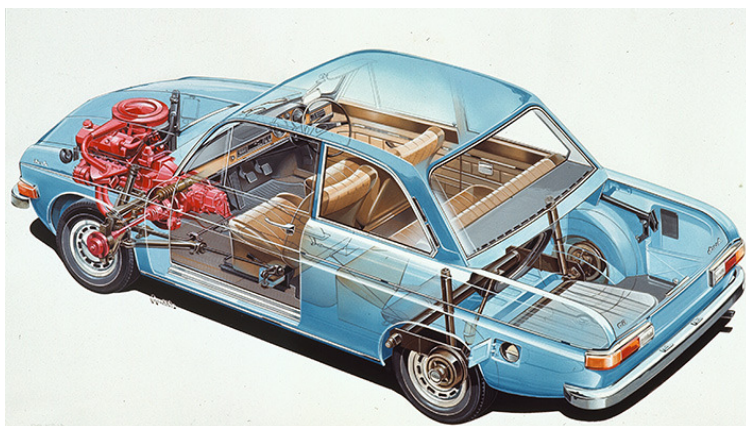




ALTERNADRIIVE



MORE AUTOS, MORE OPTIONS



ALTERNADrive

By Art Dittus
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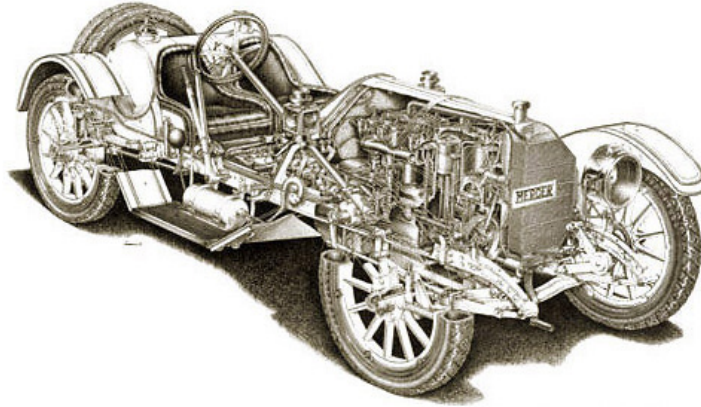


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A few words from the author

*"How fast can I go?"
"How much money you got?"*

*"You're running NOS. On straight motor, I would've won."
"Race what you brought."*

*"You can hear the horse galloping under the hood."
"Cool, but it doesn't have cup holders."*

The following includes my revisions for modifying a vehicle in Alternity, mainly those from progress level 5 (modern day), though some progress level 6 vehicles can still benefit from a portion of these custom rules and modifications. There are also references for late PL4, WWII-era vehicles.

Many of these ideas I present here I have had on my mind or kept on notes for a long time and never put them all together into one definitive resource until now. Being a light gearhead and a car enthusiast, I had fun putting this one together and researching material on areas I was not clearly sure about. This will be apparent under the modifications section as I provide more than just a simple sentence or two. A thorough explanation of the specifics for each part followed with some clean pictures.

A section devoted to more vehicle classes was added ranging from the thirties to the brand new models sold today. The ratings for each generic vehicle template were figured by averaging out a collection of automobiles for that particular class and time period. A personal spreadsheet with various equations was used to figure out acceleration and cruising speeds. Much of it is based on drivetrain and power-to-weight. I must say that these templates are heavily favored upon the U.S. domestic market.

Originally, the available modern-day vehicles were too bland, and there just didn't seem to be enough types. Compared to new vehicles found today, they seem a bit slow. As expected, the technology and performance has climbed since the decade. However, those original ratings do seem realistic when applied to their respective base models from the 80s through mid 90s. The new classes will help add some variety short of adding actual individual vehicles. The Police Department receive their bikes and a couple other units, and the military gets a fleet of vehicles commonly found at a typical base. For costs, I assigned the pricing for late-models and older autos for game balance (except for the luxury cars). New models are based on actual prices.

Note that the top speeds I assigned are based on aerodynamic limits, which is why some vehicles may seem quite high, especially for the pickups, since many in reality have governors on them cutting them off around 100 mph. However, for some older models during postwar and muscle car era, short gearing and game balance limits their maximum, which may seem a bit low. For ease of gameplay, I simply ignored transmission gear limits when applying power upgrades.

I make a few references to the *Dark Matter Arms and Equipment Guide* as that resource had a good section on extra vehicles and additional modifications. Though, some of the parts I did not like. For example, nitrous does not really double a car's acceleration in most setups, and adding a simple percentage increase seemed like a quick and dirty way to apply it under the game rules. I also did not like the brake modification doubling the braking efficiency by itself. The handling package with its stackable bonus on three purchases is too generous. The suspension mods listed in here have limits depending upon the vehicle's original drive rating. The driver's skill should be the main factor to obtain deep handling bonus.

Another aspect that I felt was missing is a drop in a car's performance when custom vehicular systems were used from the Game Master Guide. There was no mention of damage slowing a car down either. I provide an optional rules system incorporating those facts when vehicle systems and damage are applied.

A few additional house rules pertaining to drivetrain layout are available affecting acceleration and control, followed by pages dealing with traction issues and additional perks and flaws. At the end are a few build examples.

Players can now attempt to simulate a drag race putting the various modifications to use with outcomes dependant on the vehicle's performance ratings and character's skill checks.

Prewar (Prior to 1949)	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Model T	1	20	50	70	5/5/3 G	7 K	Com	40

Probably the single most important technical advance in motoring history, the Model T (aka Tin Lizzie) brought car ownership to the masses with Henry Ford's vision of an integrated production line, and it awarded newfound freedom to over 15 million owners. The Model T was typical of its time. The 2.9 liter four cylinder ran at low compression and had a relatively low output of just 20 hp, but it had a reserve of torque and could pull from very low speeds. Because the engine ran so lazily, it could run for years without ever wearing out.



Raceabout	0	30	70	120	5/5/3 G	9 K	Com	40
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The 1911 - '14 Mercer Raceabout was one of America's first sports cars. At the time of manufacture, the car was guaranteed to do 70 mph in a time when very few people had gone over 50. The T-head 4-cylinder was running on much higher compression than its contemporary cars and could produce more power (56 hp) from less displacement. This meant the Raceabout was both powerful and light (2240 lb) and essentially became the first production race car. This was a low-slung car, and the engine sat deep into the chassis providing a low center of gravity. A raked steering column allowed for a low driving position.



Model A	1	25	70	100	8/8/4 G	9 K	Com	60
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A huge gamble for the company, the Ford Model A nevertheless proved to be a hit from 1928 to 1931, and its basic engineering was so sound that its legacy lived on in Ford cars built through 1948. The L-head engine doubled the power available, now at 40 hp. Greatly improved springing, bigger tires and four-wheel mechanical brakes also made the Model A feel much more stable and secure than the Tin Lizzie. Moreover, refinement is not far shy of contemporary luxury cars. The Model A is a great example of a car from the dawn of the thirties decade.



Prewar coupe	0	35	80	140	9/9/4 G	11 K	Com	60
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No longer appearing as a basic carriage with an engine and wheels, two-door coupes and roadsters of the thirties developed aerostyling and ergonomics that better resembled modern car-like qualities. Sharing the same styling as their sedan counterparts, these cars were lighter and some of them were topless (roadster). No longer an anemic air pump, the engines began to show some grunt as power doubled and tripled from the previous decade (ranging from 50 - 100 hp), though only one or two engine models were shared by all bodies. The stats best reflect a coupe from mid to late 30s.



Prewar sedan	1	30	80	140	10/10/5 G	10 K	Com	60
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With huge popularity in 1928 when Ford released its new Model A, Chevy responded big in 1929 with a new 6-cylinder engine known as the "Cast iron wonder". Ford then responded in 1932 with its small-block V8. During the mid thirties, Chevrolet marketed "80 MPH from 80 HP". New prewar models continued to be sold even after WW2 when the public immediately demanded new cars. Due to this, the automakers carried over their prewar engines and body designs, and The Big Three didn't get to reveal their true postwar models until 1949.



Sedan delivery	1	30	80	130	11/11/5 G	10 K	Com	60
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Common during the prewar period, the sedan delivery is a two-door station wagon with driver and passenger front seats, and steel-sheet metal panels in place of rear side windows. This gives the vehicles a slightly more solid body as well. They have a Spartan interior trim and were used by businesses ranging from plumbing to bakeries as a company vehicle. They held the same niche in society back then that cargo vans hold today.



Prewar luxury car	1	30	90	160	13/13/6 G	35 K	Com	60
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This was a very niche group of premium luxury automobiles only accessible to the wealthy from the late 20s on and through the Great Depression. The cars were built with lots of cylinders, V- or straight 8's, V12s and V16s were the norm. Some were supercharged, and engine power varied widely across the numerous luxury car brands which was somewhere between 100 to 200 hp. The cars were very heavy and built solid, averaging over 5500 lb. Mob boss Al Capone had an armored black 1930 Cadillac V16 to conduct "business" from.



Prewar speedster	1	35	90	170	12/12/6 G	40 K	Con	60
Duesenberg SJ	1	45	100	210	12/12/6 G	50 K	Con	60

The prewar speedster was a luxury car in a roadster's body. However, they didn't really shed any weight as the typical brand was well over 4000 pounds. All that mass did not help their handling (especially with tall, skinny tires) and quickness, but underneath their long and narrow hoods, their much stronger engines gave these roadsters a higher top speed than their lighter sports car counterparts. The power ratings varied a lot among the different luxury car manufacturers, a rough average being around 170 hp, the SJ had the most at 320. The top models were supercharged. Brands like Mercedes, Bentley, Bugatti, Duesenberg and Auburn built topless models in this class.



Prewar roadster	0	40	90	160	7/7/3 G	13 K	Com	80
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The prewar sports car was mainly used as a road racer. During this era, engines developed faster than the chassis, and putting a powerful engine into a light car gained popularity. The typical car was very light averaging just 2000 lb, and the standard engine pushed around 100 hp. As expected, they handled well during their time. Sports cars and speedsters when pushed to their limits, forced tire companies to develop better rubber compounds to take the stress from high speeds and cornering. The racing events served as testing grounds for the tire companies.



Prewar pickup	1	30	80	140	11/11/5 G	8 K	Com	60
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The first pickups shared the same chassis and drivetrain as cars of the same manufacturer, and instead of rear seats, they had a cargo bed. In the early thirties, the open-cab style phased out (typical for most vehicles in the twenties) as buyers favored the newer closed-cab versions. Thirties-era half-ton pickups had an average weight of about 2700 lb, and in the last half of the decade, Chevy and Ford offered engines around 85 HP. Their performance is practically identical to sedans from the same year.



Stake-bed truck	1	25	70	120	15/15/7 G	15 K	Com	60
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This is a commercial-grade truck with a stake bed used for hauling various types of goods and produce. The cage-like bed provides easy inspection to the product. The truck also has a dually rear axle for durability and improved load management. Another variation of this type is a flat-bed truck. Generally, a truck like this from the thirties weighed 5000 lb and used an 80 HP engine. A more economical but weaker engine option was available, however, that kind of defeats the purpose of hauling cargo.



Panel truck	1	25	70	120	16/16/8 G	18 K	Com	60
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A panel truck is generally a windowless cargo van built on a truck chassis. Similar in function to its smaller cousin, the sedan delivery. Panel trucks were often used by construction and maintenance contractors and were sometimes configured for ambulance and hearse roles. They had a curb weight around 5000 lb and were more likely equipped with the higher rated engine, as using the weaker, but more economical unit wasn't always up to the job of lugging around the heavy cargo. For heavy load-out and durability, many of these models used dually rear wheels.



Postwar (1950s)	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Postwar compact car	0	30	80	120	6/6/3 G	7 K	Com	100

The compact car listed in the Players Handbook is an example of one from the late 1960s through 1980s (late-model period). The economy car from the DM AEG is the same type of car from the 1990s or more recently. Demand for a cheap, compact car boomed during the postwar period, especially for the VW Beetle and MINI, the second made its debut late in the decade. Both cars barely produced 30 horses from their tiny 4 cylinder engines. On the domestic side, Nash built the Metropolitan. All three were cute, cramped cruisers and were featherweights compared to other autos, averaging 1600 lb. As the decades went by, compacts became heavier, engines upgraded.



Postwar car	1	35	80	150	10/10/5	11 K	Com	80
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This is a catch-all category for all the common domestic postwar sedans and coupes equipped with the standard 6-cylinder engine. Gross horsepower ranged from 90 to 150 units and their average weight a little over 3000 lb. Besides the usual Big Three, other major names of the day were DeSoto, Frazer, Hudson, LaFayette, LaSalle, Nash, and Studebaker. With V8s at the car shows, most of the 6-cylinders collect dust or rust to death somewhere on private property or junkyards, unless your in a third-world country.



Woody convertible	1	35	90	150	10/10/5	11 K	Com	80
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A woodie is a car body style originated from the thirties where the rear bodywork is constructed of wood framework with infill panels of wood or painted metal. Eventually, bodies constructed entirely in steel supplanted wood, for reasons of strength, cost and durability. The woodie was popular in the United States and were produced in their greatest numbers before the end of the 1950s, before safety regulations effectively made them obsolete. The two most stylish and sought after cruisers are the mid-40s Chrysler Town and Country and Mercury Sportsman. Both cars still used prewar 8-cylinder engines.



Postwar car V8	1	45	90	160	11/11/5 G	12 K	Com	80
premium engine	1	55	100	180	11/11/5 G	18 K	Com	80

Chevrolet finally introduced its small-block V8 in 1955, Dodge had received theirs by '53. All engines on the market began rising in power and reached the 400 HP mark in 1961/62, but by then, the classic styling was tamed, and gone by the mid sixties turning into the plain-bodied and brutish-powered muscle cars. The V8 classes listed here mirrors the narrow timeline of Ford, Chevy, and Dodge family cars from 1955 to 1961. The premium engine reflects the Chevy 348, Ford 352, Dodge's 361, and a few others.



Postwar luxury car	1	40	90	170	12/12/6 G	25 K	Com	80
premium engine	1	50	110	190	12/12/6 G	30 K	Com	80

This group represents the finest domestic automobiles produced from 1949 until the early sixties. This era was the high-water mark of American automotive styling with heavy emphasis on sculpted sheet metal and chromed accents. Tailfins were at their most prominent on the '59 Cadillac and '58 Fury, and the Chrysler 300 had the grille. The first line shows Cadillac, Chrysler, Lincoln, Packard and a few others with simple V8s. The premium engine option reflects the Cadillac, Chrysler and Lincoln from the late 50s to early 60s with the best power option available.



Postwar pickup	1	30	80	150	13/13/6 G	9 K	Com	80
4 x 4 V8	1	35	90	160	14/14/7 G	12 K	Com	80

Unlike modern pickups that have really gained the pounds, half-ton pickups like the Ford F-1 or F-100, and Chavy Cameo, Apache or Series 10 Fleetside from the late forties to early sixties with the base six were not that heavy, about 3300 lb. The six cylinder flirted around 100 to 140 HP. Not just limited to the family cars, curvy sheet metal styling was applied to pickups during this era as well. Chevrolet introduced the 4-wheel drive option in 1958, and along with the V8 engine (sub 200 HP), the trucks approached a 2-ton curb weight.



Postwar roadster	0	45	100	180	8/8/4 G	14 K	Com	100
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The roadster held the sports car niche during the postwar period and led the way for more powerful, handling-focused sports cars. The market was open in the U.S. after the war as many people had money to spend on fun, flashy cars, though larger cars with big engines were more popular. Most small convertible cars of this type were produced by many European brands. Early Thunderbird and Corvette models represent America's side. This template reflects models only from the fifties. Sixties and later models are significantly faster and more powerful and generally heavier. The typical lightweight roadster was 2600 lb and had a small engine rated about 140 horses.



Late models (60s - 80s)	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Late-model luxury car	1	50	120	200	13/13/6 G	20 K	Com	80
Smogged	1	40	100	180	12/12/6 G	9 K	Com	80

These were some of the biggest mass-produced cars to ever hit the road. They weigh around 5000 lb. These were cars built by Lincoln, Cadillac, and Chrysler from the mid-60s to the early 70s before the smog requirements wiped out their power. They are known as "boats" with soft suspension and a long wheelbase were great to cruise in. However, handling and braking suffer due to their sheer size and weight. They came equipped with big block V8s and automatic transmissions. They began to downsize in the late 70s and early 80s. The days of driving a 10-12 mile-per-gallon car were over. However, their stock pre-smogged motors are still prized and pulled for other projects. Their gross power ranged from 280 to 400 HP.



Pickup car	1	55	110	190	12/12/6 G	15 K	Com	100
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Formally known as a "coupe-utility", this type of vehicle takes the body style of a coupe and combines that with a pickup bed in the rear. The Ranchero and El Camino were fairly popular in the United States as they were produced in larger numbers from the early 60s and through the 70s. Drawback was they only carried two adults. The engine of choice was, of course, a V8 that came in numerous sizes ranging from 190 to 375-plus horsepower. Performance varied greatly, this template rating a 300-hp body. This type of vehicle fell out of favor by the late 80s.



Premium late-model	1	50	110	190	12/12/6 G	18 K	Com	80
Smogged	1	40	90	170	11/11/5 G	12 K	Com	100

This is a very broad category that includes many of the upscale gas guzzlers available in the Ford, Chevy and Dodge lineups from the sixties to the late seventies. You could also include other big car models from Buick, Oldsmobile, Pontiac, Mercury, and Plymouth. Saving weight was simply not a concern here as various luxury options and better interior trim packing was standard. The average car surpassed 2 tons. An auto was usually more common than a stick. Most of these higher-end models had big-blocks under the hood. Gross engine power jumped all over place, but generally settled between 250 and 360 horses. Thanks to the Middle East, "power" became a bad word. The "late-model car" listed in the DM AEG is similar to this group, at least those of the same year. The better acceleration figure would be due to having a lighter body but still carrying over the same numerous engine options.



Classic muscle car	1	65	130	230	11/11/5 G	30 K	Com	100
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They were the best optioned, most powerful and quickest of the big-body cars from the mid 60s to early 70s. The fastest models had a four speed mated to a Hemi 426 or 440 wedge, Buick 455, Chevy 427 or 454 (rat motors), Ford 428 or 429. Many of these big blocks were underrated by the manufacturer to help reduce insurance surcharges and increase sales. A car with mid 300-something horses pulled more like one with over 400. Made for the strip, top speeds were limited more by their short gearing than by aerodynamics, but the power disappeared by the mid 70s.



Classic pony car	0	55	120	200	10/10/5 G	20 K	Com	100
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Also referred to as a "muscle car", the term "pony car" describes an affordable, smaller-bodied, highly styled domestic car with a sporty and performance-oriented image. The original was the hugely successful launch of the Ford Mustang in 1964. With the Camaro, Firebird, Challenger, Cuda, Cougar and Javelin, they make up the pony-car class. Having compact and lighter bodies, several of these brands were used in the Trans Am racing series where they showed their superior handling. The favored model had a 4-speed and a small-block V8 (mouse motor) worth about 300 gross horsepower. This template rates only those during the pre-smog, muscle-car ear.



Late-model European	0	45	90	180	9/9/4 G	13 K	Com	100
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This is another very broad group that encompasses small, light weight European passenger cars from the sixties and seventies. Many of these types of models were rarely seen in the States, but as their name suggests were very common commuters throughout Europe at that time. A few models were flawed with poor build qualities and a some others had quirky styling. Nearly all of them came standard with 4 cylinders and a manual trans. Though power was definitely lacking compared to most American domestics, ranging from 80 to 140 ponies, their handling was generally better, thanks to their low mass (average 2300 lb). Some brand names include Renault, Citroen, Lancia, Fiat, MG, Opel, Peugeot and Triumph. Audi and BMW also produced a few basic models.



Late-model sports car	-2	65	130	260	9/9/4 G	40 K	Com	120
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These sleek and low-profile sports cars made their presence known during the seventies and eighties, and not just on the road, but on bedroom and garage posters. Regarded to be the best layout for track-like performance, the mid-engine setup became the choice layout for the sharp-edged-bodied sports cars. They all had stick shifts and rear-wheel drive. The ratings here are averaged from those exotics during the 70s and 80s, such as the Miura, Countach, Testarossa, 365 GTB, Pantera, Corvette, 911 Turbo, and a few others.



Late-model wagon	0	35	100	160	15/15/7 G	12 K	Com	80
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The fullsize wagons like the Blazer, Bronco and Ramcharger were popular models during the seventies and eighties, but they were eventually replaced by the newer SUVs that flooded the market in the nineties. With a short wheelbase, they are a bit more maneuverable than traditional fullsize pickups, especially in tighter areas downtown. A vast majority of them were driven off with small-block V8s, which the stats reflect. A few of the earlier models had big-block options and the remainder had six cylinders. Many off-road enthusiasts still use them over dirt and rocks.



Late-model crewcab	1	35	90	160	16/16/8 G	13 K	Com	80
Big-block V8	1	40	100	170	16/16/8 G	16 K	Com	80

Fullsize trucks represented here from the sixties till the early eighties were noted for their durability and simplicity of design making them a favorite for daily use. Parts are cheap with easy access to the components. The stats here reflect a fullsize pickup with a small- or big-block V8, and 4-wheel drive. The Ford F-Series and Chevy C/K models were the most common during that time. Surprisingly, these older trucks have the same gas mileage as today's newer models, and many are still driven around and used as a work truck or just a beater.



New models	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Sport compact car	-2	55	100	230	8/8/4 G	20 K	Com	120

Small lightweight bodies equipped with a stick shift and a 6 cylinder or a high-string 4 cylinder provide good acceleration and excellent handling. They are quite fast, but their speed and power appear lackluster against more formidable sports cars. Many of these cars are further modified by their owners. Examples include high-performance versions of a Civic, Integra, Neon, MINI Cooper, Golf, Focus, and Celica. Sport coupes of a Cobalt, Sentra, and Corolla may also fit in this category. All of them use a front-engine, front-wheel drive layout.



Mid-size hybrid	-1	40	90	190	10/10/5 G	30 K	Com	100
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This appears to be the way of the future, a car powered by an electrical motor and aided by a 4-cylinder gas engine. Hybrids were designed to maximize fuel mileage without turning the car into an anemic snail incapable of getting out of its own way. The gas engine provides the needed speed during acceleration. When cruising, the gas engine is usually turned off until needed. This template judges the mid-size class of hybrid consisting of the Volt, Malibu, Fusion, Camry and Altima. The 4-cylinder produces about 160 hp, and the car weighs about 3600 lb. They usually have governed limiters set just past 100 mph, but are capable of 120 mph if removed.



