7	N/A
Engine	70	7	N/A
Doors	30	4	6
Windows	10	0	2
Trunk	60	4	6
Top	30	3	6
Wheels (4)	20Hub/10Tire	2	3

SUVs

Sports Utility Vehicles are more popular than ever before, and their popularity is growing. They serve as vans, pickups, and luxury sedans, all wrapped up into one, and have good performance at a reasonable price.

Chevrolet Blazer LS 4WD (SUV)

Price: \$27,200

Powered by a Vortec 4300 V6, the Blazer can be tailored to any specific need. There are accommodations for as many as six passengers, if they don't mind squeezing., and there's lots of cargo space too. Off road is not where the Blazer shines, despite its super-duty suspension. On the other hand, as a road-going hauler the Blazer is quite capable. This 4x4 models is equipped with the AutoTrac push-button electronic transfer system which



automatically senses wheel slippage occurs and sends power to the axle with the most traction. This setup takes the guesswork out of sure-footed travel over wet or snowy pavement.

Weight: 1860kgs, or 2480kg fully loaded
Acceleration (0-60mph or 100kph): 9.3 sec, or 12.4 loaded
Redline Speed: 211kph (132mph)
Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: Vortec 4300 V6 4.3 Liter **Class:** A
Base Engine Size: 4.3 Liters **Weight:** 195kgs
Horsepower: 200 @ 4400 rpm **Value:** \$4700

Fuel Tank Capacity: 18 gallons

Mileage Estimates: (City/Highway) 16 / 20

Range in Miles: (City/Highway) 288 / 360

Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	90	7	N/A
Engine	70	8	N/A
Doors	40	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	3	8
Wheels (4)	20Hub/10Tire	2	3

GMC Hummer 4Door Hardtop 4WD

Price: \$90,000

In 1985 a legend was born. The Hummer is the ultimate off-road warrior. Designed as an all-purpose vehicle for the U.S. Armed Forces (as the Humvee), the military version has been in production since 1985.



The civilian Hummer became available to the public in 1992, and it has seen some success, thanks to people who've found that there are some things a Jeep Wrangler just can't do. But the Hummer is not known for sporty performance (but its brute force can't be beat). The 6.5-liter turbo diesel can only pump 195-hp. It can make zero to 60mph in a 16 seconds, and its top speed is just 83 mph. I would recommend changing this out for a GMC Duramax Diesel 6600 or larger (petrol engines do not have enough torque). Optional accessories include a **Central Tire Inflation System**, allowing the driver to inflate or deflate the tires from inside the vehicle (for those times when you really need the traction provided by depressurized rubber) reducing Friction caused by adverse road conditions by 2, for **+\$3500**. With **Run-Flat tires** it will cost you **+\$2000**. There is also a **Snorkel** available for the Hummer, which allows the engine to breath while submerged, costing only **+\$500**. The civilian model Hummer is not armored (beyond what its metal exterior provides), nor does it come with the gun turret on the military model (for obvious reasons). These would have to be added separately. If you opt for the "open top" version (convertible with attachable waterproof cover), subtract 155kgs from the weight and increase the acceleration to 15.9.

Weight: 3250kgs

Acceleration (0-60mph or 100kph): 16

Redline Speed: 132kph (83mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: 6.5-L V8 Turbo Diesel L65 **Class:** D

Base Engine Size: 6.5 Liters **Weight:** 275kgs

Horsepower: 195 @ 3400 rpm **Value:** \$3200

Fuel Tank Capacity: 25 gallons

Mileage Estimates: (City/Highway) 10 / 13

Range in Miles: (City/Highway) 250 / 325

Maneuvering Value: -4 MV

Location	SDP Value	KD	Pen. Point
Chassis	200	10	N/A
Engine	120	10	N/A
Doors	80	8	6
Windows	10	0	2
Trunk	80	8	8
Top	80	8	8
Wheels (4)	40Hub/20Tire	4	5

GMC Yukon XL 2500 4WD (SUV)

Price: \$40,600

The 2000 Yukon XL is one of the best luxury SUV market. Just a few inches longer than other Yukons, this former Suburban has the power, handling and indulgences to



appeal to upscale SUV buyers. This is a complete overhaul, with the Yukon leaving its Chevy roots behind and stepping forward as a full GMC nameplate. The standard engine on 2500s is the Vortec 6000 V8, offering 300 horsepower at 4800 rpm. The overall driving experience has been heightened with the aid of a wider track and shorter turning diameters on the four-wheel-drive version and standard variable-effort power steering system. Interior space has been increased, with more room all around. With three rows of seats, the XL can carry nine passengers.

Weight: 2630kgs, or 4030kg fully loaded

Acceleration (0-60mph or 100kph): 8.7 sec, or 13.4 loaded

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic

Engine: Vortec 6000 V8 6.0 Liter

Class: A

Base Engine Size: 6.0 Liters

Weight: 270kgs

Horsepower: 300 @ 4800 rpm

Value: \$6200

Fuel Tank Capacity: 18 gallons

Mileage Estimates: (City/Highway) 16 / 20

Range in Miles: (City/Highway) 288 / 360

Maneuvering Value: -5 MV

Location	SDP Value	KD	Pen. Point
Chassis	100	8	N/A
Engine	80	8	N/A
Doors	40	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	3	8
Wheels (4)	20Hub/10Tire	2	3

Jeep Wrangler Sahara 4WD ("Jeep" SUV)

Price: \$23,100

The Wrangler continues to be the quintessential off-road icon. This Jeep began as a vehicle for military use and has retained its Spartan utility while slowly evolving into a practical and popular means of transportation. The



Wrangler has never lost its origins, despite improvements for enjoyable daily commuting. It can be hooked to either the standard five-speed manual or a three-speed automatic transmission and comes equipped with an AM/FM/cassette stereo and a carpeted cargo area. The Sahara is the priciest Wrangler, and gets a 4.0-liter engine, air conditioning, leather-wrapped steering wheel, front and rear tow hooks, fog lamps, AM/FM/CD stereo, and Heavy-Duty Electronics. Nobody, however, will mistake the Wrangler for a smooth-running family sedan; it's very much a truck. And the

abundance of aftermarket parts to modify the Wrangler makes it enormously popular with the rock-crawling crowd.

Weight: 1474kgs

Acceleration (0-60mph or 100kph): 7.8 sec

Redline Speed: 195kph (122mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: 4.0-Liter Inline V-6

Class: A

Base Engine Size: 6.0 Liters

Weight: 150kgs

Horsepower: 190 @ 4600 rpm

Value: \$4650

Fuel Tank Capacity: 19 gallons

Mileage Estimates: (City/Highway) 16 / 19

Range in Miles: (City/Highway) 304 / 361

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	70	7	N/A
Engine	60	8	N/A
Doors	40	4	6
Windows	10	0	2
Trunk	40	4	8
Top	0	0	0
Wheels (4)	20Hub/10Tire	2	3

Jeep Grand Cherokee Laredo 4WD (SUV)

Price: \$30,600

Jeep's rough-and-ready Grand Cherokee is one of the best-selling SUVs on the market, and it's easy to see why. With ruggedly handsome styling, roomy comfort for four adults, plenty of cargo space, and unsurpassed abilities both on and off the highway, Grand Cherokee delivers what most people want in family transport. The Grand's standard engine is a 4.0-liter inline six that produces 190 horsepower and 230 foot-pounds of torque, the same as the Wrangler Sahara. You'll find standard cloth upholstery inside the Laredo. This version has a four-wheel-drive system which keeps things moving even if only one tire has traction. While going off-road may not be something you've considered doing with a luxury vehicle, remember that this is a Jeep, the original 4x4, and it hasn't lost any of its legendary warrior heritage.



Weight: 1880kgs, or 2560kg fully loaded

Acceleration (0-60mph or 100kph): 9.9 sec, or 13.5 loaded

Redline Speed: 220kph (138mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed Manual

Engine: 4.0-Liter Inline V-6

Class: A

Base Engine Size: 6.0 Liters

Weight: 150kgs

Horsepower: 190 @ 4600 rpm

Value: \$4650

Fuel Tank Capacity: 20.5 gallons

Mileage Estimates: (City/Highway) 16 / 19

Range in Miles: (City/Highway) 304 / 361

Maneuvering Value: -3 MV

Location	SDP Value	KD	Pen. Point
Chassis	90	7	N/A
Engine	80	8	N/A
Doors	40	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	3	8
Wheels (4)	20Hub/10Tire	2	3

Limos and Ultimate Luxury

Ultimate Luxury. Ultimate Style. Ultimate Perfection. Limousines, Rolls-Royces, and Bentleys. Needless to say, if you can afford one of these vehicles, you will not be the one driving. You will be hiring someone to drive it for you.

Bentley Arnage (Luxury Sports Sedan)

Price: \$212,000

Five endurance racing victories at Le Mans has endowed the Bentley heritage. The red-badge 4-door Arnage is a worthy successor to that illustrious lineage, offering a greater combination of power and torque than any other production luxury in the world. Its hand-assembled 6.75-liter turbocharged, intercooled V8 engine produces 400 hp and 619 lb-ft of torque, enabling 0-60 mph acceleration in 5.9 seconds and a 155-mph (248 kph) top speed. Arnage interiors are equally the result of the most painstaking craftsmanship. Each Arnage is essentially tailored to the preferences of the owner in its choice of interior and exterior finishes. In the best Bentley tradition, the Arnage offers spacious and supremely comfortable accommodation.



Comes with: Luxury Package

Weight: 2360kgs

Acceleration (0-60mph or 100kph): 5.9 sec

Redline Speed: 248kph (155mph)

Breaks: Stock, **Wheels:** Stock

Transmission: Automatic or 5-Speed

Engine: Custom V8 24V 6.75 Liter

Class: A

Base Engine Size: 6.75 Liters

Weight: 330kgs

Horsepower: 500 @ 4000 rpm

Value: \$48,000

Fuel Tank Capacity: 26 gallons

Mileage Estimates: (City/Highway) 12 / 20

Range in Miles: (City/Highway) 312 / 520

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	85	8	N/A
Engine	70	8	N/A
Doors	40	6	6
Windows	10	0	2
Trunk	50	6	8
Top	40	6	8
Wheels (4)	20Hub/10Tire	2	3

Lincoln LS Town Car Limousine (+85")

Price: \$94,000

The most popular luxury car in America is also Americas most popular Limousine.



Available as a stretch conversion from most coachmakers, most notably from Kyrstal Koaches, the Lincoln Town Card makes the best choice for a sedan limo. The Lincoln is powered by a 32-valve, 3.9-liter V8 generating 252 horsepower at 6,100 rpm and 267 foot-pounds of torque at 4,300 - that is well sufficient to compensate for the added weight of the +85" stretch. This limo is 25 feet long (about 8.3 meters), and offers a spacious, luxurious interior. Enmities include all leather seats, carpeting, interior lighting, fiber optic lighting displays, tented windows, full mini-bar, drink table, side sofa and rear sofa, 24" TV with VCR and DVD player, deluxe sound system and 100-CD changer, sunroof, and cellular phone. This is not an armored version, but it may be armored and outfitted with a verity of "special features".

Comes with: Ultra Luxury Package

Weight: 1880kgs

Acceleration (0-60mph or 100kph): 7.5

Redline Speed: 204kph (128mph)

Breaks: Stock, Wheels: Stock

Transmission: Automatic

Engine: 3.9-L 32-valve V8 Engine

Class: A

Base Engine Size: 3.9 Liters

Weight: 180kgs

Horsepower: 252 @ 6100 rpm

Value: \$5400

Fuel Tank Capacity: 18 gallons

Mileage Estimates: (City/Highway) 22 / 26

Range in Miles: (City/Highway) 400 / 468

Maneuvering Value: -7 MV

Location	SDP Value	KD	Pen. Point
Chassis	120	4	N/A
Engine	50	4	N/A
Doors	30	3	6
Windows	10	0	2
Trunk	40	4	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Rolls-Royce Silver Seraph (Luxury Sedan)

Price: \$220,000

The naming of a Rolls-Royce motor car is no small matter. A celestial being, highest-ranked of all the angels, the Seraph is associated with light, ardour and purity. The Silver Seraph, its form created to catch and hold the light, has been created to be the new expression of the marque. Its 5.4-liter V12 engine works in close harmony with 5-speed automatic transmission and adaptive suspension systems to deliver effortlessly refined performance and safe handling. The sculptured, rounded shape of the new Seraph is a modern interpretation of the classic presence and grace that are the hallmarks of a Rolls-Royce motor car. The elegant interior, now with increased space and improved comfort, also features smoothly rounded lines and demonstrates extraordinary craftsmanship in its fine, sculpted veneers, hand-finished furnishings and upholstery made from the finest hides.



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Comes with: Ultra Luxury Package

Weight: 2350kgs

Acceleration (0-60mph or 100kph): 7.3 sec

Redline Speed: 232kph (145mph)

Breaks: Stock, Wheels: Stock

Transmission: Automatic

Engine: Alumn V12 24V 5.4 Liter

Class: A

Base Engine Size: 5.4 Liters

Weight: 290kgs

Horsepower: 322 @ 5000 rpm

Value: \$9,300

Fuel Tank Capacity: 22 gallons

Mileage Estimates: (City/Highway) 12 / 20

Range in Miles: (City/Highway) 264 / 440

Maneuvering Value: -2 MV

Location	SDP Value	KD	Pen. Point
Chassis	90	8	N/A
Engine	65	8	N/A
Doors	45	5	6
Windows	10	0	2
Trunk	40	4	8
Top	40	4	8
Wheels (4)	20Hub/10Tire	2	3

Stretched "Hummerzine" 4WD (+150")

Price: \$146,000

Nuff said. Are you someone looking to make a statement about yourself? A BIG statement? If so then



this is the limo for you. Nothing short of a main battletank hauling down the highway can top the wide-eyed, slack-jawed doubletakes you'll get this traveling in a twenty-eight foot long (nine meter) stretch 4WD Hummer Limousine (Hummerzine), and seven feet-wide (almost wider than some cars are long). If a limo is a palace on wheels, and the hummer is a fortress, then the Hummerzine is both in one - with an opulent interior complete with two television (with VCR, DVD, and your choice of video game station), a wet bar, 100-disc CD player, cell phone, couches, and plenty of space to move about. Furthermore, it can run through a brick wall with hardly a scratch and is equally suited to cross-country travel as it is cruising Miami. The Hummerzine is not armored in this package, but armor may be added (upping the engine to a Duramax Diesel 6600 would be good too).

Comes with: Ultra Luxury Package

Weight: 3650kgs

Acceleration (0-60mph or 100kph): 18.7

Redline Speed: 112kph (70mph)

Breaks: Stock, Wheels: Stock

Transmission: Automatic or 5-Speed Manual

Engine: 6.5-L V8 Turbo Diesel L65

Class: D

Base Engine Size: 6.5 Liters

Weight: 275kgs

Horsepower: 195 @ 3400 rpm

Value: \$3200

Fuel Tank Capacity: 25 gallons

Mileage Estimates: (City/Highway) 10 / 13

Range in Miles: (City/Highway) 250 / 325

Maneuvering Value: -8 MV

Location	SDP Value	KD	Pen. Point
Chassis	300	10	N/A
Engine	120	10	N/A
Doors	80	8	6
Windows	10	0	2
Trunk	80	8	8
Top	80	8	8
Wheels (4)	40Hub/20Tire	4	5

Yukon Stretched Limo 4WD (+120")

Price: \$110,000

If a stretched Hummer is a bit too eccentric for you (or just not fast enough for you), then a stretched Yukon Limo may be more your style. This luxury SUV lengthened by +120" to a total length just over 26 feet



(nearly 9 meters). The SUV limo is decked out with leather seats, carpeting, interior lighting, fiber optic lighting displays, tented windows, full wet bar and refrigerators, drink table, side sofa and rear sofa, 28" flat-panel TV with VCR and DVD player, deluxe sound system and 100-CD changer, sunroof, and cellular phone. This is not an armored version, but it may be armored optionally.

Comes with: Ultra Luxury Package

Weight: 2950kgs

Acceleration (0-60mph or 100kph): 9.8 sec

Redline Speed: 192kph (120mph)

Breaks: Stock, Wheels: Stock

Transmission: Automatic

Engine: Vortec 6000 V8 6.0 Liter
Base Engine Size: 6.0 Liters
Horsepower: 300 @ 4800 rpm
Fuel Tank Capacity: 18 gallons
Mileage Estimates: (City/Highway) 16 / 20
Range in Miles: (City/Highway) 288 / 360
Maneuvering Value: -5 MV

Class: A
Weight: 270kgs
Value: \$6200

Location	SDP Value	KD	Pen. Point
Chassis	150	8	N/A
Engine	80	8	N/A
Doors	40	4	6
Windows	10	0	2
Trunk	40	4	8
Top	40	3	8
Wheels (4)	20Hub/10Tire	2	3

Motorcycles

Fun, popular, and the epitome of rebellion, freedom, and the "American way" - motorcycles have come to dominate the highway of speed and exhilaration. Vroom-Vroom.

American Eagle STM-C "Chopper" (Classic Bike)

Price: \$28,000

It's all about image, and the American Eagle "Chopper" is an all American Icon. The Classic AE Chopper is a "Big Bike" with a massive 110-HP 4-cycle 2-cylinder, 1.0 Liter engine, capable of



pumping out some serious muscle power. On the open highway, this bike can reach upwards of 112mph (180kph), and though that would not exactly be legal, the Choppers 7500rpm engine seems almost to be begging for every liter of fuel-injected premium petrol.

Weight: 270kgs + 80kg driver = 350kg

Acceleration (0-60mph or 100kph): 3.1 sec

Redline Speed: 192 kph (120mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed

Engine: 110-HP 4-cylce 2-cylinder

Class: M

Base Engine Size: 1.0 Liters

Weight: 97kgs

Horsepower: 110 @ 7500 rpm

Value: \$3050

Fuel Tank Capacity: 5.0 gallons

Mileage Estimates: (City/Highway) 40 / 45

Range in Miles: (City/Highway) 200 / 225

Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	50	4	N/A
Wheels (2)	20Hub/10Tire	2	3

BMW F 650 Dakar (Off-Roader)

Price: \$8,200

The BMW F 650 GS Dakar is special model of off-road bikes with high performance. It has a superb suspension system with increased "spring travel", a larger front wheel and special Enduro tires which make it 100% suitable for off-road riding. The engine, as smooth



as silk yet with enormous pulling power, provides the right bite when the going gets tough. The BMW F 650 GS Dakar has a

Comes with: Deluxe Suspension

Weight: 180kgs + 80kg driver = 260kg

Acceleration (0-60mph or 100kph): 5.2 sec

Redline Speed: 145 kph (90mph)

Breaks: Stock, **Wheels:** High Traction Tires

Transmission: 5-Speed

Engine: BMW 37kw 50HP 4-stroke

Class: M

Base Engine Size: 0.65 Liters

Weight: 60kgs

Horsepower: 50 @ 6500 rpm

Value: \$1900

Fuel Tank Capacity: 4.3 gallons

Mileage Estimates: (City/Highway) 44 / 51

Range in Miles: (City/Highway) 189 / 219

Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	40	4	N/A
Engine	30	3	N/A
Wheels (2)	20Hub/10Tire	2	3

BMW K 1200 RS (Super Bike)

Price: \$18,000

The biggest secret of the unbelievable dynamic performance of the K 1200 RS is its brawny, water-cooled, four cylinder BMW engine. Where torque prevails you get to feel the might of the most powerful BMW (96 kW /130 hp). Sporty, yet suitable for long hauls at the same time. A high degree of agility, easy handling and reassuring safety reserves always guarantees maximum riding pleasure, regardless whether you're riding through the Nürburgring racetrack or touring on the Côte d' Azur.



Comes with: ABS

Weight: 270kgs + 80kg driver = 350kg

Acceleration (0-60mph or 100kph): 2.7 sec

Redline Speed: 237 kph (148mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed

Engine: BMW 96kw 130HP 4-cylinder

Class: M

Base Engine Size: 1.17 Liters

Weight: 93kgs

Horsepower: 130 @ 8750 rpm

Value: \$4500

Fuel Tank Capacity: 5.1 gallons

Mileage Estimates: (City/Highway) 13 / 16

Range in Miles: (City/Highway) 66 / 81.6

Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	4	N/A
Engine	40	4	N/A
Wheels (2)	20Hub/10Tire	2	3

Harley-Davidson 1200C XL (Sportster Bike)

Price: \$9,000

When someone speaks the word "Motorcycle" often the image of the Harley-Davidson "Hog" comes to mind. Like American Eagle, Harley-Davidson has become an American icon, and the 1200C XL Sportster is no exception.



The 1200C is economical, reliable, and powerful. Capable of nearly 120mph on the open road and accelerating from 0 to 60mph in under 4 seconds, this is truly a Harley worthy of its namesake.

Weight: 230kgs + 80kg driver = 310kg

Acceleration (0-60mph or 100kph): 3.8 sec

Redline Speed: 198 kph (124mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 5-Speed

Engine: OHV V2 Evolution

Class: M

Base Engine Size: 0.88 Liters

Weight: 72kgs

Horsepower: 80 @ 5000 rpm

Value: \$2700

Fuel Tank Capacity: 3.3 gallons

Mileage Estimates: (City/Highway) 45 / 52
 Range in Miles: (City/Highway) 66 / 81.6
 Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	50	4	N/A
Engine	40	4	N/A
Wheels (2)	20Hub/10Tire	2	3

Harley-Davidson Deuce (Sport Bike)

Price: \$16,000

Mounting the all new TwinCam 88 4-Stroke engine, the Harley Deuce is one of the fastest and most powerful Hogs available today. This is one of the most common and popular styles of Harley's, and follows in the long line of their classic look and feel. It is also one of the more common police bikes, used by law enforcement across the United States. With the TwinCam 88 the Deuce can go from 0 to 60 in 3.5 seconds, and reach speeds of 130mph on a straight run. Few other bikes even come close.



Weight: 290kgs + 80kg driver = 370kg
 Acceleration (0-60mph or 100kph): 3.5 sec
 Redline Speed: 218 kph (136mph)
 Breaks: Stock, Wheels: Stock
 Transmission: 5-Speed
 Engine: TwinCam 88 4-Stroke
 Base Engine Size: 1.45 Liters
 Horsepower: 105 @ 5000 rpm

Class: M
 Weight: 85kgs
 Value: \$3300

Fuel Tank Capacity: 4.9 gallons
 Mileage Estimates: (City/Highway) 42 / 50
 Range in Miles: (City/Highway) 205 / 245
 Maneuvering Value: -1 MV

Location	SDP Value	KD	Pen. Point
Chassis	60	4	N/A
Engine	45	4	N/A
Wheels (2)	20Hub/10Tire	2	3

Kawasaki Ninja ZX-12R (Super Bike)

Price: \$13,000

The machine of the next century is the all-new Kawasaki ZX-12R Ninja, the most radical embodiment of race-proven technology that Kawasaki has ever built. And Kawasaki knows how to build motorcycles that perform. Built to deliver highest power-to-weight ratio of any machine in its class, the ZX-12R combines a compact engine in an all-new aluminum chassis, wrapped in slippery aerodynamic bodywork. Able to exceed 130mph, and accelerate from 0 to 60 in under 3.5 seconds, the Ninja assassinates the competition.



Weight: 210kgs + 80kg driver = 290kg
 Acceleration (0-60mph or 100kph): 3.4 sec
 Redline Speed: 224 kph (140mph)
 Breaks: Stock, Wheels: Stock
 Transmission: 6-Speed
 Engine: Kawasaki 4-Stroke 1200
 Base Engine Size: 1.2 Liters
 Horsepower: 85 @ 6000 rpm

Class: M
 Weight: 80kgs
 Value: \$2900

Fuel Tank Capacity: 5.3 gallons
 Mileage Estimates: (City/Highway) 48 / 56
 Range in Miles: (City/Highway) 254 / 297
 Maneuvering Value: -0 MV

Location	SDP Value	KD	Pen. Point
Chassis	45	4	N/A
Engine	35	4	N/A
Wheels (2)	20Hub/10Tire	2	3

Motorcycle Side Car

Price: \$6,500

The Motorcycle Side Car is a common addition to motorcycles, useful for holding an additional passenger comfortably (though most cycles can support a second passenger behind the driver), or for extra storage (they may also serve as a weapon pod, or to hold electronic systems, such as ECM, and so forth). A side car can support at most 200kgs of weight, in addition to their own weight.

Weight: 120kgs + 80kg passenger = 200kg
 Maneuvering Value: -2 MV (in addition to cycle's MV)

Location	SDP Value	KD	Pen. Point
Chassis	45	4	N/A
Wheel (1)	20Hub/10Tire	2	3

Big Rig Trucks

"Big Rigs" include all-large size trucks, from delivery trucks to massive 18-wheelers. Cabs and Trailers are generally some separately, however, some trucks (such as delivery trucks) are all in one units. Performance for Cabs are without their Trailer. Because of the Torque generated by the massive engines on these trucks, their Max Speed will not change depending on their weight, only their Acceleration performance will change (if the engine is changed out, use the method for adjusting Acceleration and Max Speed as from Chapter 3).

GMC C-Series Dump Truck

Price: \$65,000

The GMC C-series truck chassis has a wide range of usage, from delivery trucks, to fuel trucks, to utility trucks, and dump trucks. The version feature here is the C-series dump truck, one of the



most common dump trucks today. This version features a hydraulic dump trailer, capable of holding up to 8 tons of earth and rock and delivering it with speed and efficiency. The raised cab gives the driver and passenger good road visibility, granting a +1 to Perception checks. The C-series garbage truck is essentially the same.

Weight: 9500kgs (max cargo 8500kg)
 Acceleration (0-60mph or 100kph): 41.3
 Redline Speed: 120kph (75mph)
 Breaks: Stock, Wheels: Stock
 Transmission: 6-Speed Manual

Engine: Duramax Turbo Diesel 7800
 Base Engine Size: 7.8 Liters
 Horsepower: 230 @ 2400 rpm
 Class: D
 Weight: 320kgs
 Value: \$3600

Fuel Tank Capacity: 42 gallon
 Mileage Estimates: (City/Highway) 7 / 10
 Range in Miles: (City/Highway) 294 / 420
 Maneuvering Value: -9 MV

Location	SDP Value	KD	Pen. Point
Chassis	240	8	N/A
Engine	120	8	N/A
Doors	70	6	6
Windows	10	0	2
Trailer	280	10	10
Top	80	6	8
Wheels (10)	40Hub/20Tire	4	5

GMC W-Series Delivery Truck

Price: \$62,000

More companies are turning to tilt cabs (called such because the cap tilts forward to access the engine) instead of pickups or vans. The cab offers room for three, with plenty of room. The windshield and side windows are tinted to help reduce glare, and high-output air conditioning is available. Driver and passenger gain a +1 to Perception checks, due to high road visibility.

Weight: 8170kgs (max cargo +8500kg)

Acceleration (0-60mph or 100kph): 35.5

Redline Speed: 120kph (75mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 6-Speed Manual

Engine: Duramax Turbo Diesel 7800

Base Engine Size: 7.8 Liters

Horsepower: 230 @ 2400 rpm

Fuel Tank Capacity: 42 gallon

Mileage Estimates: (City/Highway) 7 / 10

Range in Miles: (City/Highway) 294 / 420

Maneuvering Value: -9 MV



Class: D

Weight: 320kgs

Value: \$3600

Location	SDP Value	KD	Pen. Point
Chassis	240	8	N/A
Engine	120	8	N/A
Doors	60	6	6
Windows	10	0	2
Trailer	120	6	8
Top	80	6	8
Wheels (6)	40Hub/20Tire	4	5

Mack CH Full Cab

Price: \$92,000

If you're looking for a truck to handle any applications there's no better choice than the Mack CH. Road-tested and time-proven, this amazing example of trucking versatility handles both highway and on-off highway jobs with ease. Mack engineers designed the new CH cab interior to have a perfect blend of modern, ergonomic styling and traditional heavy-duty truck features. It has ten wheels, two sets of doubles in the back, and two in the front. Driver and passenger gain a +1 to Perception checks, due to high road visibility.

Weight: 7800kgs + Trailer (max 40,000kg)

Acceleration (0-60mph or 100kph): 26.6

Redline Speed: 126kph (79mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 9-Speed Manual

Engine: Mack 330 12-L

Base Engine Size: 12 Liters

Horsepower: 330 @ 1500 rpm

Fuel Tank Capacity: Two 80 gallon (160 G total)

Mileage Estimates: (City/Highway) 4 / 7

Range in Miles: (City/Highway) 640 / 1120

Maneuvering Value: -6 MV (plus Trailer MV)



Class: D

Weight: 850kgs

Value: \$7000

Location	SDP Value	KD	Pen. Point
Chassis	350	8	N/A
Engine	180	8	N/A
Doors	80	6	6
Windows	10	0	2
Trunk(back)	80	6	8
Top	90	6	8
Wheels (10)	40Hub/20Tire	4	5

Volvo 7450 Bus

Price: \$58,000

The Volvo 7450 coach is designed and built by Volvo. It is powered by an economical 345 hp diesel engine linked to the Volvo G8 EGS gearbox.

The all-stainless steel body carries 53 passengers, each provided with a reel-type seat belt, and safety is further enhanced with the optional VEB, Volvo's powerful engine brake. The single front and rear doors open to reveal a gently sloping theatre-type floor to ensure good visibility. The interior is comfortably appointed and there are convenient aircraft-style overhead lockers for personal effects to complement the spacious luggage compartments.

Weight: 7200kgs

Acceleration (0-60mph or 100kph): 20.8

Redline Speed: 112kph (70mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 8-Speed Manual

Engine: Volvo 345 12-L

Base Engine Size: 12 Liters

Horsepower: 345 @ 1700 rpm

Fuel Tank Capacity: 60 gallon

Mileage Estimates: (City/Highway) 6 / 9

Range in Miles: (City/Highway) 360 / 540

Maneuvering Value: -10 MV



Class: D

Weight: 1000kgs

Value: \$7500

Location	SDP Value	KD	Pen. Point
Chassis	210	8	N/A
Engine(back)	100	8	N/A
Doors/Side	60	6	6
Windows	10	0	2
Truck(back)	80	6	8
Top	80	6	8
Wheels (8)	40Hub/20Tire	4	5

Volvo VNM "Day Cab"

Price: \$75,000

If you value versatility and long service life in a truck, the Volvo VNM Day Cab is your vehicle. Ideal for short daily runs, the VNM delivers fuel-efficient performance for both city and highway driving. The VNM is the largest non-sleeper cab in the industry, with more headroom, more width, and more depth. That means more room inside for better driver comfort. It has ten wheels, two sets of doubles in the back, and two in the front. Driver and passenger gain a +1 to Perception checks, due to high road visibility.

Weight: 6800kgs + Trailer (max 20,000kg)

Acceleration (0-60mph or 100kph): 17.6

Redline Speed: 128kph (80mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 10-Speed Manual

Engine: Volvo 385 12-L

Base Engine Size: 12 Liters

Horsepower: 385 @ 1700 rpm

Fuel Tank Capacity: Two 75 gallon (150 G total)

Mileage Estimates: (City/Highway) 4 / 7

Range in Miles: (City/Highway) 600 / 1050

Maneuvering Value: -6 MV (plus Trailer MV)



Class: D

Weight: 1050kgs

Value: \$7900

Location	SDP Value	KD	Pen. Point
Chassis	280	8	N/A
Engine	150	8	N/A
Doors	70	6	6
Windows	10	0	2
Trunk(back)	80	6	8
Top	80	6	8
Wheels (10)	40Hub/20Tire	4	5

Volvo VN 610

Price: \$97,000

The long hours you spend on the road are no hardship if you drive the VN 610 Integral Sleeper. It glides down the highway on its wide-stance cab air suspension, and its optimized steering geometry provides a whole new level of responsiveness and handling. People will envy your life on the road if they catch a glimpse of the interior. The VN 610 is quite accommodating with its optional double bunk, ample storage space, pull-out work table and cable TV hookup. It has ten wheels, two sets of doubles in the back, and two in the front. Driver and passenger gain a +1 to Perception checks, due to high road visibility.

Weight: 7400kgs + Trailer (max 34,000kg)

Acceleration (0-60mph or 100kph): 17.4

Redline Speed: 124kph (78mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 10-Speed Manual

Engine: Volvo 425 12-L

Class: D

Base Engine Size: 12 Liters

Weight: 1100kgs

Horsepower: 425 @ 1700 rpm

Value: \$8300

Fuel Tank Capacity: Two 75 gallon (150 G total)

Mileage Estimates: (City/Highway) 4 / 7

Range in Miles: (City/Highway) 600 / 1050

Maneuvering Value: -6 MV (plus Trailer MV)

Location	SDP Value	KD	Pen. Point
Chassis	320	8	N/A
Engine	160	8	N/A
Doors	70	6	6
Windows	10	0	2
Trunk(back)	80	6	8
Top	80	6	8
Wheels (10)	40Hub/20Tire	4	5



Volvo VN 770

Price: \$110,000

The Volvo 770 is one of the premiere full-size sleeper cabs available today. With a roaring 465 diesel engine, this monster can pull up to 40 tons of cargo. The integrated cab and sleeper compartment features more than 50 square feet of living area beneath an eight-foot ceiling. That makes it taller, wider and deeper than any other cab on the market. Stretch out on an oversized bunk. Prepare dinner in a kitchen equipped with refrigerator/freezer and built-in microwave. Finish paperwork at a dining table that doubles as a work-station. The cab has a spacious interior, with a comfortable bed, closet and secure storage space, mini-refrigerator, microwave, four 110w power outlets, auxiliary power generator, CB radio, and much more. It has ten wheels, two sets of doubles in the back, and two in the front. Driver and passenger gain a +1 to Perception checks, due to high road visibility.

Weight: 8040kgs + Trailer (max 40,000kg)

Acceleration (0-60mph or 100kph): 17.3

Redline Speed: 118kph (74mph)

Breaks: Stock, **Wheels:** Stock

Transmission: 13-Speed Manual

Engine: Volvo 465 12-L

Class: D

Base Engine Size: 12 Liters

Weight: 1250kgs

Horsepower: 465 @ 1800 rpm

Value: \$8600

Fuel Tank Capacity: Two 100 gallon (200 G total)

Mileage Estimates: (City/Highway) 3 / 6

Range in Miles: (City/Highway) 600 / 1200

Maneuvering Value: -6 MV (plus Trailer MV)



Location	SDP Value	KD	Pen. Point
Chassis	350	8	N/A
Engine	180	8	N/A
Doors	80	6	6
Windows	10	0	2
Trunk(back)	80	6	8
Top	90	6	8
Wheels (10)	40Hub/20Tire	4	5

Half-Trailer

Price: \$14,000

This is a half-sized trailer, commonly uses with smaller cabs, though it can of course be pulled by any cab. It can hold up to 18 tons of cargo. It has one set of double wheels in the back.

Weight: 4000kgs (Capacity 18,000kg)

Maneuvering Value: -3 MV (added to vehicle's MV)

Location	SDP Value	KD	Pen. Point
TrailerSides	80	6	8
Back Doors	80	6	6
Trailer Top	60	6	8
Wheels (4)	40Hub/20Tire	4	5

Full Trailer

Price: \$20,000

This is a full-size trailer, the 18-wheeler (18 wheels total, including cab), which is so famous. It can only be pulled by full, 10 wheel cabs. It can hold up to 34 tons of cargo. It has two sets of double wheels in the back.

Weight: 6000kgs (Capacity 34,000kg)

Maneuvering Value: -4 MV (added to vehicle's MV)

Location	SDP Value	KD	Pen. Point
TrailerSides	90	6	8
Back Doors	80	6	6
Trailer Top	80	6	8
Wheels (8)	40Hub/20Tire	4	5

Liquid Tank Trailer

Price: \$12,000

This is a full-size liquid tank trailer, for 18-wheelers. This can be any sort of liquid tanker, carrying petroleum, chemicals, liquid nitrogen, or whatever. It must, of course, be configured for its particular task. It can only be pulled by full, 10 wheel cabs. It can hold up to 34 tons of capacity, or 100,000 gallons.

Weight: 5000kgs (Capacity 34,000kg)

Maneuvering Value: -4 MV (added to vehicle's MV)

Location	SDP Value	KD	Pen. Point
TrailerSides	90	6	8
Back Doors	80	6	6
Trailer Top	80	6	8
Wheels (4)	40Hub/20Tire	4	5

Flatbed

Price: \$6,000

This is a full-size flat bed trailer, for an 18-wheeler. All cargo must be secured with cables, and may be covered with a tarp. Some have large tent like structures to cover the contents. Mounting a series of turret weapons can make this trailer a fierce road-warrior, and it can be used to support a single massive cannon or missile launch system. It can hold up to 36 tons of cargo. It has two sets of double wheels in the back.

Weight: 2000kgs (Capacity 36,000kg)

Maneuvering Value: -4 MV (added to vehicle's MV)

Location	SDP Value	KD	Pen. Point
Trailer Base	90	6	8
Back Doors	80	6	6
Wheels (8)	40Hub/20Tire	4	5

Upgrades and Mods

"Ride into Highway; the Danger Zone!" - Kenny Loggins, Danger Zone

Basic Mechanics

There are two ways to upgrade, modify, and repair vehicles - hire someone or do it yourself. Getting the job done by a mechanic or auto shop is of course the easiest route, but it is also the most expensive. And if the modification is illegal, no reputable shop will do the work. Of course, if you are part of a large organization or corporation, and the vehicle belongs to them, such modifications can be taken care of for you (at the GM's discretion). However, this section will assume you are either doing it yourself or hiring someone to do the job for you.

General Modifications

Adding components and upgrades are all considered "General Modifications", including engine mods, body mods, and replacing broken parts and tires. Most of these take just an hour (for a skilled mechanic), and a Everyday Mechanics skill roll (verses a DV of 14 or 16). If you do it yourself, the cost is only the cost of the component, and takes 1D6 hours. If you hire a mechanic to do the work, it costs an 1D6 x \$50 (labor cost per hour). Any upgrades bought with the vehicle do not cost this extra amount - just use the listed cost.

Spaces and Volume

For simplicity, Internal Spaces, Hard-Points, Volume, and the like were "ignored" in this system. If you need to add a radar or ECM unit, you put it into the vehicle's trunk or convert the back seat area to hold it, or whatever, but there are no hard and fast rules. But you must stay *within reason*. No putting a 2 ton ECM unit and Radar system into the trunk of a small car. The best thing to do is sketch out the car, and draw on the additions (weapons, equipment, etc.).

Junkyards

Junkyards are fully of surprise. True, they are mostly picked clean and full of worthless junk (hence the name), but sometimes you can find good parts. Looking for a particular part, type of engine, vehicle chassis, and so forth, make a simple Perception check verses 14 to 18, depending on how small, old, or "picked-clean" the junk yards is, modified by how common the part is (finding a spark plug is very easy). You must spend about an hour looking. If you succeed you found the part, but it needs to be fixed up (an other few hours of work and at least 30% the items value for

replacement parts). If it is an engine or transmission, it must be rebuilt. If you succeeded by +10, you found the part in working condition, though you should still clean it up. The junkyard owner will charge you a nominal fee, about 10% of the value of the parts.

Tuning the Engine

Giving your engine a tune-up can make it perform at its best. Under normal operation, an engine needs to be tuned every 30,000 miles or *lose* 1D6% of its RPM and Horsepower (and thus, performance and top speed). This maintenance should be done every 30,000 miles and offers no additional benefit (other than keeping the engine in shape). Some repairs (such as fixing an engine's timing system) also requiring a tuning job. You may hire a mechanic to do this work, and it will cost \$150.

Performance tuning is when you attempt to crank up the RPM to boost the Horsepower, change out the spark plugs, work on the pistons and other components, and finding the optimal setting for maximum performance. A performance tune-up can *only* be performed *once* on an one engine. You must make a Competent Mechanics skill roll (verses a DV of 18), and spend about 5 to 6 hours of working and tinkering around, and testing the new settings. Your performance increase will equal your margin of success, as a percent, up to a max of +6% (increasing your Horsepower, RPM, and thus, your Acceleration and max speed). If you fail, there is no increase, and the engine cannot be performance tuned at all (it was already at optimal). If you critically fail, the engine's performance drops by -1D6%, but may be re-tuned to fix it (and cannot be tuned further). You may hire a mechanic to do this work, but it will cost \$250 and the increase will be +1D6%.

You must then recalculate your acceleration and Max Speed. Acceleration is found by dividing the vehicle's weight (in kgs) by the Horsepower. That is, if the engine's new HP is 318 (was 300HP with a 6% increase), and the vehicle weighed 1800kgs, then 1800/318 is 5.7 (so your vehicle can now go from 0 to 100kph in 5.7 seconds). *Your Max Speed, however, only increase by half the percentage gain*. That is if your current Max Speed is 160kph, then a 6% engine boost will just give you +3% speed, which brings you up to 164kph in this case.

Once performance tuned, you may not performance tune the engine again, unless the engine is replace (obviously), or you rebuild the engine.

Rebuilding the Engine

This is a major piece of work - a total overhaul of an engine. This is usually done to old salvaged engines found in junk yards, rebuilding them with scrounged up parts, or to engines which have been severely damaged (with a cracked engine block or having lost more than 50% SDP). When an engine is rebuilt, you basically disassemble it, clean, polish, and lubricate every part, and replace any parts which are damaged. The engine is then reassembled and is virtually "brand new". You must pay for any replaced components as listed (see Repairs), plus an additional 1D6x\$50 for other worn-out parts you happened to find. It takes about 24 man-hours to rebuild an engine, 12 hours if your skill is greater than level 5. If you hired a mechanic (or a shop) to do this work, you must pay \$1000, in addition to the other fore mentioned costs. Sometimes it may be better to just buy a new engine all together.

A rebuild is done in three stages - disassemble, clean and repair, and reassemble. On each of these you must make a Competent Mechanic Roll (verse 18). Any failure will *double* the time and reduce the engine's final Horsepower and RPM by -1D6% (three failures would triple these effects). A critical failure will utterly destroy the engine.

When it is done, the engine is back to spec and all damage has been repaired. Any turbochargers, nitro injectors, and so forth, must be reattached (as per General Modifications). Any bonuses for Performance Tuning (if any) are lost, but once rebuilt you may do a Performance Tuning on the engine, if desired.

Rebuilding the Transmission

Broken, jammed, or damaged transmissions must either be replaced or rebuilt (the same is true for broken ones salvaged from a junk yard). Rebuilding a transmission gets it back to spec, which means putting it back to operational condition. It involves taking it apart, cleaning and lubricating it, and replacing any damaged parts or gears. It costs 1D6x\$50 for needed replacement parts. This work generally takes about 12 man-hours to rebuild an engine, 6 hours if your skill is greater than level 5. You must make a Competent Mechanic Roll (verse 18) to rebuild the transmission, if you fail the time was wasted and the transmission was not successfully repaired. If you hired a mechanic (or a shop) to do this work, you must pay \$600, in addition to the other fore mentioned costs. Sometimes it may be better to just buy a new engine all together.

Repair Work

When a vehicle receives damage, it should be repaired (though it does not have to be, so long as it is still able to run). It will often be cheaper to just scrap a vehicle that has been too badly damaged, and simply buy a new one (making sure to salvage what you can, such as any functional weapons and electronics). Below are the repair guidelines for various parts of the vehicle:

SDP in general: To repair damaged SDP inflicted upon the vehicle (Chassis, Door, Trunk, etc.) costs about \$10 per points SDP in a bodyshop. If you want to do it yourself, the cost is \$2 per point of SDP, but you must make an Everyday Mechanic skill roll (normally vs. 14 for 3D6 system), and it may take a day or two of labor, depending on the extent of damage. Repairs on Engine and Windows are different.

Armor: To repair depleted armor costs about \$50 per point of KD in a bodyshop. If you want to do it yourself, the cost is \$20 per point of SDP, but you must make an Everyday Mechanic skill roll (normally vs. 14), and it may take a day or two of labor, depending on the extent of damage.

Window: A damaged window must be replaced. A side window costs about \$100. A windshield costs \$200. Bulletproof glass is listed under the armor section.

Engine: The Engine has many sub-components. The cost to replace these (if damaged or destroyed) is listed under the Engine Critical Hits. If you want to do it yourself, the cost is half (to buy the part), but you must make an Everyday Mechanic skill (normally vs. 14 for 3D6 system). To repair damaged SDP inflicted upon the engine costs 2% the overall value of the Engine, per SDP. If you want to do it yourself, the cost is half (to buy the parts), but you must make a Competent Mechanic skill roll (normally vs. 16). You cannot repair an engine which has been reduced to 0 SDP. It is slagged and must be replaced. If the engine has taken more than 50% damage, it must be Rebuilt (or replace), as per rules in Chapter 3. Always make sure to estimate the repair cost of the engine before hand. It may be cheaper to just replace it any way.

Sub-components: Sub-components on the Engine or Chassis must be replaced or repaired. This costs is listed under the Engine or Chassis Critical Hit. If you want to do it yourself, the cost is half (to buy the part), but you must make an Everyday Mechanic skill roll (normally vs. 14).

Wheels: Damaged tires should be replaced at cost. Damage to the hub (or wheel) costs the same as fixing SDP in general.

Bodywork and Paint Job: A car always needs bodywork and a paint job after taking damage (even after that damage is repaired). This can be done with a day of work and an Everyday Mechanic skill roll (normally vs. 14), at negligible cost. At a bodyshop you may be charged between \$200 to \$1000 depending on the extent of damage. This is optional, but necessary if you want a good-looking car.

Weapons: Damaged or destroyed weapons must be replaced at cost.

Bodywork

Repairing dents and dings, painting the vehicle, and other cosmetic work, is all considered bodywork. It is always necessary after completing repairs (see Repair Work, above), but may also be done if you simply want to change the cosmetic exterior (usually, just painting it). This can be done with a day of work and an Everyday Mechanic skill roll (normally vs. 14), at negligible cost. Usually, most of this time is spent waiting for the paint to dry.

Manufacturer Upgrades

These are standard upgrades available from the manufacturer of the vehicle. Normally, you would purchase these upgrades at the same time as the vehicle, but they can be added later, as per General Modifications.

Accessories

Power Package (\$300)

This upgrade package includes power seats, power windows, and power locks. It is standard on all vehicles with a price of \$28,000+.

Leather Interior (\$1200)

Leather interior is not standard even to luxury vehicles (you must specify it), as listed in the Catalog, with the exception of Super Luxuries in excess of 100 grand. Tan is the usual color, though black is possible.

Deluxe Sound System (\$1200)

All cars come with speakers - but that's not to say that are up to your standards. The deluxe sounds system features four way true Sound emersion with Base and Center channel, Pro Logic and Dolby Digital 5.1 decoding, and a heavy pre-amp.

Radio Packages

These are the Radio packages available to most vehicles.

Basic Radio + Tap Deck - Featured on all cars
Radio + CD (\$140)

Radio + 5-CD changer (\$300)

Radio + 50-CD changer (\$1200), changer goes in the trunk.

Radio + Tape + CD (\$200)

Radio + Tape + 5-CD changer (\$450)

Radio + Tape + 50-CD changer (\$1400), changer goes in the trunk.



Aiwa CDC-MP3 (\$300)

From Aiwa comes the ultimate "radio" package for your vehicle. The CDC-MP3 has an AM/FM tuner and single-disk CD-player. But not only can it read normal CDs, but it can read MP3 files organized onto a burned CD. This allows you to store over a hundred songs (about ten albums) on one CD, pop it in, and have at it.



Anti-Lock Breaks (\$1000)

ABS is common to most luxury and high-performance vehicles. ABS adds +10 to Breaking, and reduces the DV penalty of Water and Ice by 2.

Remote Entry Key (\$200)

This is a small device that you attach to a key-chain. Pushing the button will unlock the vehicle, and you can toot the horn or turn on (or off) the lights. Some vans allow you to remotely open the side door.

Remote Starter/Entry Key (\$500)

Same as the Remote Entry Key, however, this allows you to remotely start the vehicle (the wheel remains locked until you enter the key). Good for "detecting" bombs at range.

Alarm System (\$600)

This is a simple alarm that can be set to sound if someone touches the car several times, without opening the door, or if a window is broken.

Cold Weather Package (\$50)

Includes a heater for the battery and engine block.

Customer Incentive Cash Back (-\$850)

Act now! \$850 Cash Back on all new and used vehicles!

Offer may not be applicable at all locations. Incentive void in some states. Expect 6 to 12 months for cash back delivery. Not responsible for loss of application. Proof of purchase, driver's licenses, SSN, two IDs, birth certificate, high school diploma, insurance policy, last will and testament, deed to house, and marital status required. Must sign satanic pact in blood and sacrifice first born child to Mephistopheles. Will be notified that offer has already expired upon imminent failure of processing your forms.

Driver Airbag (Standard)

Airbag which pops out of the steering wheel. Standard to all new vehicles. It reduces by -6DC any damage from collisions and impacts to the driver.

Dual Airbags (\$300)

Driver and front passenger airbags. It reduces by -6DC any damage from collisions and impacts to the driver and front passenger.

Deluxe Airbags (\$1000)

Driver and front passenger airbags, as wells as side airbags and airbags for the rear passengers. It reduces by -6DC any damage from collisions and impacts to *all* occupants of the vehicle.

Sunroof (\$1000)

A sunroof always makes a car more sporty, even if it's a Ford. Is powered to slide back at the push of a button.

Moonroof (\$1000)

Simply a glass window (usually tinted) where the sunroof would normally be. The window has only 10SDP and a Penetration Value of 2, unless replaced with bulletproof glass (normal price for a side window).

Head-Up Instrument Display (\$300)

Shows your speed, RPM, engine temp, fuel, and any warning conditions (oil, doors, seatbelts) projected on a small area of the driver-side windshield.

Infrared Head-Up Display (\$2000)

Includes a small IR camera placed behind the grill. At night (when turned on) this system will project a black and white IR image onto a 6" x 4" area of the windshield giving a thermal-IR image of the road ahead, up to 200 meters.

Cellular Phone System (\$300 / \$20 a month + charges)

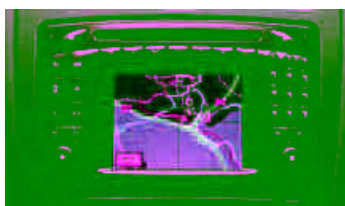
Integrated cellular phone for your vehicle.

OnStar Communication Service (\$300 / \$30 a month)

This is a special cellular system (integrated into the vehicle and separate from your cell phone) which puts you in touch with the OnStar Service. They can give you direction, road condition advice, and call for assistance if you are in an accident or break down.

GPS Navigation System (\$2000 / \$10 a month)

This is a DVD based, full color GPS navigation consol. It requires either the removal of the radio system (where this unit will be placed) or a re-work of the front dash to facilitate the additional unit (some luxury vehicles already include this GPS) vehicle. The DVD, which stores all road maps for the US or Europe may be updated yearly as part of the service (sent to you by mail).



Tires

Economy Tires (\$40 each)

Duration 40,000 miles. 8SDP, Penetration Value 2. Wt. 10kgs each.



Standard (Stock) Tires (\$65 each)

Standard to all vehicles (unless noted). Duration 55,000 miles. 10SDP, Penetration Value 2. Wt. 12kgs each.

Dual Layer Tires (\$80 each)

Duration 70,000 miles. 12SDP, Penetration Value 3. Wt. 15kgs each.

High Traction Tires (\$80 each)

Duration 70,000 miles. 12SDP, Penetration Value 3. Increases by 1 the Friction on Ice and Water, and reduces the DV penalty for Ice and Water by 1 *per pair* (double for both front and rear). Wt. 13kgs each.

AquaTread Tires (\$100 each)

Duration 80,000 miles. 12SDP, Penetration Value 3. Increases by 2 the Friction on Ice and Water, and reduces the DV penalty for Ice and Water by 2 *per pair* (double for both front and rear). Wt. 12kgs each.

Double Wide Tires (\$100 each)

These tires have a greater width than standard tires. Duration 80,000 miles. 15SDP, Penetration Value 3. Increases by 1 all road Friction, and reduces the DV penalty for Ice and Water by 1 *per pair* (double for both front and rear). Wt. 15kgs each.



Run-Flat Tires (\$100 each)

Duration 80,000 miles. 15SDP, Penetration Value 3. A system will notify the driver of the punctured tire (by a warning beep in the cab), but can run for an additional 50 miles without damage. Will not save from total blowouts. Wt. 10kgs each.

Large Truck Tires (x3 price)

Tires for large trucks (big rigs). 20SDP, Penetration Value 4. Wt. 30kgs each. Truck tires reduce the DV penalty of being Off-Road by 1 (assuming all tires are truck tires).

Hummer Tires (\$300 each)

Hummers have special military grade ATV tires. They can be fitted on jacked up pickups and cars, if desired. 20SDP, Penetration Value 5. \$500 each for Run-Flat Hummer Tires. +\$100 each for integration with Hummer's Central Tire Inflation System. Wt. 30kgs each.

Monster Truck Tire (\$2000 each)

This is a monster size 60 to 70" tire (five to six feet!) for vehicles with Monster Truck Suspension systems. 40SDP, Penetration Value 8. Increases by 2 the Friction on Ice and Water, and reduces the DV penalty for Ice, Water, and Off-Road by 2 (bonuses assume all four tires). Wt. 100kgs each.



Wheel Hubs

Standard Hub and Cap (\$50 each)

This is the standard wheel hub and hub cap (\$20 just for hub cap) which comes with most vehicles. It offers 20SPD and 2KD of protection. Hub caps come in a variety of styles.

Heavy Duty Hub and Cap (\$80 each)

This is a more rugged and durable hub and cap. It offers 30SDP and 3KD of protection.

ATV/Truck Hub and Cap (\$100 each)

A hub designed for the wear and tear of off-road travel. This is basically the Hummer's hub and cap, but versions are offered for other vehicles, such as SUVs and trucks. It offers 40SDP and 4KD of protection.

Engines

No matter how good of a car you buy, the engine just never seems good enough (that is, unless you bought a Lamborghini). The first thing any die-hard auto enthusiast will do is take out that stock engine and drop in a new one.

Replacing An Engine

Replacing an engine involves taking out the old engine, inserting and bolting down the new engine, and hooking up all cables and gears. It takes about 3 or 4 hours to completely change out an engine, and you need a well equipped garage with engine lifting and suspension chains. This requires a Competent Mechanic roll (verses 18). Failure means you were unable to complete the task and must start over. A critical failure means you dropped or somehow damaged the engine, reduce the engine's final Horsepower and RPM by -1D6% (tuning or rebuilding may be able to fix this).



After you replace the engine you can modify it and tune it up (as normal). The vehicle's weight will change accordingly (if you removed a 200kg engine and put in a 300kg engine, its weight went up 100kgs). You must then calculate the vehicle's performance based on the new weight and new horsepower of the engine.

Acceleration is found by dividing the vehicle's weight (in kgs) by the Horsepower. That is, if the new engine's HP is 320, and the vehicle's new weighed 1800kgs, then $1800/320$ is

5.6 (so your vehicle can now go from 0 to 100kph in 5.6 seconds). *Your Max Speed, however, only increase by half the percentage gain.* That is if your Acceleration performance changed by 8%, and the Max Speed was originally 160kph, then you only get a +4% speed increase, which brings you up to 172kph in this case.

The SDP of the Engine area will always remain the same. This is done for simplicity. Though it is true that larger engines should have more SDP, there are many other factors, such as the SDP of the body around the engine, the engine's layout and location, and so forth. If you wish to increase the SDP of the Engine area, you need to get Structural Strengthening for that location.

Selling your old engine, you can't hope to get more than half its value. When you buy an engine, you must buy it at full value. You may, of course, get one from a junkyard and rebuild it, as per Rebuilding the Engine.

Types of Engines

There are several different types of engines. Most are Type "A", that is a petrol automobile engine. Any A type engine can replace another A type engine.



"D" type usually designates Diesel Truck engines. "D" type engines can only replace "D" type engines. If an engine is marked "D,A", however, then it is an automobile diesel engine, and can be used in both cars and trucks.

"M" type designates motorcycle engine. "M" type engines can only replace "M" type engines.

Auto Engines	Class	Size	Horsepower	@ RPM	Weight (kg)	Value (US\$)
Duramax Diesel 6500	A	6.5-L	160	@ 3400rpm	275kg	\$2200
Duramax Turbo Diesel 6500	A	6.5-L	195	@ 3400rpm	275kg	\$3000
Duramax Turbo Diesel 6600	A	6.6-L	300	@ 3100rpm	290kg	\$6000
Northstar L37 V8	A	4.6-L	275	@ 6000rpm	242kg	\$6200
Northstar LD8 V8	A	4.6-L	300	@ 6000rpm	242kg	\$6900
Generic 3.5 V6	A	3.5-L	215	@ 5600rpm	200kg	\$4600
Generic 3.8 V6	A	3.8-L	240	@ 5200rpm	220kg	\$5000
Dodge Viper V10	A	8.0-L	400	@ 5000rpm	300kg	\$17,000
BMW V8 5.0-Liter	A	5.0-L	380	@ 6000rpm	225kg	\$16,500
Chrysler 3.5 V6	A	3.5-L	253	@ 6400rpm	180kg	\$5400
Corvette LS1 V8	A	5.7-L	310	@ 5200rpm	240kg	\$7,700
Corvette LS6 V8	A	5.7-L	350	@ 5600rpm	240kg	\$9,800
Ferrari Maranello V12	A	8.0-L	420	@ 6000rpm	260kg	\$32,400
Porsche V6 3.4-Liter	A	3.4-L	400	@ 6000rpm	220kg	\$18,200
Vortec 2200 V4	A	2.2-L	120	@ 5000rpm	150kg	\$3800
Vortec 2200 V6	A	2.2-L	180	@ 5000rpm	150kg	\$4500
Vortec 4300 V6	A	4.3-L	200	@ 4400rpm	195kg	\$4700
Vortec 4800 V8	A	4.8-L	270	@ 5200rpm	220kg	\$5600
Vortec 5000 V8	A	5.0-L	220	@ 4600rpm	215kg	\$4900
Vortec 5700 V8	A	5.7-L	255	@ 4600rpm	230kg	\$5200
Vortec 6000 V8	A	6.0-L	300	@ 4800rpm	270kg	\$6200
Vortec 7400 V8	A	7.4-L	290	@ 4000rpm	300kg	\$5800
Vortec 8100 V8	A	8.1-L	340	@ 5000rpm	330kg	\$6880

Truck Engines (all Diesel)	Class	Size	Horsepower	@ RPM	Weight (kg)	Value (US\$)
Cummins ISB 225 24-V	A,D	8-L	225	@ 2500rpm	500kg	\$3500
Cummins ISC 285 24-V	D	8-L	285	@ 2200rpm	750kg	\$5200
Cummins ISC 300 24-V	D	8-L	300	@ 2200rpm	900kg	\$7000
Cummins ISL 370 24-V	D	10-L	370	@ 2200rpm	1000kg	\$7700
Cummins ISM 400 24-V	D	10-L	400	@ 2100rpm	1100kg	\$8000
Cummins N14 460E 24-V	D	12-L	460	@ 2100rpm	1200kg	\$8500
Cummins N14 500E 24-V	D	12-L	500	@ 2100rpm	1280kg	\$8800
Cummins N14 525E 24-V	D	12-L	525	@ 2100rpm	1300kg	\$9000
Cummins ISX 565 24-V	D	12-L	565	@ 2000rpm	1350kg	\$9400
Cummins Signature 600	D	12-L	600	@ 2000rpm	1400kg	\$10400
Duramax Turbo Diesel 7800	A,D	7.8-L	230	@ 2400rpm	480kg	\$3600
Duramax Turbo Diesel 1000	D	10-L	350	@ 2400rpm	520kg	\$7200
Mack E7-330 12-L	D	12-L	330	@ 1500rpm	800kg	\$7000
Mack E7-380 12-L	D	12-L	380	@ 1500rpm	950kg	\$7800
Mack E7-460 12-L	D	12-L	460	@ 1500rpm	1200kg	\$8500
Volvo VE 345 4-cycle	D	12-L	345	@ 1700rpm	1000kg	\$7500
Volvo VE 385 4-cycle	D	12-L	385	@ 1700rpm	1050kg	\$7900
Volvo VE 425 4-cycle	D	12-L	425	@ 1700rpm	1100kg	\$8300
Volvo VE 465 4-cycle	D	12-L	465	@ 1700rpm	1250kg	\$8600
Motorcycle Engines	Class	Size	Horsepower	@ RPM	Weight (kg)	Value (US\$)
110-HP 4-cylce 2-cylinder	M	1.0-L	110	@ 7500rpm	97kg	\$3050
BMW 37kw 50HP 4-stroke	M	0.65-L	50	@ 6500rpm	60kg	\$1900
BMW 96kw 130HP 4-cylinder	M	1.17-L	130	@ 8750rpm	93kg	\$4500
Harley OHV V2 Evolution	M	0.88-L	80	@ 5000rpm	72kg	\$2700
Harley TwinCam 88 4-Stroke	M	1.45-L	105	@ 5000rpm	85kg	\$3300
Kawasaki 4-Stroke 1200	M	1.2-L	85	@ 6000rpm	80kg	\$2900

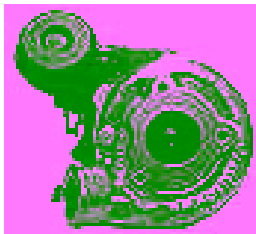
Engine Mods

Engine purring like a kitten? We can fix that! Whether it's the original stock engine, or a special one you picked out and dropped in yourself, it could always use a few additions. A turbocharger here, a nitrous booster there... Let's make that purring kitten roar like a lion!

Performance Gain: When performance is boosted (by say, +5%) this indicated that both Horsepower and red-line RPM increase by this amount. This effects your Acceleration (also increasing by his percentage) and Top Speed (though Top Speed only increased by half the Performance Percentage gain).

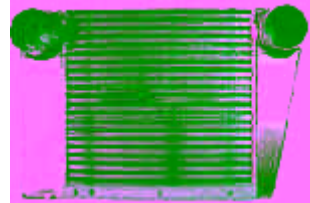
Turbocharger (\$3500)

A Turbocharger is an air intake device designed to accelerate the flow of air to the oxygen hungry engine, allowing higher RPM, fuel-burn efficiency, and better performance. Most high performance engines today have some sort of turbocharger, but even the stock turbo on these super motors are rarely the best you can get. This Turbo is assumed to add to your engine (or replace the existing turbo), [boosting performance by +8%](#).



Intercooler (\$1500)

The Intercooler is a device which must be used in conjunction with a turbocharger (a turbo does not need an intercooler, but an intercooler can only work with a turbo). Intercoolers cool the air feed through a turbo, which, because cool air has lower volume than hot air, allows a greater density of air to follow through. The intake air is forced through a series of thin rectangular cross-section tubes, designed to create turbulence so as to improve heat exchange. Between these tubes are a zigzag of aluminum heat-exchange fins (heatsinks). This exposes the air to a very large surface area of heat-conductive aluminum that absorbs and transfers the heat through the metal. Outside air, driven through the core by the forward motion of the car, takes this heat away. The Intercooler [boosts performance by +4%](#).