Premium mid-size car	-1	55	110	240	10/10/5 G	30 K	Com	100
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The standard mid-size car listed in the Player's Handbook is an older model with a weaker V6 or 4-cylinder. Averaged from a dozen specific models, this template rates new mid-size cars loaded with all the options, but especially with the V6 engine with power figures mostly between 230 to 280 HP. These new engines produce power equal to standard V8s from over 10 years ago. Most of these cars running on a clear straight should eventually hit 150 mph. Handling has also improved over previous generation models, as well as comfort, ride quality and sound dampening. The Fusion, Impala, Accord, Altima, Camry, and BMW are some of the familiar names of the group.



cornering pack



Luxury-sport car	-1	60	110	270	11/11/5 G	70 K	Com	100
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The luxury car in the main sourcebook would be listed as typical for a model from the nineties. This template showcases a new luxury car with very strong performance from right out of the box combined with streamlined styling and V8 power ranging from 340 to just over 400 HP. With an average weight of 4300 lb, they have gained mass over the previous generation, the automakers continue their trend of loading them with modern high-tech toys and innovations as they come out, complimenting the luxurious, high-quality interior. The buyer has the option of rear-wheel or all-wheel drive. Audi, BMW, Jaguar, Lexus and Mercedes produce favorable models in this group.



cornering pack



Premium luxury car	-1	70	120	300	11/11/5 G	120 K	Com	120
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Flagship models from mostly European car brands are grouped here as this is the high end of the luxury car market. They include both two and four door, hard-top and convertible styles. They combine speed and power with a focus on great comfort and a smooth ride, are fully loaded and possess options not normally available in other cars. Despite their inflated mass (and cost), they are still quick, as the typical car has 450 to 550 horsepower, 6- or 7-speed automatic transmission and rear-wheel drive. The finest from Aston Martin, Audi, BMW, Cadillac, Ferrari, Jaguar, Maserati and Mercedes are represented here.



cheaters

cornering pack



supercharger kit



Ultra-luxury sedan	0	60	110	290	13/13/6 G	300 K	Con	100
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Superbly luxurious, a vehicle of this stature stands for impressive dependability, refinement, great flair and style with price and exclusivity to match. The Bentley, Maybach and Rolls Royce are the showcase of modern technology and opulent luxury. The cars are quite large and heavy, a few models reaching 3 tons. They have turbocharged 12-cylinder engines rated from 450 to 600 horsepower and capable of pushing the massive car to 180 mph. Drivetrain layout can be either rear- or all-wheel-drive.



Modern muscle car	-1	65	130	280	11/11/5 G	35 K	Com	120
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Here we have grouped domestic mid-size cars with premium V8 power (+400 HP) and rear-wheel drive. As expected, they are very quick in a straight line, and have good but not great handling. The manufacturers have a bad habit of stuffing them with non-performance related accessories, fattening them to near 4000 lb and beyond. Modern muscle includes Chevy Camaro SS, Chrysler 300, Dodge SRT8 Charger and Challenger, Ford Mustang GT, and the Pontiac G8 GXP. Some are coupes, others are sedans. A few have a convertible option.



Domestic sports car	-2	85	150	330	9/9/4 G	120 K	Com	140
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The category here lists the average rating of the three fastest American sports cars currently produced: Ford GT, Dodge Viper SRT10 and Chevy Corvette ZR1. Average power is measured at 600 units. Some professional aftermarket tuners modify the engines even further making them stupid fast. No surprise here, some of these end up in the junkyard a month after being driven off the dealer's lot. Smarter drivers take them to the track.



Japanese sports car	-2	60	130	270	9/9/4 G	45 K	Com	120
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This category represents all the various high-performance sports cars of that country mostly from the mid nineties and a few from recently. Most of them either use a turbocharged 4 or 6-cylinder engine with rear-wheel drive, though some of them have all-wheel drive instead. The Supra, Skyline, NSX, RX-7, 3000GT and Evo are some of the better examples of this group. The real fast ones have body kits, run lots of boost and tend to spray.



European sports car	-2	80	150	320	9/9/4 G	200 K	Com	140
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Nicknamed "Exotics", these are European-built sports car models grouped into the same class of power and performance, those being an Audi R8, Aston Martin DBS, Mercedes SLS AMG, Porsche 911 Turbo, Lamborghini Gallardo, and Ferrari's F430 and 458 Italia. Consider these models to be the entry-level of the supercar club. The average power rating here is 530 units. They take corners extremely well, and they deliver exceptional quality, speed, and most importantly, the "Wow" factor. Posers usually take the convertible option.



Supercar	-3	100	170	360	8/8/4 G	650 K	Con	140
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Also known as a street-legal race car, they take the power-to-weight ratio to the extreme. This is the upper echelon accounting for the average of the top two dozen fastest production cars available today. Acquiring one may involve putting a hefty premium down to reserve a spot on the waiting list. These cars are few and far between, unless your in Hollywood or Dubai. They also tend to spend 90% of their time parked in a garage or at a show, and a good portion of them end up on the back of a wrecker since their owner couldn't manage the ridiculous power and speed. They also take corners better than anything else, as long as you stay on the pavement.



Formula One car	-4	160	240	400	6/6/3 G	NA	Res	200
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I don't think anyone may actually use this car, but I placed it in as a comparative unit to the others. The Formula One car has simply the most advanced piston-based internal combustion engine used in the world for a vehicle designed to turn rather than just simply going in a straight line. Handling does not get any better than the F1 car, and it easily pulls higher lateral g-forces than any exotic sold to the public. An F1 car is built for maximum acceleration, cornering and braking. Top speed is practically limited to the track its raced on, usually 320 - 360 km/hr. Engine power varies depending on yearly FIA rules. In 2005, the cars were quoted 980 HP and 18,000 RPM.



[F1 car cannot use other mods]

Compact pickup	0	40	100	180	10/10/5 G	15 K	Com	100
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These are the newer compact pickups with the base 4-cylinder and stick. The stats here represent a strip-down basic cab model with only two-wheel drive. This vehicle is for people who want an economy car with a pickup body with some off-road potential. Other models are "slammed" with custom wheels, paint, tonneau covers, and sound systems. These are known as minitrucks. Overall, the list includes Ranger, Frontier, Tacoma, Mazda Truck, and the former S-10.



Mid-size pickup	0	45	100	200	12/12/6 G	25 K	Com	100
V8 model	0	55	110	220	13/13/6 G	30 K	Com	100

This category is a step up in size from the previous model. These are compact pickups with long beds and/or extended cabs and equipped with more accessories. The group also includes the new mid-size models such as the Colorado, Canyon and Dakota which fit between compact and half-ton trucks. They all use a V6 engine, and may or may not have 4-wheel drive. The second line figures the last three mentioned with a 300 HP V8 engine.



Work truck 1500	0	40	100	180	14/14/7 G	20 K	Com	80
4 x 4 V8	0	50	110	200	15/15/7 G	30 K	Com	80

This is your standard half-ton work truck, new or a few years old, and it's the most common type of fullsize pickup, models such as Silverado, Sierra, F-150, Ram 1500, Titan, Tundra and Ridgeline. The standard pickup listed in the Players Handbook is of this model, though that one better reflects a nineties version with a V8. The first line of this template is your basic entry-level truck with a V6 and 2-wheel drive (a good example for a company fleet truck). The second line emulates a work truck with the bigger cab loaded with the basic 300 HP V8 and 4-wheel drive. Some couples replace the family sedan for one of these.



High-performance pickup	0	55	110	230	14/14/7 G	35 K	Com	100
V10 engine	0	65	120	250	14/14/7 G	50 K	Com	100

They are half-ton pickups with the high-output V8 option around 400 HP. The trucks have a standard bed and either the basic or extended cab, and are as fast as most cars on the road. Most of them are rear-wheel drive only, though some have the 4 x 4 option. Various models reflected are the GMC Sierra Denali, Ford Lightning, SVT Raptor and Harley-Davidson packages, Dodge Ram Sport and Laramie, Toyota Tundra 5.7, and the late Chevy SSR. The former Dodge Ram SRT10 is the best performer from the factory with a V10 and 500 HP on tap.



Work truck 2500	1	50	110	210	16/16/8 G	40 K	Com	80
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This template rates the new Silverado and Sierra 2500, Ram 2500 and Ford F-250 three-quarter ton, heavy-duty pickups. They have only one V8 engine option rated around 370 HP. The 6000 lb pickups have 4-wheel drive and automatic transmissions, though a manual is available. The trucks have nice interiors and provide good comfort for long road trips. However, their lumbering weight and higher center of gravity hinders their high-speed cornering ability. They are also a bit too big for tight-trailed off-roading. The Heavy Duty version listed in the Dark Matter AEG is a good example of a nineties model with a smaller cab and lesser V8.



Work truck 3500 diesel	1	45	110	210	17/17/8 G	50 K	Com	80
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The biggest pickup trucks on the market, and the suggested price approaches that of the luxury car class. Powered by a diesel engine, these are one-ton trucks with four-wheel drive on a dually rear axle, and may have an extended cab and long bed. This template models the Sierra or Silverado 3500, Ford F-350 and Ram 3500. Past complaints and annoyances of former diesel power are thrown out the window when driving one of these rigs. The heaviest of this class, the Ford F-450 weighs over 4 tons.



Heavy duty 6x6 pickup	1	40	100	230	18/18/9 G	75 K	Con	80
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In the mid nineties, Chrysler Corp. developed a concept truck based loosely on the Ram truck by giving it an additional axle. This 6x6 used their then-350-hp V10 and was modified for more power, up to 500 hp. The four-speed automatic transmission was strengthened to handle the extra load. With three drive axles, its styling is either a love-it or hate-it kind of thing. It never went into production, but I included it as an oddity available for use. Overall, a vehicle like this had a listed curb weight of 12,000 lb.



Cargo van	1	45	110	190	16/16/8	30 K	Com	80
Passenger van	1	40	110	190	16/16/8	35 K	Com	80

Full-size vans are no longer used as a family-based vehicle, instead these large cargo vans are directed towards companies as part of their fleet vehicle sets for making deliveries or equipment carriers for contractual services. The typical 5500 lb van has a V8 engine around 260 hp, but 300-plus HP options are available. The passenger van is used for shuttle services, though these weigh 6000 lb or more on average. The template models a new Econoline, Savanna or Express. In the other sourcebook, that van listed is a 6-cylinder or older V8 model.



Premium minivan	0	50	110	200	14/14/7 G	35 K	Com	100
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These are new, upscale minivans, and are superior to the older base-models listed in the Player's Handbook. They have a smoother streamlined body, a V6 engine with around 260 HP, and have the option of either a front-wheel drive or all-wheel-drive layout. They all use an automatic transmission, many of them 6-speeds. The 4500 lb boxy beauties have interiors equipped rather nicely. The Town and Country, Grand Caravan, Odyssey, Quest and Sienna are various examples.



Jeep	0	45	100	180	11/11/5 G	20 K	Com	100
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I tried to avoid making templates for individual vehicles, but I made an exception for this off-road-based icon. For rough-terrain or rock-crawling performance, the Jeep is taken with the optional 180-200 HP six-cylinder engine rather than the economy-based four. When used in this manner, most of them are further lifted or articulated and with their shorter wheelbase and low curb weight, the Jeep becomes a strong performer for technical trail climbing or other roadless duties.



Compact sport utility	0	45	110	190	11/11/5 G	22 K	Com	100
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The line stats here correspond to the newer, smaller and lighter compact SUVs. All of them in this group are powered by 4-cylinder engines, have automatics and four-wheel drive. This class tries to balance price, fuel efficiency, in-town handling and off-road capability into one nice, small package.



Mid-size sport utility	0	50	120	210	14/14/7 G	30 K	Com	100
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This group represents a new mid-size SUV built upon a truck chassis. This should not be confused with a crossover which is sport utility built upon a car's platform instead. The stat line is based on the following models that come equipped with a base V6 or V8 engine, 4-wheel drive and auto: Trailblazer, Durango, Explorer, Pilot, Cherokee, Pathfinder and 4Runner. Their power-to-weight and acceleration are similar to a typical sedan. I will not divulge into stereotypes for this class.



Luxury sport utility	0	50	120	220	16/16/8 G	70 K	Com	100
500 HP engine	0	60	130	260	16/16/8 G	100 K	Com	100

The sport utility in the Players Handbook represents the extended fullsize SUVs with that durability rating given such as an older Excursion or Suburban. Luxury SUVs carry the amenities and refinement expected from their brands luxury sedan with ride quality and signature bold styling carried over. The typical model such as the Hummer H2, Escalade, Yukon Denali, Navigator and Landcruiser come with about 380 HP, 4-wheel drive, autos, and equipped with an advanced navigation and communication system. As if that were not enough, the BMW X5, Land Rover, Mercedes G-class and Porsche Cayenne each have additional 500-plus HP engine options.



Armored sport utility	1	40	110	180	17/17/8 G	140 K	Con	80
Fully loaded, 550 hp	1	45	110	240	17/17/8 G	260 K	Con	80

Z-day drawing near? While the armored truck was listed in another source book, its not known for speed nor off-road capability. This armored behemoth provides both and is bullet, bomb, blast and rocket grenade proof. There are special gas filters in case of a gas attack. Interior is composed of leather, titanium and white gold. Computer monitor in the dash and one on the roof. The vehicle has various engine options and protection levels that the Russian manufacturer offers. The SUV weighs from 8,000 to 10,000 lb. The vehicle has either a hard-top pickup body or an SUV body style. For game purposes, this T-98 Kombat is considered to have light alloy armor.



Stretched Hummer	2	35	90	190	18/18/9 G	120 K	Con	60
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This is a popular choice of a stretched limo for those that want to throw a party and make one heck of an impression. The typical Lincoln Town Car limo is no longer crazy enough, its turned boring, and its just not long enough for today's hip. This Hummer is excessively stretched to 26 feet and weighs about 13,000 lb. It can comfortably seat 13 people in luxury (more if you're really friendly), has 3 DVD screens, a top-end sound system, visually stunning bar, and black leather-clad interior enhanced by neon lighting for any mood. Deposit required to confirm booking, and balance of payment before departure. Escorts contracted separately.



Aerocab semi (bobtail)	1	35	110	180	20/20/11 G	150 K	Con	60
1 container	1	20	110	170	20/20/11 G	150 K	Con	60

The semi listed in the players handbook reflects a rig pulling one container. The maximum fully loaded weight allowed in most states is 80,000 lb, in others its 147,000. The line here shows what an aerocab will do with an industry best 600 HP diesel engine. Driving it without a trailer is known as "bobtailing" The smooth lines improve gas mileage, and top speed if one was to floor it all the way. This truck with a condo as part of the cab weighs roughly 17,000 lb. Technically, a semi is known as a tractor.



Road train (2 containers)	2	15	100	150	20/20/11 G	100 K	Con	40
3 or 4 containers	2	10	90	140	20/20/11 G	100 K	Con	40

At the other extreme, we have the "road train", which is a more popular term used in Australia where many of the rigs can be seen pulling up to four trailers or more, and well in excess of 200,000 lb. In the States, this accounts for either triple 28-footers or double 48-footers at max loads of 129,000 and 147,000 lb respectively. It takes good judgment and skill to maneuver a long vehicle without hitting other traffic through narrow lanes and intersections. Backing up in a straight line past 10 feet is impossible. The durability rating does not include the trailers. Road trains usually have engines of over 500 hp, but what really matters is the 1500-plus ft-lb of torque.



Motorhome	2	25	90	120	20/20/10 G	130 K	Com	60
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House on wheels. Class-A motor homes are the largest category of RVs. Built on converted truck or custom chassis, these units typically have a bus-like appearance with a number of options such as gasoline or diesel engines, power steering, automatic transmission and power brakes. Inside, class-A motorhomes provide a host of creature comforts for traveling on extended trips in luxury. The stats are based on a typical 34 to 38 footer with around 350 HP and a 10 ton average curb weight. Larger models over 40 feet usually have tandem rear axles. They usually have governors limiting them to 75 mph. If removed, over 90 mph is possible, but that is getting hairy!



Motorcycles	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Sportbike	-1	70	120	230	4/4/2 G	7 K	Com	160

Everyday sportbikes for everyday riding. Kawasaki's Ninja 650R, Suzuki's GSX650F, and Yamaha's FZ6R are three middle-weight sport-oriented bikes that are less capable in some respects to pure supersports, yet more capable in others. While they wont edge out the more specialized machines at the racetrack, they could be said to do a better job in a broader variety of road riding tasks. For starters, their unintimidating ergonomics and tractable powerbands make more suitable for entry-level riders, but then again, they're anything but mere beginner bikes.



cheaters



Supersport 600	-2	90	140	260	4/4/2 G	10 K	Com	160
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Also known as "crotch rockets", these represent the newer sport bikes with engines ranging in size from 600 to +800 cc. They are exceptionally fast, and due to their low mass and track-designed suspensions, have the best handling of all two-wheelers. The new Honda CBR, Suzuki GSXR, Kawasaki Ninja, and Yamaha YZFR fit in this category as well as the following 1-liter class. Most riders will immediately modify a supersport with exhaust and a chip once they bring it home.



cheaters

cornering pack



Supersport 1000	-1	110	160	300	4/4/2 G	14 K	Com	160
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If the factories' 600-class isn't fast enough for you then jump onto their speed freaks with a 1000 cc engine. A few of these engines exceed 1300 cc in displacement. Not many cars, even modified, are as quick as you on this, though a few sports cars will catch up on the top end. Some police forces will not pursue a suspect on a 1-liter bike for a simple traffic ticket once it rushes away weaving and disappearing through highway traffic, they'll let the 'heli' do that if the crime was serious enough. The bikes are unforgiving to riders that need second chances. Topping one out on public roads is considered stupid by many, and screw ups are fatal. Along with the previous mentioned Japanese models, the Hayabusa, Kawasaki ZX-14, BMW S 1000RR, and Ducatti 1198 are some other fine examples.



Streetfighter	-1	90	130	240	4/4/2 G	11 K	Com	160
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This is a sportbike that is customized from the factory by removing the fairing, and making other changes that result in an overall more aggressive look. Large headlights, tall, upright handlebars, and short, loud, lightweight mufflers are part of the package. Triumph Speed Triple, Ducati Monster, Yamaha Fazer, KTM Superduke, Kawasaki Z1000, Buell 1125CR and Aprilia Tuono are good representatives for this class. Many of these bikes pull the same power as the 600- and 1000-class super bikes, and the 240 km/hr top speed is due to a limiter.



Custom cruiser	0	80	110	220	5/5/2 G	20 K	Com	140
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It's no surprise that this group of motorcycles carry big attitude on wheels. They are also some of the largest bikes on the road. This type comes straight from the factory with custom engine and body work done. Unlike crotch rockets with their high-strung motors, the power plants on these are tuned for massive torque in the low to mid-range. Pulling a wheelie is quite easy, and everyone within a mile of you will know when you yank the throttle wide open. The Nightrod, Vulcan, and Valkyrie Rune are some examples in this class. Their low top speed is due to a factory installed limiter on most models. If removed, 250 km/hr is not out of the question.



Super cruiser	0	100	130	270	5/5/2 G	16 K	Com	140
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The ultimate muscle bike. It carries a unique style that will appeal to those looking for a bike that will stand out from a crowd and lay down the power to draw that crowd toward you. The Suzuki B-King and the Yamaha VMAX both put down 160 horsepower at the wheel, way more than any other factory-stock cruiser on the market. Their acceleration is absurd and trying to keep yourself from pulling a wheelie is difficult. The Boss Hoss with a 350-V8 fits in this class as well.



cheaters



Motocross 450	1	70	90	130	4/4/2 G	8 K	Com	120
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These are the big boys in the dirt bike class, and this is what you get if you want to execute 40 ft air. The anemic unit listed in the Dark Matter resource has no chance of competing with this. The standard motocross models for both 450 and 250 classes are the Honda CRF, Kawasaki KXF, the KTM SX-F, Suzuki RM-Z, and Yamaha YZF. They all look and perform very similar to each other, almost identical, but only an experienced dirt rider will feel the differences. Each brand tends to stick with one favored color, for example, Suzuki uses Yellow, Honda selects red, Kawasaki goes green, Yamaha settles with blue, and KTM does orange.



AT tires



Motocross 250	1	60	80	110	4/4/2 G	7 K	Com	120
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This is the middle-weight class of dirt bikes, and they are basically the same bike as the 450s, only the engine is bit smaller. Overall they are about 20 lb lighter, hitting the scales at 230 lb. An amateur starting out will usually begin with a 250 or a smaller 125-type. As with the 450-class, the manufacturers stick with using their same color tone.

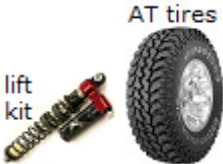


AT tires



Motocross ATV	0	60	80	120	5/5/2 G	8 K	Com	120
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This is the 450-class of dirt-racing quads like the Honda TRX, Can Am DS, Kawasaki KFX, KTM XC, Polaris Outlaw MXR, Suzuki Quadracer LTR, and Yamaha YFZ. Also, the 700s from Yamaha and Honda were considered as part of the group.



Trike	0	65	100	180	5/5/2 G	17 K	Com	120
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This is a recently released trike concept with one rear-drive wheel and two front steering wheels. The Can Am Spyder is all about user friendliness. It has a comfortable, upright seating position similar to that of a personal watercraft or snowmobile and a single, foot-operated brake much like a car's. Also, it won't tip over when stopped, and it has a stability control system as well as an optional automated manual gearbox. This vehicle appeals more to people who are unfamiliar or uncertain about motorcycles, but still want the on-road, open-air experience. The stats reflect the basic RS model and not the heavier and more expensive RT model.



Police	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Late-model police bike	0	70	120	220	4/4/2 G	15 K	Con	120

Most police bikes produced were of the Kawasaki KZ1000P model which these stats reflect. The design and overall mechanical aspects of the bike changed little over its production run from 1977 to 2005 making them easy to maintain and exchange parts. Many are still in service with officers today. As a civilian model, it is a good example of a late-model cruiser.



Police bike	0	85	130	250	4/4/2 G	18 K	Con	140
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While the late-model KZ1000P is still very common throughout the States and is slowly being phased out by these newer models, the modern police bike such as the BMW KT1200GT, Honda ST1300, Kawasaki Concourse 14 and Yamaha FJR1300 are widely used in various countries for their police forces. They average 120 HP at the wheel and a shade under 700 lb, and because of that extra mass, are not quite as nimble as the more specialized sports models.

Without the police package, these bikes are designated as Sport Touring models when sold to the public.



cheaters



Super Pursuit sedan	-1	65	130	270	11/11/5 G	40 K	Con	140
Modified package	-1	75	140	300	11/11/5 G	45 K	Con	140

Police cars from the other sourcebook do not have much of a chance keeping up with the new high-performance cars listed here. This super pursuit teamed with the police bikes make them a tougher adversary to evade. The stat lines here are new, high-performance sedans marked as a police cars in the States or Europe. Since modern police cars can be badged upon any sedan of the government's choosing, I simply assigned a generic template for the ratings, as there are just too many models and spec variances. Engine work may have been done.



Fullsize SUV, (K-9 Unit)	0	45	110	210	16/16/8 G	35K	Con	100
Lightly modded	0	50	120	220	16/16/8 G	40K	Con	100

With the former larger cruisers being replaced by newer and slightly smaller sedans, the sport utility Special Service Vehicle can be used in several roles. With more interior room, its ideal as the new K-9 unit. Field officers can use it as a mobile command center at the scene being able to carry more gear and equipment.

This template can be used as a new fullsize SUV for civilian use. Standard models like the Tahoe, Expedition, Sequoia or Armada will have a 310-horse V8, automatic transmission and come in rear-wheel or 4-wheel-drive. They can seat 8 passengers.



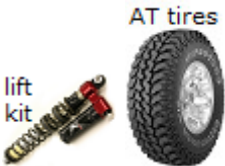
Military	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Former Army bike	0	35	60	100	4/4/2 G	10 K	Com	100

The Harley Davidson Model 50 WLA solo motorcycle provided the U.S. Army with fast, flexible transportation for reconnaissance, messenger service, police operations, and convoy control. The military WLA was based on the H-D WLD civilian model with various changes, some of which included olive drab paint, blackout lights, ammunition boxes, cargo rack, a bracket for a submachine gun scabbard, modified fenders, military style windshield and saddlebags. Metal leg shields were authorized for winter use. An oil bath air cleaner and modified crankcase air breather adapted the WLA to field conditions and fording requirements. Over 80,000 were built, and 30,000 of which were sent to Soviets under the Lend Lease program. The bike weighed 560 lb, and the 45 ci V-Twin produced 23 HP.



Dual-purpose bike	0	60	80	150	4/4/2 G	6 K	Com	120
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This is a Kawasaki KLR650 modified for the Marine Corps. Its one-cylinder engine runs on diesel and may use other fuels if that one is not available. It also handles well as a cross-country bike, and its stable and has good road manners when driven on the highway.



Army jeep	0	30	80	110	8/8/4 G	5 K	Com	100
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Before the Hum-vee was taking care of business with the Army, there was the Willys MB and Ford GPW driven in World War 2, the M38 used in Korea, and the M151 MUTT (military utility tactical truck) utilized in Vietnam. They all had four-cylinders and four-wheel drive. The latter version had a bad habit of rolling over when soldiers were not being careful with the pedal. Obviously, the modern Jeep Wrangler is a distant relative to these original models. For game purposes, the driver suffers a 1-step penalty on the recovery roll when off-roading beyond cruising speed.



Utility truck	0	30	90	90	15/15/7 G	5 K	Com	80
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The M1009 is a Commercial Utility Cargo Vehicle (CUCV), a military modified 1983 to 1986 Chevrolet Blazer. The CUCVs were an attempt the U.S. military to use COTS (commercial off-the-shelf) vehicles with minor modification in non-combat roles. This effort to save money was not very successful and eventually all CUCV units were replaced by the Hum-vee. The M1009 differs from the civilian Blazer in that it has a heavier spring in the suspension, has no air conditioning and had a governed top speed. The powertrain used is a 6.2 L diesel and a 3-speed auto.



Halftrack	0	15	40	70	17/17/8 G	35 K	Mil	40
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During WW2, the M3 halftrack was used as a personnel carrier, prime mover and carriage for various howitzer configurations. The M16 model was used for an anti-aircraft role. The truck was rated for 147 HP and weighs over 18,000 lb. The halftrack comes equipped with the bull nose front end modification, and is considered to have light alloy armor installed.



Former army truck	1	15	70	70	18/18/9 G	20 K	Con	40
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Although many vehicles were in use during World War II, it was the 2 1/2 ton 6x6 "deuce and a half" that made an outstanding contribution. After the war, the Allies' superior ability to move mountains of supplies was recognized as one of the keys to victory. No vehicle was more important in that superiority than the GMC CCKW 2 1/2 ton Cargo Truck, the "Jimmy". It was produced from 1941 to 1945, with over 560,000 units manufactured. They were mainly intended as an artillery prime mover, cargo and troop transport. Dump truck, water and fuel tanker versions were also used. It had a fording depth of 2 1/2 ft. The base 10,000 lb truck was powered by a 269 ci 6-cylinder engine rated at 91 HP.



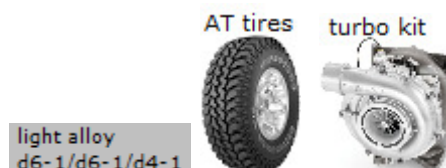
Army truck	1	25	90	90	20/20/11 G	50 K	Mil	60
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The "deuce-and-a-half" or the M35 model is usually what comes to mind when someone thinks of an army truck, and that is what the ratings here assume, in particular, a flatbed model or one with camouflage canvas covering. The engine can run on gasoline, diesel, jet fuel or heating oil, and a turbo was added to reduce the thick black smoke from the early models. The engine was rated from 135 to 210 HP, and the truck weighs 13,500 lb.



Armored semi	1	20	70	70	22/22/12 G	200 K	Mil	60
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This is the Heavy Equipment Transport System (HETS) for the Army. It consists of the M1070 tractor, the M1000 trailer, and is primarily used to transport an Abrams tank cross country. The truck unit has front- and rear-axle steering, a central tire-inflation system and a cab for six personnel. The trailer has automatic steerable axles and a load-leveling hydraulic suspension. When transporting a tank, the 550-HP engine is under a 115 ton load. The stat line applies to the truck only and without a trailer. When loaded, its acceleration is "10" and braking is "40". The vehicle can ford 2 ft of water. The tractor is equipped with 5 tons of armor plating.



Heavy transport 8x8	1	20	80	100	22/22/12 G	135 K	Mil	60
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The "Dragon Wagon" is labeled as HEMTT (heavy expanded mobility tactical truck), and this massive truck provides supply and re-supply of combat vehicles and weapon systems for the Army. A 10-wheeled model is used as a prime mover in the palletized load system (PLS). Combined with all-wheel drive, large, low-pressure tires and high ground clearance, the vehicle has extreme mobility, and fords water crossings up to 4 ft deep. The diesel produces 450 HP, and the vehicle weighs 39,000 lb. Recently, the cabs have been built with an extra 2 tons of armor.



Buffalo MRAP	1	20	80	100	20/20/11 G	300 K	Mil	60
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A mine-resistant, ambush-protected (MRAP) vehicle is a family of armored fighting vehicles designed for the U.S. Army and Marine Corps with the goal of surviving IED (improvised explosive device) attacks and ambushes. The vehicle provides much better protection versus roadside bomb attacks than an up-armored Hum-vee. This particular model is the Buffalo, fitted with a large articulated arm used for ordnance disposal. The vehicle incorporates a V-shaped monohull chassis that directs the force of the blast away from the occupants. It may also be fitted with cage armor. Consider the hull design and thickness of the 45,000 lb Buffalo as medium alloy armor.



Stryker ICV	1	20	80	100	19/19/10 G	300 K	Mil	60
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Stryker ICV (Infantry Carrier Vehicle) is an eight-wheeled armored vehicle weighing 36,000 lb that carries a 2-man crew and a squad of nine infantry soldiers. Armor plating of 14.5 mm thickness protects all over. Add-on armor kits such as slat armor enable the Stryker to withstand RPG-7 threats. Stryker's primary mission is simple, get the soldiers to the battle faster. The vehicle contains a remote weapon station with a 0.50 cal. machine gun or 40 mm grenade launcher and has light alloy armor.



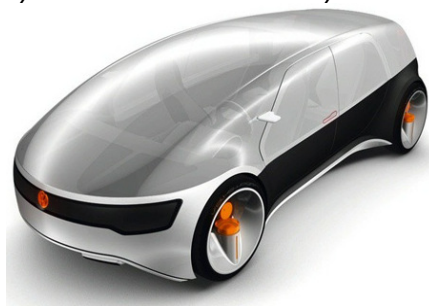
Amtrack	0	20	40	60	20/20/11 G	500 K	Res	60
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Specifically, this template refers to the AAV-7RAM/RS, a modern armored amphibious assault vehicle used primarily by the U.S. Marine Corps. Marines call them "amtracks". The vehicle's role is to land the surface assault elements of the landing force and their equipment in a single lift from assault shipping during amphibious operations to inland objectives and to conduct mechanized operations and related combat support. Primary weapons include a 40mm automatic grenade launcher or a 25mm chaingun. A 0.50-caliber machine gun serves as a secondary mounted weapon. The AAV has 45mm armor plating that sets the vehicle's combat-loaded weight around 30 tons. A 525 HP diesel motivates the armored beast. Using water jets, the vehicle may travel across a body of water at a speed no faster than its ACC rating. The amtrack has a crew of 3 and may transport 21 troops.



Conceptual (late PL5)	Drv	Acc	Cruise	Max	Durability	Cost	Avail	Brake
Electric car	-1	30	100	180	10/10/5 G	15 K	Com	0

This is the same electric car listed in the Players Handbook using the same ratings. All I did was add a picture for it. This could be a shuttle used for standard transportation whether privately or as a city service. This appears to seat four people. Because efficiency and energy conservation is the key with this sort of vehicle, power should just be minimal enough to perform its role without too much hassle. It will likely have a front-wheel drive system. Some models may have no driver, rather, an autopilot system takes control, ala Johnny Cab.



Electric compact	-1	40	110	190	8/8/4 G	12 K	Com	0
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This is an electric 2-seater. This coupe uses the same engine as the larger mid-size car listed above. The result is a car that provides better on-road performance while still maintaining its goal of energy efficiency. By the looks of it, there's not much room for storage, some of the groceries will have to be placed in the passenger seat. Like the other electric car, this too will probably remain as a front-wheel drive car, though any drivetrain is possible.



Electric sport	-2	60	130	240	8/8/4 G	25 K	Com	0
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This is a small electric sports car about the same size and weight as the coupe (≈ 1000 kg, but with better cornering suspension and a motor providing more juice (≈ 150 kW)). Most of them may seat two people, but a few models could be just a single-seater. On this model, the rear battery pack is portable and may be removed for use to another appliance.



Metropolis Runabout	-2	50	110	200	7/7/3 G	15 K	Com	0
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The picture here is that of the Peugeot 888 concept. It has a nifty shape-shifting body. On the highway, the vehicle stretches itself out flat so that it's stable and aerodynamic. In the city, it folds up using a hydraulic tilting system raising the driver's view, increases handling in narrow places allowing the car able to take sharp U-turns and fit into tight parking spaces. Electric motors in each wheel, an array of batteries in the trunk, and a solar panel covering the trunk lid powers it. No actual specs were found, so I'll assume a 1000 kg body as this would be a light, commuter-based vehicle, the power figure shouldn't be outrageous, so figure a 125 kW output.



Metropolis Sprinter	-3	75	130	260	5/5/2 O	20 K	Com	0
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This is the Nike ONE from the Gran Turismo 4 racing simulator. The athlete is the critical part of the vehicle, you don't just drive it, you are a part of it. The driver's position is akin to a stretched out motorcycle rider's. To accelerate or brake the athlete uses the large muscles of the leg and arms, thus the physical training that is needed to master the speeder. Based on a Human-Energy-Potential drive using ultra-efficient superconducting batteries and capacitors that stores energy from an athlete's prior training session, wearing a special impeding-movement suit, and transfers the energy to the vehicle when in use, combined with the athlete's ability to create energy on-the-fly. The vehicle utilizes a HUD with race-line tracking, energy reserves, glass that adjusts color to conditions for optimal contrast and clarity. It was spec'd with an 8-speed transmission, all-wheel drive, 193 kW and 760 kg curb weight.



Metropolis Aerotrike	-3	120	200	400	5/5/2 O	30 K	Com	0
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The vehicle here is actually the Mazda Kaan, a design for a motorsport's concept in 2025. All electric powered with no harmful emissions, its quoted with a possible top speed of 250 mph. No specs were given for its actual power wattage or curb weight, so I'll have to fudge up some figures. Having three wheels, its aerodynamics are probably slightly worse than the sport bikes, and mass more so. But, with its wide, ground-hugging design would make this vehicle exceptionally maneuverable at high speeds. I'll assume a 500 kg chassis. Since its max speed is a little faster than the fusion cycle, I'll give it a little more power for the increased drag, 350 kW sounds good.



Speculative (PL 6)	Drv	Acc	Cruise	Max	Dur	Cost	Avail	Brake
Fusion cycle 200	-2	140	230	350	4/4/2 G	24 K	Com	240
Super cycle 250	-1	160	250	380	4/4/2 G	28 K	Com	240

Super sport bikes will continue their never-ending goal of increasing speed and power. Even if the engine morphs from piston-based to fusion-power, as long as there are riders risking their lives for a blurred landscape they will remain popular and in production. Overall mass of the bikes should decrease a bit as lighter composite materials and alloys are used, the big bike 250-kW as light as the 600-class today. The 200-kW-class will be the star on the track and more user friendly, but you may see a time slip for the 250's mid-seven pass in the quarter.



Millennium Chopper	1	130	210	300	5/5/2 G	35 K	Com	220
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This is the bad-ass, custom, big bike of the future. Due to the nature of highly popular excessively raked forks, high-speed cornering will always suffer. With the massive engine, this brute will have a much wider stance than the super sports. Using smooth-flowing, sharp-edged fairings on the front should not only enhance its style but improve aerodynamics to take advantage of its deep power. Speculating, the chopper pictured below could have a 250 kW power plant and weigh 600 lb. If the rider is nuts, the bike could max out at 350 km/hr, but consider this an extreme maneuver in attempt to hold on.



Boom Town Chopper	1	110	180	260	4/4/2 G	30 K	Com	220
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For late-night boulevard cruising, look no further. Not as obnoxious or crude as the Millennium Chopper, this Boom Town Grazer is a bit more subtle and classier, though, the rider may be the complete opposite. This leaner bike takes minimalist styling to the extreme. Hollowed wheels, the back much wider than the front. Long thin, gleaming, raked forks. Custom, accentuated fairings. No longer a run-of-the-mill-type, the engine has been chromed and power tuned. I would figure around 150 kW, and the entire unit may weigh sub-500 lb. Top speed more or less limited due lack of aerodynamics risking the driver being thrown off at high speeds.



Street Commando	-1	90	160	280	4/4/2 G	20 K	Com	220
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The Street Commando could be your standard cruiser of the day, a very many days from now. The picture here shows the bike with a gas engine, though any other type of power source could replace it by then. This is a bike that would attempt to package style, comfort and reliability into a reasonably-priced package. With a lesser engine, but easier to manage throttle, the bike won't try to buck you off at the first flip of the wrist, and protective fairings would help minimize strong winds from ripping the rider off the bike. Though outgunned by many other bikes for pure speed and power, the Commando would be better suited for a more moderate crowd who don't want to pose as a 2-wheeled maniac. Average power for cruiser of this time could be around 120 kW.



Impending Doom	-1	150	230	300	4/4/2 G	25 K	Com	240
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Here we may have the naked street fighter-type in the distant years to come. This class provides nasty acceleration with muscular styling. This is a variety of the sport bike with the side fairings removed to reveal the engine, and may share the same power plant as the super sports, average power could be around 225 kW. The bike may weigh just 400 lbs. Though its not part of the bike's focus, its max speed is respectable compared to all the other models. Aerodynamic lines are not as smooth, and a minimal windscreen (or none at all) would prevent ridiculous top speed unless the rider risks flying off the machine at blurring speeds. If the rider has a "hairy set", the bike will max out at 360 km/hr, but consider this an extreme maneuver in attempt to hold on.



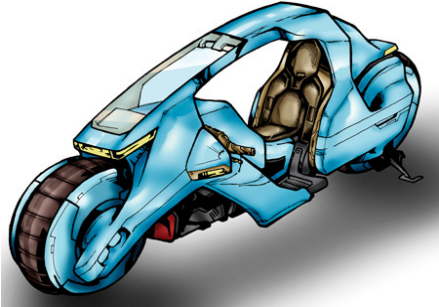
Devils Peril	0	90	160	160	4/4/2 G	16 K	Com	220
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Whether gas, fusion, or electric powered, the time-warped dirt bike will follow the same march of improving speed and power, though probably not as much as the super sports. Focused more on hard cornering in the dirt and flying higher and longer off jumps, its a sure bet that the handling will be more specialized. A little bit of weight loss would put it at 200 lb, and the typical plant may produce 60 kW. Short gearing, of course, will still limit its top speed.



Capital Spectre	-1	100	190	300	5/5/2 G	25 K	Com	220
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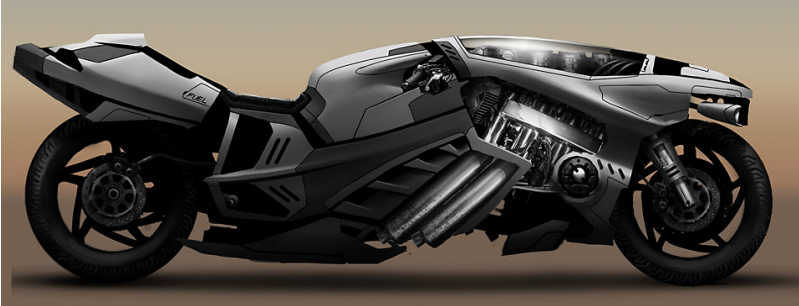
This is a sort of motorcycle with a narrow canopy stretched over the lone rider. This allows the rider to drive without a helmet (not allowed in some localities), but still have that open-air experience. Some models have the roof curving further down over the sides and with a larger front windshield, these are nicknamed '2-wheeled cars'. A motorcycle like this is more commuter friendly, whereas a standard motorcycle barely has a dash, the dash unit on this model is excessive with more display functions, radio and audio, nav and comm systems included.



Raptor Rocket	1	170	260	500	5/5/2 G	40 K	Com	200
Banzai Blade	0	150	240	450	5/5/2 G	40 K	Com	220

Wile E. Coyote's 300-mph rocket. And you thought those other bikes were crazy. A motorcycle built like this is only designed for one thing, well, actually two; pure insanity and sheer terror. The good news is if you don't mess up, you get to do it again tomorrow. The bad news is... obvious. Unlike the coyote, you don't get do-overs. So what's it take for a bike to hit 500 km/hr? The frontal air resistance on this bike is likely a bit worse than what the fusion cycle is. The excessive engine on this bike would have a wider girth. The weight is at least double that of a normal bike, 500 kg is a good number. The power is figured backwards via its aerodynamic limit. Let's take a Hayabusa with 167 whp and a max of 310 km/hr; working an equation, it needs 701 rwhp to hit 500 km/hr. So let's give our bike here another 100 ponies to make up for the increased drag. Perfect, our bike has 600 kW (at the wheel). You might notice that there appears to be no windscreen. I'll assume that at high speeds, the clear glass part will angle up and match the height to the riders helm. A stretched out frame is not good for cornering as the Raptor was designed for pure power and speed.

The Banzai (2nd pic shown) is another competitor in the "rocket" bike class. The power on this bike less than the Raptor's, however the Blade is definitely lighter and its overall slipstreamed and narrower body slices through the air better. This one has the bigger edge in handling and extreme speed stability and feels more secure past 400 than the jittery Rocket.



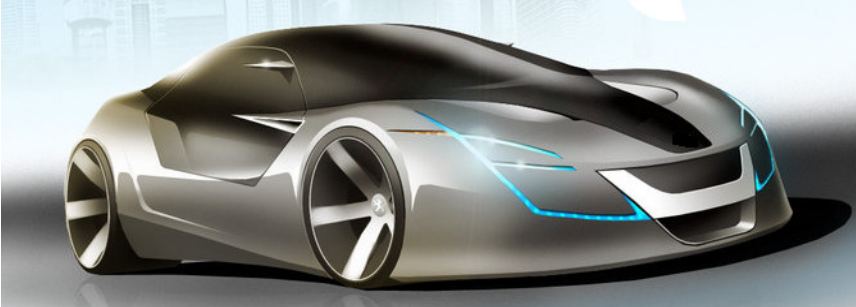
Gevlin compact	-2	55	140	240	8/8/4 G	30 K	Com	180
Gevlin RS	-3	70	170	270	8/8/4 G	50 K	Com	200

The Gevlin is a fusion-age compact car. The base model is, obviously, for those that seek a cheap and practical, small car. The back seat barely have enough room for two kids. Its small size and low weight (1100 kg) gives it wonderful handling as a front-wheel drive car. It's base engine measures 150 kW. The RS model stands for Rally Sport and has all-wheel drive. Also known as a "hot hatch" or a "pocket rocket", the package includes factory-installed track-spec'd suspension, a 250-kW engine and premium interior.



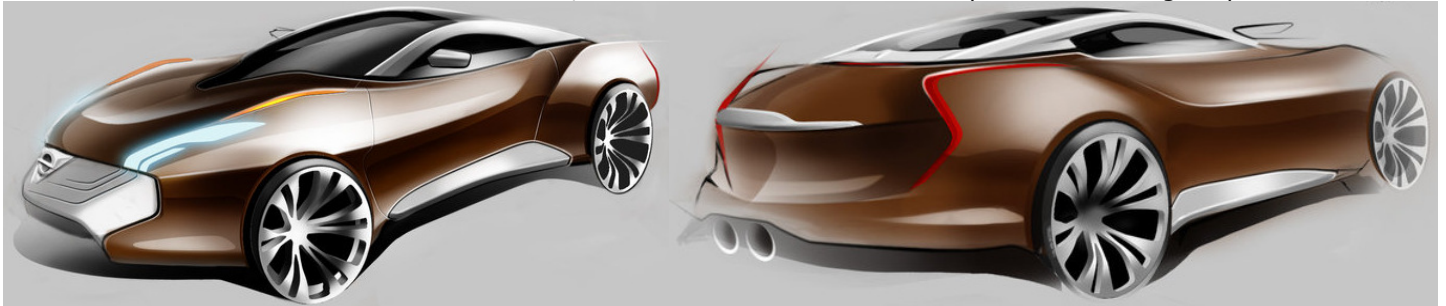
Calliope mid-size	-1	60	150	250	9/9/4 G	40 K	Com	160
Calliope GT	-2	80	170	300	9/9/4 G	60 K	Com	180

Calliope is another type of vehicle found in the mid-size car market segment. This brand is just a little smaller and lighter than the Corstar series. It's labeled as a 4-passenger car, but large adults may find the back seats cramped. The base version focuses on being a low-cost economy model (200 kW), whereas the GT is the premium model with the legs, equipped with a stronger 350 kW engine. Both have a curb weight of about 1350 kg.



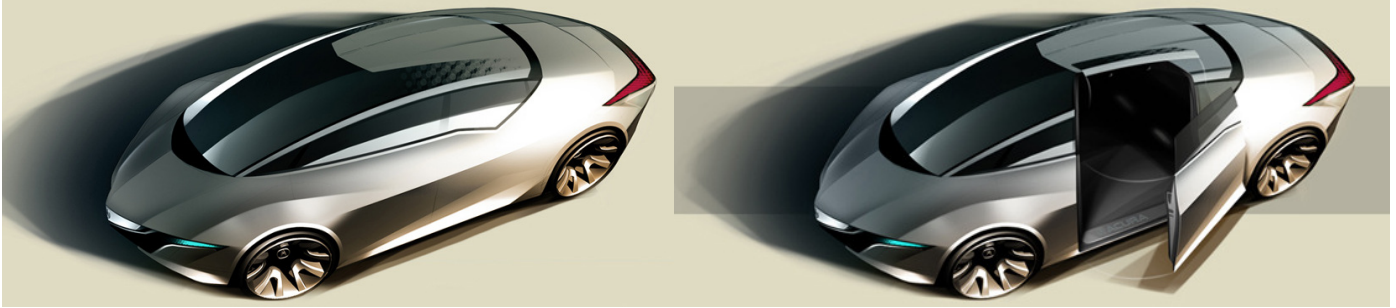
Kadaran mid-size	-1	55	140	240	10/10/5 G	35 K	Com	160
Kadaran X-Coupe	-1	70	160	280	10/10/5 G	50 K	Com	160

The Kadaran brand is not the most desirable as its quality and fit-in-finish isn't quite up to the standards of most of its competitors. Their quality tends to run behind the market-place curve. While the exterior body styling may be just as bold as others makes, the Kadaran's interior seems a little dated and cheap. Still, many buyers don't care, as a plain, new car is good enough and not marked as expensive as the other models is a plus. The mid-size Kadaran weighs about 1500 kg and comes with a simple 200-kW fusion plant. Their X-Coupe is the more exciting model with 300 kW. It's not the fastest around, but would be better if it had improved cornering suspension.