Nitrous Oxide Booster (\$400 / \$30 a bottle)

Throttle in a Bottle; Suicide Espresso; Engine Roaster; Rocket Ripper; Russian Roulette - it's the most infamous engine mod around, and undoubtedly the most powerful and most dangerous of all. It's also cheap (but your engine is NOT). When a nitrous system is in operation, nitrous



oxide is forced into the engine along with the normal flow of air. The temperate causes the nitrous oxide to break down into nitrogen and oxygen, basically causing the combustion chamber to gorge itself on oxygen. By feeding more fuel, the engine can burn with alarming (sometimes devastating) performance. This kit includes all the fittings for the nitro booster, including a pressure gauge, a dash button (or switch) to activate the system, and three tanks. Each tank can supply up to 1 minute of nitro before running dry. This system will **increase performance by +15%** when in use. Boost is an *additional* +5% (+20%) if used with a turbocharger. However, every time it is used (activated) the engine takes 1D6 damage (no criticals) just from the wear and shock. Every additional consecutive Round of use, the engine takes 1D6 more hits (roll to see if there is a Critical and resolve it). Just be careful you don't turn your internal combustion engine into an *external* combustion one as this poor gent did...

"Clifford boiled the tires big-time into second gear. The Neon's nitrous-boosted motor wound tight - right to the rev limiter. Did he back off? Not a chance! Ka-boom! A glowing three-foot fireball barked out of each side of the hood, and rolled back over the windshield. Wow. Say goodbye to the Neon..." - A real driver's account of Nitrous in "action".

Dual Air Intake (\$800)

This is a simple, but effective engine modification. The Dual Air Intake valve allows more air to enter into the engine, thus improving air flow and efficiency. This kit includes the dual valve, plus two heavy duty intake pipes. It also filters the air and shields it somewhat from the heat of the engine (keeping the air cool), drawing air from ducts near the radiator (for additional cooling). It can work in conjunction with turbochargers, intercoolers, nitrous, and other modifications. The Dual Air Intake **boosts performance by +3%**.



Enhanced Exhaust System (\$100 or \$1000)

There are two ways to enhance your exhaust system - cheap and illegal, or expensive and legal. The cheap (and illegal) way is to remove the vehicle's catalytic converter and muffler, resulting in a much-improved airflow, but a great deal more pollution (both CO₂ and noise). It costs about \$100 for straight-through exhaust pipes and miscellaneous other equipment to do the work. The legal way is to buy top-of-the-line performance tuned converter, muffler, and high-volume pipes (which could be dual pipes or one large pipe). This costs \$1000, but you won't get arrested or fined (at least, not for the exhaust). In either case, you gain a **+3% increase to performance**, or +6% if you have either a Turbocharger or Dual Air Intake mods (this maximizes all air flow through your system).

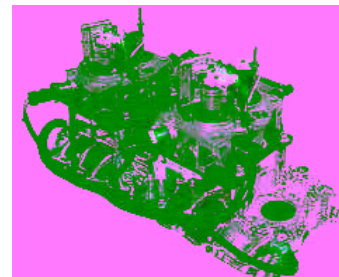
Fuel Injector Upgrade (\$50 per)

Engines need fuel, and lots of it. Fuel injectors control how much fuel is pumped into each piston of the engine. This upgrade replaces your stock injectors with enhanced injectors, able to spray more fuel and at a higher rate. You must buy one for every valve (that is, if you have a V8 engine, you have 8 injectors). You must buy all for the performance gain. This upgrade will increase your **performance by +3%**, or by +6% if you have a turbocharger or dual intakes.



Enhanced Fuel Injection System (\$1500)

The Enhanced Fuel Injection System replaces the stock injection system and all fuel injectors. This fuel pump "smartly" regulates the flow and pressure of fuel, and will increase the flow to the engine with virtually no lag and much greater efficiency. This system cannot be used with the Fuel Injector Upgrade (it actually includes that upgrade). This upgrade will increase your **performance by +5%**, or by +8% if you have a turbocharger or dual intakes.



Steel Belt Replacement (\$80 per belt)

This replaces the rubber belts of your engine with much stronger steel "chain" belts. Most cars have two belts, but a few have three or one (if you don't know, just assume two). Any "belt hit" critical damage roll is ignored the first time (in other words, the hit did not break the belt), but any subsequent hit will break the belt. This simply lessens the likelihood of a belt breaking.

Fuels

Fill 'er Up! The price of fuel, of course, varies wildly day to day, so these are just guesstimates.

Diesel Fuel (\$1.30 / Gallon)

Diesel fuel is for use only in diesel-based engines. If you have a diesel engine, you must use diesel fuel, and can only use diesel fuel (you may also use Biodiesel).

Biodiesel Fuel (\$1.80 / Gallon)

Biodiesel (mono alkyl esters) is a cleaner-burning diesel fuel made from natural, renewable sources such as vegetable oils, instead of petrol. Essentially no engine modifications are required, and biodiesel maintains the payload capacity and range of diesel with no significant change in performance. However, it is much cleaner burning and environmentally friendly. It is a contender as an alternative fuels of the 21st century, and is not currently available to the public, but it may be within the coming years.

Regular and "Silver" (\$1.30 to \$1.50 / Gallon)

All HP and performance ratings assume you are using Premium (Gold) fuel. If you pump Regular fuel in your vehicle, [reduce the HP by -4%](#). If you put in mid-range (Silver) fuel, [reduce the HP by -2%](#).

Premium (Gold) Petrol (\$1.70 / Gallon)

All HP and performance ratings assume you are using Premium (Gold) fuel. It does not change performance.

F1 Ultra Octane (\$2.30 / Gallon)

This is basically racing fuel, used by Formula-1 cars and other high performance vehicles. It is much a higher grade of octane that you can get at standard stations, and contains blends of alcohol and ethanol. It [improves performance by +3%](#).

E10 Ethanol Fuel (+\$0.30 / Gallon)

Ethanol (10%, or E10) can be mixed with any gasoline fuel (Premium, Regular, whatever), which create less pollution. Studies have shown that there is no significant change in performance above that blend of gasoline (so if you have E10 Regular, you still have a -4%, and if you have E10 Gold there is no chance, and so forth). There is a slight chance in price (+\$0.50 per gallon). All this does is make your vehicle more environmentally friendly.

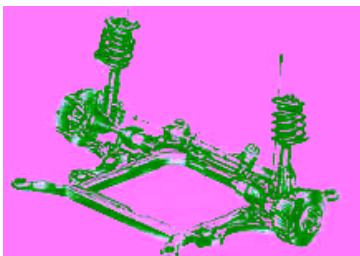
Suspension Mods

These are modifications and upgrades to your vehicles suspension system (primarily to improve your MV rating). All prices are *half* for Motorcycles and double the price for large vehicles such as trucks (big rig trucks, that is). *Your total MV may not be greater than 0.*

Please *do not* try to replace your vehicles springs, shocks (struts), or suspension without the proper tools (a spring compression). Remember, these things rest with thousands of pounds of pressure, and if not de-compressed properly, they could tear your arm off or turn your hand into a pulp. Critical failure on modifying this and similar components will result in 3D6 of damage being dealt to you.

MacPherson Gas Struts (\$2000)

Nearly all cars (or vehicles in general) come with standard MacPherson Struts (basically, the shock absorber placed within the coil spring of the suspension system). The MacPherson Gas Struts follow the same design, except using gas-based shocks. These shocks use pressurized gas in the struts, which keeps bubbles of air from forming in the fluid in the absorber. This offers a much more comfortable ride in general. These are not compatible with Air Struts. They offer no advantages other than a smoother ride.



MacPherson Air Struts (\$4000)

Similar to MacPherson Gas Struts, except that they have a separate, sealed air chamber inside the shock absorber. Because this chamber is sealed, it prevents the shock's fluid from getting gas bubbles. Not only does this improve the comfort of the ride, but an on-board air compressor continually adjusts the amount of air in the springs. As you can imagine, this can make for a very smooth ride, almost like you're floating on air! Air Struts are not compatible with MacPherson Gas Struts. They give a +1 to MV.

Enhanced Independent Suspension (\$6500)

The term *suspension* refers to the ability of this bridge to "suspend" a vehicle's frame, body and powertrain above the wheels. As the name suggests, independent suspension assemblies offer a separate "bridge" for each wheel. They deliver the best ride by far, is the most popular kind of suspension system in use today. Enhanced Independent Suspension is one step above the stock suspension system of your vehicle. It comes with gas-based MacPherson Struts, so you do not need to buy them separately (+\$2000 more if you would rather have Air Struts). Enhanced Independent Suspension gives +1 to MV (or +2 MV total if you got Air Struts).

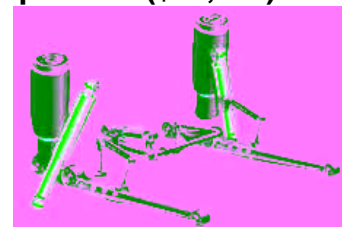


Twin I-Beam Suspension (\$1500)

Twin I-Beam Semi-Ridged Suspension is a more primitive form of suspension than standard independent suspension (which most vehicles use today), but it is a great deal more rugged and resistant to damage. However, it does not offer an incredibly smooth ride (though it is "OK"). Twin I-Beam Suspension gives you +10 SDP to the Chassis and increases weight by +5%. It is not compatible with any other form of suspension or Enhanced MacPherson Struts. See above for rules on removing and changing struts. This is not a motorcycle mod.

Computerized Active Suspension (\$12,000)

An active suspension system (also known as computerized ride control or active body control) can adjust itself continuously to changing road conditions. It artificially extends the design parameters of the system by constantly monitoring and adjusting, mechanically changing its characteristics of the shocks and springs on an ongoing basis. With advanced sensors and microprocessors feeding it information all the time this suspension system remains fluid, contextual, amorphous. By changing its characteristics to respond and adapt to varying road conditions, active suspension offers superior handling, road feel, responsiveness and safety. It offers a smoother ride than enhanced independent suspension with air



MacPherson struts combined, and performs maneuverability wonders. Active Suspension gives +3 to MV and +1 MA (Max Actions). It is not compatible with any other sort of suspension nor is it for use on motorcycles.

Front & Rear Stabilizer Bar (\$900)

Also known as anti-roll or sway bars, these the stabilizer bar work by distributing the weight of a cornering vehicle to the opposite side of the car. A stabilizer bar runs from one side of the vehicle to the other, attaching to the frame and control arms. Adding a stabilizer bar to a vehicle can greatly reduce yawing and swaying. When the car goes through a turn, the bar begins to twist, but resists side-to-side motion. This resistance distributes vehicle's weight more evenly, lending the vehicle more stability on turning. This gives a +1 MV to all turns and maneuvers involving turns, but only to turns. It is not compatible with Active Suspension (you can put it in, but it will not give an additional bonus over Active Suspension). They are not available for cycles, either.

All Jacked Up (\$1200 or \$2400)

The Body Lift (sometimes called "jacked up") basically raises the vehicle's suspension system to allow greater ground clearance, enhanced off-road performance, and the usage of truck tires, instead of standard-size tires. This enhancement is compatible with any for of suspension (since it is not technically a suspension system itself). Rising is done by lengthen the shaft connecting the springs to the chassis, placing spaces between the lower frame and the vehicle's body. Overall, this can raise the vehicle upwards of a foot. You may then mount truck tires (actually, you must mount them). All in all, this gives you a +10 SDC to the Chassis, and this reduces the DV penalty of being Off-Road by 2 (+1 for being jacked and +1 from the truck tires), but gives a -1 MV since your center of gravity is shifted unusually high. It also increases your weight by +200kgs (including truck tires). You can pay +\$1200 for a re-alignment of the suspension and addition of vertical stabilizer bars, which, though doubles the price, eliminates the -1 MV imposed by this mod. Cycles may not be jacked.

Monster Truck Mod (\$20,000+)

The ultimate jacked-up vehicle, taken to the extreme. Everything about a monster truck is tricked out. The listed cost here includes everything to the body and suspension of the vehicle - but not does not include the cost of engine or engine mods, or the cost of the monster truck tires (which generally cost \$2000 each). This mod will turn any vehicle (usually a pickup or SUV, but any car can be jacked) into a real monster. In this \$20,000 package the doors are welded shut (as a preventative to falling out), and a crash cage adds +6 SDP to chassis, both driver and passenger seat are given 5-point safety harness,



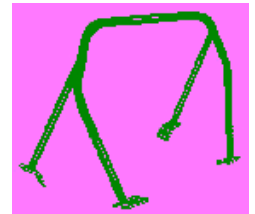
and a tank-like "man-hole" and hatch are bored into the bottom (with a fold out ladder) or on to the top (and sometimes both). The engine is almost always upgraded to a heavy truck diesel (tricked out to the max), and structural strengthen work may be done as well, but the cost of this is extra. When done, most monsters tower twelve feet high and twelve feet wide (most of that from the massive 66 inch wheels). Total weight goes up by at least +2000kgs for this mod alone (including the weight of the tires), but will be more once one drop in that new engine. Obviously, this is not allowed for motorcycles.

Body Mods

These are non-engine related modification to the vehicle, mostly involving the body and chassis. All prices are *half* for Motorcycles (though cycles cannot have most of these, such a Roll Bars or Crash Cages, obviously), and double the price for large vehicles such as big rig trucks.

Roll Bar (\$300)

Roll bars can save your life in some types of crashes (obviously those involving flipping over or getting crushed by a monster truck, for example). The roll bar is a simply modification where a thick pipe of steel is added to the chassis, strengthening it. This increases both your chassis SDP and Top SDP by +3.



Crash Cage (\$800)

The crash cage (or roll cage) is an enhancement of the roll bar. It consists of a standard roll bar, but also roll bars in the back, down the sides, and up all corners of the body chassis.

You cannot get both a crash cage and a roll bar. The crash cage gives +6 SDP to both the Chassis and Top.



Engine Cross Bar (\$250)

This is similar to a roll bar, for the engine. It is basically a large steel bar leveled across the top of the engine, supporting it both from above, and from crushing impacts on the sides. The engine cross bar gives +3 SDP to the Engine.



Structural Strengthening (\$800 + \$50/SDP)

Any hit location of a vehicle (except for the wheels and windows) can undergo "structural strengthening". However, this is a very complex process involving the complete rebuilding of the *structure* of that location (structural

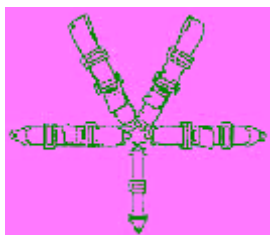
strengthening on the Engine area does not require rebuilding the engine, only a rebuilding of the frame and metal coverings around the region of the engine). This adds steel support braces, metal plates (not armor, just structure), and so forth. There is overhead involved - \$800 plus \$50 per added SDP. To strengthening the diver side door by +10 SDP would cost \$1300, and remember, there are four doors! You may also strengthen the chassis this way.

Enhanced Breaks (\$400)

Enhanced Breaks improve the quality and reliability of your breaking system. Whereas standard breaks have a rating of 40 Breaking (equivalent to 40 Friction) at max, Enhanced Breaks increase this to 60. Enhanced Breaks may be used with Anti-Lock Breaks (which are listed under Manufacturer upgrades).

5-Point Safety Harness (\$90 per)

Beyond what even the best safety belt can offer, the safety harness can keep you secure in your seat even in the worst accident, reducing the chance of serious injury. Having a safety harness reduces by -4DC any Stun damage taken from crashes or impacts to those wearing such a harness.



Custom Mods

These are modifications that are not typically provided by the motor vehicle manufacturer, nor even your typical garage. Some auto shops do specialize in these custom mods, but they are very expensive. Hobbyists and car enthusiasts usually buy the parts and make the modifications themselves, but you can hire experts to do the work for you (as per General Modifications).

Replacement Windows (\$100 or \$200)

This is listed here for the purposes of replacing broken and damaged windows. These replacement windows are standard car or truck windows (nothing fancy), though they are, of course, made of Safety Glass, as are all vehicular windows. Cost \$100 for side/door windows, and \$200 for front or rear windshield.

Tinted Windows (\$150 or \$300)

Tinted Windows are the same as typical Safety Glass windows, excepted they are tinted dark. Legally, this tint is slight (not over 10%), but many manufactures push his limit (since it is hard to distinguish 10% from 15%), and some garages can add more tint by applying an additional layer of adhesive tinting material. Solid black windows look very cool, but the police may pull you over. Cost \$150 for side/door windows, and \$300 for front or rear windshield. You can see fine out of them, and they pose no Perception penalty.

CB Radio (\$100)

Ten-Four! Whatever that means. CB radios were all the rage before the breakout of the cell phone epidemic, but they are still common on big rig trucks, and with hobbyist who still find them amusing. CB radios (Citizen's Band Radio) operate on 40 unique channels, and have a range of about 25km (15 miles).

HAM Radio (\$300 or \$100)

HAM Radio (or short-wave radio, or armature radio) has a much greater range and number of channels than CB radio. Short-wave radio is by no means *short range* - short-wave radio can broadcast thousands of miles, and there are even short-wave satellites in orbit today, giving many stations a global range. You can find everything from news and entertainment channels, to "pirate radio", to emergency assistant channels. Best of all, you can broadcast on short-wave as well (though legally you need a license - they are not too difficult to acquire). You can buy a complete HAM radio for \$300, or, alternatively, buy a kit to build one yourself, along with all the spare parts (\$100), and put it together yourself. To do it yourself you must succeed in a Competent Electronics skill roll, and spend a couple of days tinkering around. A HAM radio can listen to police frequencies (just like a police scanner) but you must know the frequency and tune it yourself.

Radar/Laser Detector (\$400)

Probably the single most common law enforcement evasion device in the world. This particular \$400 detector is so priced because it is the best. It is able to detect Radar at 2.5kms (1.5 miles) and Laser (though when pinned by a Laser its already too late, but at least you know). Furthermore, it has a low noise masking system making it immune to Radar Detector Detectors. This version may also be hidden under or within the dash, removable through concealed access panel.



Police Scanner (\$150)

A "police scanner" is simply a very low powered short-wave and CB radio receiver, tuned specifically to "scan", seek, and listen to police radio frequencies. This scanner comes with nearly a thousand pre-programmed frequencies, including all fifty states and the Canadian provinces. Setting the device for the state of your current location is as simple as pressing a button while watching the display scroll through the choices. You can choose to listen to either highway patrol frequencies, local police (or both), or public weather and traffic report channels (which could also be useful). Since many frequencies broadcast garbage in various forms, the system also gives you the ability to lock out unwanted frequencies. This can be an extremely invaluable tool, and though it is not illegal (after all, it's just a short-wave radio receiver) don't expect the police to be *at all* happy to catch you with one.

Encryption/Scrambler Device (\$500 per)

The encryption device is an electronic signal scrambler and decoder used in secure transmissions. The analog version (radio, telephone, etc.) is a scrambler, which splits and modulates the signal rendering them to little more than whistling noise to anything but the receiver unit (or any unit set to the correct code sequence). The digital version is an encryption device, which encodes digital streams of data to a particular cipher pattern, unlockable only by a receiving unit with the proper key. In either case, two units are needed at minimum for communication, and all parties involved may have their encryption/scrambler device set to the same code or key. It can be connected to any transmitter device (you must buy a device particular to your transmitter - a cell phone scrambler cannot be later used with a CB radio).



Active Radar Jammer/Detector (\$800)

Because "Passive" Radar Jammers work only under 1000ft (thus, long after being detected) the only way to jam is with an active interference signal (passive jammers will not be listed as an option here, since they are useless). The active jammer works at up to 3.2kms (2miles), and constantly searches for police Radar. Once a signal is detected, the jammer locks onto the signal and sends back active noise which blanks out the radar gun or random readings. Because it sometimes takes a few moments for a radar gun to "lock on" to a target, this often seems to be a perfectly normal reading. The officer may be suspicious when he doesn't get any reading at all from your vehicle, but he would have no proof unless he pulls you over and searches your car, which he could if RD are illegal in that state and he "suspects" you have a jammer. This jammer is also heavily shielded and invisible to Radar Detector Detectors. It also acts as a normal radar detector, alerting you as any radar detector would. In the next few years, the FCC could pass laws to make this device illegal, so be careful.



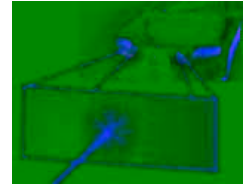
Laser Plate Shield (\$20)

For a police LIDAR to work, the laser must strike a reflective surface. At long range, the only real reflective surface is your front license plate (if you have one, which in most states you won't). If you do have a front plate, adding this laser reflective plastic cover to the plate. *Having* a front plate extends the effective range of LIDAR (see LIDARs). Not having a front plate, or having a shielded front plate, reduces the range to "normal", which, by then, your Laser/Radar detector should have picked up the LIDAR, giving you a chance to take action (slow down).



Active Laser "Jammer" (\$800)

It would be correct to say that you cannot jam a laser. But you can nullify the response to the LIDAR unit. The Active Laser "Jammer" (or Blinder) is a device fitting under your vehicle (or in the grill) which detects the IR beam of a LIDAR unit. When detected, it sends out an extremely powerful false return LIDAR pulse, overriding the legitimate pulse, with readings resulting effectively in a 0 speed return (usually interpreted to be a failed acquisition, which is fairly normal). This device renders LIDAR ineffective. This device is only illegal in places where Radar and Laser Detectors are illegal. In the next few years, the FCC could pass laws to make this device illegal, so be careful.



Backup Computer Power Supply (\$200)

All modern vehicles have an engine control computer. This computer controls all electronics in the vehicles, from the windshield wipers, to cruise control, to the timing of the spark plugs and fuel injection. This is an independent power supply for the control computer. This unit is a 10 minute backup power supply which will keep the car's control computer running even if the alternate and battery is destroyed, or on electronics shutdown. It will recharge itself while the engine is running, like a battery.

EMP/Shock Shielding (\$5000)

This modification encases for your vehicle's control computer (and power supply, if you have one), battery, alternator, ignition, and other vital electronics in a thick case of lead and aluminum with an isolated grounding-loop, which shields it from electromagnetic pulses and electric shock. This defeats the CarZapper system and any other EMP burst weapons. The shielding is not strong enough to protect from lightning, nor the EMP of a nuclear bomb. Its purpose is primarily to counter CarZapper. This mod is not technically illegal, since it is considered a "safety system".

Wash-Away Paint (\$5000 x Unit Type Value)

Wash-Away Paint is a second coating of paint for your vehicle, but it is a very special coating. The paint is a durable, seemingly typical coating with a metallic shine not unlike that for ordinary vehicle paint. The paint is applied in the typical fashion - sprayed on and left to dry for about a day, though it must be applied over the car's original paint-job. When the paint dries it becomes rubberized, and can be peeled away like a thin sheet of latex. It can be more easily removed by a *high-powered* water hose. Water does not dissolve the paint, so it is fine in the rain (though a torrential down-pour will tear off the paint). A drive-through car wash will also remove the paint. When the outer coating has been removed, only the vehicle's original paint job remains. This is advantageous when you need to quickly change the color of your car. You may only have one layer of wash-away paint. Cost is \$5000 x Unit Type Value (which is shown under **Ramming** in Chapter 4).

Illegal Mods

All of these modifications are 100% illegal. If you are caught with one, you could be in a whole world of trouble. But they are nice, aren't they?

Stolen License Plate (\$20 - \$100)

Of course, stolen license plates are illegal. You might have one if you can't get one, if you have no license or a stolen or totally illegal vehicle, or if you want some barrier to protect your identity. But this plate is *hot*. If there is an APB out for that plate, or if the police run a check on your plate, you will be caught red handed. But if you're willing to take the risk, go for it (the risk is much less to have one from another state, the further away, the better). Price reflects the chances of "getting caught" (up to GM).

Forged License Plate (\$400 / \$3000)

You have paid a skilled plate forger to create a fake license plate for you. The \$400 version is visually deceptive and very good. Even on a close inspection it looks like a real plate. But if the police run the plate through their system it will either turn up to not exist, or by chance, might match a real plate, but on a totally different make of car (which will raise their suspicious, of course). The \$3000 version is far more difficult and well researched forged plate - basically, a duplicate plate. A hacker (or with the help of inside information) has come up with a plate number for an actual vehicle in your state which matches the make of your vehicle (and verified that the particular vehicle is not wanted or on charges). When the police run a check, it will show a legitimate vehicle with the same exact make.

License Plate Rotator (\$1000)

This is a four-sided rectangular device which is placed where your license plate would normally go (on or just under the trunk door). On each side is a license plate (stolen, forged, duplicate, whatever). A wire connects it to a switch or button on your dash. At the push of the button it will rotate one side. This can be very useful in a pursuit, especially in consort with Wash-Away Paint. A device like this is not technically illegal - it's the four illegal plates that will land you in jail.

Stealth Paint (\$150,000 x Unit Type Value)

Stealth paint is similar to the paint used on the F-117A and B-2 Stealth Bomber, believed to have first been fabricated by Russia or one of former Soviet states. It has now found its way on to the global black-market by way of the Russian Mafia, though is extremely expensive. Others have found similar ways to replicate the fabrication process of this paint, and its application has proliferated to 3rd World countries and terrorists as the "poor man's stealth tech". Though decades behind the latest stealth technology of the United States, Stealth Paint does offer substantial advantages. The paint is a radar and infrared absorbent and distributive

dissipation material - meaning it can absorb radar and IR radiation, distributing it across the whole body and dissipating it slowly in an even pattern. Even the vehicle's own heat is affected, dissipating evenly across the body and slightly lowering its infrared signature. Overall, Stealth Paint renders the vehicle totally invisible to police Radar and LIDAR guns. Furthermore, it acts as Defensive Missile and Radar ECM with an effective Power 2, but is "always on" and has no area effect or range (obviously, it only effects you). Stealth Paint cannot be countered by ECCM either since it is a passive system. This will add to any other ECM (Missile or Radar ECM) you may be using. Cost is \$150,000 x Unit Type Value (which is shown under **Ramming** in Chapter 4). Stealth Paint cannot be used with Wash-Away Paint (well, it can, but will have no effect until the Wash-Away Paint is removed). It is only in jet-black.

Radar System (\$5,000 to \$775,000+)

Radar Systems are illegal for civilians to own by international and FCC regulation, and licenses are only granted to governments and corporations. A radar system consists of a radar dish, receiving antenna, electronic computer system, and a typical circle-shaped radarscope (which can be anywhere from twelve inches to six inches in size). The Radar System comes in two flavors - the typical Surface to Air Radar, and the much more complex Terrain Following Radar (or Surface to Surface Radar).

Surface to Air Radar

The SAR (Surface to Air Radar) system works by sending out radar radio waves in a circular pattern, and the return "ping" is recorded and measured by the antenna. The system then generates an image on the radarscope display of all objects detected in the air, out to its max range. It also shows the objects' size, speed, and calculated direction, and updates this about once every 3 seconds (Phase) for high accuracy. If the target is stealthy or using Radar ECM, the operator must make a Perception check to spot or find the target **vs. the ECM Power x 2 +10**, and/or counter it with ECCM (the objects may flicker for a moment, or appear as a tiny speck). The Radar's primary advantage is that it maps the location of all objects, their size, speed, and direction. A second advantage is that it allows you to "lock on" to one or more targets. This grants you a **+3 To-Hit modifier** to attack them, but only with integrated missile and weapon systems. It takes no Actions to consult the Radar (to gain the advantages it grants), but an Action must be spent to Lock On to a target (which is why it is good to have a dedicated radar operator). You may also use the Radar to make tactical decisions. In this way, you may consult the Radar and **make a Tactics roll with a +3 bonus**, but must spend a full Round studying it. If you succeed, **you gain a +1 Initiative** (applicable against air targets only) for the next 5 Rounds. A SAR system costs \$5,000 and weigh 50kgs for a range of 2km. Cost +\$5000 and +30kgs each additional +1km of range, out to 50kms. By default it can only Target one unit at a time. Cost +\$2000 for each additional unit it can target simultaneously.

Terrain Following Radar

The TF-PhAR (Terrain Following Phased-Array Radar) system is an advanced radar system, specifically design to map terrain and topographical information. As a side effect, it can detect mobile units and "anomalous" objects (buildings, immobile tanks, bunkers, etc.) as well. Thus, the Topographical Radar was developed into a military expert system, for tracking units on the ground. TF-PhAR uses a phase-array system, which differs from a mechanical radar in that the antenna (round, spherical shaped unit) is a fixed position. The phased array unit can locate and target objects (and map the terrain) by electronically controlling the timing, or phase, of the incoming and outgoing signals. Controlling the phase through the many segments of the system allows the radar to quickly sweep 360°, but must do so many times a second to gain a fully detailed picture of the landscape ("anomalous" objects show up immediately). The system then generates an image on the radarscope, generating a topographical map of the area (with you in the center) and marking all "anomalous" and mobile object, out to its max range. It also shows the objects' size, speed, and calculated direction, and updates this about once every 3 seconds (Phase) for high accuracy. If the target is stealthy or using Radar ECM, the operator must make a Perception check to spot or find the target **vs. the ECM Power x 2 +10**, and/or counter it with ECCM (the objects may flicker for a moment, or appear as a tiny speck). The Radar's primary advantage is that it maps the location of all objects, their size, speed, and direction. A second advantage is that it allows you to "lock on" to one ore more targets. This grants you a **+3 To-Hit modifier** to attack them, but only with integrated missile and weapon systems. It takes no Actions to consult the Radar (to gain the advantages it grants), but an Action must be spent to Lock On to a target (which is why it is good to have a dedicated radar operator). You may also use the Radar to make tactical decisions. In this way, you may consult the Radar and **make a Tactics roll with a +3 bonus**, but must spend a full Round studying it. If you succeed, **you gain a +1 Initiative** (applicable against ground targets only) for the next 5 Rounds. A TF-PhAR system costs \$20,000 and weighs 80kgs for a range of 2km. Cost +\$10,000 and +50kgs each additional +1km of range, out to 30kms. By default it can only Target one unit at a time. Cost +\$2000 for each additional unit it can target simultaneously.

Advanced Phased-Array Radar

The APhAR (Advanced Phased-Array Radar), combines both SAR and TF-PhAR, as a total Ground and Air Radar System (using Phased-Array technology). It has the listed advantages of TF-PhAR, but for both ground and air targets. An APhAR system costs \$24,000 and weighs 120kgs for a range of 2km. Cost +\$12,000 and +60kgs each addition +1km of range, out to 50kms. By default it can only Target one unit at a time. Cost +\$2000 for each additional unit it can target simultaneously.

GPS Signal Shifter (\$10,000 to \$320,000)

The GPS Signal Shifter (illegal by international and FCC regulations and considered a military-grade ECM system) is a phony GPS transmitter unit, which appears to be a GPS satellite to any GPS receiver that it targets. The device is a dish-shaped antenna (on an automatic swivel-mount), which must be pointed at the target GPS receiver. The Signal Shifter will fool the GPS receiver into thinking it is one of the three necessary satellites used to calculate latitude, longitude, or altitude. This allows the user of the Single Shifter to select and change one (and only one) of those three coordinial units (latitude, longitude, or altitude) to anything he wishes. Keep in mind, however, that a grossly obvious change will be picked up, so keeping within 5% to 10% of the real value is strongly recommended. Shifting the altitude reading of an aircraft is an extremely nasty thing to do. Its default range is 5kms. Weight is fairly light, at just 20kgs. Each additional 5km of range doubles the price and weight, up to a range of 30kms (\$320,000 and 640kgs). You can only target one unit at a time, but must be able to see it either visually or on some sort of radar.

Electronic Counter-Measure Systems

Electronic Counter-Measure systems are basically jammers which transmit a strong signal on the same frequency (or frequencies) as that used for communications and radar. Arguably, civilian radar detectors, "radar jammers", and the like are, a form of EW, but it is nothing compared to the *real* thing. All ECM units are rated by their Power (from 1 to 10), and Range (in kilometers). There are three different types of ECM units - Missile Jammers, Radio Jammers, and Radar Jammers. See **Electronic Warfare** in Chapter 4 of this sourcebook for details on how to use ECM.

Missile Jammers

Missile Jammers work by interfering with the signal of a missile to the control unit (firing unit) which establishes the initial lock on or subsequent attempts at reacquisition. Its cost is equal to $2^P \times \$1000$ (where P is the Power from 1 to 10), and weighs $P^2 \times 4\text{kgs}$. So a Power 6 unit costs \$64,000 and weighs 144 kgs. Base Range is 1km. Double price and weight each doubling of Base Range up to 16km. Systems of Power 6 or greater have their own battery, generator, or power source.

Radar Jammer

Radar Jammers work by interfering with the signals of radar systems, masking units and preventing radars from successfully locating and tracking objects. Its cost is equal to $2^P \times \$500$ (where P is the Power from 1 to 10), and weighs 2^P kgs . So a Power 6 unit costs \$32,000 and weighs 64kgs. Base Range is 1km. Double price and weight each doubling of Base Range up to 32km. All Radar Jammers will totally negate police Radar Guns. Systems of Power 6 or greater have their own battery, generator, or power source.

Radio Jammer

Radio Jammers cover a much broader spectrum than either Missile or Radar jammers. They work by interfering from one to thousands of radio frequencies used by radio remission systems, interfering with communications. Its cost is equal to $2^P \times \$2000$ (where P is the Power from 1 to 10), and weighs $2^P \times 2\text{kgs}$. So a Power 6 unit costs \$128,000 and weighs 128kgs. Base Range is 1km. Double price and weight each doubling of Base Range up to 32km. Systems of Power 5 or greater have their own battery, generator, or power source.

Multi-Mode ECM Suite

A Multi-Mode ECM suite is two or more ECM jamming systems built into the same unit. Because all jammers work in similar ways, they have many common parts. By building jammers together in one unit, this saves cost, weight, and space, and is more economical than purchasing them separately. To create a Multi-Mode ECM suite, purchase the Primary System (Missile, Radar, or Radio) which must have a Power greater than or equal to the Secondary Systems. All Secondary Systems are bought at 50% cost and 50% weight. Secondary System ranges cannot exceed the range of the Primary System. MM-ECM suites can only operate on one mode at a time, but you can chance between these modes with one Action. ECCM may *not* be in an MM-ECM suite.

Universal ECM Suite

The ultimate ECM unit is the Universal ECM Suite. This device is like a Multi-Mode ECM suite with Missile Jamming, Radio Jamming, and Radar Jamming - however, all three modes can operate simultaneously! Its cost is equal to $2^P \times \$3000$ (where P is the Power from 1 to 10). Weight is $P^2 \times 6\text{kgs}$ up to Power 4. For units of Power 5+, weight is P^3 . So a Power 5 unit costs \$96,000 and weighs 125 kgs. Base Range is 1km. Double price and weight each doubling of Base Range up to 32km. Systems of Power 5 or greater have their own battery, generator, or power source.

Electronic Counter-Counter-Measures

An Electronic Counter-Counter-Measure uses such techniques as Frequency Hopping, Spread Spectrum technology, and brute force (sending a more powerful signal) to circumvent the effects of ECM jamming. There is only one type of ECCM unit, and it can single out any one ECM unit (be it a single unit, an MM-ECM, or a Universal ECM) and cancel out its effects. Each Power of the ECCM reduces the effective Power of that ECM unit (so a Power 6 ECCM will reduce a Power 8 ECM effectively to Power 2). Its cost is equal to $2^P \times \$1500$ (where P is the Power from 1 to 10), and weighs 2^P kgs . So a Power 6 unit costs \$96,000 and weighs 64kgs. Base Range is 1km. Double price and weight each doubling of Base Range up to 32km. Systems of Power 6 or greater have their own battery, generator, or power source.

Related Equipment

This section lists vehicle related equipment, which isn't actually mounted on a vehicle. They are often either used against a vehicle, or by the vehicle's driver.

Radar Gun (\$500)

A radar gun is a common police device used to detect the speed vehicles, using the Doppler effect (this is basically a Doppler radar - yes, like what the weather-people use, only theirs are on satellites). It has a range of 0.7kms (under half a mile), but most radar detectors have double that range (since they can accurately pick up the weak signal), at is very accurate at 0.5km. Radar guns are rendered inoperable by Radar Jammers.

Radar Detector Detector (\$300)

Radar Detector Detectors (RDD) are a weapon in the police arsenal used to catch drivers using Radar Detectors in states where it is illegal to buy, sell, use, or own. RDDs take advantage of the presence of the local oscillator found in most radar detector (except for the highest priced, most sophisticated ones). RDD are modified RD's which are tuned to pickup the 11.5GHz frequency produced by nearly all RD's. An RDD cannot pickup a Radar Detector when it is not on, and it cannot pick up the latest, most advanced units (such as the RD list earlier). It is a passive system, so no skill roll is need (it will either beep or it won't).

LIDAR (\$800)

LIDAR (basically, infrared laser radar) sends out a weak IR laser beam, which bounces back a single to the LIDAR unit, working much like a Radar but with a tighter area (to prevent early detection) and higher accuracy. LIDAR is hardly a laser at all, it is actually just a very low powered infrared beam spreading out to about six or seven feet at one thousand feet. It must bounce off a reflective surface to be effective - most usually the front plate of the vehicle, or headlights at a closer range, and the paint or metal parts at extremely close range. Range is 0.7kms (half a mile) if the vehicle has front plates (unshielded). If the vehicle has no front plate (or it is shielded), range is 0.4kms. If, for some reason, the lights are covered (or retracted) range is just 0.2kms. If the vehicle has complete LIDAR shielding, LIDAR is ineffective.

Road Spikes (\$800)

"Road spikes" (also called "The Stinger") is a strip of metal and plastic which can be quickly thrown across the road, in front of another vehicle's path. When an operator activates it, dozens of penetrating spikes spring up and lock into place. These spikes are hollow, like large hypodermic needles. When a car runs over them, its tires (usually all) will be punctured by one or two of these needle-spikes. Because they are hollow, the spike will slowly let air out of the tire, deflating it and causing the vehicle to eventually

come to a stop. When a car hits the spikes, roll 1D6. 1 or 2 means no spikes when through that tire. A 2 or 3 means 1 spike, a 4 or 5 means 2 spikes, and a 6 means 3 spikes in that tire. Each spike does 2D6 penetrating damage, however, this damage is only to see if the spike penetrated. It will not actually reduce the tire's SDP. If one or more spikes penetrated, the tire will deflate, as per **Tire Damage** rules.

CarZapper (\$1500)

CarZapper is a one-shot Electrical/EM Pulse that works similar to road spikes in that you must through the metal strip in front of a vehicle. When the vehicle runs over it, the device is triggered, and in a second it drains the entire capacitor, blasting an intense pulse of EMP. This has the effect of shorting (and shutting down) all unshielded electronics, and thus, shutting down the target vehicle. It burns out all active electronics, including the alternator and started, so the vehicle cannot be restarted. Once used the batteries must be replaced. If the vehicle has EMP shielding, CarZapper has no effect.

Nomex Fireproof Racing Suite (\$1000)

DuPont Nomex is a heat and flame resistant material, and is a superior choice for a fireproof racing suit. These suits are used by racecar drivers across the world, and have saved more lives than can be counted. These racing suits are pricey, but no price can be placed on safety. It may be worn over Level II-A body armor, but offers no protection by itself, except from fire. Against fires, it offers 30KD of protection over the entire body, which depletes 1 point per Phase of exposure to fire (on all locations exposed to fire). However, the person wearing the suit will still suffer half-damage as *Stun Only*, primarily from the heat which manages to get through (he will take 1 Hit per 5 Stun, as normal). Any number of colors is available. Includes gloves and protective shoes, but helmet must be purchases separately (below).



Racing Helmet (\$200)

This is a typical racing helmet, worn primarily to prevent head injuries and trauma in case of a high speed crash. This type of helmet has good padding inside, and excellent visibility through the visor. It is made of a tough Kevlar/fiberglass material, giving 8KD of protection to the head (Threat Level I armor category), and the Plexiglas visor gives 2KD to the face.



Highway Arsenal

"Burning Highway... *Yozora ni hoeru Klaxon!*" - *Bubblegum Crisis*, "Crisis Ikari o Komete Hashire"

Catalog of Chaos

This chapter is a collection of (nearly) everything you could possibly use to wreak havoc and chaos on the highway. Here you will find armor, weapons, and weapon related equipment - everything from bulletproof glass to smoke screens, from buzz saws to Vulcan miniguns and Stinger missiles. It should of course be noted that not all of this equipment is appropriate to every campaign. In a realistic setting, most vehicular combat is done using the vehicle itself (ramming and sideswiping), or by shooting out of the windows with handguns or sub-machineguns.

Many of the weapons were taken from the **Atomik AXE** sourcebook (available at www.meta-earth.com/fuzion), and you may mount any sort of weapon from **Atomik AXE** on a vehicle. Of course, the most appropriate weapons grain from automatic rifles and up. You could mount sub-machineguns, but semi-auto weapons are not normally mounted on vehicles.

Adding Weapons and Equipment

Adding a weapon (or weapon related piece of equipment) is done in the same fashion as modifying the vehicle with any other sort of upgrade. The difference is that legitimate auto shops will not do this sort of work. Specialty shops will mount armor and some special weapons, such as smoke screens and phosphorous lights, which are not illegal, but such shops are only found in major cities and charge a great deal for their services. This usually leaves the owner of the vehicle to perform the modification himself. Such works usually only takes a few hours (bodywork for armor puts this time at about 40 man-hours), and a Mechanics skill roll verses a DV of 16.

Spaces and Volume

For simplicity, Internal Spaces, Hard-Points, Volume, and the like were "ignored" in this system. If you need to add a machinegun or smoke screen, you simply put it under the hood or in the trunk, or whatever - there are no hard and fast rules. But you must stay *within reason*. You cannot put a 6-pounder naval cannon on a car. Putting more than a few machineguns or missiles under the hood is also unreasonable, but it does depend on the size of the car. The GM always has the final say.

Bulletproof Armor

Putting armor on your car is a perfectly legal modification, and it is not at all uncommon for executive limos and luxury cars, especially for VIPs in areas of the world where terrorism is rampant. There are many vendors of vehicular body armor, but they all offer the same basic things. All prices shown are for work done by a professional company. If you do it yourself, take 33% of the shown price (divide by 3) - that gives you the cost for purchasing the necessary materials (such as the bulletproof glass, Kevlar plates, and so forth), but you must still spend the shown time to install the armor. For wheels and tires, see Chapter 3.

Bulletproof Windows (price varies)

Bulletproof windows are made of composites of glass and laminated polycarbonate substrates, created to absorb energy from various ballistic threats. It is designed to look just like ordinary glass. However, though it may protect you from bullets, when hit the glass will take noticeable damage and will have to be replaced. Bulletproof glass will not shatter, but it may crack eventually, bullets will penetrate if shot enough times (BP glass will deplete at 1KD every time it gets hit). There are three levels of BP glass. First price shown is for Side Window, second price is for Front or Rear. Price is only for one window (most sedans need 4 Side, and 2 Front/Rear windows). Moonroof/Sunroof count as a Side Window (but on top).

Level III-A: 20KD, 20SDP, Pen Point 5. \$900 / \$1600

Level III: 25KD, 25SDP, Pen Point 6. \$1500 / \$2000

Level IV: 30KD, 30SDP, Pen Point 8. \$2000 / \$3000

Tinting: May be tinted for +\$100

Self-Sealing Anti-Ballistic Tank (\$4000)

Self-sealing, anti-ballistic fuel tanks are built to absorb bullet impacts and suppress explosions which may occur in the fuel tank. They do not leak fuel when punctured (at least, not for long). When a Critical Hit is made which indicates a Fuel Leak (on the fuel tanks) ignore the result. If an Explosion is indicated, roll a 1D6. Only on a result of 1 or 6, will the fuel actually explode. Otherwise, ignore the critical. Adds +30kgs of weight.

Anti-Ballistic Dry-Cell Battery (\$500)

The original battery is replaced with a steel-encased dry-cell battery. This eliminates the ever-present threat of a ruptured acid based battery causing further damage to your engine. When a Battery Destroyed is indicated on a Critical Hit, roll a 1D6. Only on a result of 1 or 6 will the battery actually be destroyed by the impact. Even if it is destroyed, ignore the extra damage inflicted by the acid, since this dry-cell battery has no acid in it.

Vehicle Body Plating (price varies)

Plates of steel, Kevlar, and ballistic Nylon are placed throughout the chassis and body of the vehicle, in the door panels, side panels, hood, roof, floorboard, and trunk. All areas (except for windows and wheels) receive the same level of protection, including Chassis. The prices shown reflect a total vehicle make over, and assumes a standard sized car. For pickups, vans, and SUVs, price and weight are x1.3. For Hummers and large vans price and weight are x1.5. For Big Rig Cabs, price and weight is x2. For truck trailer, price and weight is x4. For motorcycles, price x0.3 and weight x0.1. These armor values are added to the list KD of the production model stats for those locations. You may only take one "Armoring" (that is, you cannot take two levels of armor).

Level III-A: 20KD, \$22,000, weight +300kgs

Level III: 25KD, \$35,000, weight +500kgs

Level IV: 30KD, \$48,000, weight +800kgs

Level V: 40KD, \$65,000, weight +1200kgs

Equipment

This section includes all equipment necessary for mounting weapons and other offensive systems. You must have a mount or torrent for every weapon on your vehicle (including Melee Weapons). Control systems and weapon links are optional. It is not technically illegal to have any of this equipment (except perhaps the weapon control system), but having the weapons certainly is.

Hardpoint Mount (\$100, +5% wt., -1 WA)

This is simply a mounting system that allows you to attach a weapon on the outside of the vehicle, in plain sight. This traditionally takes the form of a swivel mount located above the side mirror, which the driver (or passenger) can use to aim and fire a small weapon. Hardpoint mounts may be placed anywhere, but all (except for the swivel mount) are locked into position, incurring a -1 WA. The outside of the vehicle offers a considerable amount of space, but remember, such weapons can be seen. Ammunition must still be stored internally (see Ammo Bay). Common usages include side mounted machineguns, or missiles on the roof. It adds 5% of the weight of the weapon. An Internal Control System is necessary to fire the weapon.

Internal Mount (\$300, +5% wt., -1 WA)

This is a hardpoint mount that allows you to conceal a weapon on the inside of the vehicle. There is not much

space on the inside of the vehicle, so it is necessary for you to consider placement logically. The engine does offer a good bit of space, enough to place a few machine guns, but not much more than that. Internal weapons always have a concealed firing hole, usually covered with thin aluminum painted the same color as the vehicle, though that the first bullet punches when the weapon is fired. All internal mounts are locked into position, incurring a -1 WA. Ammunition must also be stored internally (see Ammo Bay). It adds 5% of the weight of the weapon. An Internal Control System is necessary to fire the weapon.

Pop-Out Mount (\$600, +8% wt., -1 WA)

This is a cross between an internal and externally mounted weapon. It is basically an internal weapon that "pop-out" to become an external one. The best usage for this is with missiles, RPGs, and recoilless cannons, where having it internal would blow up the vehicle when fired (due to the rear blast of the weapon). Machineguns and other weapons (especially the larger ones) are also commonly made "pop-out" to allow a greater versatility of placement. For example, though it's not practical to put a machinegun internally mounted in the trunk (to fire forward) it could be made to "pop-out" of the side. With pop-out mounts, you gain the ability to place a weapon anywhere inside the vehicle. All pop-out mounts are locked into position, incurring a -1 WA. Ammunition must also be stored internally (see Ammo Bay). It adds 8% of the weight of the weapon. An Internal Control System is necessary to fire the weapon.

Ammo Bay (\$200, 10kgs)

All ammunition for machineguns (and other automatic weapons) must be stored as a chain, internally. If the weapon is not a chain-firing machinegun (being feed by a magazine, for example), then the ammo bay is not required (though your ammo will be limited to that one magazine). Ammo bays may also be used to store shells for manually loaded cannons. Each ammo bay can hold up to 10kgs of ammunition which is equivalent to 500 rifle (machinegun) rounds, 100 20mm rounds, or 50 30mm rounds (other rounds may be listed in the description of that weapon). Placing an ammo bay can sometimes be tricky. It must be very close to the weapon, and chains cannot run through doors or across windows. If a gun is mounted on a door, the ammo bay must be mounted on the other side of the door (and the window can't roll down). Pop-out weapons in the truck or engine area have the most space available for ammo bays.

Open Turret (\$400, 80kgs +10% wt.)

This is the simplest type of turret available. It is basically a swivel turret not unlike those used in WWI biplanes, or placed on the top of tanks and APCs for their machinegun. It is capable of swiveling 360° and aiming the gun up and down. The turret is turned manually by the gunner (fairly easily), and he stands vertical in the turret with his head, arms, and upper body exposed. The open turret also serves as a 50kg ammo bay (which is 5 10kg bays), and

addition ammo bays may be taken to expand ammo needs. Open turrets are usually placed in the back of a vehicle, in the passenger area of vans or trucks. They can be placed in the back of a sedan, but this is extremely rare. A vehicle may only have one turret (open or covered), except for truck trailers, which may have many. A single turret may hold more than one weapon, but rarely exceeds four. Weight is 80kgs, plus 10% of the weight of the weapon. Add +\$2000 and +5% weight (+15% total) if the turret is a concealed pop-up turret. It cannot be automated and no control system is required. It is unarmored, but you can add a plate of bulletproof glass for front protection, which is counted as a side window (see Armor).

Covered Automatic Turret (\$3000, 200kgs +20% wt.)

This is a much larger and more complex turret, basically a modified belly gun from WWII bomber. It is capable of swiveling 360° and aiming the gun up and down. The turret is turned automatically by a small motor, and the gunner is covered by whatever protection the turret offers (if he is even in the turret). The turret also serves as a 100kg ammo bay (which is 10 10kg bays), and addition ammo bays may be taken to expand ammo needs. Such turrets are usually placed in the back of a vehicle, in the passenger area of vans or trucks. They are too large to be placed on a sedan. A vehicle may only have one turret (open or covered), except for truck trailers, which may have many. A single turret may hold more than one weapon, but rarely exceeds four. Weight is 200kgs, plus 20% of the weight of the weapon. A turret has 40SDP of structure, with a Penetration Point of 6, but also has a front window which only has 10SPD with a PenPoint of 2 (may be replaced by a bulletproof window). It will be armored if the rest of the vehicle is armored. Because the turret is automatic, it does not actually need a gunner in it. It can be linked to the vehicle's weapon control system with a Weapon Interlink.

Weapon Control System (\$100 / weapon)

An internal control for a weapon is little more than a box with a button or trigger, switches to change between guns, and to activate pop-out weapons. Such units are usually placed on the dash or on the armrest for easy access, and for the driver, on the steering wheel. The cost is \$100 per *weapon interlink*. It is not uncommon for there to be redundant controls for weapons - one for the driver and one for the passenger. This simply doubles the cost (or more, if you need more redundant controls). A control unit has a switch for each weapon link tied in, and one or more firing buttons. The user can program the control to fire anyway he likes - he can tie four weapons into button A, two to button B, and put the 1st missile launcher on button C. When he presses button A all four weapons assigned to button A fire. When he presses button C, the 1st missile fires. He then spends an action to link missile 2 to button C. It always takes one Action to change a link on a control system. A control system costs \$100 per weapon interlink, and comes with 1 firing button. +\$50 for each additional firing button. It is best to sketch out a diagram of your weapon control system for

easy reference. Weapon Control systems can also be made concealable (that is, they pop-out of the dash or open up from the armrest). This costs \$200 more.

Interlink Weapon System (\$100)

An interlink includes wiring a weapon to a Weapon Control System, or to another weapon (a Cross-Link), and modifying the trigger of the gun to fire from the link, rather than the trigger. Every weapon (which is not manually controlled) must be interlinked to either the Weapon Control System, or Cross-Link to another weapon, to be able to fire. This includes Special Systems and Melee Weapons. Cross-Linking allows you to "slave" one or more weapon to another. The primary weapon must be Interlinked to the Weapon Control System, but when that gun is fired, all Cross-Linked guns fire as well. For example, you could Cross-Link three machineguns to a 4th machinegun, and Interlink that machinegun to the Control System. All 4 guns will fire when that gun is fired. Cost is \$100 per weapon.

Special Systems

Special systems are offensive and defensive, but not technically weapons, and most are legal (except where noted). They do not require a weapon mount, and all are concealed internally, usually in the trunk or under the rear of the vehicle. Please note that some of these, such as turbo boosters, rocket boosters, and ejection seats, are "James Bond"-ish gadgets. Others, like oil slick, smoke screen, and so forth, are real - you can get them for your car today.

Oil Slick (\$600 per unit, 8kgs)

One of the most famous of all special defensive systems for vehicles is the Oil Slick. The Oil Slick unit must be placed in the back of the vehicle (in the trunk, or if the engine is in the rear, under the engine). When used, it lays down a thick dispersal of highly lubricating motor oil (about half gallon's worth). This creates a serious road hazard for any vehicle in that same lane (or which happens to follow later). The slick goes for about 20 to 30 meters and affects whatever lane the vehicle is in (this gets complicated if it is swerving between lanes). When another vehicle runs over the oil slick, treat it the same as hitting Black Ice. He must make a [Defensive Driving Roll vs. 13 + other Road Conditions](#), or will Lose Control. A driver must first perceive the Oil Slick to know to avoid them, and because oil is difficult to see on the road, must make a Perception check versus 18 to see it. The Oil Slick unit holds three gallons, for a total of six uses. Additional Oil Slick units can be purchased to expand this, but you cannot practically have more than two or three. The unit must be interlinked to a Weapon Control system.

Smoke Screen (\$800 per unit, 5kgs)

Another one of the most famous vehicle defense systems is the Smoke Screen. The Smoke Screen unit must be placed in the back of the vehicle (in the trunk, or if the engine is in the rear, under the engine). When used, it expels a dense

cloud of thick smoke, which obscures view. The screen will spray out for two Phases (the Phase activated, and continue into the next Phase), and will trail for about 30 meters in a cone-shaped pattern (reaching a width of 30 meters, or 3 lanes, across at 30 meters). Any vehicles in this area are considered visually "Blind", as per rules for total darkness. A single smoke screen unit holds four smoke cartridges (each can be used only once) and these cartridges must be replaced after use (for \$150). Additional Smoke Screen units can be purchased to expand this, but you cannot practically have more than two or three. The unit must be interlinked to a Weapon Control system.

Tear Gas System (\$800, 8kgs)

This is very similar to Smoke Screen, except it is designed to be used while the vehicle is stationary (it could still be used while the vehicle is moving, though). When the Tear Gas system is installed, a series of interlinked tear gas canisters are placed under the vehicle. When activated, it will spray out a cloud of tear gas, surrounding the vehicle in the noxious fumes. The cloud will spread out from all sides to about five meters. Anyone in this area, who is not protected by goggles and face mask (or other protection), is Partially Blind from stinging eyes, and suffers a temporary -2 to all skill rolls from the distraction of the stinging fumes. The cloud will disperse from the area in 1D6 Rounds. The system can only be used once, and costs \$400 to refill. You can have up to four installed (effects are not cumulative if you use them all at once, except for duration).

60,000 Volt Shock System (\$5000, 8kgs)

The 60,000 Volt Shock System is a legal car defense mechanism because it is non-lethal and, basically nothing more than a Taser. However, the Shock System charges the entire chassis of the vehicle, affecting anyone in direct contact (not including those inside, of course). Anyone touching the vehicle when the system is activated takes 10DCs of Stun damage (with 5 Stun to 1 Hit damage roll-over), and armor does not protect (Stun Defense will). Rubber and other insulative material will protect, so if the subject is wearing rubber gloves (for example) he is immune. Because it runs off the battery (or alternator when the car is running) the system has virtually limitless uses. The Shock System must either be Interlinked to a Weapon Control System, a standard Alarm system, or both.

Caltrops (\$500 per unit)

Caltrops are small steel devices, with four spikes arranged such that one spike will always point upward (the other three acting as "support feet"). These can be dumped out of a container in the back of a car, scattering across the ground to act as a serious road hazard (about forty are dropped). They are also painted black to make them very hard to see on the road. When dumped, the Caltrops bounce around a lot, and end up affecting the lane your vehicle was in, plus the lanes on either side, covering a total area about 10 meters wide and 30 meters long. Any car which travels through this area is affected exactly as though

running over Road Spikes (see Road Spikes at the end of Chapter 3). A driver must first perceive the Caltrops to know to avoid them, and so must make a Perception check verses 16 to see them. A Caltrop unit can only be used once, and must be refilled (costs \$300).

Blinding Headlights (\$2000)

These standard halogen bulb headlights, with an added super-bright blinding tube. When activated, the headlights will quadruple in power output, with light intense enough to temporarily blind anyone who was not closing their eyes (or otherwise protected). In effect, blinding lights will blind anyone (whose eyes are open and unprotected) standing within 20 meters, and in LOS, and partial blindness to anyone within 50 meters. This effect lasts for 1D6 Phases. Blinding headlights must be interlinked to a weapon system, or to a dedicated button on the driver's consol.

Solid Rocket Boosters (\$1000, 20kg per Phase)

Also called SRBs, these units must be placed on the outside of the vehicle (facing rear on the side or under the bumper) on an external hardpoint, or internally in the trunk (with ports for the jetted gas). SRBs are made up of explosive solid rocket fuel, just like what is used on conventional space rockets, only on a much smaller scale. Pairs of boosters must be balanced, that is, on either side of the vehicle, or both in the center. To find the speed boost, divide 100 by the vehicle's weight in tons (or divide 100,000 by its weight in kilograms). Thus, one SRB will boost the speed of a 1700kg vehicle by +60 KPH for a certain number of Phases. If four boosters were linked to fire at once, the gain would be +240KPH. A booster costs \$1000 and 20kgs for each Phase of burn time, so for 10 Phases of burn an SRB costs \$10,000 and weighs 200kgs. Once started, an SRB cannot be shut-off, so having several smaller booster (not interlinked) is often better than once long burning booster. Sets of boosters can be interlinked together (interlinking two, four, six, or whatever), but these sets must eventually be linked to a Control System (or a button on the dash) to be used. After use, an SRB must be totally replaced.

There is a quarter-scale rocket available for motorcycles which costs \$300 and 5 kgs per Phase, which, to find the speed boost, divide 25,000 by the cycle's weight (plus driver weight) in kilograms.

If you have SRBs mounted, these replace "Power Break" hits on the Chassis Critical Hit Table. If SRBs are hit, then one SRB unit ignites, launching the vehicle at its calculated rate, but automatically causing the driver to Lose Control as well (and he must roll on the Loss of Control table).

Liquid Rocket Boosters (\$5000, 10kg per Phase)

Liquid Rocket Boosters (called LRBs) are very similar to SRBs, except that they may be switched on or off at any time. These units must be placed on the outside of the vehicle (facing rear on the side or under the bumper) on an external hardpoint, or internally in the trunk (with ports for the jetted gas). LRBs are fed by standard kerosene (which

is actually used as rocket fuel) and is burned at very high temperatures in a rocket combustion system. Pairs of boosters must be balanced, that is, on either side of the vehicle, or both in the center. To find the speed boost, divide 100 by the vehicle's weight in tons (or divide 100,000 by its weight in kilograms). Thus, one LRB will boost the speed of a 1700kg vehicle by +60 KPH for a certain number of Phases. If four boosters were linked to fire at once, the gain would be +240KPH. An LRB costs \$5000 and 10kgs for each Phase of burn time, so for 10 Phases of burn an LRB costs \$50,000 and weighs 100kgs. Sets of boosters can be interlinked together (interlinking two, four, six, or whatever), but these sets must eventually be linked to a Control System (or a button on the dash) to be used. After use, the LRB must be refueled, which costs \$1000 per Phase of fuel.

There is a quarter-scale rocket available for motorcycles which costs \$1300 and 3 kgs per Phase, which, to find the speed boost, divide 25,000 by the cycle's weight (plus driver weight) in kilograms.

If you have LRBs mounted, these replace "Power Break" hits on the Chassis Critical Hit Table. If LRBs are hit, then one of the LRB units will explode, doing 10DCs of damage to the Chassis per Phase of Fuel remaining (and with a blast radius of 10). However, the fuel will not explode all at once, instead, every Phase it will explode for 10DCs of damage (this is a continuous long burn explosion). If the vehicle survives the first explosion, it is out of control (roll on the Loss of Control table). Other LRBs will probably ignite after a phase or two as well, and the vehicle is considered to be On Fire (see the second ion Fires).

Turbo Boosters (\$1000, 2kgs per pair)

Turbo Boosters are small SRBs (solid rocket boosters) located in the front section of the chassis (under the front hood) and securely welded in. They are usually placed inside the vehicle, with their exhaust port aiming down, but they could be placed on the outside. They must be placed in pairs (and are sold that way) - one on either side of the vehicle's front (one Interlink will link both of them to the Control System). When activated, the pair will fire, and kick up the front of the vehicle as though it had hit a ramp. The driver must then perform an Assisted Jump maneuver (note that he must have the special Stunt Maneuver) to gain the effects of jumping his vehicle. If he fails, or if he does not have the Assisted Jump stunt ability, he Loses Control of the vehicle. One pair of Turbo Boosters will jump a 1000kg vehicle, so you must have two pairs to jump a vehicle between 1000 and 2000kgs, and so forth. If you have a 1700kg vehicle, and wish it to be able to use TB four times, you would need eight pairs of TBs in the front. A typical vehicle can mount no more than 10 pairs of TBs. A turbo booster pair can only be used once, and must be replaced after use. All boosters for one shot must be interlinked to a Control System, or to a dedicated button on the dash.

Ejection Seat (\$10,000, 10kgs)

A seat in the vehicle can be rigged to eject (including even the back seat passenger couch). This modification includes changing the roof above the seat to be a blow away panel (unless the vehicle is a convertible). The seat belt system is also modified to insure that the straps are only connected to the seat and not the chassis. For the driver side seat, the steering wheel will also blow off (harmlessly). When activated, the roof panel blows off, and the seat launches a second later on four miniature SRBs (on in each corner). This lifts the seat and passenger some hundred meters in the air. The seat will then deploy a parachute with guide wires, and safely return him to the ground. When used, there is a chance of something going wrong (such as being hit by the steering wheel or blast panel). Roll 1D6, and if the result is 1, the ejected person takes 2DCs of Lethal damage (to a random location). If the result is 6 he takes 6DCs of Stun damage. The each Ejection System can be interlinked to a different dedicated button on the dash or armrest, or to an explosion sensor (to eject when the vehicle explodes), or to both.

Melee Weapons

Putting Melee Weapons on a vehicle is a fairly out-of-the-ordinary (and some might say utterly fictitious) thing to do. Vehicles with such weapons should probably be reserved for "Mad Max" settings, or worlds where vehicle arena combat is common place. Of course, you could put such a weapon on your car and tear down the highway (literally), but rest assured, the cops will be after you full-force. And maybe that will give you a few more targets to play with.

Melee Weapon Construction

Because there can be many different sorts of melee weapons (anything your sick little mind can dream up), all melee weapons are built on a system (based on Mekton's system) for melee weapon construction. Here it goes:

WP: Weapon Points will be used to calculate final cost and weight of weapon.

Damage: Every DC of damage costs 1 WP, up to 15DC.

Penetrating: For Penetrating effect, multiply WP x 1.5. The attack is Penetrating (that is, can penetrate doors and windows). Otherwise, melee attacks are simply crushing. This is not the same as Armor Piercing.

Armor Piercing: For AP effect, multiply WP x 3. All AP attacks are automatically Penetrating.