Corstar mid-size	-1	65	150	260	10/10/5 G	45 K	Com	160
Corstar Sport	-2	75	160	290	10/10/5 G	55 K	Com	180

A mid-size car may not appear too much different from a sports car, both having swooping body lines and low center of gravity to take advantage of the abundant fusion power. Better airflow means less energy wasted at higher cruising speeds. I provided two models for Corstar; the first line shows a mid-size with a 250 kW engine and standard options, the second line is the Sport model with improved handling and an increased 350 kW output. For both versions, 1500 kg is reasonable curb weight.



Jazelle Regency	-1	70	160	310	11/11/5 G	80 K	Com	160
Jazelle Ascendace	-1	80	170	340	11/11/5 G	100 K	Com	160

Jazelle is one producer of various progress-level-6 luxury cars. This brand provides quality and comfort first, as high-end performance is not their number one priority, yet the cars do post respectable numbers. Body styling and interior accents tend to have a more rounded and curvaceous look than the Riglia brand who applies more angles and straight edges with their designs. The rear-wheel-drive Regency carries the standard 400 kW engine. The Ascendace is the same exact car with all the luxuries and other benefits, except its rated for another 100 kW.



Argent Oblivion	0	65	150	300	12/12/6 G	70 K	Com	140
Argent Terminus	-1	85	170	350	11/11/5 G	120 K	Com	160

Argent is another fine luxury brand. Second to the Levian, the Argent-built cars have arguably the best qualities. They have superb craftsmanship, the smoothest ride and quietest interior even when running flat out. The Oblivion is quite imposing, especially in black, as that is Argent's big four-door luxury sedan. Like the Regency, the Oblivion has a 400 kW engine, though being the larger car, it doesn't quite match the performance of the other. The Argent Terminus is their high-powered, premium luxury coupe, rated at 550 kW. However, it doesn't quite have the edge that the Supremacy has.



Riglia Dominion	-1	75	160	330	12/12/6 G	90 K	Com	140
Riglia Supremacy	-2	90	180	360	11/11/5 G	150 K	Com	160

The Riglia Dominion is a fusion-era luxury sedan, a large 4-door with plenty of room and a plush interior for the occupants. Naturally, a vehicle like this carries all sorts of amenities, luxuries and computer-enhanced gadgets for driving aid and long-term comfort. As with other luxury brands, maintenance is always carried out by the dealer on a timely interval or whenever the owner is concerned about a minor flaw, even if there isn't one. The Dominion is big and classy, about 2000 kg. It packs a 450-kW engine. The Supremacy is the high-performance luxury coupe, sometimes a convertible. It carries the same options as the sedan, but weighs 1750 kg. The engine pushes 600 kW.



Levian Vampire	0	90	180	380	13/13/6 G	300 K	Com	140
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There are luxury cars, then there are Luxury cars. The first type is a car loaded with luxury options, the second is pure luxury in the form of a car. This template projects the latter where "money is no option" and nothing except absolute elegance and quality will be accepted. Like the early prewar models, these artistically-sculpted models could have an exaggeratedly-lengthened hood (like those from prewar times) hiding a fusion plant worth about 800 kW, and with smooth body lines, the car will have a strong top speed. Weight will probably not be spared, as cars like this throughout history have always been large and massive, and with its longer wheelbase, cornering will not be its strong point.



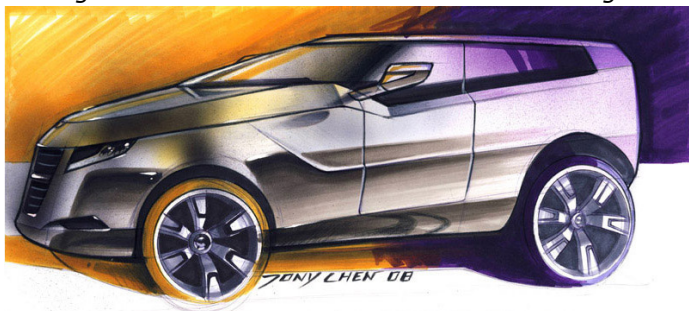
Blackworm	-1	70	170	260	12/12/6 G	30 K	Com	180
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For this template, we have the mid-engine, four-wheel-drive Blackworm all-terrain vehicle. The body is compact and there's only room for two adults, and the forward trunk only has room for light storage. However, the exterior roof could be equipped with a rack to expand cargo or mount some other system. The Blackworm has a wide-tracked, articulated suspension, and large, all-terrain or extreme mud tires, and uses a 200-kW plant found in a mid-size car. The result is an extremely capable and quick ATV. The entire assembly weighs 1200 kg. The Blackworm is equipped with built-in roll cage and underbody skid plates.



Blix mid-size	0	60	170	240	13/13/6 G	35 K	Com	160
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The Blix is a small sport utility for the fusion age. This model uses sharp edges with a box-shaped body. Other models in the same class may be more rounded and not quite as tall. Powering the four-wheel-drive Blix is a 300-kW engine. Most vehicles of this sort are used for various intercity errands where the body is in a lowered position, but it is capable of off-road work where the suspension system will raise the body a few more inches for extra ground clearance. A model like the Blix weighs 1850 kg.



Cambryonyx full-size	0	60	170	250	16/16/8 G	80 K	Com	140
CLENCH	0	70	180	280	16/16/8 G	140 K	Com	140

This blocky, sharp-angled Cambryonyx is quite the luxury sport utility. Styling of its front fascia head-on suggests the shape of a predator ready to strike. The effect combined with its narrow headlamps, a slight bull nose, wide cavity across the lower fenders, a couple verticle cues resembling sabre teeth, the exaggerated wheel wells are a little wider than the main body. Quite fitting for its name. The Cambryonyx has all the same features and integrated options of the leading luxury car brands. Its not exactly meant for all-terrain use as most of these have simply been adopted for intercity cruising. Though if the need arises, the four-wheel-drive system will raise the vehicle a few more inches. The standard model has a 400-kW power plant. The CLENCH is a limited-production model with a 500-kW power rating. Both models weigh about 2500 kg.



Centurion full-size	0	65	170	270	16/16/8 G	100 K	Com	140
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The big, egg-shaped Centurion is a serious all-terrain sport utility. Just one look at it will remove any doubts of its ability. In the control of an experienced driver, this 'ute can tackle various obstacles and other harsh terrain. The engine in the beast is quite strong, rated at 450 kW. Its not as heavy as it appears, about 2350 kg, and its smooth ovoid shape allows for a very good top speed. This may be a bit contradictory for historic rough-terrain vehicles with 3 to 5 gears, but a futuristic off-roader could have a 7- or 8-speed transmission utilizing very low ratios with much taller settings at the top gears.



Terragin mid-size	0	65	170	240	13/13/6 G	40 K	Com	160
Stripped 2WD	0	60	160	220	12/12/6 G	30 K	Com	160

Here we have future pickups, perhaps fusion powered. Many of these truck concepts involve using a chopped top with a raked windshield combined with tall doors and side panels with a compact bed. This aerodynamic styling has reduced its actual practicality. The chopped effect has now reduced visibility defeating the purpose of a higher vehicle, and with a bed now incapable of carrying a few sheets of plywood and not much space for carrying lots of bulk. Trucks may appear very similar to today's pickups, maybe with a few rounded cues thrown in here and there. Just compare modern trucks with those from 50-plus years ago. The brick shape is likely to stay. Again, I have to make up the specs, perhaps a bit lighter with a greater boost in power. For a mid-size pickup, I'll apply 300 kW for power and 1750 kg for weight. The stripped model is a bit lighter, much less powered, and lacks 4-wheel drive.



Bedestrin half-ton	0	70	180	250	15/15/7 G	45 K	Com	140
BERSEK	0	80	190	280	15/15/7 G	65 K	Com	140
Stripped 2WD	0	65	160	230	14/14/7 G	35 K	Com	140

This is the standard full-size pickup for the fusion age, it takes the place of the modern half-ton 1500's. For standard pickups with 4-wheel drive, the following figures of 400 kW and 2000 kg seems right. The "BERSEK" is the same model with the 4WD layout matched with a 550 kW engine. No other stock pickup or SUV is quicker, though the Clench will keep up. The stripped version is a basic model with a detuned engine (300 kW) and only 2-wheel drive. It usually has the smaller cab. This type is more conservative for city use.



Drexen heavy-duty	1	65	170	260	16/16/8 G	60 K	Com	140
<i>SUPERFORCE</i>	1	60	170	260	17/17/8 G	75 K	Com	140

A Drexen heavy duty takes the spot of the modern 3/4- and 1-ton trucks. Many of these will be used as a work truck, however, a good portion of buyers will use them as an upscale pickup, loaded with all factory options and selected with premium quality interiors. A high center of gravity will still limit their handling. A fair rating for the standard heavy duty is 450 kW and 2500 kg. The SUPERFORCE is the largest truck on the market, excluding a commercial-grade semi. Most of these have a dually rear axle. I could see a it rated 500 kW on a 2750 kg chassis.



Renegade	-1	55	160	150	11/11/5 G	35 K	Com	160
(400 kW)	-1	80	190	250	11/11/5 G	-	Com	160

This is the recent Jeep Renegade concept. Its equipped with dual electric 200 kW motors and a very capable 4 x 4 system, complete with low range and locking differentials. As a range extender (up to 400 mi) there is also a small-displacement 1.5-liter 3-cylinder diesel engine. The Renegade is featured with a roll bar, but no top, large flaring wheel openings, oversized wheels and tires, and cut-down speedster windshield. It's designed as a fun and functional, and fabricated from recyclable materials. It offers performance without sacrificing the environment its drivers seek to explore. Quoted with a curb weight of 3150 lb, and a top speed of just 90 mph. The second line would reflect performance if someone adjusted the gearing and rigged the vehicle to run on both motors at once.



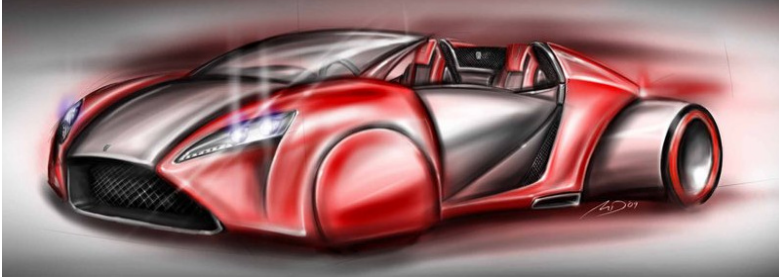
Terador	-2	80	190	300	7/7/3 G	55 K	Com	200
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The Terador 300 is the cute entry-level sports car, mid-engine, of the fusion age. It does not possess the ridiculous power like the other sports models. This basically has the same power plant from other common mid-size models and placed into a lighter, topless car. As the name suggests, its powered by a 300 kW engine. The entire assembly may weigh around 1000 kg. As a roadster, it only seats 2 adults with barely enough room in the front trunk for set of golf clubs. (Haha! I couldn't avoid that one.)



Thraat	-2	90	200	350	9/9/4 G	65 K	Com	180
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The Thraat is the basic high-performance car. The styling on some models, like the one pictured here, may be rather unusual, but the cars are built around their drivetrain, the other aspects don't really matter much as long as the car can roast the tires, corner hard, blast the music and pick up the ladies. A hood that reveals part of the engine is also a plus. Not shy on power, the fusion plant may produce 500 kW. A weight of 1500 kg seems right. The Thraat with the Terador and remaining Egistrons are the most common type of sports cars on the road.



Jazelle Resurrection	-3	100	210	360	9/9/4 G	100 K	Com	200
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Jazelle may be known as major luxury car builder, but they also produce a very swift and fine sports car called the Resurrection. It was designed from the ground up as a pure performance machine, especially through the twisties. The rear-wheel-drive Resurrection uses the same 500-kW engine as the one found in the Jazelle Ascendance, and it is low on weight, only 1200 kg, mainly due to the absence of many unnecessary luxuries. The Resurrection doesn't have the exaggerated lines of the other exotics and settles with a simpler and cleaner look. There is no convertible option as the car is only offered with in hardtop or glass-top form. Overall, its comparable to the late Egistron, definitely handles better but doesn't have the same amount of raw power to hit 400.



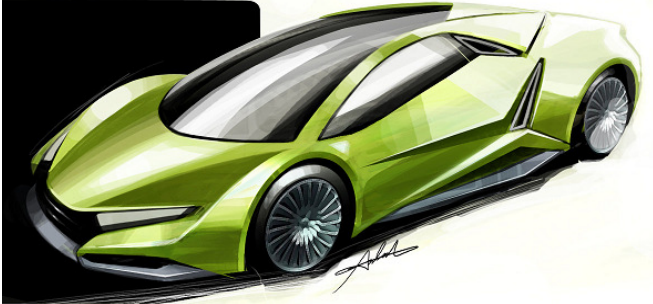
Egistron	-2	100	210	400	10/10/5 G	75 K	Com	180
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"Ten-flat and 400 off the floor" was a marketing slogan. The late-model Egistron and its fellow contemporaries were large 2-seaters designated as mid-size performance coupes. Some models had room in the back for two kids, known as a 2+2 seater and weighed something like 1500 kg. Most had a muscular-based appearance, others styled as low-slung bullets. Either way, the cars produced lots of power (I give 700 kW) and strong handling to match. When the speed limit was lifted from the super highways, monster-powered low-cost coupes like the Egistron were very popular and sold in huge numbers. During its day, nothing could catch them except for a few exotics. They're no longer built. The company had numerous recalls, lawsuits and went bankrupt.



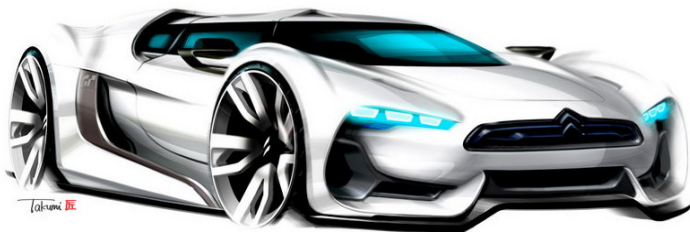
Sifarv	-3	110	230	420	10/10/5 G	150 K	Com	200
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"Egistron Reincarnated" The Sifarv is a more heavily luxury-oriented exotic than the sportier, track-designed Veractor. The Sifarv, while still very capable of harnessing pavement-pounding performance, puts the driver within a more opulent cabin with conditions very similar with what's found in the Supremacy and Vampire. This car, however, only seats two and due to its very low slung seating positions, its not quite as comfortable for long-term use as the previous two mentioned luxury cars. Those two, however, (or most anything else) cannot compare to what the Sifarv delivers once the pedal hits the floor. A brawny 800 kW is divided among all four wheels and reaches a velocity where nobody except the Razorcat, Veractor or rocket bikes will break. Though the Sifarv is quite heavier, 1650 kg, and a little larger than the other exotics, its wide stance and premium suspension make it a worthy track racer.



Veractor	-3	130	250	440	9/9/4 G	200 K	Com	200
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The Veractor is one typical exotic of the fusion age. A sports car like this is likely to be found cruising around or parked in the wealthier districts of the future metropolis or running on the superhighways. Its ground-hugging stance is a little wider and its handling matches that of the Razorcat's, however, this one lacks the overall raw power to be the fastest, but 1000 kW is nothing to laugh at and its still extremely quick. The Veractor is a bit heavier with the larger body, about 1350 kg and generally has a few more equipped luxuries and overall better ergonomics. The roof automatically slides open on sunny days at a lower speed. A vehicle like this would probably have at least an 8-speed transmission, and choice of rear- or all-wheel drive.



Razorcat	-3	170	290	500	8/8/4 G	300 K	Con	220
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The Razorcat could very well represent the pinnacle of the fusion-era sports car world. Disregarding anything else found on the race track, these vehicles could be the ultimate combination of performance, power, handling, and aerodynamics available to the public. The Razorcat is the result of my excessive speculation of a futuristic supercar, the fastest thing around until the skycar is developed. Fantasy? Yes. What I do predict is that a vehicle like this will continue to push the performance envelop ever farther with something like a 1500 kW power plant (that's 2000 horsepower) on a very light 1200 kg chassis. An advanced rubber compound will hold up to the speed and friction. Variable all-wheel-drive traction combined with self-adjustable wings and air dams will maximize control and braking at extreme speeds. Pictured here, at a moderate speed, the Razorcat is a roadster, but once its on the go, a self-extendable windshield will cover the cabin.



VEHICLE MODIFICATIONS

Now this section is my favorite part, (I think that qualifies me for the Gear head perk and maybe the Obsessed flaw). Providing more generic vehicle templates listed earlier certainly helps anyone add some variety to their modern or post apocalyptic settings. But, what you're about to see here is the real "meat-and-potatoes" of the subject. This is the part that will truly individualize all those additional vehicles.

One can almost treat this part like building a new character. In fact, before you begin reading this section, I suggest grabbing a notepad and selecting any modern-day land vehicle (recording its DRV, ACC, Cruise, MAX and DUR ratings) of your preference and apply any modifications that you like as you read along and apply the stat changes and rule effects to your chosen vehicle. There's even a 1/4 mile time conversion chart on a later page where you can cross-reference its ACC to see how potentially quick it can be.

None of the following modifications in this chapter use durability points to take up space like the custom vehicle systems in the *Game Master Guide*. Instead, these listed here are generally replacement parts over stock components. In fact, a few of these actually increase the space or number of durability points used for those systems, but I'll let you dig through this chapter to find out which ones they are.

HIGH-POWER ENGINE and PERFORMANCE PACK

The engine and suspension upgrades listed in this chapter are meant to replace the "High-power engine" and "Performance pack" vehicle systems listed in the *Game Master Guide*. Also, disregard the rule listed for nitrous in the *Dark Matter Arms and Equipment Guide*. Only apply these rule exceptions for PL5 vehicles.

LARGE, OVERSIZED VEHICLES

Please note that all changes to the statistics, primarily the ones affecting speed, are realistic when applied to standard civilian-used vehicles. However, due to the drastically different power-to-weight ratios of heavy commercial vehicles (semi, bus, motorhome, armored car, army truck and other military units, etc) or vastly underpowered automobiles, refer to the following restriction:

Any stock vehicle of **durability 18/18/9 and greater, or one with an ACC of 25 or less** only receives half of the adjustment to acceleration, cruise and top speed changes, rounded down.

- (1) For every 10-point change in acceleration, adjust by 5 points instead.
- (2) For every 20-point change in cruise or top speed, adjust by 10 points instead.
- (3) No motorized vehicle can have an acceleration worse than 10.

STOCK-EQUIPPED MODIFICATIONS

As you may have guessed, any icons next the vehicle's picture means that particular part is already equipped from the factory. Any mod is available for any vehicle, just because the icon is missing does not mean it cannot be used. If the character has the funds, he can apply it. Use common sense when upgrading though.

The following vehicles from the *Player's Handbook* and *Dark Matter Arms and Equipment Guide* have the following mods already equipped from the factory. **Do not adjust any of their base ratings.** However, modifiers to vehicle skill checks may be applied when the particular situation arises.

- (1) **Semi:** Turbo kit.
- (2) **Bus:** Turbo kit.
- (3) **Hum-vee:** All-terrain tires, Lift kit, Turbo kit.
- (4) **Terrain buggy:** Roll cage-amazing, All-terrain tires, Lift kit, Skid plates.
- (5) **Sports car:** Cheaters, Cornering package.
- (6) **Mid-size performance car:** Cornering package.
- (7) **Police cruiser:** Cornering package.
- (8) **Police interceptor:** Cornering package.
- (9) **Dirt bike:** All-terrain tires, Lift kit.

All-Terrain Tires

Cost: 2000

These represent the more common and serious off-roading tires with some thought of design for public road use. The grooves may not be quite as deep as the extreme version, and the tires definitely have more closely spaced treads and "knobs". However, the cheaper and more subtle looking stock all-terrain tires are still a fair cry in off-roading ability compared with this set. Unlike the big extreme set above, these all-terrain tires may be had for the same size or a little larger than stock set they replace. A lift kit is not required in this case, and these tires too, experience drawbacks when driven on hard, flat public roads and highways. The four types shown here are for pickups.

All-terrain tires usually measure 30 inches or larger in diameter, and their tread pattern, like those shown here, are much better suited for rock crawling where grip is required for rough, hard surfaces. However, these here do not grab as well through loose sand, snow or mud.

The rule set here can also be used to mimic the effects of all-terrain tires used on smaller automobiles, such as rally cars.



- (1) The driver gains a 1-step bonus on the recovery roll when driving in mud, snow, sand or if rock crawling.
- (2) Reduce cruising speed by 10 km/hr.



Extreme Mud Tires

Cost: 3000

"Boggers", "mud grapplers", "super swampers". These are the standard nicknames for mud tires. Those shown below are the extreme forms of all-terrain tires. Swampers are to mudding as what slicks are to drag racing. Both sets certainly excel at their jobs as they were designed to do, but have no ability to function in the other's environment. Someone driving a truck with a set of these on public roads generally looks out of place.

The tires have deep grooves and well-separated jagged treads or "knobs". Many of them look like claws and are called that as well. This design provides the best form of traction to grab the loose terrain and swim through the muck. (Granted, the stuff is flung everywhere). Heavy duty boggers are larger than the originally equipped tires they replace, and require a truck or SUV to be lifted a bit to fit within the wheel wells. Being not only bigger, they have a tougher quality.

Driven on the street, especially on the highway, these big tires produce road noise and slightly rougher ride quality than all-terrain tires, and have poor cornering ability on these surfaces. Though, the vehicle's wider stance cures a bit of the instability. The tires wear out quicker when used in this way. Also, this tread pattern does not perform as well as the all-terrain type for rock crawling.

The application involves a set of tires with a overall diameter of about 40 inches or greater.



Extreme mud tires cannot be equipped unless the player has acquired a lift kit.

- (1) Improve the vehicle's stun rating by 1 point.*
- (2) Driver ignores 1-step of penalty to vehicle checks relating to mud, snow or sand.*
- (3) The driver gains a 1-step bonus on the recovery roll when in mud, snow or sand.*
- (4) Advantages #2 and #3 do not apply to rock crawling.*
- (5) Reduce cruising speed by 10 km/hr.*
- (6) Reduce top speed by 10 km/hr.*



Cheaters

Cost: 1000

Drag radials are another name for these tires which are the street legal version of slicks. "DOT" and "ET" sometimes follow their marketed names as well. While they do improve traction, they do not quite grab the surface as hard as the ones listed above due to having a minimal amount of tread for weather and street use. They still perform better than stock tires. In fact, many new sports cars come equipped with these performance-grade tires. Some of them are simply black rubber bands around a rim. Likewise, a car with these tires should not leave the street as they provide poor traction in the dirt.



- (1) *The driver may ignore 1 step of penalty when accelerating greater than 60 meters per phase.*
- (2) *Improve braking by 10 points.*
- (3) *Add a +1 step penalty to vehicle recovery checks if driven off road.*

Slicks

Cost: 2000

Also known as "slicks" or "rubbers" or even "stickies". These are the wide, treadless tires made for race cars and purely for strip or track use. Traction is greatly improved when accelerating from a complete stop or from a slow roll. The compound and increased width of the tires also improves braking. In addition, they help prevent the wheels from losing their grip when cornering hard and fast through sharp turns (these shown below are drag racing types). Race tires are usually illegal to equip on vehicles driven on public roads as they are hazardous for use on wet and rough surfaces.



- (1) *The driver may ignore 2 steps of penalty when accelerating greater than 60 meters per phase.*
- (2) *The driver gains a 1-step bonus on the recovery roll when driving on the street.*
- (3) *Improve braking by 20 points.*
- (4) *Add a +1 step penalty to vehicle recovery checks if driven off road or in poor weather conditions.*

Transmission

Cost: Varies

The idea here is to decrease the parasitic power loss from the drivetrain, and to maximize the car's acceleration and top speed by a specific set of gear ratios matched for the engine's power curve and rev limiter. This also involves replacing the clutch with heavy duty clutch plates designed for racing or aggressive street use. Gear changes will feel more direct, quicker and harder. A lightweight flywheel replaces the heavy stock component. This allows the engine to rev up and falloff quicker. Basically, the engine responds quicker to throttle changes.

On rear- or 4-wheel drive vehicles, the original steel drive shaft is dumped in favor of one made from aluminum or carbon composite material. Its effects exaggerate the flywheels.

For cars with an automatic transmission, a higher stall speed torque converter is used. The transmission in this case doesn't engage until a specific, higher-set rpm is reached for launch.

When engines are modified and power output drastically increases, one of the first components to break is usually the axle (especially on older model cars.) Therefore, replacing the weaker stock axle for a 'bomb proof' one is required for long-term durability.

Sometimes, the rear-end differential is changed out for a unit with a different setting, usually shorter (numerically higher) for better torque application, slightly improving acceleration (if proper grip is obtained).

A swap for a taller axle ratio (numerically lower) is not as common, but used for better highway-rated gas mileage, lower RPM cruising in top gear, and more top speed if a car redlines too early or falls out of its power band.

A transbrake used in drag racing is a mechanism installed in automatic transmissions which selectively places the transmission in first and reverse gears simultaneously, effectively holding the race car stationary as if the foot brake was applied. The transbrake is activated by the driver by applying electrical current to a solenoid at the transmission. When the unit is engaged, the engine throttle can be increased to any RPM prior to launch without the car creeping forward by using the foot brake. When released, the car launches forward very hard already in a higher power-band and in low gear. No time is lost for engaging the clutch since the car is already in first gear. Of course, this puts great strain on the running gear, and not recommended for street use.



RACE-BUILT TRANSMISSION

COST: 5000

A technical science-repair skill check requiring three successes are needed to remove the old transmission, install the new transmission, replace the driveshaft, and reprogramming for an electronically controlled unit.

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 10 km/hr.
- (4) Improve braking by 10 points.

SHORTER DRIVE AXLE

COST: 1000

A technical science-repair skill check is required to replace the drive axle with one of a shorter gear ratio.

- (1) The driver gains a 1-step bonus for hard acceleration during a race.
- (2) The driver may ignore 1-step of penalty when driving up a steep incline.
- (3) Reduce cruising speed by 20 km/hr.
- (4) Reduce top speed by 30 km/hr.

DIFFERENTIAL LOCKER

COST: 1000

A technical science-repair skill check is required to install the locker unit into the drive axle.

- (1) The driver gains a 1-step bonus on the recovery check when the vehicle is on a steep incline.

TRANSBRAKE

COST: 1000

A technical science-repair skill check requiring two successes are needed to install the unit to the transmission.

- (1) If using an automatic transmission, the driver gains a 1-step bonus when accelerating greater than 60 m/phase.
- (2) Any vehicle durability check made suffers an additional 1-step penalty.

High-Performance Disc Brakes

Cost: 1000

This aftermarket braking system originates from racing-designed components, consisting of a ventilated, integral or composite disc, available drilled or slotted, 4, 6, and 8 piston aluminum calipers, a complete set of high-performance brake pads, metal braid tubes and high quality small parts.

The floating discs have been manufactured from high carbon cast iron and have aluminum bell machined from billet. This design reduces unsprung and rotating weight, and dissipates heat faster. The discs are fully compatible with the vehicle's original calipers and they will fit under the factory wheels and tires and provide not only improved performance, but appearance as well.



A technical science-repair skill check requiring two successes are needed to replace the stock front-axle brake components, and one to replace the stock rear-axle brake components.

(1) Improve the brake rating by 20 points.

OR

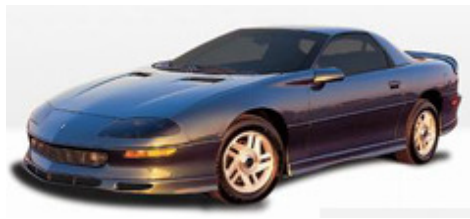
(1) Improve the brake rating by 40 points for all prewar, postwar and late-model vehicles with drum brakes.

Body Kit

Cost: 2000

Some people might settle for stock body styling, but you're not some people. You crave the high-speed look of racecars and hot customs. We're not talking about a couple pieces of flare for your wheel wells. The body kit comes complete with everything you need for a bumper-to-bumper facelift. Side skirts, bumper covers, grille inserts, etc. Kits vary by vehicle, of course. Each piece is crafted from high-quality urethane. Along with its flexibility and durability, it's impact resistant to survive life on the open road. All components come ready for prep and custom paint.

This is a stylish, aerodynamic exterior package. Ground effects, front air dam and rear spoiler or wing, and when applied correctly, allows the car to have better stability at very high speeds, reducing the risk of drifting into other lanes as the driver has better control over the car. Styles range from mild to wild. Some overstyled body kits with large wings may increase drag and slightly reduce max speed since most people who install these kits simply go for looks. Off-roading is the quickest way to destroy a kit, as well as going too fast over speed bumps and curbs.



A technical science-repair skill check is required to install the complete body kit, and wing or spoiler.

(1) Add a +1 step penalty to all vehicle checks if driven off road.

The following only applies if the vehicle has a top speed of at least 200 km/hr.

(3) When driving at or near max speed, the driver suffers a 2-step penalty instead of the normal 3-step penalty.

**(4) Reduce top speed by 10 km/hr.*

**Note: Ignore this penalty if a pickup or SUV is lowered with a body kit. Improve top speed by 10 km/hr instead.*

Weight Reduction

Cost: 2000

Also known as gutting or stripping the car. At the cost of a comfortable ride, a vehicle may undergo a weight reduction to marginally increase its performance across all areas. An all-out, excessive form of this modification is done to cars specifically used for the race track only. However, the rule set given here applies for the less extreme version that's done by the hard-core street racing crowd and the weekend drag racers. Generally, a body kit is applied at the same time as gutting a car.

All unnecessary "junk" is removed from the car, including rear seats, and sometimes the passenger seat, and racing styled buckets replace the originals. Air conditioning, radio/stereo system (if you're desperate), electronic gadgets and other stock-equipped luxuries are removed as well. The hood and other major stock body panels may be replaced by carbon fiber ones. Stylish, lightweight after-market rims replace the ugly stock set. Any other required components that can be replaced by lighter ones may be done so. Properly completed, a vehicle may shed 100 to +300 lbs of dead weight. Less mass improves acceleration, braking and overall slightly better control of the vehicle.

Ordinary quality weight reduction is replacement of various parts for lighter ones. Good quality does the same followed by gutting the car.



A technical science-repair skill check requiring one success is needed for ordinary quality or two successes for good quality weight reduction. The player may select one of the following grades.

ORDINARY

- (1) Improve cruising speed by 10 km/hr.*
- (2) Improve braking by 10 points.*

GOOD

- (1) Improve acceleration by 5 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve braking by 20 points.*
- (4) The vehicle gains 1 extra point of durability space for custom vehicular system use.*
- (5) Reduce the vehicle's stun rating by 2 points.*

Roll Cage

Cost: Varies

This is a full-body specially constructed frame built around the cab of a vehicle and extending along the engine bay and to rear trunk area. This protects the occupants from being injured during a crash, particularly a roll-over. The cage also helps stiffen the chassis, which is desirable in racing situations. However, its extra dead weight diminishes acceleration, though the slightly worsened cornering ability is canceled out by the rigid stability it provides. A five-point racing harness is installed to improve safety. The ordinary quality represents a simple roll bar. The good version is a basic 6- or 8-point system protecting just the driver and front passenger. The amazing unit is a full-size 10- or 12-point system protecting the entire car. The "points" refer to the number of spots where the cage is bolted or welded to the vehicle's chassis. Cages are constructed from either mild steel or the lighter and more expensive chrome moly.

NHRA rules currently state that any car running an ET in the 1/4 mile of 11.49s or faster must have a roll bar consisting of 5 points minimum. This includes one main hoop (with seat brace bar), two rear hoop support bars, and the driver's door bar. Roll bar kits are typically 6 point (includes passenger door bar) or 8pt (includes 2 more lateral supports to bolster the main hoop). A 10 point roll cage is required for cars running 10.99s or quicker ET's or faster than 135mph trap speed. The 10 point adds a roof hoop, which connects to the top of the main hoop and is supported in the front by two windshield post runners, which connect to the floor near the door bar mounts. On all cars requiring a roll cage, if the OEM firewall has been modified (in excess of 1 square foot for transmission removal, not including bolted-in components) a lower windshield or dash bar of 1 1/4 x .058-inch 4130 chrome moly or 1 1/4 x .118-inch mild steel is mandatory for connecting the forward cage supports.

Weight reduction is performed first if the vehicle is turned into a complete race car. If building a complete roll cage (amazing quality), support for an extra vehicular system is allowed due to the more rigid framework and structural supports.



A technical science-repair or invention skill check requiring three successes are needed to fabricate and weld together a simple roll cage. Six successes are needed to build a full-size roll cage into the vehicle. For a roll bar, only one success is needed.

ORDINARY: This is a basic roll bar framed around the driver and front passenger.

COST: 500

(1) *If buckled in, occupants ignore the first point of damage received from a collision or rollover.*

GOOD: This is a minimal rollcage protecting the driver and passenger only.

COST: 1000

(1) *Improve the vehicle's stun rating by 1 point.*

(2) *Improve the vehicle's wound rating by 1 point.*

(3) *If buckled in, occupants ignore the first 2 points of damage received from a collision or rollover.*

AMAZING: This is a full-body rollcage.

COST: 2000

(1) *Improve the vehicle's stun rating by 2 points.*

(2) *Improve the vehicle's wound rating by 2 points.*

(3) *Improve the vehicle's mortal rating by 1 point.*

(4) *Vehicle receives a 1-step bonus for durability checks.*

(5) *If buckled in, occupants ignore the first 4 points of damage received from a collision or rollover.*

(6) *The vehicle gains 1 extra point of durability space for custom system or weapon use.*

(7) *Reduce acceleration by 5 points.*

(8) *Reduce braking by 10 points.*

Chop Top

Cost: 2000

"Chopping the top" goes back to the early days of hot rodding and is an attempt to reduce the frontal profile of a car and increase its top speed potential. That may be a beneficial side effect, but the real reason is for the looks which adds a stylish "wow" factor to the classic late-model cars from decades past, the most famous types being the Mercury "leadsleds". This modification is also performed on some custom trucks. A chopped top is usually combined with a body drop.

To chop a roof, the pillars are cut down, lowering the overall roofline. Some racers or custom car builders chop their the tops so severely that the windows are only a few inches tall. These are known as "mail slot" windows. A more advanced form of chopping is where the B-pillar is removed turning the car into a pillarless hardtop. Automakers use the chopping technique to make their prototypes or show cars look more sleek and "racy", although it would be impractical for normal use.

Mail-slot windows may be a good modification for an armored car in a post-apocalyptic setting as this can make it difficult to directly shoot at the driver.



A technical science-repair or invention skill check requiring five successes are needed to remove the windows, then to cut through the roof and pillars, another to fabricate any custom sheet metal work needed, one to weld the entire unit back on, and finally to reinstall new windows.

STANDARD CHOP TOP

(1) Improve top speed by 10 km/hr.

MAIL-SLOT WINDOWS

(1) Improve top speed by 10 km/hr.

(2) Opponents suffer a 1-step penalty to any ranged attack directed at the driver only (but not at the car).

(3) Driver suffers a 1-step penalty to all perception checks while driving.

Kustom Aero Body

Cost: 10,000

Kustoms are modified cars from the 1930s to the early 1960s done in the customizing styles of that time period. The usage of a "K" for Kustom rather a "C" is said to have originated from a legendary car builder G. Barris. Another mention of someone having some popular design styles is B. Coddington.

This style generally consists of, but is not limited to starting with a two-door coupe. Lowering the suspension. Chopping down the roofline, usually chopped more in the rear to give a rack-back look. B-pillars are also commonly leaned to enhance this look. Sectioning and/or channeling the body, (removing a section from the center of the body). Certain pieces of side trim are usually removed or shaved to make the car look longer, lower and smoother. Often times, bits and pieces of trim from other model cars are cut, spliced and added to give the car a totally new and interesting line to lead the eye in the direction that the Kustomizer wishes to go. Door handles are also shaved as well, electric solenoids or cables are installed. Buttons are installed in hidden locations and used to open the doors. Trunk lids and other pieces of the body can also be altered in this manner. The head and tail lights of a true Kustom may or may not be the original ones manufactured with the car. Headlights, tail lights, antennae are also subject to term and act called "Frenching", where the object is cut from the body, a "box" in the shape of the item is fabricated and welded into the original hole.

Traditionally, "lead" is used in bodywork of the area instead of modern polyester fillers or fiberglass, after the metal shaping is done to prepare for paint. "Leading" connotes a true Kustom "lead sled", which was started in the '50s to imply a large, slow lead-filled car that was all flash and could not hold its own at the races. This was sometimes not the case however, and certain Kustoms packed some serious punch under the hood. Today, calling someone's car a "lead sled" will generally be taken as a compliment.

Grilles are often changed on lead sleds as well. Some owners use pieces of other grilles to Kustomize their own. Stylish hubcaps from other models of the same time are also swapped over.

It is an up-spoken rule of sorts that a Kustom will have white wall tires, most authentic being bias ply style tires. The width of the whitewall denotes the era that particular car hearkens to. Generally, the older era of Kustoms of the 30s and 40s would have thicker white stripes compared with those to the late 50s.

"Lake pipes" are another Kustom main stay, long or short chrome pipes that run back from behind the front wheel wells. They have either one of three removable end plugs for running flat through with open exhaust. Side pipes are similar but do not include the removable plugs. "Bellflower" tips are similar but run from the rear wheel well back under the bumper, a style that emerged in the Bellflower, Ca. area in the early 60s.

The term "mild Kustom" refers to a fairly conservative approach to Kustomizing, where the majority of the original beauty and identity of the car are retained. A "full Kustom" refers to a car that has been severely altered from every aspect possible, almost every exterior panel is reshaped, interiors, dash, engine bay, suspension, heavily chromed mechanical components, etc. These cars can also be referred to as custom cars, lead sleds or sleds.

Many builders have their own professional shops that will turn your car into a Kustom if you have the money to burn. They may also have a complete turn-key model or two sitting around waiting to be sold. Many of these Kustom builds have an entirely new rolling chassis supporting a complete fiberglass body.



The following game rule effects provided are in context to prewar and postwar cars and pickups and some late-models. Applying these rules to other types of vehicles may be a bit silly. With either option listed, the vehicle is lowered in the process, hence the reason for the handling bonus. (Unless slammed to the point where the front wheels cannot turn much due to the wheel wells.) The rule effects for applying a chopped top is cumulative with these listed below.

A technical science-repair or invention skill check requiring 15 successes are needed: 4 to customize the front end, 2 to chrome out the engine, 2 to customize the midsection and both doors, 3 to customize the interior upholstery, seating and dash, and finally, 4 more to customize and chop the rear end. (This does not include chopping the top)

BUILDING A LIGHTER, CUSTOM FIBERGLASS AEROBODY

- (1) Improve acceleration by 5 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 10 km/hr.*
- (4) Improve the vehicle's brake rating by 10 points.*
- (5) Improve the vehicle's drive rating by 1 step permanently. This only applies to vehicles that had a +1 rating.*
- (6) Reduce the vehicle's stun rating by 1 point.*
- (7) Reduce the vehicle's wound rating by 1 point.*

BUILDING A STREAMLINED LEAD SLED

- (1) Improve top speed by 10 km/hr.*
- (2) Improve the vehicle's drive rating by 1 step permanently. This only applies to vehicles that had a +1 rating.*

Grille Guard / Bull Bar / Snow Plow

Cost: Varies

This modification is the same one found in the Dark Matter AEG. It is the most common type of grille guard used. This type is also used on police cruisers and their SUVs, and although used for ramming, the push bars are more commonly used to heave wreckage and rolled-over vehicles away from the center of the road.

This lighter eye-catching guard adds extra style and dominance to any truck. You will have a piece of mind from damaging your truck because they are usually made with heavy-duty steel and fully welded joints. They also provided extra protection against wild game. It simply fits on a truck with no replacement needed.

A heavy duty front bumper with wrap around steel diamond plate, and punch plate screen light protection. This unique design is angled out with two connecting support bars for extra style. For most trucks, this allows you to keep your factory driving lights and tow hooks. The front bumper is also extended, and weight savings is not the goal with this type of unit. The bull nose-type offers the "Off-Road Rally" styling with contoured skirts to protect the underside. Nothing will stand in your way with this intimidating look, and its the best thing to use for bashing something short of having a plow blade. Some military vehicles have similar front ends as well.

This modification may also represent the grille guard known as a "bull bar" found on the front of a semi. These are generally used on a heavy hauler or road train to minimize damage and prevent free-roaming cattle from going underneath the semi when a last minute collision is unavoidable to prevent risk of the load shifting.

For a snow plow, modern versions are quite maneuverable, allowing the driver to control the height and angle of the blade so the snow or debris shifts to the side of the road rather than building a mountain in front of the vehicle. During road rage, this makes its easier to initiate the pit maneuver.



GRILLE GUARD: A successful technical science-repair check is required to install it.

COST: 1000

- (1) When the vehicle takes frontal damage, the result is shifted down one row on the impact/collision damage table.
- (2) The vehicle gains a 1-step bonus on durability checks [from the front] when hitting Ordinary-toughness objects or movable obstacles such as shrubs and wild-game.



SNOW PLOW: A technical science-repair skill check requiring two successes are needed to install it. **COST: 3000**

- (1) Improve the vehicle's wound rating by 1 point.
- (2) When the vehicle takes frontal damage, the result is shifted down one row on the impact/collision damage table.
- (3) The vehicle gains a 3-step bonus on durability checks [from the front] when hitting Ordinary-toughness objects or movable obstacles such as shrubs and wild-game.
- (4) Opponent must make an immediate vehicle-op skill check with a 1-step penalty after taking a successful ram.
- (5) Reduce acceleration by 5 points.
- (6) Reduce cruising speed by 10 km/hr.
- (7) Reduce top speed by 10 km/hr.
- (7) Reduce braking by 10 points.

Nitrous Oxide Injection System

Cost: Varies

"NOS", its most common nickname is actually the name of the company that first made it popular. Nitrous, also known as "horsepower in a bottle", can mean the difference between getting caught or getting away. It can also be the judge for a pink slip. Many adrenaline junkies prefer to use NOS for its sudden surge of speed and power. Its also a point of focus for those that like to brag or show off their car.

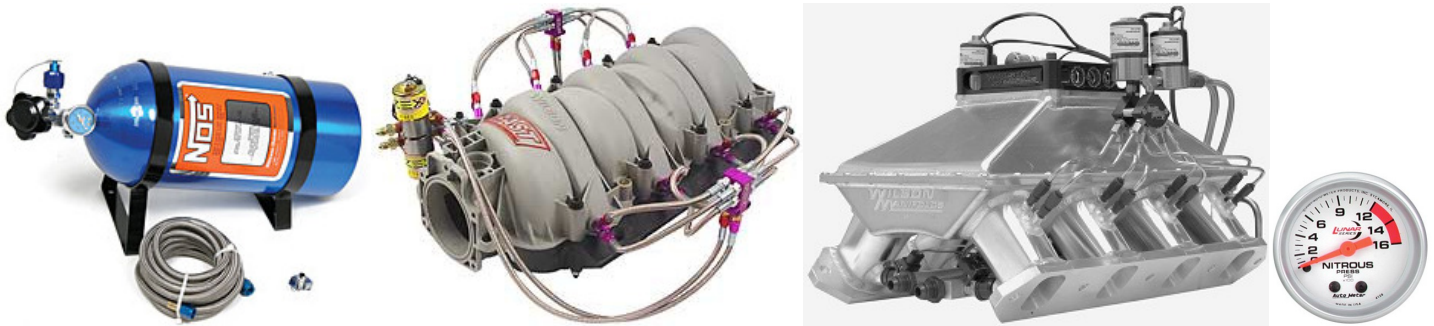
Nitrous comes in various strengths and setups for delivery such as dry, wet single-point, wet direct port, plenum bar, and propane or CNG. Having a nitrous setup equipped for use on public roads is a no-no, and is not allowed in most areas. Getting caught with it results in heavy fines and having the car impounded until it is removed.

During use, the chambers are under significantly increased pressures and stress. Not having piston rings and lubrication up to the task will result in their meltdown. Detonation (lean mixture burns holes through the piston) may occur immediately after cutting off the flow of nitrous without tuning for that fact. Running too much nitrous on a stock engine not specifically tuned for it creates excessive heat, soon blowing out the engine, and experiencing cracked or destroyed pistons, connecting rods or crank-shafts. Don't forget to immediately bail out of the car when it helps fuel a nasty engine fire while activated (Though by itself, nitrous oxide is not flammable). Many vehicles can get away with using a low 50-shot amount, but exceeding this on a used car without doing anything else is not a good idea, causes engine failure and hurts the wallet.

When combined with a turbo or supercharger, ridiculous acceleration levels may be achieved.

For this project, I provided six qualities of the more commonly used strengths, ranging from 50 to 400-HP shots. The increased speed is based upon the listed power gain at the wheels. I also provide a list of restrictions for safety yields on how much nitrous a vehicle can run without risking immediate damage. Simply using 200 shots without doing anything else is a surefire way to trash the engine.

Separate kits are available depending on the vehicle type. A shot of the same power-grade will have less effect on a truck due to its heavier weight and worsened aerodynamics.



*All vehicles must make a durability check during nitrous use to see if the engine blows **UNLESS** one the following applies, in which case a check is not needed:*

- (1) A late-model with a marginal kit.*
- (2) A basic-tuned late-model with a ordinary kit.*
- (3) A new model with a ordinary kit.*
- (4) A basic-tuned new model with a good kit.*
- (5) Any advanced-tuned, or stroker-kit equipped vehicle with an amazing kit.*

Choose a delivery system type. A technical science-repair skill check requiring two successes are needed, first to install a nitrous system, then followed by properly tuning in the correct flow with the air-fuel mixture. The player may switch the pressure level but cannot exceed that particular delivery system's maximum output.