Augment Ram: For Augment Ram effect, multiply WP x 1.3. Such a weapon will add its damage directly to a ram attack, rather than being counted as a separate attack. If the melee weapon is Penetrating or Armor Piercing, the damage should still be separated out, for only the melee weapon's damage is armor piercing, not the ram attack. But it is considered to be on attack. The penetrating (or armor piercing) damage is always resolved first.

Duration: For Duration weapons, multiply WP x 1.5. A duration weapon will inflict its damage after you have hit, for

as long as you remain in melee range (target must swerve or escape from melee range for the damage to stop). Damage is usually done to the same location as well. Such weapons might be a buzz saw, drill, or jackhammer device.

Specific Target: Multiply WP x 2. This melee weapon will always strike at one particular (specified) body location of the vehicle at no penalty (a reasonably described mechanism must be suggested for this feature), but likewise, it cannot hit any other part of the vehicle. You may only specify one location. If you specify 2 Locations, cost is WP x 3.

Shield: The weapon also serves as a shield. It will provide KD armor protection equal to its DC damage (thus, a weapon which does 5DC can provide 5KD of armor), to the same area it is mounted on. This costs +1 WP per +1 KD of armor protection (added before all multipliers are considered). You cannot exceed 2x the weapon's DC.

Final Cost: The final cost is \$50 per WP. The final weight is 5kgs per WP. You can shave off 10% weight for +20% cost (up to 50% weight). You can lower the price by 10% by adding +20% weight (up to 50% off)

Battle Ram

Battle Ram is almost always placed in front of the vehicle. It may take the form of a single ram block, or a bulldozer like front, or a plow such as that found on the front of old trains. Not only does do extra damage to a target in a ram, but it also offers good armor protection to the front as well (engine, unusually). Battle Ram will do add +5DC damage to any Ram attack. It also gives +10KD of armor. Price was lower by 30% for +60% weight. \$680, 156kgs.

Battle Spike

Battle Spike is a large penetrating spike, usually placed in front of the vehicle. It may take the form of one large spike, or several smaller spikes (even a grill of long spears). A battle Spike does +3DCs of extra damage on a ram, and furthermore, makes the ram attack Armor Piercing. Weight dropped by 20% for +40% cost. \$840, 48kgs.

Hydraulic Spike

A hydraulic spike is a device which acts like a battle spike on impact, but can be activated to punch through (with a hydraulic ram) with even greater force on a second attack, as long as the vehicle remains in Melee range, long enough for the section attack to be made. Such a Spike does +3DCs of extra damage on a ram, and makes the ram attack Armor Piercing. If the Hydraulics are activated (a second, follow up attack), it strikes doing 5DCs Armor Piercing (usually to the same area). Weight dropped by 50% for double cost. \$2700, 68kgs.

Hydraulic Hammer Spike

The Hydraulic Hammer Spike is a different sort of mechanism than the standard hydraulic spike. Instead of punching out, the Hammer Spike is more of a "mouse-trap" for vehicles. The device is either placed on the hood (for front attacks) or rear (for hitting anyone who attacks from behind). It consists of a large, deadly spike mounted on a

long arm held in place by hydraulics. When activated, the hydraulics expand with over a hundred tons of force, flipping the arm forward like the catch of a mouse-trap, and impaling the target with its gruesome spike. In effect, the Hammer Spike does a 5DCs Armor Piercing attack on the Top of the vehicle. It can only strike the Top or Engine (roll Odd/Even). Weight dropped by 50% for double cost. \$4500, 113kgs.

Buzz Saw

Buzz Saws can take many forms - anything from a single large, horizontal circular saw, to a pair of vertical spinning blades, to a long extended chainsaw. In whatever form, the Buzz Saw will slice through steel like a bone-saw through, well... bone (and it does quite well against that, too!). The Buzz Saw will inflict 8DC damage to the target, and is Penetrating (though not AP), and has Duration - that is, will inflict 8DC damage for as long as it remains in melee range. Weight dropped by 30% for +60% cost. \$1440, 63kgs.

Slicer Hubs

This is a melee weapon mounted on the hubcaps of a vehicle. It consists of a number of pop-out, jagged toothed cutting blades, designed to slice apart the tires of other vehicles. They do 4DC of damage, Penetrating (though not AP) and can only strike the Wheels or Legs of targets on foot. This weapon is considered to be mounted on four wheel hubs, but only one will hit in any given attack. Weight dropped by 50% for double cost. \$1800, 45kgs.

Automatic Weapons

This is the most common sort of vehicle mounted weapon. Handguns and even SMGs are somewhat impractical for vehicles, though of course, you can shoot such guns out of the windows. These weapons are designed to be integrated into the vehicle (via a weapon mount). Any other sort of weapon from **Atomik A.X.E.** could be added as well. These are just suggestions.

Browning BAR M1918A1 .30-06

John Browning designed the BAR (Browning Automatic Rifle) for use during the First World War.



The M1918A1, adopted by the Army in 1940, saw extensive service during World War II and in Korea. It has selective fire to either semi-auto or fully-auto modes, but for mounting in vehicles, Full-Auto is usually left always on. The BAR uses devastating .30-06 cartridges in 20-round magazines, with an effective rate of fire of 550 shots per minute. It is still available in army surplus, though unavailable to civilians. It is *very* rare on the Black Market, but may be acquired from collectors or rebuilt by gunsmiths. It can be converted to talk belt feed .30-06 rounds.

Browning MG .50 M2

The Browning M2 heavy machinegun is the classic anti-vehicle (and anti-personnel) weapon of WWII. It fires .50 Browning rounds, the most powerful machinegun caliber, at an alarming 500 rounds per minute. This weapon is no longer in service, though has been replaced by the FN M2HB, but these guns can still be found in military surplus (not available to civilians), or in the hands of collectors with a Class III license. It is belt feed, and will overheat unless it is allowed to cool down every hundred or so rounds fired. It is a superior choice as a vehicle mounted weapon.



CIS Ultimax 100 Mk3

Though technically a light machinegun, the Ultimax 100, 5.56mm automatic rifle is a rather unremarkable weapon (the SAW is probably superior), but it is less expensive. Normally it is fed by a drum, but it can also accept a chain feed of 5.56mm rounds, making it a good choice for mounting in a vehicle.

FN M249 SAW

The Squad Automatic Weapon is a 5.56mm light machine gun, using NATO standard 5.56mm ammo, so it is interchangeable with M16 ammo. Most often, the SAW is used as a light gun implement, either of bunkers or on vehicles, and can be fed from an ammunition belt. It is often found on an open turret, but may also be integrated in a concealed (or exterior) weapon mount.

FN M240G

The M240G medium machine gun is a 7.62mm gun designed to be mounted on tanks and light armored vehicles, and of course accepts belt feed ammunition. The weapon has three different fire control regulator mechanisms to alter its rate of fire. It takes one Action to change this. The gunner may chose from 1, 3, 5, 9, 10, or 15 shots per one second burst. It takes only 1 Action to change to any setting. However, if the weapon is mounted in or on the chassis (an inaccessible) it is normally left to just one of these settings (either 10 or 15 ROF).



FN M2HB 0.50

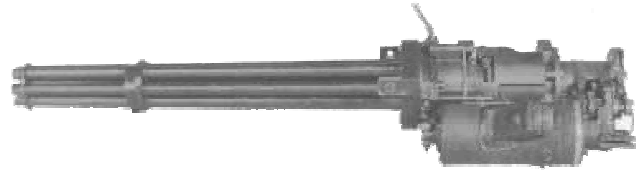
For taking out big things (such as APCs, helicopters, legions of aliens) the M2HB is the right weapon for the job. This fully automatic air-cooled chain gun is just the sort of thing for anti-vehicle, anti-aircraft operations (and is quite effective at anti-personnel). It may be mounted on emplacements or vehicles, usually as an turret weapon. It could be placed on the chassis, but this, of course, limits its firing arc.

SACO M60E3

The M60E3 7.62mm machine gun (which is being phased out by the heavier, M240G medium machine gun) is a link-belt fed machine gun. It is smaller and lighter than the M240, and has a higher ROF, but it is less accurate.

GEC M134, 7.62mm Minigun

Lead. Lots of lead. That's the best way to describe this infamous weapon of awesome destruction. The General Electric 7.62mm, electric motor, six barreled, air-cool, spinning fury of death is one of the most feared and ridiculously overkilling weapons on the battle field today.



The minigun is only practical when mounted on and installations, tanks, gunships, aircraft, or ships, and should ONLY be fired from a vehicle mount or tripod. Because the minigun is also electrically powered, it must either have a gas-powered generator, battery, or some other source of continuous energy to keep it firing. It may be powered off a vehicle's electrical system (if powerful enough, such as a diesel truck), or a portable generator. The generator runs on a standard gas/oil mix, and can run for 1 hour of constant use (and sounds like a lawnmower). The generator masses 30kgs and costs \$350 (actual output is 110 volts at 4 amps, or 440 watts per second). Numerous batteries are also available, but the must supply 110 volts (or 440 watts per second). A heavy electric battery can also be used weights about 10 kgs, but only lasts 10 minutes and costs about \$200. It can be recharged in six hours.

Lots of ammo must also be available. Normally, this is in a big metal box (50kgs, 5000 rounds) and is chain feed into the gun. Often, two people are required to handle this weapon when it is used as a man-portable gun (that is, with a heavy tripod). This gun is so big and mechanical that regular mechanic maintenance must be performed or else the weapon will break down on the next mission.

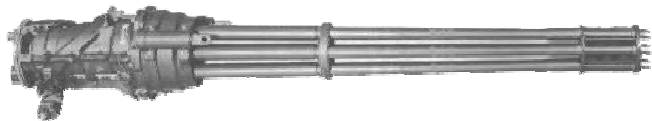
The weapon's RoF is listed as 0/0/10/30. However, every "shot" is actually a group of 10 rounds. The minigun fires so fast, 10 bullets are counted as *one single bullet* for impact, damage, and armor penetrating purposes doing 3 Kills (or 16DCs) of damage, total. Therefore, if you have a 500 round ammo chain, consider this to be 50 "shots".

If you fire the M134 in any vehicle lighter than 4 tons, you must make a [Defensive Driving Roll vs. a 14 DV](#), or you will Loss Control. This is caused by the incredible recoil of this weapon.

GEC M214, 5.56mm Minigun

The GEC M214 is a smaller, more manageable minigun. There is a version adapted for man-portable use, illustrated in [Atomik A.XE.](#), however, we are only concerned with the vehicle mounted application of this weapon. The M214 is basically the same as the M134, except that it fires 5.56mm rounds and at a much slower Rate of Fire (about one third). The M214 is usually mounted on a turret, but can be integrated into the vehicle as a weapon mount. It can be placed internally, but it is very doubtful it will be concealable.

It may be on a Pop-Out Mount, if there is sufficient space long the side (or top) areas of the vehicle.



The weapon's RoF is listed as 0/0/6/18. However, every "shot" is actually a group of 5 rounds. This minigun fires so fast, 5 bullets are counted as *one single bullet* for impact, damage, and armor penetrating purposes doing 1 Kills (or 14DCs) of damage, total. Therefore, if you have a 2500 round ammo chain, consider this to be 500 "shots".

If you fire the M214 in any vehicle lighter than a 2 tons, you must make a [Defensive Driving Roll vs. a 14 DV](#), or you will Lose Control. This is caused by the incredible recoil of this weapon.

Cannons & Big Guns

6-Pounder (57mm) Naval Cannon

This is one of the smallest (modern day) navel cannons made, and yet, it is still probably too big to put on a ground vehicle. They were deployed on British navel ships of WWI era, but were later added to the first main battle tank, the early British Mark 1, as the side turret cannons, which could alternatively be machineguns (the reason for navel cannons was because there were no dedicated tank cannons at that time). These are old, manual breach loaded guns, but can be reloaded in 2 Actions. They went out of service in 1936, but can possibly be acquired today through certain channels. "Museum" piece units could be converted back to operable status by a weaponsmith, and shells can be hand-made or acquired in a similar fashion. This gun is best suited as a turret weapon, since it must be manually reloaded. Each shell weighs 5kgs, so 2 will fit in a single 10kg Ammo Bay. Two types are available - high explosive and armor piercing. HE costs \$200 per round, and does 4Kills of damage on impact (or 18DCs) with a blast radius of 18 meters. AP rounds cost \$600 each, and do 3Kills (17DC) of damage (Armor Piercing to all armor), with a blast radius of 6 meters (no AP).

If you fire the 6-Pounder in any vehicle lighter than a 4 tons, you must make a [Defensive Driving Roll vs. a 14 DV](#), or you will Lose Control. This is caused by the incredible recoil of this weapon.

ACL-APX 80mm

The ACL-APX is a two stage recoilless cannon. The ACL projectile is launched by an explosive charge which vents through the back port while sending its 80mm warhead toward the target. Once launched, the projectile's second stage kicks in, firing a solid-fuel rocket blasting the warhead to nearly 500 meters per second (or 700mph). The warhead is armor piercing and primarily design for use against tanks and APCs. It is a single shot dumb-fire missile, and must be reloaded manually (takes about 10

Phases or 30 seconds). Anything standing directly behind the launcher takes 8DC damage from the blast (-2 DC per meter back). Each 80mm round cost \$2000. It weighs 4.2 kgs. It can not be mounted internally on a vehicle (since the blast would cause extreme damage to the vehicle).

Aden 30mm Auto-Cannon

The Aden 30mm is an aircraft machinegun cannon, still in use today. It is a gas-recoil operated machinegun, capable of ripping through to 20 rounds per second. The 30mm bullet (1.20 Caliber), which is more of a shell, is Armor Piercing to all armor, and cost \$800 for a chain of 10 shots (of 100 actual rounds). Armor Piercing Explosive costs \$2000 for a chain of 10 shots (and does 4K, or 18DCs). The Aden overheats *extremely* fast, as it was designed to have been cooled by airflow of the fighter flying through the sky (and even on fighters it overheated quickly). It can sustain fire for no more than 1 Round straight at time, after which it must cool down for another 12 seconds (1 Round). It can safely sustain quick bursts every few seconds, with only marginal difficulties, though even at this rate it will overheat after a minute of continuous usage.

The weapon's RoF is listed as 0/0/4/12. However, every "shot" is actually a group of 10 rounds. The Aden fires so fast, 10 bullets are counted as *one single bullet* for impact, damage, and armor penetrating purposes doing 2 Kills (or 16DCs) of damage, total. Therefore, if you have a 2500 round ammo chain, consider this to be 250 "shots".

Bofor 40mm Auto-Cannon

This is one of the most common and famous navel guns of WWII and is still in service today on some ships. This gun is very large, and probably ludicrous for any ground vehicle (they were only deployed on navel ships). Acquiring one is probably also impossible, unless you have top secret or extremely powerful government contacts. Nevertheless, it could theoretically be placed on flatbed, or in a truck trailer. Rate of fire is very slow, 3 shots per second, which is why they are normally set as double or quad guns, which double or quadruple the ROF. These guns fire 40mm AP rounds (each mass 2kgs), which do 15DCs of damage (2Kills) to the target. 5 rounds will fit into a 10kg Ammo Bay. Ammo cost \$4000 for a chain of 100 rounds.

These guns are commonly mounted in pairs (or even quads) and interlinked to fire all at once, as though as single weapon. If this is done, simply feed it two (or four) separate ammo chains, and double (or x4) the listed Rate of Fire. If you fire the Bofor in any vehicle lighter than a 6 tons, you must make a [Defensive Driving Roll vs. a 14 DV](#), or you will Lose Control. This is caused by the incredible recoil of this weapon.

GEC GAU-4 Vulcan 20mm Gatling Gun

Have you ever wondered why miniguns were called "miniguns"? Because they are miniature versions of the GAU-4 Vulcan. The Vulcan 20mm Gatling gun (also, called the M61A1) is one of the most powerful "cannons" MGs ever made. It has been mounted on everything from fighter jets, to warships, to attack helicopters, to tanks.



The Vulcan has a max rate of fire of 7,200 rounds per minute. That's 120 bullets *per second*. The GAU-4 is a self-powered version of the M61A1 which sustains its rate of fire from the exhaust gases, and only requires an 240watt power source to get the barrel's spinning up (after which the gun takes over). As mentioned, this gun can be placed on a wide variety of platforms, but there has yet to be a ground deployment of this weapon for use on installations or tripod mounts.

The GAU-4 (M61A1) requires special 20mm rounds, which are by default only Armor Piercing. This cost \$300 for a chain of *10 shots* (of 100 actual rounds). Armor Piercing Explosive costs \$600 for a chain of *10 shots* (and does 6K, or 20DCs).

The weapon's RoF is listed as 0/0/12/36. However, every "shot" is actually a group of 10 rounds. The Vulcan fires so fast, 10 bullets are counted as *one single bullet* for impact, damage, and armor penetrating purposes doing 5 Kills (or 18DCs) of damage, total. Therefore, if you have a 2500 round ammo chain, consider this to be 250 "shots".

If you fire the Vulcan in any vehicle lighter than a 5 tons, you must make a [Defensive Driving Roll vs. a 14 DV](#), or you will Lose Control. This is caused by the incredible recoil of this weapon.

*Note: The Vulcan's ROF was listed incorrectly in **Atomik A.X.E.** Correct ROF should be 0/0/12/36.*

Oerlikon-F 20mm Vehicle Auto-Cannon

In WWII, Oerlikon company made some of the finest aircraft and anti-aircraft machinegun cannons of the war. Though old, these weapons are still among the most powerful machineguns every made. Originally designed for use on aircraft or on naval ships as AA guns, this package converted for use as a vehicle mounted weapon. Using the surplus guns and rebuilding them for usage on ground vehicles has made a devastating ground attack weapon.

The 20mm Vehicle Conversion machinegun (which itself weighs 30kgs) can be mounted on any vehicle weapon mount and is feed from an ammo chain. Firing 20mm (.80 caliber!) armor piercing rounds, this weapon is more devastating than even the best Browning machinegun. Nevertheless, this weapon has serious problems. However,

it does have its share of problems, as it is a converted weapon. Any critical failure made while firing this weapon results it a serious mechanical failure which can only be repaired after several hours of work.

These guns are commonly mounted in pairs and interlinked to fire both at once, as though as single weapon. If this is done, simply feed it two separate ammo chains, and double the listed Rate of Fire. Ammo cost \$300 for a chain of 100 rounds.

*Note: This gun's Damage was listed incorrectly in **Atomik A.X.E.** Damage should be 12DC per shot, not 1K. This is also a slightly different weapon anyway, being the naval AA version, rather than the aircraft version.*

SSG-36 20mm

The SSG-36 is an older gun, but still very powerful. It fires 20mm steel-core armor-piercing



rounds at over 750 m/s (nearly a 1000mph). The gun was designed to be fired with the gunman lying down, his shoulder against the padded stock, and looking down the scooping site. However, it can be modified to fit a vehicle mount (though usually placed on a turret). It cannot be chain feed, and thus, only holds the 5 rounds in its magazine. Because 20mm anti-tank weapons are no longer effective against modern tanks there have been no such guns built since the 1930s. However, there are occasions when such a gun might be useful. Each 20mm bullet must be special ordered from surplus warehouses in Switzerland (\$100 per 10 rounds).

Missiles & Rockets

Anti-Radar Missile

The Anti-Radar Missile, or ARM, is a self-guided, radar-homing missile. This is a man-portable or light vehicle-mounted version of the HARM, a larger weapon is mounted on fighter aircraft. Though packing noticeably less power than a HARM, this missile can deliver substantial damage to its target. This takes one Action to set the missile, and a second Action to actually fire it. Before being fired, the ARM must be set to lock on to a target radio or radar source. The ARM cannot be fired until the system is locked on to a radio/radar source (unless all safeties are disabled, allowing it to be fired as a direct fire dumb-missile). When launched, the missile will guide itself toward the target radio/radar source and home in. The missile has a [static Attack Value of 20 verses the defender's DV](#). It will only stay active for 3 Phases. If the initial attack failed, it will try again for the next two Phase (using the same 20 AV), and its initiative will be on the same Phase as that of the unit which fired it. It will self-detonate on the 4th Phase, when its fuel runs out, regardless. If the target shuts off its radio/radar while the missile is homing in it AV for that round is reduced to 16,

and it may not continue its attack in any subsequent Phase since it has lost its lock. ARM missiles are fired from a single, reusable tube. The missile itself flies at Mach 2, and inflicts 3K (16DC) of damage on impact (with a focused blast radius of 8 meters). Each reload costs \$8000. It is effective against both ground and air units.

Javelin Heat-Seeker

Javelin is a fire-and-forget missile with lock-on before launch and automatic self-guidance. The man-portable version is a replacement for the M47 Dragon, but the version highlighted here is for mounting on vehicles. The Javelin's tandem warhead is fitted with two shaped charges: a precursor warhead to penetrate armor and a main warhead to deliver damage to the interior of the target. The propulsion system is a two-stage solid propellant design, which provides minimum smoke when launched. When fired, the Javelin will lock on to the heat-source which it was being aimed at. It cannot be fired until the system is locked on to a target (unless all safeties are disabled, allowing it to be fired as a direct fire dumb-missile). The missile has a [static Attack Value of 18 versus the defender's DV](#). It will only stay active for 3 Phases. If the initial attack failed, it will try again for the next two Phase (using the same 18 AV), and its initiative will be on the same Phase as that of the unit which fired it. It will self-detonate on the 4th Phase, when its fuel runs out, regardless. Javelins are fired from a single, reusable tube, or from a four-pack "Box" unit, commonly mounted on armored vehicles. The missile itself flies at Mach 2, and inflicts 4K (17DC) of damage on impact (with a focused blast radius of 8 meters). Each reload costs \$6000. It is only effective against ground units.

RPG-7 Direct Fire

The RPG-7 is a recoilless, muzzle-loaded, reloadable, rocket propelled grenade launcher. It fires an 85mm rocket-assisted HEAT



grenade from a smoothbore launcher tube. The RPG-7 is light enough to be carried and fired by one person. The internal rocket motor of the grenade ignites after traveling approximately 11 meters; this gives the projectile higher velocity (sustained out to 500 meters), flatter trajectory, and better accuracy. The PG-7 grenade, with a shaped-charge warhead, has armor penetration of 330 millimeters (3K, AP all). Each PG-7 round cost \$1200. Though it is designed to be fired from the shoulder, it can be modified and mounted on a vehicle, on an exterior weapon mount (it could be placed on a Pop-Up mount, so long as the back blast clears the vehicle). It is a direct-fire (dumb-fire) rocket.

RPG-18 Direct Fire

The RPG-18 is a short-range, tube-launched, disposable infantry antitank rocket launcher, somewhat similar to the US LAW (M72A2). It fires a 64-mm rocket (PG-18) with an



effective range of 200 to 250 meters and a HEAT warhead capable of penetrating up to 375 millimeters of armor (2K AP all). The fuse of the HEAT grenade activates 2 to 15 meters after leaving the tube and self-destructs after a flight time of 4 to 6 seconds. It must be discarded after use. It can be modified and mounted on a vehicle, on an exterior weapon mount (it could be placed on a Pop-Up mount, so long as the back blast clears the vehicle), and it must be replaced after every use. It is a direct-fire (dumb-fire) rocket.

Stinger Missile

The Stinger is a fire-and-forget light Surface-to-Air, heat-seeking missile. The Rosette Scan Pattern imaging computer allows it to discriminate among targets, flares, and background clutter. As a Self-Guided missile, the firer only needs to aim the missile toward the target and fire (no attack roll is necessary). When fired, the Stinger will lock on to the heat-source which it was being aimed at, or (if it was not being aimed) the nearest air-borne heat source (not including the firer). The missile has a [static Attack Value of 18 versus the defender's DV](#). It will only stay active for 2 Phases. If the initial attack failed, it will try again the next Phase (using the same 18 AV), and its initiative will be on the same Phase as that of the unit which fired it. It will self-detonate on the 3rd Phase, when its fuel runs out, regardless. Stinger Missiles are fired from a single, reusable tube, or from a four-pack "Box" unit, commonly mounted on armored vehicles. The missile itself flies at Mach 2, and inflicts 3K (16DC) of damage on impact (with a focused blast radius of 8 meters). Each reload costs \$6000. It is only effective against air units.

TOW Optical Guided Missile

The TOW Optical Guided Missile is fired from a single launch tube, but must be guided by an operator. The operator must guild the missile using a special tracking scope that comes with the weapon package (and may be mounted in a vehicle). When the missile is launched, the gunman can continue to guild the rocket using a small control lever on the optics scope, when remains in contact with the rocket via an infrared single. As the range is 3600 meters, and the missile files at 360m/s, during which time the gunman can steer the missile toward its target (3 Phases at max). Because of the optical guidance system, this, in effect, eliminates all range penalties. When the missile is in range of the target (about to impact) and the gunman uses his own skill for the attack roll (the missile has no intelligence). Each TOW missile reload costs \$15,000. It may be fired at any target (ground or air), though it is usually restricted to ground targets.

Ordinance & Ammunition

For a full description of Ammunition (Armor Piercing, Tracer, and all sorts of ammo types), see **Atomik A.X.E.** sourcebook (available at www.meta-earth.com/fuzion).

Weapons Table

A Caliber shown for DC means use the damage for that type of ammo.

Automatic Weapons	WA	DC	RoF	Ammo	Range(m)	Weight(kg)	Cost US\$	Leg.	Notes
Browning BAR M1918A1	+1	30-06	2/0/8/20	20	600	5.4	\$760	P	
Browning MG .50 M2	+0	0.50B	0/0/8/24	belt	800	33.0	\$4000	M	
CIS Ultimax 100 5.56	+0	5.56	2/0/9/27	100	340	4.9	\$650	P	
FN M249 SAW 5.56	+1	5.56	0/0/15/45	30/belt	450	6.8	\$2400	P	200 round drum
FN M240G 7.62mm	+1	7.62	Variable	belt	600	10.9	\$2800	M	w/ accessories
FN M2HB 0.50	+1	0.50B	0/0/8/24	belt	1100	38.2	\$6000	M	
Saco M60E3 7.62mm	+0	7.62	0/0/9/27	belt	650	10.5	\$2000	P	200 round drum
M134 Minigun 7.62mm	+0	3K	0/0/10/30*	belt	600	38	\$10000	M	whole package
M214 Minigun 5.56mm	-1	1K	0/0/6/18**	belt	400	26	\$5000	M	whole package
Cannons & Big Guns	WA	DC	RoF	Ammo	Range(m)	Weight(kg)	Cost US\$	Leg.	Notes
6-Pounder Cannon	+0	4K	1/0/0/0	1	4000	380	\$15,000	P	HE or AP
ACL-APX 80mm	+2	2K	1/0/0/0	1	600	10	\$3,000	M	AP (all)
Aden 30mm Auto-Cannon	+1	2K	0/0/4/12**	belt	3500	90	\$10,000	M	AP (all), RoF*
Bofor 40mm Auto-Cannon	+0	2K	0/0/3/9	belt	4500	800	\$100,000	M	AP (all)
GEC GAU-4 Vulcan	+0	4K	0/0/12/36*	belt	3000	250	\$30,000	M	AP (all), RoF*
Oerlikon 20mm Auto-Cannon	+0	12DC	0/0/8/24	belt	2300	26	\$3,000	M	AP (all)
SSG-36 20mm	+2	1K	1/0/0/0	5	2000	36	\$2,000	M	AP(all), Scope
Missiles & Rockets	WA	DC	RoF	Ammo	Range(m)	Weight(kg)	Cost US\$	Leg.	Notes
Anti-Radar Missile	+0	3K	1/0/0/0	1	3000	13	\$20,000	M	AP (all), 20AV
Javelin Missile (single)	+0	4K	1/0/0/0	1	2000	12	\$16,000	M	AP (all), 18AV
Javelin Missile 4-Pack	+0	4K	1/4/0/0	4	2000	45	\$50,000	M	AP (all), 18AV
RPG-7 Reusable	+1	3K	1/0/0/0	1	500	6.0	\$5,000	M	AP (all)
RPG-18 Disposable	+1	2K	1/0/0/0	1	250	4.2	\$3,000	M	AP (all)
Stinger Missile (single)	+0	3K	1/0/0/0	1	4000	13	\$12,000	M	AP (all), 18AV
Stinger Missile 4-Pack	+0	3K	1/4/0/0	4	4000	50	\$45,000	M	AP (all), 18AV
TOW Optical Guided	+2	4K	1/0/0/0	1	3600	20	\$20,000	M	AP (all)

* indicates that the RoF is Special. Each "shot" is in fact a group of 10 rounds counted as one (doing listed damage).

** same as above, but its only a group of 5 rounds counted as one (doing listed damage).

Machinegun Ammo

Ammo Type	DC	Threat Level	FPS	Leg.	Cost per 100
5.56mm(.223) 55 grain	6DC	III	3075	C	\$30
7.62mm(.308)150grain	7DC	III	2750	C	\$35
.30-06 180 grain	8DC	III	2850	C	\$50
.50 Browning 710grain	10DC	IV+	2800	L	\$100

Ammo Type Modifier

Ammo Type	WA+	DC+	AP	Cost	Threat Level+	Leg.	Notes
Full Metal Jacketed	+0	+0	Y	x1	+0	C	AP (S)
Jacketed Soft Point	+0	x1.1*	N	x1	+0	C	Standard
Jacketed Hollow Point	+0	x1.3*	N	x2	+0	C	Standard
Armor Piercing	+0	x1/2*	Y	x3	+1	P	AP (all)
Tracer Round	spcl	-2	N	x2	-1	P	special
Incendiary	+0	+0	N	x5	+1	P	¥

* Modifier only effects damage that actually *penetrated* the armor

¥ Incendiary fire will do 4DC on the next Phase, then 2DC on the next, then finally 1DC

Rules of the Road

"Let's Get Ready to *Ruuuuumble!*"

Vehicle Combat System

This is the new Vehicle Combat System, presented to replace the mini-system presented in the basic **Fuzion** rules. It is based off all standard Fuzion rules for distance, time, actions, and conflict resolutions. The Vehicle Combat System should be compatible with the **Atomik WAR** Advanced Combat System, as well as the standard **Fuzion** combat system, and adaptable to the **Mekton** combat system. The Vehicle Combat System was designed for use with ground vehicles, though much of it could be applied to sea, air, or space vehicles with some adaptations.

Fuzion Terms and Definitions

Some basic Fuzion terms and definitions.

Actions: "Doing something".

AV: Action or Attack Value. Skill roll made to accomplish a task (Task Roll) versus a DV.

Characteristic: The physical ability of the character. Also called **Stats** in some games.

DC: Damage Class. Basically, 1DC equals 1D6 of damage (Stunning or Lethal). 14 DC = 1 Kill.

Die Roll: Usually 3D6 or 1D10 added to your Task Roll (your AV), but alternative dice could be used.

DV: Difficulty or Defense Value. The target number (or defense roll of a character) for the AV role.

KD: Killing Defense. This is the armor rating of body armor or an armored unit (like a tank). 1 KD protects from 1 point of damage (Lethal and Stun).

Kills: Refers to Kill-level Damage, used by large vehicles, tanks, and mecha. 1 Kill = 50 Hits or 14 DC.

KA: Kill Armor. Used to defend against Kill-level damage. 1 KA = 50 KD armor points.

KSDP: Kill Structure Damage Points. 1 KSDP = 50 SDP.

Lethal Damage: Damage that physically wounds, maims, and can kill. Also called **Killing Damage**. Takes away from both Hit and SDP.

SDP: Structural Damage Points. How many damage points a non-living structure can take. 1 point of Lethal Damage inflicts 1 SDP (Stun does nothing).

Task Roll: The Characteristic + Skill + Die Roll to accomplish a task. Basically, AV versus DV.

New Skills

This system requires the use of several new driving skills, apart from the default, generic "Driving" skill. If the GM does not want to have multiple driving skills, he may simply ignore the expanded list and interpret all references to "Aggressive Driving" and "Defensive Driving" to simply mean the generic Driving skill.

There are now two Driving Skills -- **Defensive Driving**, and **Aggressive Driving**. Also, there are sub-categorized for each different **type** of vehicles (listed shortly). Existing characters, built with just the generic Driving skill, can declare it to be either Aggressive or Defensive, and by default the generic driving skill is Defensive Driving.

ELECTRONIC WARFARE - This skill is used to operate ECM and ECCM equipment. When using ECM you must roll your **TECH + EW skill + Roll vs. ECM's Power x 2 + 10**, to successfully Jam. If successful, the jamming takes effect. ECCM is used in the same way - you must target the jamming unit and roll **TECH + EW skill + Roll vs. ECM's Power x 2 + 10**. See **Electronic Warfare**.

GUNNERY (unchanged from basic **Fuzion**) is used to aim and fire vehicle mounted weapons. Task Roll is based on **REF +(-)MA + Gunnery Skill**.

DEFENSIVE DRIVING (type) - The basic driving skill. Defensive Driving is used to keep control in dangerous situations, avoid road hazards, and evade attacks. Task Roll is based on **DEX +(-)MA + Defensive Driving**.

AGGRESSIVE DRIVING (type) - A more advanced driving skill, Aggressive Driving is used to attack other drivers, ram objects, knock cars off the road, "play chicken", whip in and out of traffic, tail-gate, and race. The Task Roll is based on **REF +(-)MA + Aggressive Driving**.

Driving Specializations

All three skills *must* be specialized in one particular type of vehicle - Auto, Motorcycle, Large Truck, Dozer, or APC/Tank.

Auto - Includes cars, pickup trucks, vans, SUVs, and even Hummers and RVs.

Motorcycle - Motorcycles and motor-scooters.

Large Trucks - Big rigs, flat beds, busses, fire trucks, dump trucks, garbage trucks, and large RVs.

Dozer - any massive construction equipment not classifiable as a truck, like bulldozers, rollers, and cranes.

APC/Tank - for driving large military vehicles, like tanks and APCs. Hummers are classified under Auto.

Handling Damage

Before getting into the combat section, it is necessary to review the types of damage which can be done to vehicles (and to people, for that matter). All vehicles in **Atomik MotorWarz** use DC, SDC, and KD armor. However, some machines (such as tanks or mecha) which could be encountered, may be Kill-level units. Below we will describe how to translate between these systems.

The Damage Class (DC)

In Fuzion, there are four types of damage: Stunning (which measures shock, pain, bruising, and other light, non-life-threatening damage), Lethal (which is killing damage), Structural Damage (which measures hits to damage to objects or vehicles), and the last is "Kill-level damage", used for large vehicle or ship-to-ship combat.

In Fuzion, most damage is measured in six sided dice, with each "D6" representing a unit called a Damage Class (or DC). Example: Damage Class 3 (or 3DC) is equal to 3D6. Each point of DC represents one six sided die when rolling for damage. You roll the specified number of dice, add the results together, and the total is the amount of damage done to your target. Example: I have a 3DC handgun. I roll three dice and get a 5, a 6 and a 3. I do 14 points of Lethal Damage with that attack.

Soft Targets (HP)

In Fuzion, all living things are considered to be Soft targets and have Hits. Hits are points that represent how much damage a living organism can take. A character generally has as many Hits as his BOD characteristic x5. One Lethal point of damage from a weapon or attack will remove one Hit. At zero you are dead or dying, and are considered incapacitated.

Hard Targets (SDP)

"Soft targets" like living things take damage differently than "hard targets" (structures and vehicles). So in Fuzion, inanimate structures, vehicles and other non-organic objects (commonly called "hard targets") have Structural Damage Points instead of Hits or Stun. SDP is different from Hits, but works the same way -- one point of Lethal Damage will remove one SDP (5 points of Stun will also remove 1 SDP).

Killer Targets (Kill-level)

Really big things, such as tanks, battleships, mecha, and starships do such staggering amounts of damage that they are measured in a larger scale called "Kills", to represent the massive forces associated with military level hardware, very large objects or extremely powerful attacks. Conversely, very large or tough things (tanks, mecha, etc.) are also defined as having Kills of structure or armor to represent the huge amounts of punishment they can take (KSDP or KD). Unlike DCs, Kills represent whole values rather than numbers of dice; a way of simplifying the bucket-o-dice that such attacks would normally require. So when

attacking objects with Kills with weapons that do Kills, you will simply subtract the damage done from the Kills remaining, instead of rolling dice for damage.

Kills and DC

Because a Kill represents a whole value, rather than a number of dice, applying damage is greatly simplified. When attacking an object with Kills with a weapon that does Kills, you will simply subtract the damage done from the Kills remaining, instead of rolling a bucket of dice. For example, Mecharanger-1 attacks the giant evil robot Zeirkrank with a 6 Kill laser. Therefore, any Kills that penetrated Zeirkrank's armor would subtract for his total Kill Hits.

Damage Scaling

Really big guns are designed to hit and damage really big targets. It's nearly impossible to apply the full force of a huge attack to a small target (like a man) because the majority of the damage just doesn't have a big enough surface area to expend itself on. Really big damage is also more likely to expend its force by hurling a small target out of the way rather than directly applying all of its force to the target. By contrast, it takes a lot more force to move a large object and it has a lot more surface area to absorb that force, so it stands there and takes it all.

Therefore, in Fuzion, small targets (things with damages measured in Hits and SDP) are damaged differently by large-scale attacks. Small Targets (people, animals, motorbikes) do not take the full force of Kill rated attacks. Instead, they scale down the huge damages done by Kills into smaller, dice based Hits or SDP, representing the results of this effect.

As a rule, *the first Kill of a Kill-rated attack will always be equal to 14DC*. Each additional Kill of damage adds only 1D6 to the base 14D6, because the remaining damage effects just don't have a big enough surface to expend themselves on. But all that force didn't just vanish! It's just been converted into Knockback. And since knockback subtracts the BOD (or Kills) of the target from the TOTAL DC done, chances are you still got blown several meters away. Ouch.

DC attack vs. Targets with SDP or Hits

No Change

Kill Attacks vs. large vehicles with Kills

No Change

Kill Attacks vs. a big vehicle with SDP

Multiply the number of kills by 50 to produce the required SDP or Hits. For example, a tank attacks a car doing 4 Kills. $4 \times 50 = 200$, so the car takes 200 hits.

Kill Attacks vs. a small vehicle with SDP

Add 13 to the number of Kills done. This equals the DC value of the attack. For example, a mecha shoots a motorcycle doing 4 Kills of damage, which equals 17DC.

DC Attacks vs. really large vehicle with Kills

Divide the DC of the weapon by 14, and round down, to get the Kills. For example, a 36DC weapon would translate to $36/14 = 2.5$, rounded down, resulting in a 2 Kill attack.

Combat Summary

Combat takes place in Action Rounds (of 12 seconds) which are comprised for four Action Phases of 3 seconds each. Each Unit (character or vehicle) will have a number of Actions during the Round. For their Action the character should do the following:

1. Choose Your Action - You have 1 Action lasting 1 Phase. These Actions can be attacks or involve other types of activities. If other, skip to 4.
2. Check Line of Sight - You can attack anything positioned in front of you or to your sides.
3. Check Range - There are 6 ranges - Point-Blank, Close, Near, Medium, Long, and Extreme. If you are in range you can attack, applying modifiers.
4. Resolve Attack - In general, roll **Stat + Skill + Die Roll** vs. your opponents **Stat + Skill + 10 or Die Roll**.
5. Resolve Damage - If you hit, roll the number of 6-sided dice equal to the DC of the attack or weapon.

Vehicle Initiative

Initiative for characters is determined as normal. Characters in vehicles must roll their **REF +(-)MV + Die Roll** to determine their initiative order (unless the GM has chosen an alternative method), where **MV** is the vehicle's Maneuvering Value (usually negative). The highest roll goes first (for Units in or out of a vehicle), though he may chose to Wait, using his Action at some later point in that Phase. If there is a tie, another die roll can be made to break it.

Initiative must be determined at the beginning of each Action Phase for each Unit which has an Action. Some Units may not get an Action during a Phase, depending on their SPD, or if they are performing a Long Action.

Actions Per Round

All vehicles have a **MV** (Maneuvering Value) and a **MA** (Max Actions), both of which effect the number of Actions which can be performed by that Vehicle. *All vehicles have an MA (Max Actions) of 2*, by default. That is to say, in a given Round, you can perform at most 2 Vehicle Actions. This number may be increased with certain modifications, or by the addition of extra controllers.

This has nothing to do with how many Actions *you* can perform (you may still be able to do 3 or 4 Actions, such as reload a gun or fire out of a window). MA measures Vehicle Actions - the number of Actions you are capable of performing with the vehicle (such as maneuvers, stunts, firing *mounted* weapons, using electronics, and so forth). The MA caps the *max* number of Actions you can do with that vehicle - it simply can't handle performing more than

that number of Actions due to its engineering and control systems.

The **MV** (Maneuvering Value) is always "added" to your **Aggressive** or **Defensive Driving Roll**. Usually, MV is negative, so it penalizes these rolls, but sometimes it is 0 (which is good), or even positive (very rarely). **Gunnery** rolls are also effective by **MV** in the same fashion.

Co-Drivers

If someone is in the passenger's seat, or any seat with additional controls (such as ECM gear or a gun turret), they can help to perform additional Actions. For each person in a vehicle, increase the vehicle's MA by +1. That person will be restricted to performing only Actions which are available to him with his controls. Only the Driver can control the vehicle, but co-divers could use electronics or fire weapons.

For example, an armored van has, by default, an MA of 2. But there are two co-divers - one in the front seat and a fellow in the back manning a rear gun. Thus the vehicle has a total MA of 4. These can be spent in any way the players choose, though the co-divers are restricted to what they can do. For example, the Driver can now perform 3 or 4 Vehicle Actions, if he wishes too. The players agree to have the Driver take 2, the co-Driver take 1 (fiddling with the ECM gear), and the rear-gunner take 1 (to shoot). It is critical to have your vehicle's interior well designed and laid out - if all your controls are on you driver's side, then only the driver can use the control.

All players in the vehicle take their actions according to initiative. If the players are disagreeing on who gets to take actions, then they proceed by initiative until the vehicle is out of Actions for that Round.

In the above example, if the Driver took 3 Actions and the co-Driver took 1 (to use the ECM), then there would be no Vehicle Actions for the rear-gunner to take. This may seem odd, but consider the fact that the vehicle is probably maneuvering around a lot more (hence the driver's 3 actions), preventing the gunner from being able to use the gun effectively.

As always, the Vehicle Action is simply a special Action which they character takes. It has nothing to do with other non-vehicle actions which he may perform. If the co-Driver himself had 3 Actions, but only used 1 of his Action to use the vehicle's ECM, then he can still spend his remaining Actions firing out the window.

Passengers

Passengers are people in the vehicle who are not controlling it (that is, not performing Vehicle Actions). They may of course take non-vehicle actions as normal (or simple or free vehicle actions, if possible), such as shooting out a window, rolling down a window, locking a door, switching seats, ducking down to the floor, and so forth.

Vehicle Actions

There are actually three different types of vehicle actions - Standard Vehicle Actions, Simple Vehicle Actions, and Free Vehicle Actions.

Standard Vehicle Actions

Most combat and maneuvering related actions fall under this category, or any vehicle related action requiring a skill-roll. These are major actions which require a vehicle, gunnery, electronics, or similar skill roll. It requires you to use one Vehicle Actions. The total number of these Vehicle Actions can never exceed the vehicle's MA for the Round.

The sort of Actions which these fall under are:

- Making any Driving Skill Roll for **Maneuvers** or **Stunts**
- Aiming with a *mounted* weapon.
- Firing with a *mounted* weapon.
- Using an integrated electronics system, such as EMC, Jammers, radio, or scrambler.

Simple Vehicle Actions

If it does not require a skill roll, it is a simple vehicle actions, and does not count toward your Vehicle Actions or against the total MA. However, unless it is a Free Action, you must still use one of your *own* Actions to perform the task.

The sort of Actions which these fall under are vehicle tasks simple enough not to require a skill roll:

- Rolling up or down the window
- Locking the doors
- Opening a door
- Turning on the CD player or FM radio
- Switching seats (*NOT* if you are the Driver!)
- Reloading a *mounted* weapon (if accessible)
- Buckling a safety belt or harness

Free Vehicle Actions

These are Simple Vehicle Actions which are also free to perform, and do not cost you any Actions at all. Such activities include:

- Unbuckling a safety belt or harness, unless they are jammed.
- Looking at your gauges
- Talking on a radio or cellphone (as long as it is already on or connected)
- Accelerating or breaking (as your feet are on the peddles), unless a skill roll is required.
- Turning or changing directions (as your hands should be on the wheel), unless a skill roll is required (such as turning or maneuvering on a difficult surface).

Movement

In **Fuzion**, everything is measured in either meters or yards. The difference between a meter and a yard is only about 2 inches, so this is not a big deal. In **Atomik MotorWarz** meters are used. Roughly speaking, a meter (or yard) is about 3 feet. Hexes are, by default, 1 meter in size, thus a distance of 5 hexes is 5 meters (or 15 feet) away. Thus, all speeds should be in kph, though both kph and mph are used by convention.

Movement Scale

All vehicles have a listed speed in kph or mph. The conversion between the two is simple: 1 mph = 1.6 kph. So 60mph is the same as 100kph.

However, in Fuzion, Movement Points, or MP, are also used. MP measures how many Meters a unit can move in a 3 second Phase. Thus, 9 MP means the unit can move 9 meters in 3 seconds (which is 3 m/s). See formulae below:

$$1 \text{ mph} = 1.6\text{kph}, \quad 1 \text{ kph} = 0.625\text{mph}$$

$$1 \text{ MP} = 3 \text{ m/s}, \quad 1 \text{ m/s} = 0.333\text{MP}$$

$$1 \text{ MP} = 0.75\text{mph} = 1.2\text{kph}$$

Adverse Road Conditions

The sort of road (or lack there of) you are driving on can effect your speed as well as cause difficulty in driving. Depending on the type of Terrain your acceleration may be reduced, and a DV penalty must be added to any and all driving Difficulty Values (including Evades, Special Maneuvers, and attempts to regain control). Alternatively, you may instead subtract the DV penalty from your Driving Skill, if this is easier (the effect is the same). Friction rates the road Friction used in Acceleration, Breaking, and Turning, as we will see shortly.

Terrain	Friction	DV Penalty
Good Road	3	+0
Rough Road	4	+1
Bad Road	5	+2
Dirt Road	5	+3
Bad Dirt Road	6	+4
Off-Road, Flat	5	+3
Off-Road, Rough	6	+4
Off-Road, Bad	7	+5
Muddy Terrain	8	+3
Additionally. . .	Friction	DV Penalty
Water on Road	+2	+2
Deep water	+4	+5
Snow on Road	+0	+3
Ice on Road	-2	+5
Black Ice on Road	-3	+8
Deep Snow	+6	+5
Going Uphill (20°)	+2	+0
Going Uphill (50°)	+5	+0
Going Downhill (20°)	-2	+1
Going Downhill (50°)	-5	+1

Some of these penalties are accumulative (the Additional effects). For example, being on a Rough Road covered with Ice gives a +6 to any driving DV and a Friction of 2. Deep Snow, Off-Road, on Bad terrain gives a +10 DV and a Friction of 13 (basically, impossible to drive through).

Note that certain tires will reduce these penalties. For example, All Weather Tires give a +1 bonus in "Adverse Road Conditions", so a Very Bad Road will only have a +1 DV difficulty, rather than +2, and Friction is effected by other types of tires. See the description of your tires for exact details on their effects.

A Four Wheel Drive vehicle have better control over rough terrain. Reduce by -1 the Friction and DV penalties for dirt road or off-road, or muddy conditions.

Accelerating

Technically, acceleration is a change in velocity or direction, however, we will simply consider acceleration to be a change in velocity (see Turning for changes in direction). Accelerating your vehicle will increase your speed, but this does not require an Action unless a skill roll is required for some reason.

All vehicles have a rated acceleration, usually "0 to 100kph" in some number of seconds (or 0 to 60mph, which is the same thing). To find acceleration per Phase, divide 300 by the "seconds". That is, if your car goes from 0 to 100kph in 8 seconds, then it can accelerate 37kph every Phase (300 divided by 8 is 37.5). To convert that to MP (Movement Points), just divide by 1.2 (so 37kph equals 31MP per Phase).

After 100kph, the acceleration is assumed to be *half* (though this may not be technically correct). So if your vehicle accelerates at 31MP per Phase up to 100kph (or 83 MP), then after 100kph, acceleration is just 15MP per Phase.

Acceleration	0 to 100kph	100kph +
kph per Phase	300 / "seconds"	Half rated value
MP per Phase	250 / "seconds"	Half rated value

Friction will slow your acceleration. You must subtract the **Friction** value of the road or terrain you are on from your MP Acceleration per Phase. For example, if your car accelerates at 31MP per Phase, but if you are on a Bad Road, then your actual acceleration is 26 MP per Phase.

If that seems confusing, then another way of looking at it is that you must *overcome* the Friction of the road before you can actually accelerate. If the Friction is 3 (for a Good Road), and you have 31MP of acceleration power per Phase, then you must first "buy off" the 3 points of Friction, leaving you with a possible 28 MP which can be spent each Phase.

This is all assuming full acceleration, of course. In reality, few people actually push their vehicles to full acceleration, except in emergencies, especially if there are other cars in front of them. The normal acceleration of a vehicle is about 12 kph per second, or 10 MP per Phase.

Cruising

Cruising is nothing more than maintaining your current speed (at least, within a +/-10% margin of error). Your acceleration, adjusted by the **Friction** of the road (see above), must be greater than or equal to 0. If this number is negative then you are decelerating (see Decelerating). If your *possible* acceleration is *positive*, then you can accelerate at that rate, if you so desire (see Acceleration). But to "cruise" is simply the act of applying just enough of the vehicle's power to match the Friction of the road. It does not take an Action to Cruise, unless a skill roll is needed.

For example, you are moving along at 120kph. The road is a typically good road (Friction 3) and it is determined that your possible acceleration is 12 MP per Phase. Thus, you can maintain your speed or increase your speed at 12MP per Phase (after accounting for Friction). If, on the other hand, you were driving Off-Road on Rough Terrain, going up a hill (Friction 8) at 50kph, and your *possible* acceleration was 0, then you are just barely holding steady with the engine at full power.

Decelerating

If you have a negative acceleration, you are decelerating at that negative rate. Most of the time, this is caused by taking your foot off the accelerator peddle. If you are applying no acceleration, then your speed is reduced by the Friction of the road or terrain, in MPs per Phase.

For example, on a Good Road the Friction is 3. If you are not Accelerating or Cruising, then your speed will drop by 3 MP every Phase.

If you are accelerating, but the Friction is still higher and your overall Acceleration rating is negative, you will slow down by that amount.

Breaking

Breaking is the same as Deceleration, but assisted by the powered breaks of your vehicle. Breaking Rate works the same as Friction and, in fact, breaks are the same as Friction, resisting your speed to slow you down. With a Breaking Rate of 40 MP, for example, will slow you down by 40 MP per Phase, in addition to the Friction of the road (if you happen to be accelerating for some reason, the Breaks + Friction act as Friction against you).

For all practical purposes, a vehicle going 100kph (60mph) can stop in 4 to 5 seconds and will travel 50 to 60 (150 ft) meters more. This means the car will stop in Two Phase.

However, in a really tight situation (or for those who insist upon realism), you may calculate the exact stopping time. For example, you are on a Good Road (3 Friction), cruising at 120kph (100MP). You slam on your breaks to avoid hitting something. You have average breaks, which have an 40 Breaking Rate. The 40 + 3 (road Friction), is 43MP. Thus, your speed will drop by 43MP every Phase, meaning you will be fully stopped in 3 Phases (7 seconds exactly), having traveled about 70 more meters (150 feet).

Your Emergency Break will always add +10 to your Breaking Rate if you put it on. If you are one of those people who accidentally leaves it on, it will add +10 Friction.

Slamming your transmission into reverse will add +5 to your Breaking Rate, but it will also destroy your transmission and render your vehicle inoperable. But if you *really* have to stop fast, this might be an option.

Using Hex Maps

You may play vehicle combat in head, or on simply maps drawn to approximate the location of vehicles and other units. In fact, that may be the best way from a role-playing point of view, as it keeps things simple, and even the worst rules-lawyer is fairly lenient when combat is played "in-head".

However, using hex maps can add a new dimension to vehicle combat. Hex maps are widely available from many game companies, and a few even have roads, streets, and highways, though you may have to end up drawing your own. In **Fuzion** the default size of 1 hex is 1 meter. This can work for vehicles, but a better idea would be to change to the **Mekton** Scale, which is 1 hex = 50 meters. If using this scale, you must convert all references to MP to be "Mekton MP" - that is, 50MP equals 1MMP in the 50meter Hex scale. It should be noted that an entire highway is only 1 50 meter hex wide!

Maneuvering

Turning

By making a Turn we mean a facing change of the vehicle (not a maneuver, such as swerving or changing lanes). A vehicle can make facing changes in units of 45° or 60°, depending on if you are playing "in-head" or on hex-maps (use 60° turns for hex-maps, which is one facing side). You do not *have* to slow down, accelerate, or apply MP to make a facing change. Instead, it is simply a matter of making a **Defensive Driving Roll** (Defensive Driving because that is the default Driving skill for all things non-aggressive). It takes a Vehicle Action (by the Driver) to Turn.

Below is the Difficulty Value for making that turn. Add in the DV from Terrain or Road Conditions. Speed is show in MP. Multiply speed by 1.2 if you want kph.

Speed (MP)	DV
<10MP	0
11 - 20MP	1
21 - 40MP	2
41 - 60MP	4
61 - 80MP	6
81 - 100MP	8
101 - 120MP	10
per +20MP over	+2
Turn Radius	DV
1 Facing	+0
2 Facings	+2
3 Facings	+4
4 Facings	+5
5 Facings	+6
6 Facings	+8

To resolve the Turn maneuver, make your **Defensive Driving Roll** verse the Computed DV + Road Conditions + 10 (or other number, if you are using a dice system other than 3D6).

For example, to make a 1 Facing change turn at 55 MP (66kph) would have a DV of 14 (under a 3D6 system). On the other hand, spinning your car 3 Facings around at 80MP (nearly 100kph), would have a 20 DV. This assumes good road conditions. The same turn on Black Ice would make the DV 28!

The effects of failure depend on the situation. Most of the time you Lose Control (roll on the **Loss of Control** table). But sometimes you just stop, or fail to make the turn fully (usually in the case of being bogged down in snow or mud). Not being able to turn fully may mean crashing into an obstruction. Again, in most cases, you should use the **Loss of Control** Table, unless the effect seems otherwise obvious.

Turning a sharp curve in the road (such as those on a windy mountain road) is considered a 1 Facing change. A gradual curve has negligible effect.

Defensive Maneuvering

A Defensive Maneuver is any non-aggressive maneuver, or any maneuver used to avoid something. This is done by making a **Defensive Driving Roll**, based on the type of maneuver you're making (see below), plus any appropriate modifiers for weather or road conditions. If the maneuver isn't described below, pick the closest appropriate one to work from. If the Task Roll is successful, you will be able to pull the maneuver off. If not, you will lose control (roll on the **Loss of Control** Table). **It takes a Vehicle Action** (by the Driver) **to perform a Maneuver**.

Below is the Difficulty Value for making a Maneuver. Remember: Add the DV from Terrain or Road Conditions mentioned earlier.

Maneuver	DV
Change Lanes	0
Driving in Reverse	1
Swerve Away	1+
Dodge/Evade	2*
Maneuver Thru or Under	4
Regain Control	6

To resolve the maneuver, roll your [Defensive Driving Roll](#) verse the DV + Road Conditions + 10 (or other number, if you are using a dice system other than 3D6).

Change Lanes: This is a simple maneuver (usually just 10 DV) where you change from one lane to an adjacent lane, making sure no one is in the way.

Driving in Reverse: Driving in reverse is a very common maneuver, however, it is dangerous and you can make a mistake. Under normal circumstances it may not be necessary to roll for this. But under adverse conditions, or in combat, you should make this roll.

Swerve Away: This is a more sudden and evasive version of Change Lanes, where you turn 20° to 30° in an attempt to avoid a collision or attack. Every 2 meters moved off course incurs a +1 to the DV. It is effectively the same as "Dive for Cover" in hand-to-hand combat, but for vehicles. It is used to avoid obstacles, explosions, indirect fire. It is not for use against *direct* attacks (see Dodge/Evade).

Dodge/Evade: This is a shorter, though more skilled sort of swerve, used to evade a direct attack (a ranged or ramming attack, for example). It is basically the same as the Dodge maneuver for personal combat (and grants a +3 bonus to defend). Performing this Maneuver to evade any attack you must roll [DEX +\(-\)MV + Defensive Driving + Die Roll](#). You must roll above the DV of the maneuver itself (DV 12 + Road Conditions), otherwise you Lose Control. If you succeeded, you gain a +3 bonus to your Total, which is then compared to the attacker's AV. If your Total is higher than his, the then he missed. Not taking an action to Dodge/Evade means your Defense Value against an attack is just [DEX + Defensive Driving +10](#) (in a 3D6 system).

Maneuver Thru or Under: This is a maneuver where you attempt to guide your vehicle through a very tight spot, such as down an alley, between two trucks, or sliding under a truck (for motorcycles). DV 14 + Road Conditions.

Regain Control: When you have lost control (and assuming you have not yet crashed) you can attempt this roll to Regain Control. DV 16 + Road Conditions.



Aggressive Maneuvering

An Aggressive Maneuver is a direct assault maneuver against other vehicles or pedestrians. This is done by making an [Aggressive Driving Roll](#), based on the type of maneuver you're making (see below), plus any appropriate modifiers for weather or road conditions. If the maneuver isn't described below, pick the closest appropriate one to work from. If the roll is successful, you will be able to pull the maneuver off. If not, you will lose control (roll on the **Loss of Control** Table). **It takes a Vehicle Action** (by the Driver) **to perform a Maneuver**.

Below is the Difficulty Value for making a Maneuver. Remember: Always add the DV from Terrain or Road Conditions mentioned earlier.

Maneuver	DV
Strike or Ram	0
Side Swipe	2
Block or Pin	3
Run Off Road	5
Bumper Spinner	6

To resolve the maneuver, roll your [Aggressive Driving Roll](#) verse the DV + Road Conditions + 10 (or other number, if you are using a dice system other than 3D6).

Strike or Ram: If you are in close range, or have enough MP to accelerate to the target, you can Strike (or Ram) him, doing damage. A Strike (or Ram) does damage to both units, so be careful. See Ramming Damage. The attacker must roll verses the target's [DEX +\(-\)MV - Defensive Driving +10](#), (or a Melee Evade if he is a pedestrian), and his roll must also be above this maneuver's DV of 10 (or other number, for a system other than 3D6). If the target chooses to take an Evade action, he may do so (see Dodge/Evade). If the attacker fails he will Lose Control.

Side Swipe: This is a type of Strike where you slam the side of your car into the side of another car in the adjacent lane. A Side Swipe does damage to both units, just like a Ram, only the damage is 1/2. See Ramming Damage. If the target is hit, he must make a [Defensive Driving Roll](#) (at no Action cost) verse 10 (for 3D6 system), or he will Lose Control. If you roll under the target value of this maneuver (2+10 for 3D6), you Lose Control.

Block or Pin: In this maneuver you attempt to position your vehicle in such a way as to block or pin another vehicle in a certain lane or keep him behind you. If you succeed, he must make a Change Lane or Swerve maneuver (or attack you) to get away. If you fail, you simply did not block him, and you will only lose control on a Critical Failure.

Run Off Road: This is a cross between a Block and a Side Swipe where you attempt to pressure another vehicle to swerving off the road to avoid you without actually hitting him. Roll your [Aggressive Driving Roll](#) vs. his [Defensive Driving Roll](#) - if you succeed he Loses Control. If you fail he did not fall for it. However, if the result is a Tie, then you collided! If you collide this has the same effect as Side Swipe. If you roll under the target value of this maneuver (5+10 for 3D6), you Lose Control.

Bumper Spinner: This is a Strike which must be performed from behind, where you attempt to hit the left or right side of the bumper at an angle, so as to spin the target out of control. This strike will do damage to both units, as normal, (see Ramming Damage). If the target is hit, he must make a [Defensive Driving Roll](#) (at no Action cost) verse 6 + 10 (for 3D6 system), or he will Lose Control. If you roll under the target value of this maneuver (6+10 for 3D6), you Lose Control.

Additional Penalties

There are a number of additional penalties which can effect Driving Maneuvers (other than Road Conditions). These are mostly environmental related.

Environment	DV Penalty
Light Fog	+1
Heavy Fog	+2
Light Rain	+2
Heavy Rain	+3
Torrential Rain	+4
Dusk or Early Night	+1
Very Dark	+3
Shattered Windshield	+2
Driving into the Sun	+3

Stunt Maneuvers

Skilled drivers can perform death-defying stunts and cinematic maneuvers with their vehicle, under certain driving conditions. These Stunts are generic enough to be used with most vehicles, but use your common sense. You will not be able to Side Wheelie a bulldozer, don't care how good you are.

Stunt Maneuvers are the vehicle equivalent of Martial Arts Maneuvers, but for vehicles. It costs 16 OP for the entire Stunt Maneuver package (or 3PP + 1OP). These maneuvers can also be purchased ala cart, at a cost of 2 OP apiece, allowing you to pick and choose what you like. To perform a Stunt you would use either roll your [Aggressive](#) or [Defensive Driving](#) skill, depending on the sort of Stunt performed, modified by the AV or DV penalty listed, and accounting for the DV imposed by Terrain and Road Conditions as well.

Maneuver	Maneuver Effect
Wheelie	-2 Road Friction, -1 AV, +1 DV
Assisted Jump	Jump through the air
Death From Above	Jump, and ram from above
Spin Breaking	Gives you +40 Breaking Friction
Tailwhip Ram	Ram while turning away
Daredevil Defense	+5 to Dodge/Evade or Swerve
Kenevil's Mojo	Special, Cinematic Effect

To resolve the maneuver, roll your [Defensive Driving Roll](#) verse the DV + Road Conditions + 10 (or other number, if you are using a dice system other than 3D6).

Wheelie: The wheelie is probably the most common and useless stunts which may be performed. There are two forms - "Popping a Wheelie" and Side Wheelie. "Popping a Wheelie" can only be done with motorcycles or bikes, and it allows you to lift and hold up the front wheel of your cycle for a Phase or more. Side Wheelie (which can only be performed on a vehicle with four or more wheels) is the ability to turn the vehicle on to its side, assisted by a ramp or object (as per Aside Jump), and maintain that position. Each Phase that you hold (a Free Action) you must make a [Defensive Driving](#) roll, which is the same roll as for making a Turn (see **Turning**). It reduces the effect of Road Friction by -2 (but not below 1), and also gives you a +1 to any Defense roll you must make, while also penalizing you by -1 to any Attack you make. And it can also impress people (+1D6 on a Presence Attack). If you fail you Lose Control.

Assisted Jump: With a successful [Defensive Driving](#) roll verse 2+10DV (for 3D6 system), and plus any other penalties, you will be able to successfully jump your vehicle, assisted by a ramp, jump, hill, or immobile object no larger than half your wheel diameter. If no such item or ramp is available, you cannot perform this action (unless you have a Turbo Booster). Your "time in the air" is equal to 1 Phase for every 5 points by which you succeeded by. While in the air, you cannot perform any other maneuvers, break, turn, or accelerate. If you fail you Lose Control.