REFER TO THE NEXT PAGE FOR ACTUAL EFFECTS

Durability: 4/4/2 to 5/5/2
Motorcycles, trikes, and ATVs

Marginal (Dry kit) **Cost: 500**
To reflect a 50-shot system, (1) Improve acceleration by 15 points. (2) Improve top speed by 30 km/hr.

Ordinary (Dry kit) **Cost: 1000**
*To reflect a 100-shot system, (1) Improve acceleration by 25 points. (2) Improve top speed by 50 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 1-step penalty.*

Good (Wet single-point kit) **Cost: 1500**
*To reflect a 150-shot system, (1) Improve acceleration by 35 points. (2) Improve top speed by 70 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 2-step penalty.*

Amazing (Wet direct port kit) **Cost: 2000**
*To reflect a 250-shot system (1) Improve acceleration by 50 points. (2) Improve top speed by 100 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 3-step penalty.*

Durability: 6/6/3 to 13/13/6
Cars, smaller pickups and SUVs

Marginal (Dry kit) **Cost: 500**
To reflect a 50-shot system, (1) Improve acceleration by 5 points. (2) Improve top speed by 20 km/hr.

Ordinary (Dry kit) **Cost: 1000**
To reflect a 100-shot system, (1) Improve acceleration by 10 points. (2) Improve top speed by 30 km/hr.

Good (Wet single-point kit) **Cost: 1500**
*To reflect a 150-shot system, (1) Improve acceleration by 15 points. (2) Improve top speed by 40 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 1-step penalty.*

Amazing (Wet direct port kit) **Cost: 2000**
*To reflect a 250-shot system (1) Improve acceleration by 20 points. (2) Improve top speed by 70 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 2-step penalty.*

Durability: 14/14/7 to 17/17/8
Most SUVs, pickups and vans

Marginal (Dry kit) **Cost: 500**
To reflect a 50-shot system, (1) Improve acceleration by 5 points. (2) Improve top speed by 10 km/hr.

Ordinary (Dry kit) **Cost: 1000**
To reflect a 100-shot system, (1) Improve acceleration by 5 points. (2) Improve top speed by 20 km/hr.

Good (Wet single-point kit) **Cost: 1500**
*To reflect a 150-shot system, (1) Improve acceleration by 10 points. (2) Improve top speed by 30 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 1-step penalty.*

Amazing (Wet direct port kit) **Cost: 2000**
*To reflect a 250-shot system (1) Improve acceleration by 15 points. (2) Improve top speed by 40 km/hr.
(3) Any vehicle durability check made during nitrous use suffers an additional 2-step penalty.*

Basic NA Tuning / Bolt ons

Cost: 3000

This is almost always the first step completed when adding serious power to an engine. "Basic bolt ons" are all the modifications done in order to get the highest amount of power possible from the engine, short of having to remove the main block and taking it apart. Stock engines benefit greatly from this as they are "opened up" and free to breathe. The procedure involves replacing many OEM parts with better flowing aftermarket versions that literally bolt onto and around the engine block. The filter element, throttle body or carburetor, intake manifold, and headers are replaced with higher flowing units. The stock exhaust plumbing and muffler are canned, replaced with less restrictive downpipes and muffler or "glasspacks". The engine tone is louder. The engine management computer is replaced with a "power chip" (or electronically dialed in by the builder) that adjusts the spark ignition and valve timing. The intake and cylinder head ports are polished out (porting), reducing airflow resistance and preventing hot spots. A thinner cylinder head gasket may also be used to slightly increase the compression ratio. A gain of 70 to +150 horsepower can be expected depending upon the specific engine size, its age and tech used.



This modification is only available for naturally-aspirated vehicles.

A technical science-repair skill check requiring two successes are needed, one to replace the intake system, another to replace the exhaust system.

- (1) Improve acceleration by 10 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 30 km/hr.*

Chip 'n Exhaust / Carb (Alternative option)

Cost: 1000

This is only a partial procedure of the above modification and lower cost option. It consists of a minimal power gain by simply replacing the chip, air filter, mufflers and sometimes either the exhaust or intake manifold. This upgrade works best for a stock vehicle that needs a slight bit of extra "oomph" without spending a ton of cash. Some police or government-run vehicles may have had work done on the engines, which this mod reflects well.

On late-model cars without EFI, a quick fix is to swap out the stock intake and carburetor for another unit with additional barrels.

This modification is not considered basic tuning for advanced engine upgrades that require it.

Also, cannot be combined with basic tuning. You can only use one or the other.

A technical science-repair skill check is required to replace the few stock parts with aftermarket units.

- (1) Improve acceleration by 5 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 10 km/hr.*



Advanced NA Tuning / Heads and Cams

Cost: Varies

A naturally-aspirated vehicle must have NA Tuning bolts-ons done before applying this modification, since the freer flowing setup is required to obtain the high power levels that the new cylinder heads and camshafts will generate. High-compression forged pistons replace the stock set to increase the compression ratio which improves power across the entire RPM range. This modification also deals with reworking or replacing the fuel injectors and delivery system with one capable of meeting the higher fuel demands. High-quality "slippery" oil replaces the basic stuff, adding a few extra ponies.

Cylinder heads are a major component in building horsepower because they flow fuel, air, and exhaust through them. The size and shape of the cylinder head bowl effects compression and the flow of gasses through the engine. These are ported (polished) for maximum power gain. Aluminum versions are obtained for their lighter weight, and better looks instead of stock cast iron.

The camshaft is used to operate the valvetrain via lobes, one for each valve. Driven by the crankshaft from a timing chain, the cam lobes force the valves open to allow the air-fuel mixture into the combustion chamber and exhaust gases to escape from it. Stock units on most cars are very mild and are not designed to make lots of power. This rule set represents the very lippy, high-powered aftermarket type. A vehicle equipped with these will produce that loud, choppy, pattering sound when revving at a stoplight. Since the engine is being removed to install the piston heads, a stroker kit is also completed at the same time if the builder has plans to do that as well.

This rule set reflects typical gains from 70 to 200-plus horsepower. The main power band is shifted to the high end of the RPM range and very close to the engine's redline. This helps to maximize its top speed. However, the vehicle has lesser power in the low RPM range, and the engine may bog for a moment if the driver drops her revs too low with a higher gear. Another rule set here reflects a head and cam setup that focuses on the more useable range of the engine's powerband. This focuses on shifting greater power to the low and mid range where normal in-town driving is affected. Standard highway cruising is superior here as well, as the engine responds much stronger and smoother when the pedal is suddenly floored, though it will not generate as much raw horsepower at wide open throttle compared with the other setup.

A common practice with a late-model domestic V8 powered car (such as a GM 350 or Ford 5.0) is to combine the low-end spec'd cam with a stroker kit for serious tire-melting brawn. This gives them that wheelie-popping acceleration when touching the gas.



This modification is only available to naturally-aspirated vehicles.

Basic NA tuning / Bolt-ons must be completed before heads and cams are changed.

A technical science-repair skill check requiring three successes are needed, one to pull the engine and remove the bottom end, another to replace the piston heads, and finally, to replace the cylinder heads, camshafts and valves.

GOOD (Low-end grunt)

COST: 4000

To reflect stump-pulling power with high torque in the low to mid RPM range,

- (1) Improve acceleration by 10 points.*
- (2) Improve cruising speed by 20 km/hr.*
- (3) Improve top speed by 20 km/hr.*

AMAZING (Top-end power)

COST: 8000

To reflect a huge horsepower gain at the top end of the powerband, but sacrificing low-RPM streetability,

- (1) Improve acceleration by 15 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 40 km/hr.*
- (4) The vehicle cannot accelerate in the following phase if a driver fails a skill check for an extreme maneuver.*

Tunnel-Ram Intake

Cost: 2000

In racing classes with no limitations on carburetion, tunnel-rams live on in high-tech sheetmetal and carbon-fiber form. It is the ultimate expression of normally-aspirated performance, and these trick induction systems are pleasing to look at.

Like most performance components, tunnel-rams are combination specific. I don't recommend slapping one on a 300-inch 8:1 compression engine. The streetability of a tunnel-ram on a stock small-block engine remains to be seen. A tunnel-ram-equipped engine should flow more air than one with a conventional single four-barrel intake manifold because it fools the engine into thinking it has better heads, even if the heads are very good. The elevated position of the carburetors on the tunnel-ram allow for longer and straighter runners, all eight of which are pretty much the same length helps promote power production over a given RPM range. Basically speaking, the runner length (combined with cross section and taper) determines where the engine makes power. Naturally, the intake runner length (and overall design) should be combined with the proper cam timing and cylinder head flow (and to a smaller extent, header design) to optimize power in a given range.

Well-designed tunnel rams work. They make big torque and horsepower everywhere and carry the torque a great distance by extending the powerband of the engine. By looking upon a dyno chart, the tunnel ram produces its peak results in the higher RPM range. But the tunnel ram comes with a price. The initial outlay will be significantly greater as the intakes typically cost more, two carburetors (aka double pumpers) must be used, and the necessary linkage must be obtained. Then there's the tuning effort needed to make the system work properly. Do not expect to bolt on a tunnel-ram, set the idle, and go. Considerable toil goes into making all of the essential adjustments to the carburetion for the correct fuel metering particularly at high RPM where tuning is ever more critical. Then there's the hood clearance issue. The tunnel-ram will more than likely not fit under any stock hood.

In short, tunnel-ram intakes are applied for high revving, high-power V8 blocks looking to maximize their output. Because of the dual carbs used, they are usually reserved for late-model trucks and muscle cars, though EFI (electronic fuel injection) versions may be adopted. It is not unheard of to use this intake with a turbo system, however, I've never seen one applied with a supercharger.



This modification is only available for naturally-aspirated vehicles.

A technical science-repair skill check requiring two successes are needed, one to replace the intake system and install additional throttle linkage, and another to tune the proper air-fuel ratio. Use one of the following conditions that apply to the vehicle's current grade of NA tuning.

If applied without advanced NA tuning / heads and cams

- (1) Improve top speed by 10 km/hr.*
- (2) Reduce cruising speed by 10 km/hr.*

If applied with advanced NA tuning / heads and cams

- (1) Improve acceleration by 5 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 10 km/hr.*

Open Headers

Cost: 1000

An open header exhaust system works on the concept that by removing the restrictive mufflers and some of the down pipes, the engine will produce more power. This is actually true, more-or-less, but it really depends on your setup. It is favorable on a race-built car designed to run high RPMs all day, however, for a street-n-strip daily driver, it's more of a tradeoff sacrificing low-end torque for top-end horsepower. The following explains why.

On a normal street driven car, all engines are designed from the factory to run on back pressure. When you take the mufflers off and you don't have any back pressure, you lose power because you do not have anything to hold the needed amount of pressure in, so performance drops as well as power and gas mileage. Modern cars depend on back pressure to run efficiently. It's beneficial for race cars because they run higher compression engines.

The back pressure effect is called "scavenging". It is an important part of engine design, and manufacturers engineer the exhaust system with certain flow characteristics, such as backpressure and gas charge velocity to help aid in expelling spent exhaust gases and drawing in a fresh fuel/air charge. While larger-diameter exhaust tubing and other modifications can reduce pumping losses (the energy the engine uses to move air into and out of the block), reducing exhaust pressure excessively (such as running an open exhaust) can disrupt the scavenging effect to an extent that the engine becomes drastically less efficient and productive.

Open headers can flow better and promote high horsepower, but the problem is that it shifts the peak torque curve up the RPM band and therefore feels like a loss of power in the low range, the vehicle now a bit more sluggish in drivability for practical street use. Race cars avoid this problem simply by always running well past 3000 RPM and using close-ratio gears.



A technical science-repair skill check is required to remove the mufflers or install an exhaust cut-out kit.

If applied without advanced tuning,

- (1) Improve top speed by 10 km/hr.*
- (2) Reduce cruising speed by 10 km/hr.*

If applied with advanced tuning,

- (1) Improve acceleration by 5 points.*
- (2) There is no adjustment to cruising speed.*
- (3) Improve top speed by 10 km/hr.*

Stroker Kit

Cost: Varies

This modification is known as "rebuilding the bottom end". The kit is an aftermarket assembly that increases the displacement of a reciprocating engine by increasing the travel of the piston. This is done by using a different crankshaft where the crank pin is moved further away from the center of the axis of rotation of the crankshaft. While this increases displacement and torque, it can potentially lower the limit to which the motor can rev safely (redline) compared to the stock configuration, and decrease its ability to perform optimally at high RPM. In other words, the max speed gain is not as high as expected if the gear ratios are left stock. Engines used at sustained high RPM will be better with less stroke and more bore. A stroked crank is usually built for drag racing.

A characteristic of a stroker kit is the required changes to allow the stroked cranked to 'fit' within the stock block. This is accomplished in one of three ways. (1) Location of the piston pin, and the top of the rod within the piston, or the compression height is shortened. (2) Length of the rod is shortened. (3) Height of the cylinder is lengthened.

A stroked crank increases displacement, and also uses leverage to make torque more easily. A stroked crank will usually make more overall horsepower than an engine with a bore kit of the same displacement. (A bore kit punches out slightly wider combustion chambers.)

The typical complete stroker kit is composed of a forged or cast crankshaft, connecting rods, pistons, piston pins, main bearings, rod bearings, and piston rings. This is called "the rotating assembly" or "the bottom end". To maintain the same compression ratio, either dish top, reverse dome or flat top piston heads are included in the kit. This also makes the kit available for engines that are turbo or supercharged.

For a rough estimate, an extra 30 - 70 HP can be gained, but a better guess depends upon the exact engine and setup. An engine builder using a stroker kit generally combines this setup with basic bolt ons for good street/strip performance. If that's not enough power to satisfy, then new heads and cams soon follow. The stroker kit is a very popular modification done upon American domestic V8s, examples such as the Chevy 383 or 496, Ford 347 or 408 Windsor. However, punching out a larger bore is usually not carried out upon most domestic V8s as the majority of them just have the longer crank. Many engine blocks cannot be bored out due the serious risk of compromising the internal jackets that flow the oil or coolant. One exception to this rule is doing an engine rebuild and tune upon an old and tired block, however, the bores in this case are barely shaved, and only a very few cubes are added. This simply cleans and straightens the sleeve. A punch to obtain additional power is more commonly done upon smaller, imported blocks. A good example is a stroked and punched Civic 4-cylinder now at 2 liters.

Sometimes, a builder may think stroking certain engines is a waste of time and money and you're just better off doing an engine swap instead. Also, those wanting more than 100 extra cubes from this kit will have to install a crate engine.



STROKER KIT

COST: 4000

A technical science-repair skill check requiring three successes are needed, one to pull the engine and remove the bottom end, another to put together the new rotating assembly, and finally, to install it into the engine block. Optionally, a fourth success is required if the bore is widened.

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 20 km/hr.
- (3) Improve top speed by 10 km/hr.

WIDENED BORE

COST: 1000

If the engine block chambers are also punched out or bore sleeves replaced for greater displacement,

- (1) Improve top speed by 10 km/hr.

Supercharger Kit

Cost: 4000

This represents an aftermarket supercharger kit that can be built and installed on top of the engine block. This is the part of the engine sticking out of the hood of a muscle car, a polished scoop usually with three red "butterflies", though a bare, open scoop is also common. The first cars equipped with superchargers went into production in 1923 by Mercedes which was then immediately followed by various other automakers in the following years.

The supercharger is an air compressor used for forced induction of an internal combustion engine. The greater air mass and flow rate provides more oxygen to support combustion, which provides more fuel, increasing the power output of the engine. Power for the unit can come mechanically by a belt, gear, shaft or chain connected to the engine's crankshaft. This is not to be confused with a turbocharger which is driven by exhaust gases. Peak power production is generally flat across the entire range. However, at high RPMs, parasitic loss increases since the crank has to use a fraction of power to run the blower.

The unit represented here is a basic supercharger providing a modest 5-7 lb pressure boost, and runs on standard 92 octane gas. Other units can run less pressure, but this range is about the maximum amount one can safely run without using an intercooler, and not having to retard the ignition. This is a common setup and easiest to deal with. When completed, a gain of an extra 30% - 40% horsepower over the previous engine rating can be expected. At the other end of the scale, some fully blown street-and-strip race setups can push well over 20 lb of boost.



This modification is only available for naturally aspirated vehicles.

A technical science-repair skill check requiring three successes are needed, one to assemble the supercharger, another to install it upon the engine, and finally, to adjust the proper air-fuel mix and boost.

- (1) Improve acceleration by 10 points.*
- (2) Improve cruising speed by 10 km/hr.*
- (3) Improve top speed by 30 km/hr.*

Turbo Kit

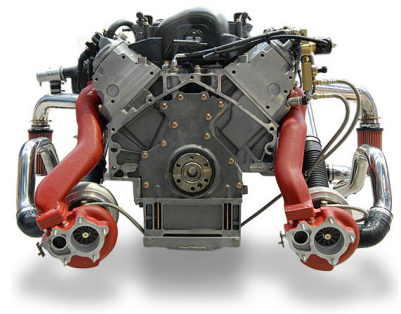
Cost: Varies

This is similar to the supercharger kit, but instead of a mechanical driven compressor, an exhaust gas driven compressor is installed alongside the engine and connected to the headers. A new intake duct system must be fabricated or a custom set ordered from an aftermarket dealer. Careful layout and planning is required to make sure all the new components fit underneath the hood. Sometimes an intercooler is installed as part of the system, but may not be necessary if the boost pressure is run at a low level and the excess heat is still manageable by the engine.

Depending on the engine and the builder's whims, a single turbo or two of them may be installed. The latter is known as a twin-turbo setup or less commonly biturbo. The twin setup is better balanced between drivability and performance, however, one big turbo unit will usually produce a bit more peak high-end power than two small ones, though this would induce some form of lag at the low end of the power curve. In racing, this is known as "lag time". On a semi, this is known as lugging the engine.

Starting with a low boost rating, this kit will produce an extra 30 to +130 horsepower depending of which setup is selected and what engine its placed upon.

Though the small turbo appears to have no real advantage over the other two except for lower cost, I would use this smaller unit for a kit installed on a motorcycle, and don't forget to up the boost with the basic forced induction followed by advanced turbo tuning modifications. This small unit could also be used as a perk to differentiate a new car model with a turbo-package option offered by the factory.



This modification is only available to naturally-aspirated vehicles.

The player selects one of the three types available. A technical science-repair skill check requiring four successes are needed, one to remove the intake and exhaust components, a second to fabricate a custom duct system, another to install the turbo, intake ducts and exhaust, and finally, to adjust the proper air-fuel mix and boost.

SMALL TURBO KIT (factory-turbo option or motorcycle kit)

COST: 3000

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 20 km/hr.

BIG TURBO KIT

COST: 5000

- (1) Improve acceleration by 10 points.
- (2) There is no adjustment to cruising speed.
- (3) Improve top speed by 40 km/hr.

TWIN TURBO KIT

COST: 7000

- (1) Improve acceleration by 10 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 30 km/hr.

Basic Forced Induction / Bolt ons

Cost: 4000

Turbo tuning applies only to vehicles with a turbo or supercharger. Modifications performed are very similar to NA tuning above, replacing the usual filter, throttle body, intake and exhaust manifolds, and muffler. Porting the intakes, and resetting the CPU management are completed too. Unlike NA Tuning, components used to increase the compression ratio should not be carried out, as this can be disastrous for a forced induction engine running under too much pressure and resulting in pre-ignition.

With a turbocharger (or two), the boost is slightly increased by adjusting the waste-gate release, whether by hand or electronically. The original intercooler is replaced with a higher capacity aftermarket unit, allowing a greater temperature drop for the intake air flow. If a supercharger did not have an intercooler, one is now installed. Also, for a supercharged engine, the boost pressure is increased by decreasing the size of the pulley on that unit, and increasing the size of the pulley attached to the crankshaft. Depending upon the exact engine, a significant gain of 100 to 200-plus horsepower can be had.

When completed, this reflects a "streetable" setup (easy to drive with high power) capable of smooth acceleration across the entire power band, and does not represent the very high boosted turbo setups that invoke lag and bogged acceleration at lower RPMs.



This modification is only available to turbo or supercharged vehicles.

If the vehicle is supercharged,

A technical science-repair skill check requiring two successes are needed, one to modify the supercharger and replace or add an intercooler system, and the other to tune the entire system properly.

- (1) Improve acceleration by 15 points.
- (2) Improve cruising speed by 20 km/hr.
- (3) Improve top speed by 40 km/hr.

If the vehicle is turbocharged,

A technical science-repair skill check requiring three successes are needed, two to unbolt the intake duct, exhaust system, swap out or modify the turbo, and replace the intercooler (or add one). The third to properly tune it all.

- (1) Improve acceleration by 15 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 50 km/hr.

Extra Boost (Alternative option)

Cost: 1000

This is a cheap alternative if someone is strapped for cash and cannot complete the entire bolt-on procedure. The fix is relatively easy, just up the pressure a few pounds, and swap out the filter and muffler for aftermarket units. Anyone who buys a factory turbo'd or blown car for its performance may likely adopt this modification as its quite a common practice to do. Also used for work-related vehicles under heavier loads that need some extra kick.

This modification is not considered basic forced induction for advanced engine upgrades that require it. Also, cannot be combined with basic forced induction. You can only use one or the other.

A technical science-repair skill check is required to the adjust the boost a bit and replace the filter and mufflers.

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 20 km/hr.

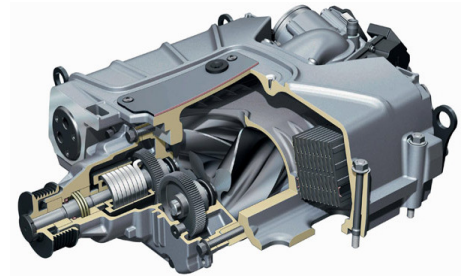
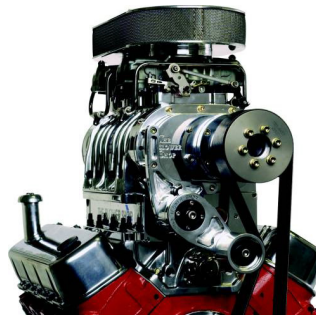
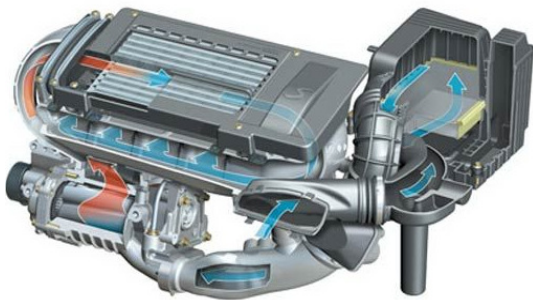
Advanced Supercharging

Cost: Varies

This modification is nearly the same as advanced turbo tuning with the same processes and expected problems planned for and tuning carried out again to help the engine manage the greater heat and pressure under this more powerful setup. Unlike some replacement turbo setups, a supercharger is generally not replaced, the same unit is kept and modified for greater boost by using a different pulley ratio on the belt drive. Again, unlike a turbo, there is no wastegate on a blower to release the excess pressure which would defeat the purpose of the supercharger and increase parasitic loss. Superchargers do not suffer lag. All boost generated goes straight into the combustion chambers, and if the engine cannot handle it, then something goes "Boom", usually by a throwing a rod.