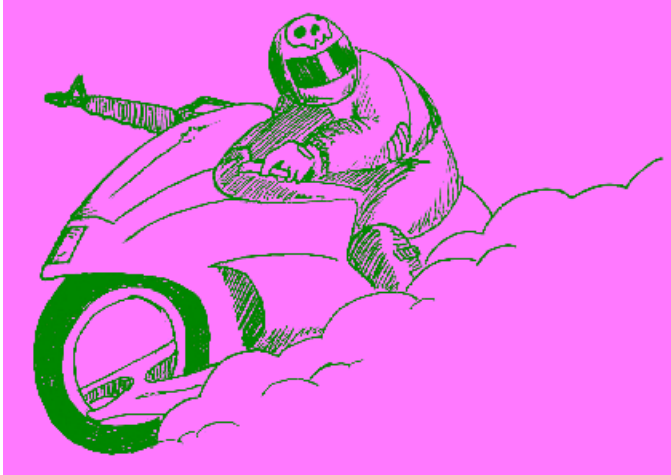
Death From Above: This is the same as an Assisted Jump, only used for attack purposes. It is the same as a Strike/Ram maneuver, which is the target value of this [Aggressive Driving](#) roll. If you succeed, you will ram the target vehicle on its top, which is generally very vulnerable. It is assumed that, by your momentum, your vehicle will slide off the other vehicle. If you wish to remain on top, you must also use the [Kenevil's Mojo](#) maneuver. If you did not wish to Ram (and only wanted to land on top), declare so ahead of time, and then perform both maneuvers. If you fail you Lose Control.

Spin Breaking: This is an advanced breaking maneuver where you spin your wheel sharply while hitting the break, and turning to a 90° angle. This imposes +40 to Breaking (or Friction). It also gives you two facing changes in one direction. Make a [Defensive Driving](#) skill roll as though breaking as normal. If you fail you Lose Control.

Tailwhip Ram: This is a special ram maneuver, sort of like a spin-kick, but for a vehicle. The point is to avoid destroying your engine when you ram a target by spinning the vehicle at the last second so as to impact with your side or tail, rather than with your front. Doing this does reduce your speed and effectiveness, but it may prevent serious damage to your own vehicle. Perform a standard Strike/Ram attack, but declare it is a Tailwhip. If successful, both you and the target take half-damage from the ram (if you are in the larger vehicle, your damage is reduced even further). If you fail you Lose Control, as normal.

Daredevil Defense: You have practiced avoiding obstacles, getting out of the way, and evading attacks to the point of becoming exceptionally good. This ability essentially

modifies the Dodge/Evade maneuver to give a +5 bonus, and also gives a +2 to Swerve. Sort of like Martial Defense. **Kenevil's Mojo:** This is a catch-all maneuver. Kenevil's Mojo gives you the ability to perform some remarkable, amazing or seemingly impossible maneuver. To use the Kenevil's Mojo, simply describe to the GM what sort of maneuver you wish to perform and how you will try and pull it off. He should then determine the DV, which you will roll against with your [Aggressive](#) or [Defensive Driving](#) skill, depending on the sort of Stunt. If you fail you Lose Control.



Vehicle Combat

This section details how to engage in vehicle to vehicle and vehicle to man combat. Most of these rules are simply adapted from **Atomik WAR** and are fully compatible. Other rules from **Atomik WAR** or the basic **Fuzion** rules can be used as well. If a rule is not here, it is simply because there was no change from the existing rule.

Making Attacks

In vehicle to vehicle combat, the Attacker combines his Skill ([Gunnery](#) or [Aggressive Driving](#)) with his REF and a die roll to create an Attack Value (AV). MV effects this roll, and he may also have to add or subtract modifiers from the AV to determine the final outcome (as above). For example, an attacker with a REF of 5, and MV of -2, a Gunnery skill of 4, a die roll of 10 has an AV of 17. If there was a -2 mod for Range, this comes down to 15.

The Defender combines his [DEX +\(-\)MV](#), plus an Evade skill ([Defensive Driving](#), or just [Melee](#) or [Ranged Evade](#) if he is a pedestrian) +10 as his Defense Value. A character with a DEX of 4, an MV of -2, and Defensive Driving of 3 has a DV of 15. AV and DV are compared to determine who won.

The Defender may instead take an Action to make a [Dodge/Evade](#) maneuver (or perform a Daredevil Defense), which gives him [DEX +\(-\)MV + Defensive Driving + Die Roll + 3](#) (or +5 for Daredevil Defense) as his DV against an attack. He may use an upcoming Action to perform a Dodge/Evade immediately, when attacked.

Weapon Accuracy

Weapon Accuracy [WA] reflects the difference in quality between weapons, and their effect on their user's abilities; the better and easier to use the weapon, the better you use it (and the worse the weapon...). WA's are not always used in Fuzion games, as their use varies from campaign to campaign. When they are brought into play, you will always find them listed in the description of the weapon. To use them, just apply the WA to your Attack roll as with any other Modifier.

Additional Modifiers (Vehicle)

There are a great many other modifiers which can effect the attack roll. These are for Vehicles. Human may have different sets of bonuses or penalties.

Completely Blind (i.e., by total darkness)	-6
Sight obscured (partial darkness, smoke)	-4
Moving target	-1 per 10 MP
Target silhouetted (easier to see)	+2
Aiming	+1 per Phase
Tiny Target (bullseye, eye, vital area)	-8
Small Target (less than 1m, head, limb)	-6
Undersized Target (dog or cat sized)	-4
Human-size Target (man, motorcycle)	-2
Large Target (trees, cars, large animals)	+0
Very Large Target (truck, plane, walls)	+2
Broad Side of a Barn	+6
Surprise Attack	+5
Firing at Full Auto (F-mode)	+0
Emptying the magazine! (E-mode)	+2

Shooting a man-size target from a *vehicle mounted weapon* incurs a -2 to-hit. Shooting a vehicle gives no penalty. Shooting a man-size target with your handgun from a vehicle is the same as fighting man-to-man (that is, no additional penalty), and shooting a vehicle (a large target) gives a +2 bonus. This is due to the difference in Scaling. It is difficult to shoot a smaller target in a larger vehicle, but easy to shoot a large vehicle if you are a smaller unit.

Aiming

Aiming is not needed, but it can help in hitting a target. For every consecutive Action you spend aiming, +1 is added to your skill. However, your Aiming bonus cannot be greater than the *driver's DEX - MV* (this rates how stable the vehicle is). That is to say, if the Driver has a DEX of 6, and the vehicle has a -2 MV, he a gunner can (at most) accumulate a +4 from aiming. If you are interrupted or distracted at anytime (anything from being hit to sneezing to moving) then all aiming bonuses are lost. This rule applies for both vehicle mounted weapons and guns fired by characters out of windows. If you have a scope which adds a bonus, that bonus is added in addition to your aiming bonus, but you must aim for at least one Action to gain this bonus.

Vehicle Weapon Range

Every gun has a max range. This is the *Extreme* Range of the weapon. **Atomik WAR** introduced a new range, Near, between Close and Medium, which is also used in **Atomik MotorWarz**. Ranges have been adjusted for Vehicles -

they are double what they are for man-sized targets except for Point-Blank and Melee range. This chart is only for vehicles. Guns fired by hand out of windows should use the standard range penalty chart.

Point-Blank	[special] 2m or less of the target.
Melee (<4m)	[+0] Melee range. 4m or less of the target.
Close (20m)	[-1] Within 20m of the target
Near (40m)	[-2] Within 40m of the target
Medium (100m)	[-3] Within 100m of the target
Long (to listed)	[-4] 101m to Max Range of the Weapon
Extreme	[-5, plus -1 for every 100m past listed range.

Point-Blank Range

The only bonus for firing vehicle mounted weapons at point-blank range is the added +1 DC of damage, caused by the extra force of the weapon's blast and *extreme* muzzle velocity. This effect is *only valid for ranged firearms*, not attacks like ram or side swipe.

Targeting Against Range

Sometimes you need to hit an apple, tree, target area, or something else at range. In these cases, the GM will set a DV based on the range. Ranges have been adjusted for Vehicles - they are double what they are for man-sized targets (from what is listed in **Atomik WAR**), except for Point-Blank and Melee range. This chart is only for vehicles.

Vehicle Range	DV
Point-Blank (< 2m)	1
Melee (4m or less)	4
Close (20m or less)	8
Near (40m or less)	10
Medium (100m or less)	12
Long (to the listed range)	16
Extreme (beyond listed range)	16, +1 per +100m

Modify appropriately for the Resolution option you are using.

Static Variable	+0
Low Variable	+3 or +1D6
Med. Variable	+5 or +2D6 or +1D10
High Variable	+10 or +3D6, +1D20, or +2D10

Autofire

All rules for Autofire remain the same (for Autofire Ratio and various firing modes, such as S, B, F, and E). See **Atomik WAR** for details on Autofire.



Hit Location

All vehicles consists of several individual sections. What these sections are largely depends on the type of vehicle. For example, a big rig truck will have a large trailer, whereas a car will not. Find the proper vehicle and consult the table below. A description will follow.

Auto (car, pickup, SUV, or Big Rig w/o Trailer)

Roll 3D6	Location	To-Hit
3-5	Wheel	-4
6-7	Side Door	-3
8-9	Side Window	-2
10-11	Chassis	-2
12-13	Front/Back Window	-1
14-15	Chassis / Trunk	-2
16-18	Engine	-3

Motorcycle

Roll 3D6	Location	To-Hit
3-5	Front Wheel	-4
6-8	Engine	-2
9-11	Driver or Passenger	-1
12-15	Chassis	-2
16-18	Rear Wheel	-4

Motorcycle w/ Side Car

Roll 3D6	Location	To-Hit
3-5	Front Wheel	-4
6-7	Cycle Chassis	-2
8-9	Side Car Chassis	-2
10-11	Cycle Driver	-1
12-13	Side Car Passenger	-1
14-15	Engine	-2
16-18	Rear or Side Car Wheel	-4

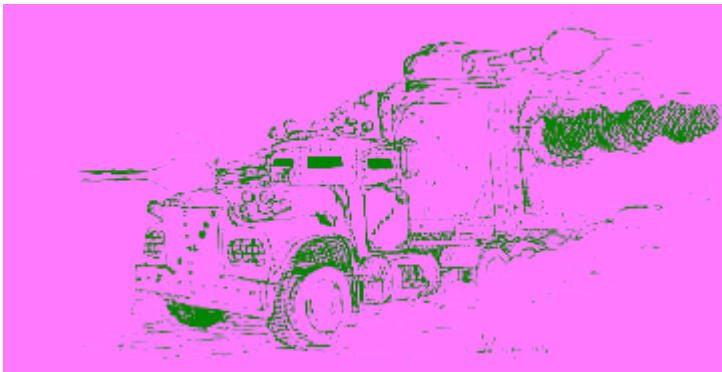
Big Rig w/o Trailer

Roll 3D6	Location	To-Hit
3-5	Wheel	-4
6-7	Side Door	-2
8-9	Side Window / Fuel Tank	-3
10-11	Chassis	-2
12-13	Front/Back Window	-1
14-15	Chassis	-2
16-18	Engine	-3

Big Rig w/ Trailer

Roll 3D6	Location	To-Hit
3-5	Wheel	-4
6-7	Chassis / Side Door	-2
8-9	Window / Fuel Tank	-3
10-13	Trailer Side	-0
14-15	Front Window/Chassis	-1
16	Back Trailer Doors	-1
17-18	Engine / Trailer Chassis	-2

Some hit locations have a slash (/) indicating either one location or another was hit on this roll, depending on what side of the vehicle the attacker was on. For example, a roll of 12 on the Auto Hit Location Table would indicate that either the Front or Back Window was hit, depending on if the attacker was shooting at the front or back. If it is not clear (such as an attack from the side or from above), simply make an odd/even die roll.



Wheel

Most autos have 4 wheels, but only two will be exposed to any one attacker. To determine which wheel was hit, roll odd/even (for motorcycles, the exact tire is specified). Trucks may have many wheels, especially if it has a trailer. For trucks determine if the wheel on the cab or trailer was hit (roll odd/even or use common sense), then have the GM determine by a roll (or just declare) which wheel was hit. Some vehicles have two wheels on one hub (double wheels) and for this roll odd/even again to see if the inner or outer wheel was hit (or use common sense to judge).

All wheels have three SDP ratings. One is the SDP of the metal hub, the other is SDP of the tire. The third is the Penetration Point to puncture the tire. See the rules for **Wheel Damage** later in this chapter.

Doors

Doors are, for the most part, machine-pressed aluminum with an outer finish of paint and plastic, and are independent of the overall structural integrity of the vehicle. On a Door Hit, if it is unclear which door was hit, roll odd/even (an attacker can never see more than two doors on a car at any given time).

Doors have two SDP rating. One is the Penetration Point, the other is the Blown Off point. Doors may also have armor. Any damage which penetrates armor will then effect the door's SDP. See Taking Damage for more details.

Note that if the windows are rolled down, any damage will effect both the door and the window on a door hit.

Window

Windows (unless bulletproof) are the most vulnerable spot of a vehicle. On a Window Hit roll, if it is unclear which window was hit, make a random die roll (usually odd/even).

Windows have two SDP rating. One is the Penetration Point, the other is the Shattered point. Bulletproof glass has an armor value as well as a higher SDP. Any damage which penetrates armor will then effect the windows SDP. See Taking Damage for more details.

Note that if the window is rolled down, then any attack to the Window will pass on through the opening into the interior.

Chassis

The Chassis is the very structure of the vehicle, and generally the toughest part. The more damage the vehicle's chassis takes, the more unstable its structural integrity becomes. At 0 SDP, the vehicle will "collapse" and you most roll on the **Loss of Control** table to determine how you crash. The Chassis does not have a Penetration point, since all damage which hits the Chassis is applied to the Chassis alone.

Engine (area)

The engine is one of the most vital pieces of the vehicle. What is meant by this location is not just the Engine Block itself, but the Engine Area, that is, the big front section of your car. The Engine Area is, of course contained, within the front part of the chassis (except for a few rare vehicles with a rear engine), and surrounded by a machine-pressed aluminum or steel hood (which may be armored as well). Any damage which penetrates armor hits the Engine (tearing right through the machine-pressed aluminum hood) and reducing its SDP by the amount which penetrated the armor. When an engine has taken damage, you must roll on the Engine Critical Hit table to determine if there was an ill-effect.

Trunk

The Trunk acts effectively the same as a Door for the purposes of game-play. Like Doors they are just machine-pressed aluminum with an outer finish of paint and plastic, independent of the overall structural integrity of the vehicle.

The Trunk has two SDP rating. One is the Penetration Point, the other is the Collapse point (at which point the trunk gives in and spills all its contents). The trunk may also have armor. Any damage which penetrates armor will then effect the trunk's SDP. Any damage which pierces the trunk can effect items inside. See Taking Damage for more details.

Trailer

Basically, a trailer is just a big trunk (though a detachable one). Like Doors they are just machine-pressed aluminum with an outer finish of paint and plastic, independent of the overall structural integrity of the vehicle.

The Trailer has two SDP rating. One is the Penetration Point, the other is the Collapse point (at which point the trailer gives in and spills all its contents). The trailer may also have armor. Any damage which penetrates armor will

effect the trailer's SDP. Damage which pierces the trailer can effect items inside. See Taking Damage for details.

Taking Damage

This section details rules on what happens when a vehicle is hit, either by a ranged attack, or another vehicle. These rules do not apply to human targets except where noted (such as for ramming damage).

Armor Damage

As armor absorbs more and more damage it will begin to lose some of its protective qualities. This is called armor depletion. When a piece of armor is hit by Lethal Damage it will lose 1 KD. Generally, this is just to simplify matters. That is to say, if your vehicle is hit, no matter by how much damage, the armor in that location will lose 1 KD. If, however, you wish to add further realism, you could optionally say that the damage done must equal half the armor's current KD, but this just adds math and slows down combat.

Armor Piercing Attacks

Many weapons, missiles, or ammunition types are armor piercing, meaning they are designed to maximize armor penetration. Most armor piercing projectiles are made of a dense material (such as tungsten or depleted uranium), have a sharp point, or a shape-charged warhead, or any combination thereof. *Only half of the Value of the armor can protect against an AP attack.* AP attacks also half the Penetration Point of structures with a Penetration value.

Most armor piercing bullets also list the types of armor they are effective against. These will be Soft (Kevlar type armor), Medium (ballistic type armor), or Hard (solid metal or steel). Some fléchette rounds, for example, are armor piercing, but only against Soft armor. AP(all) means it is armor piercing against all types of armor. All vehicle armor is Hard Armor. Soft or Medium AP bullets will not have AP advantage against vehicle armor (only Hard or All will).

or sum of the two Unit's velocities (in MP), then multiply by the sum of their "Unit Type" values, all divided by 10. Use the following formula:

$$\text{DC damage} = [(V_1 +/- V_2) \times (C_1 + C_2)] \text{ Div by } 10$$

V_1 the Velocity of Unit (or Vehicle) 1 in MP

V_2 the Velocity of Unit (or Vehicle) 2 in MP

C_1 is the "Type" of Unit 1 (vehicle)

C_2 is the "Type" of Unit 2 (vehicle)

The Unit Type is chosen from this table, and is roughly equal to the vehicle's mass and size.

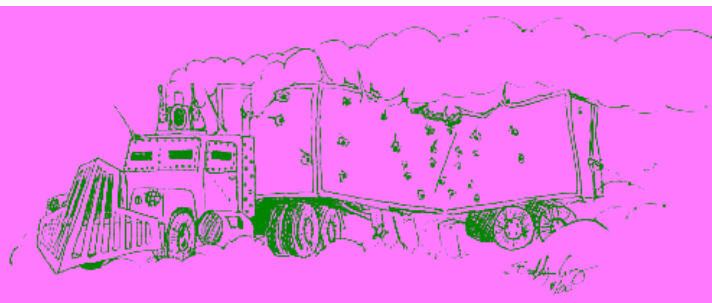
Unit Type	Value
Smaller than man	0.1 to 0.2
Man-size, Cycle	0.3
Large Animal / Phone Booth	0.4
Road Sign / Sheetrock wall	0.5
Small Car / Telephone Pole	0.6
Typical Car / Tree	0.7
Heavy Car/ Pickup	0.8
SUV / Brick Wall	0.9
Light Truck (UPS truck)	1.0
Hummer / Buss	1.2
Rig w/o Trailer	1.3
Rig w/ Empty Trailer	1.5
Rig w/ Full Trailer	1.8
APC/ Lt. Tank	2.0
Md. Tank	2.5
Hvy. Tank / Train / the Ground	3.0

The Larger of the two Units will always take *Half Damage*, and the smaller one takes full damage regardless of who attacked (use the table above for this comparison). If the Units are the same size, both take full damage.

By this example, two typical cars (same size) hitting *head on* at 80 MP each (about 60 miles per hour), will do 22DCs of damage to each other (in the Engine location, since they hit head on). This was found by the formula, $[(80 + 80) \times (0.7 + 0.7)] / 10$, equals 22 DCs. Always round to the nearest whole number.

When calculating you must find either the difference or sum of the vehicles' current speeds. As in the example above, a head on collision will add the speeds. But a rear-end collision *subtracts* the speeds (the attacker will always have the higher speed, since it was he who rammed). On a side impact, the target's speed is considered to be 0.

For example, a Hummer (moving at 80MP) rams a Small Car (moving at 60MP) in the tail. By the equation $[(80 - 60) \times (1.2 + 0.6)] / 10$, the damage done to the back of the small car (either the Trunk or Chassis) is 4DCs. The Hummer just takes 2DC of damage. This damage is not significant, but keep in mind, they were both going the same direction with a difference in speed of just 15mph. Had the Hummer and Small Car collided head on, the Small Car would have taken 25DCs and the Hummer 13DC.



Ram Damage

We will consider any sort of vehicle impact to be a ram. That is, a head on collision is a Ram, hitting a pedestrian is a Ram, crashing into a tree is a Ram, driving through a department store window is a Ram, and so forth. A ram will do damage the same DCs of damage to both Units involved in the impact. To calculate the damage, take the difference

If hit in the side, the speed of Unit 2 is considered to be 0. For example, if the Hummer, moving at 80 MP, hits the Small Car (moving at 60 MP), the equation $[(80 - 0) \times (1.2 + 0.6)] / 10$ tells us that the Small Car takes 14DCs to its side (Door or Chassis) and the Hummer takes 7DC to its front (Engine or Chassis).

Most of the time, small objects, such as pedestrians, have an MP of 0, even though they may be walking (you can use their current MP if you wish). For example, if a Big Rig (with no trailer) rams a pedestrian at 60MP (45 mph), the equation $[(60 - 0) \times (1.3 + 0.3)] / 10$ tells us that the man would take 10DCs and the truck would take 5DCs.



You may also have 3 (or more) objects involved in a Ram or collision. For example, a Hummer may ram a Small Car into a Brick Wall. When this happens, simply add the Velocity and Unit Value of the 3rd unit into the formula and proceed (most of the time, this 3rd unit will be something like a wall or tree, and have no velocity). Thus, if as in our example, the Hummer, moving at 80 MP, hits the Small Car (moving at 60 MP), smashing it into a Wall (Unit Value 0.9) the equation $[(80 - 0) \times (1.2 + 0.6 + 0.9)] / 10$ tells us that the Small Car takes 22DCs to its side (Door or Chassis) and the Hummer takes 11DC to its front (Engine or Chassis). The "sandwiched" unit (the Small Car) should probably have its damage divided into two units of damage, each applied to opposite sides of the vehicle.

To ram another car (on purpose) the driver must make a successful **Strike/Ram** attack (see Maneuvers), vs. the defender's defense roll (or just his DEX + Defensive Driving +10 if he did not defend). When a vehicle is rammed, the struck driver must make a **Defensive Driving** roll vs. 10 (for 3D6 system) plus any other modifiers or he will Lose Control. If the collision was accidental, both drivers must make this roll.

After a ram occurs, the GM should make a judgment on how much they have slowed down (if at all), or if the vehicle(s) have simply stopped dead. Generally, if a vehicle hits an immobile target (like a wall) or was involved in a head on crash, it is stopped.

Passenger Damage will also occur in a ram or collision. From the force of the impact itself, all occupants will take

STUN damage equal to the same DCs inflicted upon the car. That is to say, if your vehicle took 16DCs in the collision, all occupants will take 16DCs of STUN damage. Remember, for every 5 STUN taken, 1 Lethal Hit is inflicted. All damage should be applied as though to the Chest, and armor *does not protect* from this sort of impact. A seat belt will reduce this damage by -2DC, a harness will reduce it by -4DC, and an Airbag will reduce this by an additional -6DC.

Side Swipe Damage

Side Swiping is a sort of ram where one vehicle rams into the vehicle next to it, by slamming into its side. This is also usually done in conjunction with an attempt to knock the other car off the road. The formula is similar to that with Ramming, though modified and simplified:

$$\text{DC damage} = [(C_1 + C_2)] \times 3$$

Where C_1 and C_2 are the Unit Values shown in the chart for Ram Damage.

For example, if an SUV side swipes a Typical Car, the damage done would be $[(0.9 + 0.7)] \times 3$, or 5DC of damage. As always, the large unit takes half damage, so the SUV suffers 3DCs while the Car takes 5DCs.

As you can see, Side Swipe damage is not very great, and mostly superficial. Most of the damage comes from the fact that, once side swiped, he may go out of control and crash.

To side swipe another car (on purpose) the driver must make a successful Side Swipe attack (see Maneuvers). When a vehicle is side swiped, the struck driver must make a **Defensive Driving** roll vs. 10 (for 3D6 system) plus any other modifiers, or he will Lose Control. If the collision was accidental, both drivers must make this roll.

Run-Over Damage

This is done to an object which is "run over" by a vehicle. In 90% of all cases, this is a vehicle running over an animal, person, or small machine. The only case where a vehicle can run over another vehicle is if its Unit Value is greater than 1.5 of the Unit Value of the smaller vehicle (so a Medium Tank could run-over a car), or if the vehicle has a Monster Truck mod, giving it Monster Truck wheels and suspension.

To Run-Over something (on purpose), the attacker must make a successful **Strike/Ram** attack. If the object was too small to be rammed, it will be run-over (i.e., a dog, or a person laying down in the street). If it was larger, it will simply be Rammed. It should be noted that many things (such as people) who are rammed are also then Run-Over. There is a 50/50 chance that an object such as this will either be knocked aside, or knocked down and run-over. You may accidentally run-over something, and must make a Swerve maneuver to avoid doing so.

When a vehicle does Run-Over something, the damage done is calculated by this formula:

$$\text{DC damage} = [(C_1 + C_2)] \times 3$$

Where C_1 and C_2 are the Unit Values shown in the chart for

Ram Damage.

For example, if an SUV runs over a dog standing in the road, the damage done would be $[(0.9 + 0.2)] \times 3$, or 3DC of damage *per tire*. The attacking unit *never* suffers damage from running something over - tires are designed to absorb such impacts.

Remember, this damage is *per tire*. In 90% of all cases, both tires will hit. Both are separate hits, each striking a random location. The struck unit will be able to try and Evade both, assuming he is capable of doing so.

For example, an SUV, moving at 70MP (55mph) rams a person in the road, knocking him down and then running over him. The total damage done is 8DC from the Ram (the SUV takes 4DC), and 4DC for each tire, a total of 16DCs inflicted if both tires run him over! Ouch!

Falling / Collision Damage

Falling and Collision damage is calculated exactly the same as if it were a Ram. For Collisions with immobile objects (or the ground, in the case of falling), simply treat object's speed as 0, and use an appropriate Unit Type from the table provided under Ramming.

Falling is a bit different. The formula is the same, but you must calculate your Velocity based on the acceleration of gravity. **Each Phase that you fall, your MP increases by 30.** If you fall for 3 Phases, your overall MP is at least 90. You will rarely fall for more than a Phase or two, unless you were very high up. If you had momentum before falling, ignore it, unless it was downward momentum (in which case, add it). However, forward momentum will allow you to "fly" in that direction as you fall. Remember, when you fall you are accelerating - the 1st Phase you fall 30meters, the 2nd Phase you fall with an MP of 60 (for a total of 180 meters), the 3rd you fall with an 90MP (for a total of 406 meters fallen), and so forth. The formula for calculating the Distance fallen over time is $5xT^2 = D$, where T is Seconds fallen (Squared), and D is the Distance, in meters (the 5 is had from 1/2 Acceleration, which is 10m/s for gravity). Your velocity, however, will never exceed 180MP - that is, after falling for 6 Phases your velocity levels off at 180MP (this is Terminal Velocity).

Speed, in MP, after falling X Phases

Phases	MP	Distance Fallen
1	30	45 meters
2	60	180 meters
3	90	405 meters
4	120	720 meters
5	150	1125 meters
6	180	1620 meters
+1	+0	+540 meters

When you hit the ground, use the same formula for calculating damage as per rams, but using your MP from

falling, and **treat the Ground as a Unit with a "C" value of 3.0** and a velocity of 0. Thus, if a Typical Car flies of a cliff and crashes 200 meters down, it would have fallen for two Phases, and gained a speed of about 60MP (45mph), hitting the ground by the formula, $[(60 + 0) \times (0.7 + 3.0)] / 10$, equals 22DCs of damage. If it actually landed on something (like another car) use its Unit Type value, rather than 3.0, and apply damage to both (as per Ramming rules). If you land on water, treat the unit type as 1.0.

Roll the Hit Location randomly - this is the part of the vehicle which hit the ground first. All occupants take damage as per Ram, except the damage is **Lethal**, rather than Stunning. Armor does not protect humans from falling damage either.

Critical Hit Determination

Many times when a vehicle location is hit, you will be asked to determine if there was a critical hit, then roll on a critical hit table (given for that location). **Any Critical Success Hit will automatically grant a Critical Hit Roll** if any damage penetrated armor. Otherwise, you must make a random roll to see if there was a critical hit. This must be rolled for each bullet which penetrates.

Campaign Level	Roll 1D6
Realistic	1 (rarely)
Semi-Realistic	2
Heroic	3
Cinematic	4
Legendary	5
Superheroic	6 (always)

For example, in a Heroic Level campaign, if a Critical Hit is called for, we would roll 1D6 and compare to this chart. If the roll was 3 or less, then there was a Critical Hit, and we must roll on the appropriate Critical Hit Chart for that location. Remember, a Critical Success Hit is always a Critical Damage Hit.



Wheel Damage

Wheels are one of the most vital locations of a vehicle, and the most complicated. This is because a wheel can be damaged, punctured, blow out, knocked off, or any number of other problems, all of which can have an effect on your vehicles drivability and "friction" with the road.

The first thing to note are the stats of the wheel. A typical wheel (which we are using for our example) has three damage states: Wheel SDP 20, Tire SDP 10, KD 4, and a Puncture Point of 5. First, let us describe what these are:

Wheel SDP/KD rates how much damage the metal part of the wheel can take (it is basically the wheel chassis), and the KD shows its armor value. Any hit to the **Hub** applies all damage to the Wheel SDP (after accounting for KD armor). If the wheel SDP is reduced to below 0, the tire is effectively destroyed (use **Blow Out effect**).

Tire SDP This is the SDP of the rubber tread and tire tube itself. Any hit to the Tube is applied to this SDP. The Armor of the wheel (KD) only counts for the Wheel's Hub, not the tire. If the tire is reduced to below 0, the tire is destroyed (use **Blow Out effect**). However, it could be penetrated by bullets and nails. *All Tires are immune to Blunt damage such as impacts and rams*, but not to penetrating, piercing, or slashing attacks. See Puncture Point.

Puncture Point Any bullet or penetrating damage applied to the **Tube** (such as bullets, nails, or spikes in the road) could open a hole to let air escape. Any piercing attack (or explosion) which does more than the Puncture Point opens one hole. This hole will rapidly leak air until the tire is empty. See **Running Flat**.

When a wheel is hit, you must roll to see what part of the wheel was struck. It is always a -4 to shoot the wheel directly, but this could be more difficult to hit part of the tire.

Wheel Hit Table

Roll 1D6	Location	To-Hit
1-2	Tire (tube) Hit	-6
3-6	Hub Hit	-5

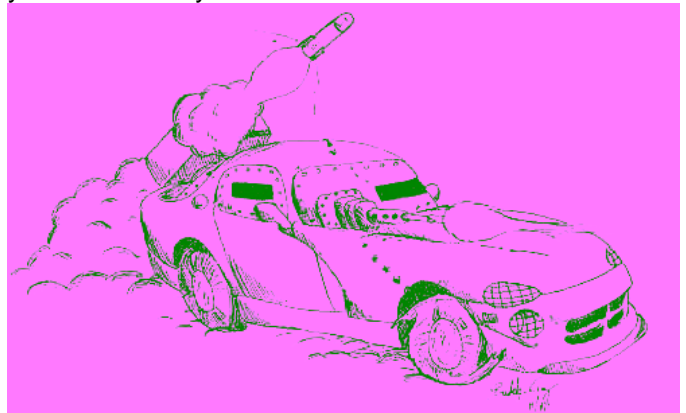
For example, if our wheel (described above) was hit by a 3D6 bullet, we would roll 1D6 to find what part was hit. Rolling 2, we see the Tire was hit. We apply 3D6 damage to the tire (rolling 12 DCs), and not only was the tire pierced, but it was destroyed (blown out) since it could only take 5 SDP in the first place.

Running Flat

A tire is punctured when a piercing (or sharp) projectile or object does more damage to the tire than the Penetration Point. Tires cannot be punctured by blunt damage, such as

impacts or crushing damage (though they can still be blown out if all the SDP is destroyed). Each time a tire is punctured, a hole is formed which leaks pressure (more holes mean faster leakage). For each hole, the tire will gain +1 Friction and + $\frac{1}{2}$ DV driving difficulty per Round (this works the same as an Adverse Road Condition). It will be Flat when it reaches +10 Friction, and stop leaking (since there is no more air). If the tire has been punctured twice, it will gain +2 Friction and +1 DV driving difficulty per Round. If the tire has been punctured four times, it will gain +1 Friction and + $\frac{1}{2}$ DV driving difficulty per Phase.

When the tire is totally flat it will impose an over all +10 Friction and +5 driving DV. Having two flat tires gives +20 Friction, +10 DV! Driving on a flat tire (or tires) will inflict 1 point of damage (through armor) directly to the SDP of the Hub (or wheel), every Round. When the wheel is destroyed you will effectively "Blow-Out".



Blow-Out Effect

A blow-out will occur when the SDP of the Wheel or a pressurized Tire is destroyed by damage. A blow-out will not occur if a tire is simply punctured. When a tire Blows-Out, the wheel is considered to be effectively destroyed. This impose an over all +10 Friction and +5 driving DV. However, because the blow-out occurred so suddenly, the driver must make a **Defensive Driving** roll vs. 10 (for 3D6 system) plus any other modifiers (including the +5 for the blown-out tire). If he fails, he will Lose Control. Roll on the **Loss of Control** table.

Penetrating Damage

All parts of a car, except for the Chassis and Engine, can be physically penetrated through by certain times of damage (such as bullets, nails, and other piercing attacks). Wheels are effected by penetrating damage as well, but in a special way (see Wheel Damage). The rest of the car (such as windows, doors, truck, trailers, etc.) can be breached by a fast moving projectile, like a bullet, doing minimal damage to the structure, but hitting whatever is inside the vehicle (such as passengers or equipment).

Doors, Windows, Trunks, and Trailers list the SDP (how

much damage they take before "collapsing") as well as their Penetration Point, which is the Hits the structure "takes" before it is penetrated. The structure will take, at max, Damage up to its Penetration Point; the rest passes on through. For example, if a door has an SDP of 20, and a Penetration Point of 5, then if it is hit for 18 damage, the door takes 5 hits (reducing the SDP to 15) and the remaining damage passes through. When the SDP of such as structure is depleted to below 0, it effectively "collapses" and offers no further protection.

It should be noted that AP attacks (of Hard or All) half the Penetration Point. Armor will always protect as normal (and will be halved against AP attacks). For example, an armored door might have 20KD, 40 SPD, and a Penetration Point of 8. If it is struck by 24 AP Hits, then the armor counts as 10KD and the Penetration Point counts as 4. 10 points are absorb by the armor, and the door's SDP takes 4 Hit (reducing it to 34), and the rest penetrates into the vehicle.

If the bullet *did* penetrate into the vehicle, determine if there was a Critical Hit (see Critical Hit Determination). If a Critical Hit was made, roll on the **Critical Penetration Table** below:

Critical Penetration Table

Roll 3D6	Critical Hit
3-5	Adjacent Passenger/Driver (cannot Evade)
6-7	Nearest Passenger/Driver (cannot Evade)
8-10	Equipment/Cargo (pick randomly)
11-12	Control System
13-15	Nearest Passenger/Driver (may Evade)
15-18	Adjacent Passenger/Driver (may Evade)

For Trunks and Trailers, however, Equipment/Cargo is always hit on a Critical Hit (if there is a person in there, then you can roll to see). If the hit indicates something not present (for instance, a Passenger Hit through a door where there is no passenger) consider it a missed critical.

When a person is hit, you should make a random roll on the human Hit Locations Table to see where it struck (use the Default Hit Table, or, if using **Atomik WAR**, roll on the Upper Hit Table or Lower Hit table depending on if the Window or Door was penetrated). It is possible to target a person through a window (for example, shooting at their head) and this imposes the usual penalty for that body location, but the window will still offer some protection, and must still be penetrated.

When the Control System is hit, the GM should declare some component broken. This could be anything, from the electric windows, to the locks, to the radio/CD player, to a gauge on the dashboard. It is always the GM's call, though he could draw up a random chart if it suits him.

When something inside the vehicle (person, cargo, equipment, etc.) is struck by an attack, it takes the damage as *normal*, but the final damage value is reduced by the

same amount which the structure and any armor absorbed. For example, if an 8DC round rips into the passenger side door (10KD, 20SDP, 5 PenPoint). The round does 32 damage to the door - 10 are absorbed by armor and the door takes 5 hits (at total of 15 points were taken). If the round then hit the passenger, he also takes 8DC of damage, less the 15 points already absorbed, to a random location. If the final damage is ever 0 or less (for instance, we roll 12 damage but 15 were absorbed by the door), it is assumed the bullet was moving so slow to have any further effect.

Blunt damage (rams, crashes, being kicked by a kung-fu master, etc.) ignore Penetration Point and simply do all damage to the SDP (or armor). Explosions and Explosives projectiles (like missiles) are *not* considered Penetrating unless they are AP - otherwise, all their damage is treated as Blunt. When all SDP is destroyed, the structure "collapses" and offers no further protection to the subjects inside. All further attacks may be critical, as normal.

Optionally, If the round strikes nothing it will continue on and through the other side of the vehicle, using these same rules (that is, if it went in through the back left side door, it will come out the back right side door, also doing damage to that door).

Doors, Windows, and Trunks

Doors and Windows and Trunks are all special Penetrative structures on a vehicle which require a little bit of extra description. See **Penetrating Damage** (above) on how to handle damage to these locations.

Doors and Roof

Not only can a door be used to protect the occupants of a vehicle, but in a fire-fight, you can get out of your vehicle and crouch behind the door, using it as a shield. If the door is hit while the window is rolled down, and damage penetrating the door (or left over after all the door's SDP is destroyed), is then applied to the Window (which may then also be penetrated or destroyed). If the door's SDP is reduced to below 0, it is blown off, and falls away from the vehicle, offering no more protection. All further attacks may be critical, as normal.

The Roof is considered a "door" type location. Attacks from above will strike the Roof on a Door hit. Convertibles have no Roof, unless their top is up, but even then the flimsy material offers effectively no protection.

Window

Windows are very vulnerable to damage, unless they are made of bulletproof glass. All windows, however, are made of safety-glass and will not explode into a rain of glass. The glass will shatter and break up, but will be held together by laminated plastic. Each time a window is Penetrated by damage, all visually perception checks through that window

suffer a -1 penalty. If the window is ever destroyed, it is assumed to be so broken up it "falls out" of its frame and no longer offers protection (and any visual perception penalties go away as well). All further attacks may be critical, as normal.

If the window is rolled down, it is in the door, and offers no protection. Any hits to the window must roll **Critical Hit Determination**, as normal.

Trunk or Trailer

These work pretty much the same as doors. In fact, they are door (every opened up your trunk? It's a door!). Attacks when penetrate the trunk may hit anything in the trunk on a critical hit, or pass on through into the passenger area on a Passenger hit (if there is a person in the trunk, then he will count as the "Nearest Passenger" on the Critical Hit table). Hits on a Trailer can never hit a passengers, unless there really are passengers in the trailer. If the trunk (or trailer's) SDP is reduced to below 0, it collapses, and spills all contents. Few people actually store cans of gasoline in their trunk, but if they do, count a Critical Hit on Equipment as a Fuel Tank hit (cans of oil do not count, since oil does not explode).

Engine Hit

On most vehicles, the engine constitutes the bulk of the entire foreword section (with the exception of a very few, such as Lamborghini, where it is in the back). Engine hits are not Penetrating hits - instead, all damage which strikes the Engine location (and which penetrates armor) is inflicted upon the engine's SDP. If the engine's SDP is reduced to below 0, it is totally slagged and must be replaced. All further damage is transferred to the Chassis.

Being hit, it is possible for Critical Damage to occur to the engine. Whenever the Engine takes damage (loses SPD) determine if Critical Damage was done by rolling on the **Critical Hit Determination Table**, give several pages earlier. If critical damage did occur, roll on the Critical Engine Hit table below.

Critical Engine Hit

Roll 3D6	Critical Hit
3 - 5	Fuel System Hit
6	Oil Leakage
7	Coolant Leakage
8	Cracked Engine Block
9	Transmission Jammed
10	Fanbelt Destroyed
11	Radiator Damaged
12	Power Steering Knocked Out
13	Alternator Destroyed
14	Compressor Destroyed
15	Battery Destroyed
16	Timing System Disrupted
17 - 18	Electrical Shutdown

Fuel System Hit: If the fuel system is hit, you must make another roll to determine the effect. **Roll 1D6.** If the roll was a 1 or 2, the engine will leak fuel rapidly, spilling about a 1 Pint per Round (or 1 gallon every 8 Rounds) while the engine is running. A roll of 3 or 4 will catch the engine on fire (see **I'm On Fire!**), which will explode if fuel is already leaking. A roll of 5 or 6 will explode the fuel in the engine (but not the fuel tanks themselves) doing 2D6 damage per Liter of the engine (fractional Liters count as 1D6), so if a 2.5 or 2.3 Liter engine explodes, it inflicts 7D6 explosion damage to the rest of the engine, and then to the Chassis if the engine gets destroyed (armor does not protect from an internal explosion). After the engine explodes, the vehicle is considered to be On Fire.

Oil Leakage: An oil leakage is not immediately bad (since the engine parts are still lubricated), but such a hit might start a fire. Roll 1D6 on this hit. If you roll a 1 your engine will catch on fire (see **I'm On Fire!**). You must oil leaks fixed (about a \$100 repair job) or your engine will eventually overheat and shutdown when the lubrication on the engine parts wears off (which could take several days).

Cooling System Destroyed: Without a cooling system, the engine will overheat fast. This could be caused by a damaged water pump, broken fanbelt, or water leakage. The effect is the same. When the cooling system is destroyed, your engine temperature will rise +30° F every Round (or 7° to 8° per Phase) until reaching the shutdown point (300° F), which takes about 6 Rounds (from an operating temperature of 200°). It costs about \$200 to replace or fix this system.

Cracked Engine Block: A cracked engine block is not terminal, but it's not good either, and is expensive to repair. Each time a "crack" occurs, your Horsepower drops by 10%, adjusting your acceleration and max speed accordingly. If you take more than four cracks, your engine shuts down. It costs 30% of the engine's cost to repair one crack (so if you have more than four cracks, you should just replace the engine) and the engine must be rebuilt.

Transmission Jammed: The engine's transmission gears have seized up due to damage. Your vehicle can no longer shift gears (manually or automatic). In a high gear you can still slow down, though your engine will shut down once you stop (it chokes out for lack of airflow). If you were at a low gear (1st or 2nd) you cannot exceed 40MP (30mph or 50kph). You must rebuild or replace the transmission.

Fanbelt Destroyed: Most vehicles have two, sometimes three, fanbelts. These belts are driving by the engine and power the Alternator, Compressor, Water Pump (cooling system), and Power Steering. If a belt is destroyed that component it powers will shutdown and become inoperable until the belt is replaced (just \$10). Pick the component randomly, or have the GM decide. Treat the effect as though that component was destroyed.

Radiator Damaged: A damaged radiator is very bad. Not only can it not cool effectively, but it will be leaking water, which will eventually cause the engine to overheat and shutdown. Each time the radiator takes a hit, your engine temperature will rise +5° F every Round. It will shut down at

300° F. See **Over Heating**. It costs \$900 to replace a damaged radiator.

Power Steering Knocked Out: If the Power Steering is Knocked Out, the vehicle's MV falls by -2. Number of Vehicle Actions and skill rolls should be adjusted accordingly. It will cost \$150 to replace this system.

Alternator Destroyed: The Alternator is the component of the engine which converts the alternating current of the engine to direct current used to recharge the battery and power the motor. Without a functional alternator, the battery cannot recharge, but worst of all, all electrical systems drain the battery directly for power (such as the A/C, computer, lights, radio, etc.) However, this normally lasts long enough for you to get where ever it is you are going (perhaps an hour if you turn off power-hungry systems), though you might not know your alternator is out. The vehicle cannot be restarted until the battery is recharged or jumped. The alternator costs \$800 to replace (\$400 to rebuild).

Compressor Destroyed: This is not a major problem. The only thing the compressor controls is the air-conditioning system. It is vulnerable, and can easily be knocked out, but it certainly will not cripple the vehicle. It does make things rather uncomfortable on a hot day. It costs \$300 to replace.

Battery Destroyed: When the battery is hit the vehicle can no longer be started until it is replaced. Furthermore, it will leak corrosive sulfuric acid, doing an additional 1D6 damage to the engine (armor does not protect), and you must roll to see if this causes another critical. It costs \$50 to replace the battery. If both the battery and alternator are destroyed, treat it as an Electrical Shutdown.

Timing System Disrupted: A hit to the engine could throw off the timing of the spark-plugs, fuel injection, and ignition. Each time the Timing System is Disrupted, the vehicle loses 1D6% Horsepower. It must be Tuned once to set it back to normal (see rules for engine modifications in Chapter 3).

Electrical Shutdown: A vehicle's Electrical System may get shut down for any number of reasons - damage to wiring, a hit on the main circuit breaker, a hit to the computer, and so forth. But for whatever reason, if the electrical system shuts down, the vehicle loses all power and shuts down (so many components require electrical power, such as the engine firing control and sparkplugs). Power steering and power breaks are also lost (-2 MV and -4 Breaking), but you can still try to steer and come to a stop. The vehicle cannot be restarted until the system is fixed (1D6 x \$100).



Chassis Hit

The Chassis is the main frame and structure of the vehicle. It is the toughest part, as it supports the entire vehicle. Chassis hits are not Penetrating hits - instead, all damage which strikes the Chassis location (and which penetrates armor) is inflicted upon the its SDP. If the chassis is reduced to below 0, the vehicle is too damaged to function and shuts down. All further damage is transferred into the cab (where the passengers and driver are) as they are considered "exposed".

Being hit, it is possible for Critical Damage to occur to the Chassis. Whenever the Chassis takes damage (loses SPD) determine if Critical Damage was done by rolling on the **Critical Hit Determination Table**, give several pages earlier. If critical damage did occur, roll on the Critical Chassis Hit table below.

Critical Chassis Hit

Roll 3D6	Critical Hit
3 - 4	Fuel Tank Hit
5 - 6	Fuel Leakage
7	Trans-Axle Broken
8	Other Sub-System / Steering Damaged
9	Drive Shaft Damaged
10 - 11	Weapon Hit / Other Sub-System
12	Door Jammed
13	Bumper Knocked Off
14	Power Breaks Knocked Out
15	Suspension Damaged
16	Break Control Destroyed
17 - 18	Fuel Tank Hit

Fuel Tank Hit: If the fuel tank is hit, you must make another roll to determine the effect. **Roll 1D6**. If the roll was a 1, 2, or 3 the fuel tank will catch on fire (see **I'm On Fire!**), which will explode if fuel is already leaking. A roll of 4, 5, or 6 will explode the fuel and fuel vapor in the tank doing, 1D6 damage per gallon in the engine, *up to 14DCs of damage* (that is, the explosion can do no more than 14DC), so if a fuel tank with 8 gallons explodes, it inflicts 8D6 explosion damage to the Chassis (armor does not protect from an internal explosion), and if the Chassis is destroyed, the occupants of the vehicle are also effected by the explosion (as per Area Effect). If the fuel tank is more than half-full, only half its capacity counts to damage - this is because the explosion comes mostly from the fuel vapor in the tank than anything else. After the fuel tank explodes, the vehicle is considered to be On Fire.

Fuel Leakage: This is a hit to the fuel tank which does not cause an explosion, but nevertheless punctured the tank. Once punctured, the tank will leak fuel rapidly, spilling about a half a gallon every Round (1 gallon every 2 Rounds), per puncture hole. If the vehicle is on fire (or ever catches fire) treat this as a fuel tank explosion.

Trans-Axle Broken: The destruction of the transaxle will freeze up the transmission, having the same effect as though the transmission were knocked out. Your vehicle can no longer shift gears (manually or automatic). In a high gear you can still slow down, though your engine will shut down once you stop (it chokes out for lack of airflow). If you were at a low gear (1st or 2nd) you cannot exceed 40MP (30mph or 50kph). The Trans-Axle must be replaced (costs \$1500).

Other Sub-System: This hit indicates that some "other sub-system" not listed was hit. This would be some component which was later added, such as ECM gear, Radar System, GPS navigation system, or some such. The GM must determine what was hit randomly. If there are no other sub-systems, treat it as Steering Damage, listed below.

Steering Damaged: If you did not have some other sub-system (see above) then this roll counts as "Steering Damaged". This is damage to either the steering column, steering gears, or power steering system. Each time the Steering system takes a hit, your vehicle suffers a -1 MV penalty. It costs about \$200 to fix each hit.

Drive Shaft Damaged: The drive shaft connects the front or rear wheel axles, or both (in the case of 4WD), to the main drivetrain. Each time the drive shaft is hit, reduce your top speed by 33% (2/3rds top speed), and increase acceleration time by 33% (or reduce accelerate rate by 33%). If hit more than 3 times, the drive shaft is broken, and you can no longer accelerate, and will slow to a stop. To costs \$400 to fix per hit.

Weapon Hit: This indicated that a vehicle mounted weapon has been struck. Some weapons are large enough to have hit points of their own, but for simplicity, it will be assumed that the weapon has taken enough damage to be effectively destroyed or disabled. The general location of the hit should already be known (front, back, side, etc.), and from that, the GM should determine by some random method which weapon on that side was hit. If there are no weapons in that area, treat this as an "Other Sub-System" hit. The weapon must be replaced.

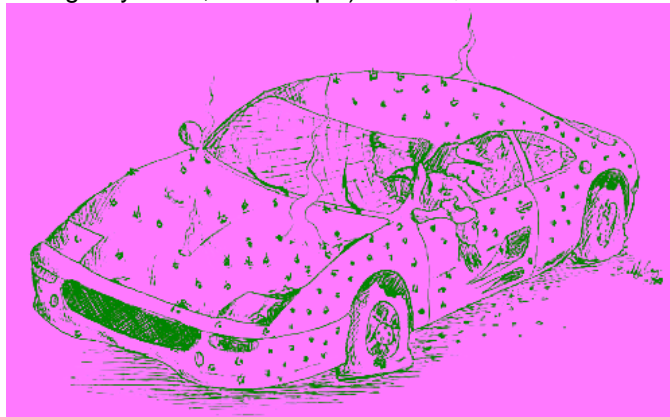
Door Jammed: Roll at random for the door (or pick a logical one, based on where the attack came from - this could be the trunk door as well). That door is jammed shut by the crushing effect of the chassis as it is distorted by damage. It cannot be opened without a welding torch, but the window is unaffected.

Bumper Knocked Off: The front or rear bumper is simply knocked off (depending on from where the attack came). This has no immediate effect, but on all subsequent impacts (crash or ram) to that location (Engine or Trunk) increase the damage you take by 1DC. If the bumper was instead a battering ram, then the battering ram was knocked off. Costs about \$200 to fix.

Power Breaks Knocked Out: The electrical system controlling the power breaks is severed, rendering power breaking inoperable. Your breaks Friction is reduced by -4. Costs about \$200 to fix.

Suspension Damaged: If the vehicle's suspension system is damaged, it automatically suffers a -1MV, but additionally loses any MV bonuses had from an advanced suspension. Costs \$300 to fix per hit.

Break Control Destroyed: The hydraulic fuel which control your breaks is cut or destroyed. Normal breaks are rendered inoperable. The emergency break will still work, as will alternative breaking methods (spin breaking with emergency break, for example). Costs \$150 to fix.



Damage Transfer

When locations of a vehicle are destroyed, their damage may either penetrate on through (as per Penetrating Damage), or may transfer to the next most logical location. This is usually the Chassis. After the Chassis is destroyed, all remaining damage is "lost". If the damage was caused by an explosion, however, the occupants (and all internal equipment) will be consumed in the blast, and this should be treated as per Area of Effect damage.

As always, penetrating damage (bullets, etc.) do not transfer over to the Chassis. It simply penetrates through.

Loss of Control

Loss of Control occurs when the driver of a vehicle fails to perform a complex maneuver. The description of the Maneuver (see **Maneuvering**) will specify if Loss of Control occurs on a failure or not, and some attacks (such as Ram) require the driver of the target vehicle to make a **Defensive Driving Roll**, or Lose Control. Even after you have lost control, however, you may spend an action in a **Regain Control** Maneuver, assuming you have not already crashed (that is, if you are still spinning out of control, you can still try to regain control).

If you Lose Control, roll on the Loss of Control table. If the result is not logical for the situation or environment, re-roll.

Loss of Control Table

Roll 3D6	Result Effect
3 - 5	Vehicle fishtails and flips on its side.
6 - 7	Vehicle fishtails and skids side-ways, as though in the Spin Break maneuver, slowing down rapidly.
8 - 9	Vehicle crashes into some object on the road, such as another nearby vehicle or a person crossing the street. Will crash into the nearest such logical object. The other Vehicle may, of course, attempt to Evade.
10 - 12	Spinning or fishtailing out of control. The driver may attempt to regain control next Phase. If he fails (or does not make the attempt), roll on this table again.
13 - 14	Vehicle crashes into some object off the road, such as a tree, sign, or pedestrian. Will crash into the nearest logical object. The other unit may, of course, attempt to Evade.
15 - 16	You run off the road (or veer off course if already off-road), but do not crash into anything.
17 - 18	Vehicle fishtails and flips upside down.

I'm On Fire! Ow!

Your vehicle can catch fire for a number of reasons - critical hits to the engine or fuel tanks can cause these to explode or catch fire, and of course various bombs, such as Molotov cocktails, can as well.

When on fire, the entire vehicle is considered "On Fire" for purposes of simplicity. Fire will inflict 1D6 of damage (through Armor) to the Chassis or Engine (depending on where it erupted) from the intense heat and melting of metal. While on fire, a vehicle's engine temperature will increase by +20° F per Phase, unless it is already shutdown or destroyed.

Inside the vehicle, passengers and driver will take 1D6 Stun every Phase from heat and smoke. Only once the Chassis is destroyed will they be directly explodes to the flames, then taking 3DCs of damage from the fire every Phase (distributed to a random part of the body each Phase). Body armor old provides half protection from fire, but a Neoprene suit will protect as described.

The Fire will burn itself out in 4D6 Phases for an immobile vehicle. It will burn itself out in 3D6 Phases for a fast moving (50kph+) vehicle. If it becomes submerged in water, it will instantly go out. Actively fighting against the flames with extinguisher and/or high-pressure water will extinguish the fire in 1D6 Phases.

Every Phase that a vehicle burns, it is at risk of exploding either the fuel in the engine, or the fuel in the fuel tank, assuming it has not already exploded. Each Phase roll on the table below:

Fuel Explosion Check

Roll 3D6	Effect
3 - 6	Engine Fuel Explodes
7 - 16	Does not explode this Phase
15 - 18	Fuel Tank Explodes

Engine Fuel Explodes: Fuel in the engine explodes doing 2D6 damage per Liter of the engine (fractional Liters count as 1D6), so if a 2.5 or 2.3 Liter engine explodes, it inflicts 7D6 explosion damage to the rest of the engine, and then to the Chassis if the engine gets destroyed (armor does not protect from an internal explosion).

Fuel Tank Explodes: Fuel and vapors in the tank explode doing, 1D6 damage per gallon in the engine, *up to 14DCs* (damage max is 14DC), so if a fuel tank with 8 gallons explodes, it inflicts 8D6 explosion damage to the Chassis (armor does not protect from an internal explosion), and if the Chassis is destroyed, the occupants of the vehicle are also effected by the explosion (as per Area Effect). If the fuel tank is more than half-full, only half its capacity counts to damage - this is because the explosion comes mostly from the fuel vapor in the tank than anything else. An armored fuel tank will help protect from this.



Over Heating

Under normal operation, a vehicle engine will not overheat. Stable running temperature is about 180° F to 200° F on average. However, when a vehicle loses coolant or oil, is revved beyond spec, is damaged, or even on fire, it can quickly overheat and eventually shut itself down.

Previously mentioned, under Critical Hits and rules for Fire, is some information about the speed at which the engine will overheat as it takes damage or loses coolant. An engine will shutdown at 300° F, and cannot be restarted until it cools (assuming it is operational), which takes about an hour.

Reving the engine beyond spec will also cause it to overheat. It is not possible to push a normal engine beyond its Redline (the list RPM for its spec Horsepower). A modified engine, or one injected with Nitro, may go beyond this value. Going into Redline, and/or using Nitro, will increase the Temperature by +3D6° F every Phase of use.

Remember, even though your engine may be modified to go into Redline RPMs, it will only do so if you "push it to the max" on acceleration. If your just cruising down the highway, your engine is well below Redline (usually around 2000 to 3000 RPM).

Assuming nothing else is overheating the engine, it will cool back down to 200° F at a rate of 1° F per Phase (coolant and oil circulation), or 2° F per Phase if moving rapidly (over 60kph), or 1° F per Round if shutdown (with no coolant circulation). If something else is overheating the engine, it will not cool down by any amount. Intercooler systems are available which can greatly assist in cooling, and can compensate for Nitro overheating and over revving.

Area of Effect Damage

Area Effect attacks (explosions, shotgun blast, atom bombs, and so forth) strike an area rather than a specific Unit (though the shell could be directly fire upon a vehicle). The area of effect depends on the kind of attack made or type of weapon involved (i.e., a grenade with a Blast Radius of 3 meters). These types of attacks use the Targeting Against Range rule to see if they hit their area (alternatively, a vehicle could be targeted and hit directly, ouch!). Any Units within the effected area *must* roll for damage (see Area Effect Damage). To evade vehicles may Swerve Away, and people may Dive for Cover.



Area Effect: Explosions

If the area of effect attack was an explosion, then the effect may spread beyond the point of impact (consisting of shrapnel, overpressure, and fire). Outward from the center of the explosion damage is reduced by 1DC every meter away. In other words, a 5DC explosion does 5D6 damage to everything within a 1 meter area. At 1 meter further out the damage is 4DC. At 4 meters out the damage is 2DC. At 5 meters out the damage is just 1DC and beyond that it's negligible.

Typical Area Effects	Effect Radius
40mm Grenade	1m per DC
Hand Grenade	1m per DC
High Explosives	1m per DC
Heavy Weapon	4m per Kill

If the attacker fails the roll, the center of the attack shifts 1m for every 1 point by which his missed. Roll 1D6 to see which direction the center of the attack scatters. Then roll 1D6 to determine how many meters away the round fell in that direction.

Roll	Area Effect Result
1-2	landed short of target
2-4	landed behind target
5	landed to right of target
6	landed to left of target

Area Effect Damage

Any Unit in an area effect explosion takes damage as listed for that weapon. If caught in a 12 DC explosion, all Units in the area effect must roll 12D6 damage (reduced by their distance from the center, as normal). For Vehicles, damage should be applied one location, rolled randomly and/or selected logically depending on the vehicle's position to the explosion's center. For example, if a missile exploded to the left of a vehicle, we would roll on the Hit Location chart (for Autos), and if we rolled Door or Window, we would assume the explosions damaged one of the two doors or windows on the left hand side (selected at random).

If directly hit by an area effect weapon (like a missile or grenade) fully damage should rolled and applied directly to the location struck. For people, the application of area effect damage is a little bit different. See **Atomik WAR**.

Indirect explosions *do not* inflict penetrating damage upon a vehicle - they are treated as crushing impacts. They will only penetrate doors and windows if that component is destroyed, then effecting the crew inside as though they were fully exposed to the explosion (rolling for Area Effect damage as normal). If the vehicle chassis is destroyed by an explosion, the crew is also consumed by the blast, and must roll for the damage inflicted by the blast. The crew normally cannot Dive for Cover since they are strapped into the vehicle and behind closed doors. In unbuckled and with a door or window open, they can try, but the GM is judge.

If directly hit by an exploding projectile, such as an RPG or missile, the explosion is considered to be a penetrating attack.

Electronic Warfare

Electronic warfare is the new frontier of the battlefield, be it on land, sea, air, or racing down the highway at 208mph and never being seen. Arguably, civilian radar detectors, "radar jammers", and the like are, a form of EW, but it is nothing compared to the *real* thing. That is why the words civilian "radar jammer" are in quotes - since it is so low-powered and keyed to one particular purpose (jam police radar guns) it is nowhere near a full-blown jammer.

Basically, there are two forms of EW - Electronic Counter-Measure (ECM) and Electronic Counter-Counter-Measure ECCM. First, we will discuss ECM, what it can do, and how to use it. All ECM systems have a Power Rating from 1 to 10 and a certain range. This will be shown for that system, all of which are listed in Chapter 2 of this sourcebook. To use ECM *defensively*, you surround yourself (and the area around, up to your ECM system's max range) with a jamming blanket. Any unit trying to effect you (targeting, locate, whatever) must cut through your ECM cloak (if possible). To use ECM *offensively*, you can focus the effect of the ECM onto a specific target (such as jamming their radio), but only that target is affected. In all cases, the roll to use your ECM system is thus:

Your TECH + EW skill + Roll vs. ECM Power x2+ 10

Therefore, if your ECM system and a Power of 4, you must make an EW skill roll versus a DV of 18. This would then grant your unit the ECM Power at +4 (since our example uses a Power 4 ECM unit). But you can use ECM in a number of ways.

There are three basic types (or modes) of ECM - Missile Jamming, Radio Jamming, and Radar Jamming. Some ECM units are designed to jam only one type of unit, others are "multi-function jammer", capable of being set to one of the three modes, and still others are "universal jammer" which can jam all three simultaneously (this is the most advanced type). When you use the ECM system, you must declare how you are using the ECM (to jam missiles, radio, or radar), tell if its Defensive (on yourself) or offensive (directed against another target), and spend an Action to set the ECM unit to those parameters. Then make the aforementioned skill roll, and if successful, apply the ECM Power as appropriate.

Missile Jamming: Used *Defensively*, you surround yourself (and everything within a radius up to the ECM's max range) in a spherical jamming field which makes it harder for missiles to target. Used *Offensively*, you must jam a particular missile (if self-homing), or the firing unit if the missile is guided (because you may not know what kind of missile is fired at you, Defensive ECM mode is probably

best). Your Defense gains a bonus equal to the ECM Power (alternatively, the Power could subtract from the AV of the missile's attack).

Radio Jamming: Used *Defensively*, you create spherical radio blanking field, jamming all radio transmissions within. However, this effects all radios, even your own and your allies. Used *Offensively*, you must target one unit (within the ECM's range) and jam his particular radio, but this effects no one else (aside from units trying to transmit to him). To "cut through" the radio garbage, anyone wishing to transmit or receive must make a **TECH + EW skill +Roll vs. ECM Power x2 +14**, and/or counter it with ECCM.

Radar Jamming: Used *Defensively*, you create spherical radar cloaking field, scrambling and interfering with all radar singles within. However, this effects all radar systems, even your own and your allies. Used *offensively*, you must target one unit (within the ECM's range) and jam his radar, but this affects no one else. In either case, when the radar is jammed, the radar system has extreme difficulty finding or locking on to targets. The radar operator must make a Perception check to spot or find the target **vs. the ECM Power x 2 +10**, and/or counter it with ECCM. Simple automatic systems (such as police radar guns) are rendered completely useless. The civilian "radar jammer", used to counter police radar guns, is in fact a *dedicated* Power 1 radar jammer, with a range of 3.2km (2 miles), and should be treated as such.

Using ECCM: An ECCM unit acts to *counter* the effects of ECM. Just like ECM, ECCM is rated in power levels. The user must make the same roll to use ECCM as for ECM, and must take an Action, declaring what "mode" of ECCM to use (missile, radio, or radar). The ECCM must be focused on the unit broadcasting the ECM. If successful, the ECCM will reduce the ECM unit's Power by the level of *its* Power. That is, a Power 4 ECCM unit will reduce an ECM's Power by -4. If reduced to or below 0, the ECM losses all effectiveness. ECCM units are all universal. They affect any target ECM unit, no matter what type it is or mode it is in.