If for some reason that the internal screws within the supercharged unit fails to spin or becomes locked up from damage, the engine immediately dies from a choked intake system. Also, a supercharger cannot be turned on or off, and there is no button that activates it. This button is usually used to activate a nitrous system or to toggle a fan or some other accessory.

Because the extra power from a supercharger is readily available the moment you hit the pedal, it can be very easy to lose grip and burnout the tires under heavy boost. Only an experienced driver capable of managing the acceleration should run a high-powered setup as an amateur will simply sit at the line and smoke the tires.



This modification is only available for supercharged vehicles.

Basic forced induction must be completed before advanced tuning is applied.

A technical science-repair skill check requiring two successes are needed to modify the pulley ratio and replace the intercooler, and one to tune the proper boost and air-fuel ratio. With this modification installed, the player may switch the boost levels to either quality when he has access to a garage.

ORDINARY

To gain some extra power without losing too much traction,

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 10 km/hr.

COST: 2000

GOOD

To gain the best power from using standard pump gas,

- (1) Improve acceleration by 10 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 30 km/hr.

COST: 5000

AMAZING

For some serious power to pull off a big wheelie,

- (1) Improve acceleration by 20 points.
- (2) Improve cruising speed by 20 km/hr.
- (3) Improve top speed by 60 km/hr.
- (4) Race-grade fuel is required to run at this level. Using standard pump gas will result in engine damage.

COST: 10,000

Advanced Turbo Tuning

Cost: Varies

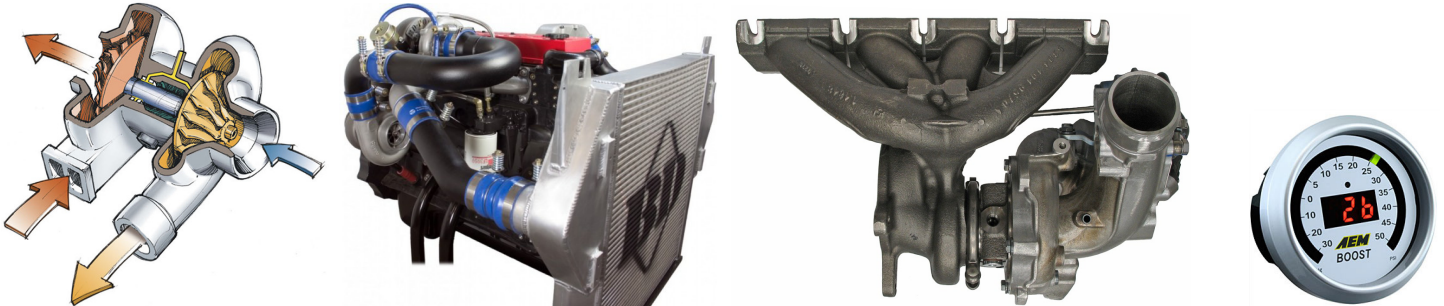
A turbocharger is a gas compressor that is used for forced induction of an internal combustion engine. The turbo increases the density of the air entering the engine to create more power. It has a compressor powered by a turbine which is driven by the engine's own exhaust gases rather than direct mechanical drive. This allows the turbocharger to achieve a higher degree of efficiency than other types of forced induction compressors which are more vulnerable to parasitic loss at high RPMs.

To avoid detonation and physical damage, the pressure in the cylinder must not go too high. To prevent this, the intake pressure must be controlled by venting excess gas. A wastegate regulates air pressure in the intake manifold, which routes some of the exhaust flow away from the turbine. This effect can be heard when the driver lays off the throttle and shifts into another gear, "pppfffeewww" sound. This is definitely louder under a race setup. This along with the turbo whine fuels adrenaline junkies.

If the stock intercooler was not replaced with a larger capacity unit, then it certainly is now. The stock turbo (or two) can be used if they are capable of handling greater pressure and thermal stress. Otherwise, an aftermarket unit must be installed to deliver the greater power levels.

This rule set has three different turbo settings available. Basic turbo tuning is of marginal quality. The amazing-quality is a complete race setup pushing well over 20 lb of extra boost into the engine. It provides huge gains to power at wide open throttle where the main power band at its peak production are close the redline maximizing top speed. This requires the vehicle to be run on high-octane fuel not available at public gas stations.

However, the driver must be well-experienced with the shifter, for a turbo of this magnitude generates backpressure that will invoke lag and bogged acceleration at low RPMs. This creates an issue which is known as "lag time", that is, the time needed for the turbine to reach its rotational speed when it begins to generate boost. As a result, the engine is less responsive and its output well below nominal. A dump valve is not efficient enough to cure this problem entirely on a larger turbo.



This modification is only available for turbocharged vehicles.

Basic forced induction must be completed before advanced tuning can be applied.

A technical science-repair skill check requiring three successes are needed, two to unbolt the intake duct, exhaust system, swap out or modify the turbo, and replace the intercooler (or add one). The third to properly tune it all. With this modification installed, the player may switch the boost levels to either quality when he has access to a garage.

ORDINARY: To reflect better performance with minimal lag,

COST: 2000

- (1) Improve acceleration by 5 points.
- (2) Improve cruising speed by 10 km/hr.
- (3) Improve top speed by 10 km/hr.

GOOD: For a nasty street-n-strip setup,

COST: 8000

- (1) Improve acceleration by 15 points.
- (2) There is no adjustment to cruising speed
- (3) Improve top speed by 40 km/hr.
- (4) Vehicle cannot accelerate in the following phase if a driver fails a check for an extreme maneuver.

AMAZING: To reflect a pure race-tuned setup,

COST: 15,000

- (1) Improve acceleration by 25 points. **(Note: If applied to a diesel engine, increase by 30 points)**
- (2) There is no adjustment to cruising speed. **(Note: If applied to a diesel engine, increase by 10 km/hr)**
- (3) Improve top speed by 70 km/hr. **(Note: If applied to a diesel engine, increase by 80 km/hr)**
- (4) Vehicle cannot accelerate in the following phase if a driver fails a check for a moderate or extreme maneuver.
- (5) Race-grade fuel is required to run at this level. Using standard pump gas will result in engine damage.

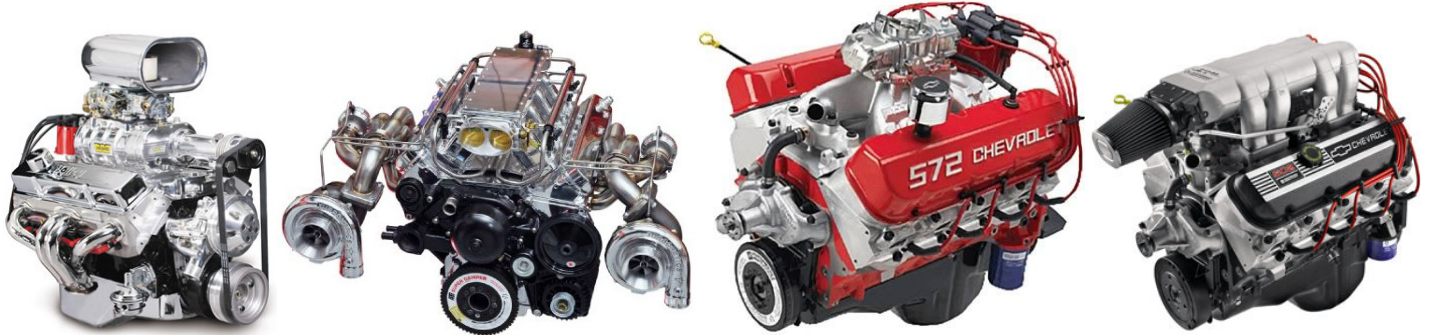
Crate Engine

Cost: Varies

Crate engines are purchased with a fixed horsepower figure, generally ranging from 200 - 600 ponies for most applications. They are named so because they are delivered via a crate through the mailing system.

Though this modification doesn't provide a specific type of block, each quality represents a generalization of certain classes of engines. As a neat little trick, I simply assigned their ratings based on the totals of other engine upgrades packaged together. Use the following method to simulate an engine swap. Simply choose one of the following qualities.

***Note:** Use common sense when applying an engine swap. For example, new sports cars do not use them. Many other new high-performance-based vehicles avoid them as well. Usually those vehicles apply forced induction kits or any other engine upgrades listed in this chapter. Crates are commonly applied to prewar, postwar, late-models and any current non-performance related sedans and pickups or any other "sleeper" type vehicles.



MARGINAL (Stump puller)

COST: 8,000

A technical science-repair skill check requiring two successes are needed, one to pull the old engine, and another to drop in the new one. This is an engine with the same number of cylinders and same block size, except its newer and has increased displacement. This crate engine combines basic bolt-ons with a stroker and bore kit.

- (1) Improve acceleration by 15 points.
- (2) Improve cruising speed by 30 km/hr.
- (3) Improve top speed by 50 km/hr.

ORDINARY (Big-block swap)

COST: 12,000

A technical science-repair skill check requiring three successes are needed, one to pull the old engine, another to modify the engine bay, and finally to drop in the new engine. This swap drops in a much larger block, such as replacing a small-block V8 with a big block V8 or a V10. Another similar move is from a 4- or 6-cylinder to a small-block V8. This crate engine combines basic bolt-ons, a stroker and bore kit, and advanced NA tuning (good).

- (1) Improve acceleration by 25 points.
- (2) Improve cruising speed by 50 km/hr.
- (3) Improve top speed by 70 km/hr.

GOOD (Pro-Stock build)

COST: 19,000

A technical science-repair skill check requiring three successes are needed, one to pull the old engine, another to modify the engine bay, and finally to drop in the new engine. This is a natural-breathing race engine, no artificial induction. This larger block has been fully tuned and dyno'd for maximum performance. It is designed to scream and does not like to idle. This crate engine combines basic bolt-ons, a stroker and bore kit, advanced NA tuning (amazing), tunnel-ram intake and open headers.

- (1) Improve acceleration by 40 points.
- (2) Improve cruising speed by 50 km/hr.
- (3) Improve top speed by 110 km/hr.
- (4) Vehicle cannot accelerate in the following phase if a driver fails a check for an extreme maneuver.

AMAZING (Pro-Modified build)

A technical science-repair skill check requiring three successes are needed, one to pull the old engine, another to modify the engine bay, and finally to drop in the new engine. Drop this one in if you want a fire-breathing monster. Not only is it much larger, but it has been enhanced with forced induction. Spools or screws, take your pick. This crate engine combines basic forced induction, advanced forced induction (amazing), a stroker and bore kit, open headers, and a supercharger or a twin turbo kit.

For a supercharged engine, COST: 24,000

- (1) Improve acceleration by 55 points.
- (2) Improve cruising speed by 70 km/hr.
- (3) Improve top speed by 160 km/hr.

***For a twin turbocharged engine, COST: 32,000**

- (1) Improve acceleration by 60 points.
- (2) Improve cruising speed by 40 km/hr.
- (3) Improve top speed by 180 km/hr.

**(4) With the turbo, vehicle cannot accelerate in the following phase if a driver fails a check for a moderate or extreme maneuver.*

Off-Road Lift Kit

Cost: 2000

This is an aftermarket vehicle modification that lifts a truck, SUV or van to give it a higher profile. Some new 4x4 trucks and SUVs come with moderate lift kits already installed. There are two types of lift kits: body lifts and suspension lifts. The body lift kit is a 1, 2, or 3 inch lift kit that only lifts the body from the frame. This less expensive kit consists of blocks or spacers and does not increase ground clearance.

For reliable off-road capability, a suspension lift kit is the only option. The front and rear leaf springs and shocks are replaced as well. This not only creates greater travel, but the wheel wells ride higher, allowing taller tires to be installed, and with those, there is increased clearance between the axle and the ground. It may also be necessary to re-gear the differential (shorter ratio) to account for the new tires' size and for better low speed traction and torque required for technical off-roading such as rock crawling, and maintaining speed and momentum through mudding and dune bashing, but some top end performance is sacrificed. Articulation (a measure of a vehicle's ability to flex its suspension) improves as well, but because the steering geometry is affected, some drivers choose to add steering stabilizers. One danger of off-roading is that of damage to the vehicle from rocks and gravel dislodged by the wheels. A common way to deal with the problem is to install skid plates, thick metal plates protecting vulnerable parts (such as the rear differential). Suspension lift kits are usually 4-inch or 6-inch kits. There are extreme kits as high as 18 inches, but those drastically compromise safe handling, and are not commonly installed, most of them as show trucks.

Speaking of show trucks, another common practice to obtain a wow-factor is to chrome the suspension and wheels. However, there can be a trade-off in reduced part life in certain situations. Chrome plating almost always has small pores and microcracks, which under situations of alternating stress in tension can act as crack starters for the underlying steel part. The plating does not reduce the strength under a single stress event, but because it can start a crack the long term fatigue life can be affected.

This rule set represents a kit of 6 - 8 inches. Because the center of gravity is higher, high-speed handling becomes poorer, and the vehicle will have a tendency to lean more in banked turns, so it is important to refamiliarize yourself with the feel of the truck, SUV, van or jeep.



A technical science-repair skill check requiring four successes are needed to replace the stock front-axle suspension components, replace the stock rear-axle suspension components, re-gearing or replacing the differential, and finally, bolting on the skid plates.

*(1) At **cruising speed or less**, the driver may ignore 1 step of penalty to vehicle skill checks relating to off-road terrain and conditions.*

(2) Improve the vehicle's stun rating by 1 point. (skid plates)

(3) Reduce cruising speed by 10 km/hr.

*If a shorter rear-end axle is used,
Refer back to page 49 for modification effects.*

*If the suspension is chromed,
(1) The vehicle suffers a 1-step penalty to durability checks relating to wound or mortal damage.*

Articulated Suspension Kit

Cost: 5000

Also known as "long arm suspension", this is a more extreme and specialized form of an off-road lift kit. Articulation allows a truck or jeep the ability to flex its axles and suspension. A high degree of articulation is essential for good off-road performance on severe routes. This prevents binding and limited travel in short-arm suspensions. A truck with good axle articulation can keep all wheels in contact with the ground or rocky debris while traversing obstacles, which ensures that all wheels can deliver their torque to the surface with less risk of losing traction on any given wheel. All this can allow a very high level of off-road performance without the need for electronic chassis control systems that can be vulnerable and unreliable under extreme conditions. SUVs generally do not benefit as well with an articulated system due to many of them using independent suspensions which offer better on-road comfort.

This long-arm package includes high-flex coil springs, extended upper and lower control arms with flex joints, center control arm mounting brackets, adjustable track bars, a drop bracket, a drop pitman arm, sway-bar disconnects, and stainless steel brake lines. A heavy-duty, high-clearance belly pan, a new steering stabilizer, front extended bump stops, rear leaf springs with extended shackles are included as well. Bump steer is negated.



**Installation of a shorter rear-end axle is usually included,*

A technical science-repair skill check requiring four successes are needed to replace the stock front-axle suspension components, replace the stock rear-axle suspension components, re-gearing or replacing the differential, and finally, bolting on the skid plates.

(1) Improve the vehicle's stun rating by 1 point.

(2) The driver may ignore 2 steps of penalty to vehicle skill checks relating to off-road terrain and conditions when driving at the vehicle's ACC rating or less. If beyond that speed, then treat this as a lift kit.

(3) Reduce cruising speed by 10 km/hr.

(4) The driver gains a 1-step bonus for hard acceleration during a race.*

(5) The driver ignores 1-step of penalty when climbing a steep incline.*

(6) Reduce cruising speed by another 20 km/hr.*

(7) Reduce top speed by 30 km/hr.*

Rally-Spec Suspension Kit

Cost: 4000

This suspension kit is usually reserved for all-wheel drive cars, as that drivetrain has the best ability performing on dirt. This is the general cornering package and designed for off-road use as well, though it doesn't necessarily raise the car like the lift kit for a truck. Rally-Specs combine hard cornering, rough terrain dampening and durability into one balanced setup. When combined with all-terrain tires, the 4-wheel drive cars becomes reliably effective in driving through all conditions whether on tarmac, gravel, dirt, or snow. Decals and mud not included.

Stock all-wheel drive cars that are listed with a "-2" drive rating already have this type of suspension equipped from the factory. They gain no extra benefit if installing this modification.



This modification is only available for cars with all-wheel drive.

The best drive rating a vehicle with this suspension may have is "-2".

A technical science-repair skill check requiring two successes are needed to replace the stock front-axle suspension components, and one to replace the stock rear-axle suspension components.

(1) Improve the vehicles drive rating by 1 step permanently.

(2) Improve cruising speed by 10 km/hr.

(3) At cruising speed or less, the driver may ignore 1 step of penalty to vehicle skill checks relating to rough road conditions.



Drag Pack Suspension Kit

Cost: 2000

While the parts from this kit look the same as those found in the cornering package, this set is specifically preset by the company to maximize the full power potential of a specific car and engine model for use on the strip. However, the driver can still readjust them to his standards if needed. The design here focuses on giving the car a slightly harder and quicker launch during a drag race.

When a car generates an extreme amount of torque (a short geared axle helps too), this may cause the vehicle to "pop a wheelie". This is when the front tires come off the ground due to the back wheels trying to accelerate faster than the rest of the car. Wheelies can only be done with a rear-wheel drive vehicle. As an oddity, reverse wheelies can be performed with a front-wheel drive vehicle. To correct this situation, drag racers install ladder or wheelie bars to prevent the front end from jumping off the ground.

This suspension does not necessarily improve cornering ability as this type specializes in transferring power and weight during a drag race. For late-models with poor handling, better cornering ability is obtained by lowering the car.



The best drive rating a vehicle with this suspension may have is "-2".

A technical science-repair skill check requiring two successes are needed to install the suspension for the front wheels, and the second to replace the set on the rear wheels.

(1) The driver gains a 1-step bonus for hard acceleration during a race.

(2) Add a +1 step penalty to vehicle skill checks if driven off road.

An additional successful technical science-repair skill check is required if the driver wants to add a wheelie bar.

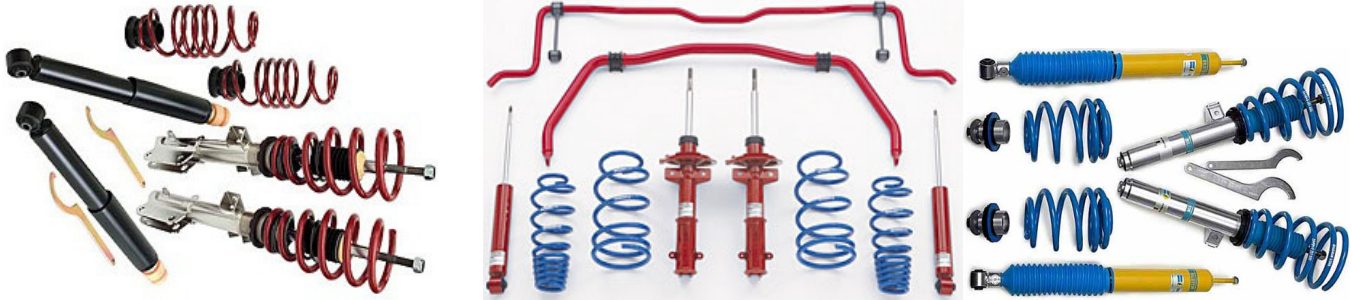
(1) Driver may ignore the penalties for a wheelie during a drag race.

Cornering Package

Cost: 3000

This kit is designed for mild to aggressive street use while still providing a comfortable ride for daily drivers. This is a stainless steel-bodied coil-over spring/damper package designed to turn a car in a corner carving machine. The kit usually lowers the front end of the vehicle by 1 to 2 inches. This helps reduce understeer (a tight car does not want to turn), and the control arms help keep the car run straight. The gas shocks dampen the ride. On most kits, sway bars and strut braces are included for a more rigid chassis. In addition, the kit allows drivers to quickly adjust the ride height and corner weight of each individual wheel, giving them flexibility for precise street and track tuning.

All stock vehicles for Alternity sourcebooks that are listed with a "-2" drive rating already have this type of suspension equipped from the factory. They gain no extra benefit if installing this modification.



The best drive rating a vehicle with this suspension may have is "-2".

A technical science-repair skill check requiring two successes are needed to replace the stock front-axle suspension components, and one to replace the stock rear-axle suspension components.

(1) Improve the vehicles drive rating by 1 step permanently.

(2) Add a +1 step penalty to vehicle skill checks if driven off road.

Pro-Spec Suspension Kit

Cost: 6000

This suspension package is designed purely for circuit track racing and hard, high-speed cornering. Very few cars from the manufacturer receive this kit as it sacrifices comfort for pure performance handling. The types of components in this package are the same as the kit above, but of better quality and cornering characteristics. Pro-Specs are more responsive and usually more durable being able to handle the increased weight shifts and G-forces while cornering, though the driver will be sure to feel every bump on road.

Driving a vehicle with a pro-spec suspension off-road makes it handle worse than not having the kit. For that endeavor, a Rally-Spec suspension kit is better suited.



The best drive rating a vehicle with this suspension may have is "-3".

A technical science-repair skill check requiring two successes are needed to replace the stock front-axle suspension components, and one to replace the stock rear-axle suspension components.

(1) Improve the vehicles drive rating by 2 steps permanently.

(2) Add a +1 step penalty to vehicle skill checks if driven off road.

Heavy-Duty Suspension Kit

Cost: 3000

Today's on- and off-road vehicles are well engineered with fine suspensions, built to do the job for which they were designed. However, many vehicles are overloaded, or drivers find themselves on bad roads or operating under unusual conditions where the suspension needs help.

Heavy-duty suspension is applied to commercial trucks and vans that always carry more equipment and cargo on a frequent basis. This kit provides increased load tolerance, durability and safety. Less maintenance and replacement in the long term, and handling and ride quality are improved when hauling a load.

Though not specifically installed for its increased load capacity, many police forces apply this kit to their fleets, giving their cruisers long term durability from various chases, hard cornering, rough road conditions and other abuse their cars go through. Vehicles used in movies for chase, road rage and jump scenes acquire this package too. The car has a better chance to remain straight and intact from the strong beatings, hard landings and various crashes.

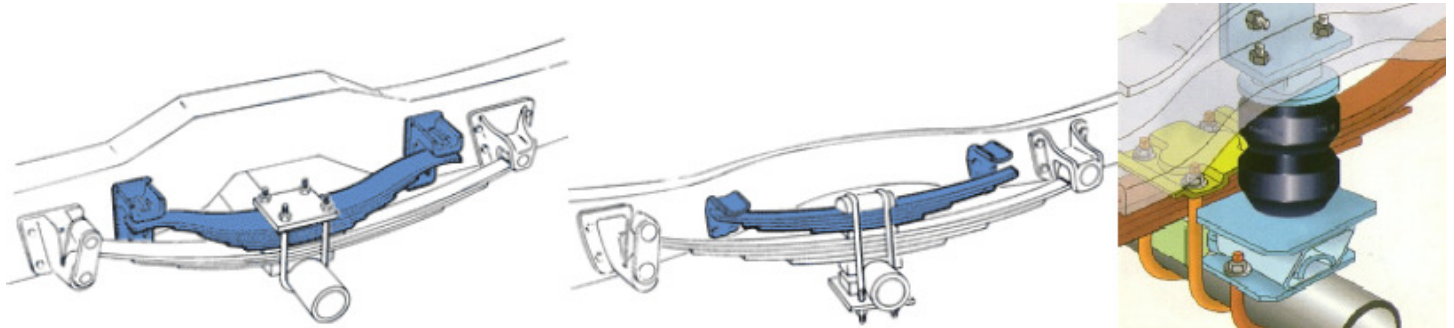
A typical heavy-duty suspension kit may include any combination of the following extra support systems: Tapered extra leaf spring overloads with all necessary hardware, shackles, brackets and U-bolts for installation. Additional high-strength cast iron heavy-duty helper leaf springs that may be just bolt-on or may require welding and drilling.

Super-duty coils are the only practical helper spring alternative when shock absorbers are mounted inside the coil spring and are an excellent choice for vehicles with diesel engines or one with a snow plow mounted. This replacement can give a vehicle an additional 1000 lb load handling capability.

A timbren load booster and ride control kit will reduce sway and improve load stability, prevents bottoming out, eliminates axle hop, and gives an even and level ride when loaded and unloaded. A front axle kit prevents front end nose diving. They are simple to install and require no alteration to your present suspension.

With any system, cornering ability is improved for vehicles not known for handling, generally large trucks and many late-model cars as it also helps counter the effects of body roll.

For the best in all-terrain stability and durability, combine heavy-duty suspension with a lift kit.



A technical science-repair skill check requiring two successes are needed to install the additional suspension support systems, one for the front axle, and the second for the rear axle.

- (1) Improve cruising speed by 10 km/hr.*
- (2) Increase the vehicle's wound rating by 1 point.*
- (3) Vehicle receives a 1-step bonus for durability checks.*
- (4) The vehicle gains 1 extra point of durability space for custom vehicular system use.*

ENGINE MOD CONFUSION ??

After looking over the numerous engine upgrades, you may be wondering which ones can be combined together, and in what order are they allowed. This page will help guide you on what you can do.

1) First, determine the engine type,

- a) Natural aspiration ? Go to part 2
- c) Supercharged ? Go to part 3
- b) Turbocharged ? Go to part 4

2) Natural Aspiration

Mods that may be applied at any time

Nitrous Injection System
Basic NA Tuning / Bolt-ons... **OR**... Chip 'n Exhaust / Carb
Stroker Kit
Tunnel-Ram Intake
Open Headers
Supercharger Kit
(Vehicle is now considered Supercharged, refer to part 3)
Turbo Kit
(Vehicle is now considered Turbocharged, refer to part 4)

Mods with restrictions

Advanced NA Tuning / Heads and Cams *(Requires Basic NA Tuning / Bolt-ons)*
Crate engine *(Refer to page 70 to see included parts)*

3) Supercharged

Mods that may be applied at any time

Nitrous Injection System
Basic Forced Induction / Bolt-ons... **OR**... Chip 'n Exhaust / Carb
(Not allowed if vehicle already had Basic NA Tuning)
Stroker Kit
Open Headers

Mods with restrictions

Advanced Supercharging *(Requires Basic Forced Induction) (Race-grade fuel for amazing quality)*
Crate engine *(Refer to page 70 to see included parts. Do not double up effects of like parts)*

4) Turbocharged

Mods that may be applied at any time

Nitrous Injection System
Basic Forced Induction / Bolt-ons... **OR**... Extra Boost
(not allowed if vehicle had Basic NA Tuning, then applied a Turbo Kit)
Stroker Kit
Open Headers

Mods with restrictions

Advanced Turbocharging *(Requires Basic Forced Induction) (Race-grade fuel for amazing quality)*
Crate engine *(Refer to page 70 to see included parts. Do not double up effects of like parts)*

LOADED / ARMORED

Installing one or more of the custom vehicle systems or weapons and armor present from the *Game Master Guide* should reduce the vehicles performance. Carrying extra passengers and all their gear would affect it as well. The increased mass puts more stress on the engine diminishing its overall performance. Exceptional amounts of dead weight will drop the vehicles top speed. Bulky external systems increase drag. Handling suffers as well. The following tables apply a penalty to the vehicle's performance when installing custom systems or loading too many people and supplies.

<u>Item</u>	<u>Load</u>
Custom vehicle system or weapon	Cost equal to durability space used.
Driver	0
Each additional passenger (≈ 200 lb)	1
Multiple packs loaded with gear	1
Collection of small arms	1
Crate of ammo or war materials	1
Mounted light machine gun	1
Mounted grenade launcher	1
Mounted flame thrower	2
A 55-gal steel drum of extra fuel (≈ 400 lb)	2
A large crate of light goods or produce	1

**Note 1: Do not apply load-out count for heavy vehicles of 18/18/9 durability or greater*

Durability: 18/18/9 or greater Heavy vehicle, semi, bus, etc.

<u>Armor</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
Lt / Med polymeric	(no effect)				
Hvy polymeric	0	-5	-10	-10	-10
Lt alloy	(no effect)				
Med alloy	0	-5	-10	-10	-10
Hvy alloy	0	-10	-20	-20	-20

Durability: 14/14/7 to 17/17/8 Mid- or full-size SUVs, pickups and vans

<u>Load</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
1-4	(no effect)				
5-13	0	-5	-10	-10	-10
14-27	+1	-10	-20	-20	-20
28-49	+1	-15	-30	-30	-30
50-85	+1	-20	-40	-40	-40
<u>Armor</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
Lt polymeric	(no effect)				
Med polymeric	0	-5	-10	-10	-10
Hvy polymeric	+1	-10	-20	-20	-20
Lt alloy	0	-5	-10	-10	-10
Med alloy	+1	-10	-20	-20	-20
Hvy alloy	+1	-15	-30	-30	-30

Durability: 10/10/5 to 13/13/6

Luxury, mid-size and muscle cars, compact pickups and SUVs

<u>Load</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
1-3	(no effect)				
4-8	0	-5	-10	-10	-10
9-16	+1	-10	-20	-20	-20
17-28	+1	-15	-30	-30	-30
29-47	+1	-20	-40	-40	-40
<u>Armor</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
Lt polymeric	(no effect)				
Med polymeric	0	-5	-10	-10	-10
Lt alloy	0	-5	-10	-10	-10
Med alloy	+1	-10	-20	-20	-20

Durability: 6/6/3 to 9/9/4

Economy, compact, and sports cars

<u>Load</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
1-2	(no effect)				
3-4	0	-5	-10	-10	-10
5-8	+1	-10	-20	-20	-20
9-13	+1	-15	-30	-30	-30
14-20	+1	-20	-40	-40	-40
<u>Armor</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
Lt polymeric	0	-5	-10	-10	-10
Med polymeric	+1	-10	-20	-20	-20
Lt alloy	+1	-10	-20	-20	-20
Med alloy	+1	-15	-30	-30	-30

Durability: 2/2/1 to 5/5/2

Motorcycles, trikes, and ATVs

<u>Load</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
1	0	-5	-10	-10	-10
2	+1	-10	-20	-20	-20
3	+1	-15	-30	-30	-30
4	+1	-20	-40	-40	-40
<u>Armor</u>	<u>Drive</u>	<u>Acc</u>	<u>Cruise</u>	<u>Max</u>	<u>Brake</u>
Lt polymeric	0	-5	-10	-10	-10
Lt alloy	+1	-10	-20	-20	-20

PERKS AND FLAWS

Hear her purr

Driver knows exactly when to shift without ever looking at the tachometer by simply listening to the tune and pitch of the engine. The driver believes that the "girl" does "speak" to him / her.

Driver may ignore 1-step of penalty when accelerating greater than 60 km/hr.



Character Perk: -2 pts

Powershifter

During gear changes, the driver does not lay off the gas pedal, and the clutch is briefly depressed while the 'hammer' is rapidly shifted into a higher gear, keeping the engine in its power band where the car accelerates slightly quicker. This puts significant strain on the transmission and high risk for burning up the clutch, and missing the gear may over-rev and blow the engine with loss of control.

Add 5 points to the acceleration value whenever the driver achieves a success during a moderate or extreme maneuver.

However, during a failed check, the driver must apply an additional 1-step penalty on the recovery check. Also, the vehicle loses 1 stun whenever this perk is used during a scene.

Character Perk: -2 pts

Feel the power

Driver can feel how the vehicle is reacting through the shifter and steering wheel through the palms of his or her hands, and is well adept at maximizing deceleration by downshifting quickly using engine braking. Many veteran heavy-haulers have this perk as well as racers.

Driver gains a 1-step bonus on the recovery roll.

Improve the vehicle's brake rating by 20 points.

Character Perk: -2 pts



Adrenaline Junkie

Also known as a "leadfoot", this driver runs the car very hard, frequently blows past the speed limit and doesn't know when to quit when challenged by another driver. A buried speedo, blurred landscape, and screaming engine gets the heart racing. Good news is the experience handling the vehicle at its limits. Bad news is that the public and local PD dislike the stupid stunts and wreckless speed.

Increase the vehicle's cruising speed by 20 km/hr.

When driving at or near max speed, there is only a 2-step penalty rather than a 3-step.

Character must make a willpower check to resist a street race or running from the law.

Character Perk: -2 pts



Stuntman

Character Perk: -2 pts

In dire situations, the character is well versed in handling the car in reverse, and when wanting to turn to the right, he or she will not turn the steering wheel to the right like some confused people. This person can also brake hard, and quickly back the car into a tight parking space without hitting anything. Best of all, driving at max reverse speed is not much of a problem for the driver.

Driving in reverse is considered a moderate maneuver rather than an extreme maneuver.

(A car's max speed in reverse is equal to its ACC rating)

Also, while in reverse, the driver need only make a simple vehicle-Op check to swing the car around and drive forward without losing speed (Bootleg maneuver).



Granny Shifter

Character Flaw: +2 pts

Also known as "short shifting", the driver simply takes longer than normal to shift with a manual transmission and/or shifts when the engine RPM is too low. Drivers weaned on automatics have this flaw when confronted with a stick shift.

Reduce the vehicle's acceleration rating by 5 points.

Premium model

Vehicle Perk: 125% cost

This is simply a quick and dirty way to differentiate a model line, one with a better luxury options package and with more engine displacement or offered with a turbo package over the basic-trimmed model of the same brand or superior to another competitor's model. Apply this perk to one of the vehicle templates when you know it is better than the average model of the group.

If the factory offers a bigger motor: (stroker and bore kit mod) increase the vehicle's acceleration by 5 points, the cruising speed by 20 km/hr, and top speed by 20 km/hr.

If a turbo is offered: (small turbo kit mod) increase the vehicle's acceleration by 5 points, cruising by 10 km/hr and top speed by 20 km/hr.

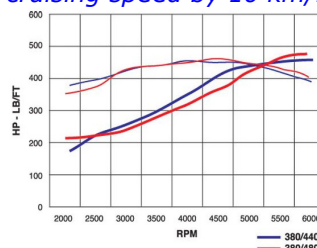


Factory Freak

Vehicle Perk: 105% cost

A car (usually sports or muscle car) that seems to have more power from the factory than other units of the same exact model and year. The reality of this is probably due to natural random deviation on a dyno run since no two engines of the same specs will ever produce identical power curves. Factory freaks tend to measure a bit on the high side.

Improve the vehicle's cruising speed by 10 km/hr.



Money Pit

Vehicle Flaw

This is a simple catch-all category for vehicles that are more troublesome than they appear. The body may still be straight and the interior could seem inviting, but the drivetrain is old or beat up, and still running on worn-out stock parts. The tired engine could use a rebuild, the weakened suspension is well past its prime, the brakes are shot. Usually a vehicle that's been sitting around and forgotten or one driven to death and never repaired.

Apply the high-mileage version if a character or opponent is looking for a cheap used car. Junker is a good flaw to apply to vehicles haphazardly restored in a post-apocalyptic setting since maximum power and performance are not achievable due to the lack of specialized tools and computers.

High mileage:

Cost: 75%

Reduce the vehicle's cruising speed by 10 km/hr. Reduce its top speed 10 km/hr. Reduce its brake rating by 10 points. (A stroker kit or crate engine and high-performance brakes removes this flaw)

Junker:

Cost: 50%

Reduce the vehicle's acceleration by 5 points. Reduce its cruising by 20 km/hr. Reduce its top speed 20 km/hr. Reduce its brake rating by 20 points.



Run-flat tires

Vehicle Perk: 105% cost

These are tires designed to resist the effects of deflation when punctured, and to enable the vehicle to continue to be driven at reduced speeds and for limited distances. There are three different types; self-supporting, self-sealing and auxiliary-supported. Their greater mass may rub off performance.

A character is NOT required to make a vehicle op skill check during the event of a blowout when driving at the vehicle's cruising speed or less.

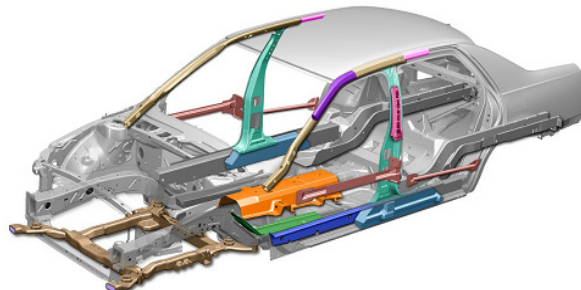


Crumple Zones

As an option, this rule can be applied to all modern vehicles in the "new models" section listed from page 17 to 24. the With airbags, shatter-proof windows (glass doesn't fly everywhere), and crumple-zone-designed body construction made to absorb the damage away from the driver and passenger in a collision. The vehicle breaks down easier, but helps improve the occupants' safety.

Occupants ignore the first 2 points of damage received from a collision if buckled in.

However, the vehicle suffers a 1-step penalty to durability checks related to collisions.



Drivetrains



4-Wheel Drive

Driver gains a 2-step bonus when accelerating greater than 60 km/hr.

Having power split among all four wheels helps traction greatly during a launch in a drag race, and burnouts are harder to come by. This layout is most commonly found on pickups. Some luxury and sports cars use it as well.

Driver gains a 1-step bonus on the recovery roll when off-roading or in poor weather.

Torque applied to all four wheels improves traction on rough terrain. This bonus is cumulative with the appropriate tires and suspension.

Mid-Engine, Rear-Wheel Drive

Driver gains a 1-step bonus when performing an extreme maneuver.

This is a very stable and evenly weight-distributed drivetrain layout. This rare setup is only found on premium sports cars as it improves weight transfer during hard acceleration and cornering.

Driver gains a 1-step bonus when accelerating greater than 60 km/hr.

With most of the weight on the rear wheels, getting traction during a launch is easier. This is superior to front-wheel drive cars in this aspect as some drivers with a muscle car tend to put a cement block or a few bricks in their trunk for better traction.

Front-Engine, Rear-Wheel Drive

Driver suffers a 1-step penalty on the recovery roll to maintain control.

It is easier to fishtail or spinout with this drivetrain as the vehicle wants to act loose in poor weather. Many trucks, sedans, and muscle cars use this layout. On high-powered RWD cars, the back end can very easily slip out on hard 90° or tighter turns.

Front-Engine, Front-Wheel Drive

Driver suffers a 1-step penalty when accelerating greater than 60 km/hr.

This type of drivetrain causes wheel-hop and loss of traction under hard acceleration. This common layout is found on many compacts and sedans.

Tracked Vehicles

Driver may ignore 1 step of penalty to vehicle skill checks relating to mud, snow and ice conditions.

In contact with a larger surface area more than a wheeled vehicle, tracks provide lower force per area, and better traction on soft and uneven ground.

Gaining or losing ground



The *Players Handbook* mentions the option of applying a 1-step penalty to vehicle skill checks when accelerating greater than "60 meters per phase". That speed tolerance should be increased for a setting in a higher progress level so that the normal speed of the day will not be penalized.

The penalty for speeding faster should be increased using some the newer vehicles or adding more power with the various engine modifications in this resource. It takes a skilled and experienced driver to control a vehicle when power and acceleration gets out of hand from practical use. This also removes the need to make another specialty vehicle skill called "racecar".

Depending on the grades of success during moderate or extreme maneuvers, either driver may lose or gain additional ground versus their opponent when performing a maneuver. Too much wheelspin, out of the powerband, or just in a poor position, adjust the characters' projected acceleration by the moderate or extreme maneuver skill check result. (*As expected, flooring it with a sports car or motorcycle in hazardous situations is a surefire way to wreck it.*) **Do not forget to apply the vehicle's drive rating...**

Table 1: MODERATE / EXTREME MANEUVER		Skill Result	Distance Change
		Amazing	Acceleration
		Good	Acceleration (-5) points
		Ordinary	Acceleration (-10) points
		Failure	Make a recovery check
Skill check modifiers		Adjustment	Reason
Weather, hazards, conditions, etc...		varies	
Drive / maneuver rating		varies	
4-wheel drive (or all-wheel)		-2	excellent traction
Mid-engine, rear-wheel drive		-1	favorable weight transfer
Front-engine, front-wheel drive		+1	wheel hop
Slicks, racing tires		-2	excellent traction
Drag radials (street-legal race tires)		-1	good traction
Old, worn tires		+1	poor traction
Projected acceleration		PL 5	PL 4 PL 6
Accelerating at 20 - 25		-4	-2 -5
Accelerating at 30 - 35		-3	-1 -5
Accelerating at 40 - 45		-2	0 -4
Accelerating at 50 - 55		-1	+1 -3
Accelerating at 60 - 65		0	+2 -2
Accelerating at 70 - 75		+1	+3 -1
Accelerating at 80 - 85		+2	+4 0
Accelerating at 90 - 95		+3	+5 +1
Accelerating at 100 - 105		+4	+5 +2
Accelerating at 110 - 115		+5	+5 +3
Accelerating at 120 - 125		+5	+5 +4
Accelerating at 130 <		+5	+5 +5

Obviously, on a failed skill check from a moderate or extreme maneuver, an immediate recovery roll is required.

Table 3: RECOVERY CHECK	Skill Result	Distance Change	State of Control
	Amazing	Acceleration (-20) points	Drifting, powerslide
	Good	Acceleration (-30) points	Drifting, powerslide
	Ordinary	Acceleration (-40) points	Skid, burnout, lugging
	Failure	No acceleration.	Spinout, donut, stalled
	Crit. Failure	No acceleration.	Crash

DIRECT DAMAGE



This section focuses on specific damage applied to a vehicle and its overall effects depending on the severity, and a general explanation of the different grades of damage. Note that **all damage effects are cumulative**. A vehicle should have an acceleration of at least 10 unless destroyed. I realize that there is a lot of data here to crunch and it would bog gameplay, but this is what I propose if you want to consider damage effects.

STUN DAMAGE

Losing stun points on a vehicle could indicate any damage to the body and interior that does not directly affect the main running gear. Shattered windows, mirrors, head and tail lights. Crumple or torn sheet metal or plastic quarter panels, crushed hood and trunk lid unable to close. A door could be jammed shut or swing open unable to remain closed. The roof or supporting pillars could be knocked in. Cosmetic damage to the seats, dash and console. Malfunction to various electronic luxury options like the NAV system and radio. Overall, stun damage ruins a vehicle's smooth aerodynamic lines at high speeds opening up cavities and increasing drag. One or two flats will force the car to slow down a bit, even if the tires are run-flat types. A good hit of stun damage to the engine bay could partially choke the intake system, preventing the engine from obtaining optimal power. Still, a vehicle can perform near its expected performance if all it loses are stun points.

Note: Because this is my interpretation of stun damage, I don't think its necessary to roll for vehicle durability checks due to lost stuns since its primarily cosmetic damage. On the flip side, I would not allow stuns to recover after the scene as this is still permanent damage. The characters have to spend money or time to repair it.

Lost half of stuns points:

Reduce max speed by 10 km/hr.

Oversized vehicles:

No effect.

Lost all stun points:

Reduce acceleration by 5 points.

Reduce cruising speed by 10 km/hr.

Reduce max speed by another 10 km/hr.

Reduce max speed by 10 km/hr.

WOUND DAMAGE

Suffering a loss of wound points may account for damage upon the running gear, suspension and chassis components around the engine. A blown or flattened tire, a damaged wheel or rim now unbalanced. Weakened or failed parts upon the braking system may eventually leak and possibly catch fire. Suspension components jammed and unable to rebound properly. Loss of power steering. A loss of a gear from a strong hit underneath the vehicle. Smashed in grill or front nose forcing the cooling system to leak or rupture, or belt-driven accessories to fail. Heavier damage to the bodywork, loss of panels, hood, trunk lid or a door producing increased drag. Hiccups in the fuel delivery or electronic management system. Failure of some of the gauges such as the speedo or tachometer, oil pressure and temperature. A vehicle that loses all of its stuns and wounds and is somehow still driveable could appear as a skeletonized junker with a steering wheel, engine, transmission and four wheels on the base chassis. Or perhaps it could look like something that was chewed up and spat out.

Lost half of wound points:

*Reduce acceleration by 5 points.
Reduce cruising speed by 10 km/hr.
Reduce max speed by 20 km/hr.
Worsen the drive rating by a 1-step penalty.
Reduce the brake rating by 20 points.*

Oversized vehicles:

*Reduce cruising speed by 10 km/hr.
Reduce max speed by 10 km/hr.*

Lost all wound points:

*Reduce acceleration by additional 5 points.
Reduce cruising speed by additional 10 km/hr.
Reduce max speed by additional 20 km/hr.
Worsen the drive rating by an additional 1-step penalty.
Reduce the brake rating by an additional 20 points.*

*Reduce cruising speed by 10 km/hr.
Reduce max speed by 10 km/hr.
Worsen the drive rating by a 1-step penalty.*

MORTAL DAMAGE

Losing mortal points represents direct damage applied to the engine, transmission, wheels and frame. Obviously, a vehicle will cease to function if too much mortal damage is taken. The engine's ability to produce power is drastically reduced. Its intake and exhaust system may be crushed preventing free breathing. Internal sensitive mechanical components may fail from excessive structural damage to the block. A turbo or supercharger may be damaged and unable to provide necessary boost. Compression would diminish from a blown gasket or valve failure. Transmission gears or the axle could grind and be stripped. The four-wheel drive transfer case may be damaged enough to prevent use of all-wheel drive. Steering may be compromised or jammed and make it difficult turn the vehicle around sharp bends. The engine may be overheating or on the verge to quit. The engine management computer or fuel system malfunction, unable to deliver enough gas or produce proper spark timing. Brakes may be warped or disabled preventing a quick stop. Blown or shredded tires force the vehicle to drive on its rim. The frame may be flexed and unbalanced.

For each lost mortal point:

*Reduce acceleration by 5 points.
Reduce cruising speed by 10 km/hr.
Reduce max speed by 10 km/hr.
Reduce the brake rating by 20 points.*

Oversized vehicles:

*Reduce acceleration by 5 points.
Reduce cruising speed by 10 km/hr.
Reduce max speed by 10 km/hr.
Reduce the brake rating by 10 points.*

Neglect and Weathering

Perhaps a vehicle was never damaged by man, and instead sat in one place out of the way, and out of sight for decades. It was simply forgotten and left to endure the elements where time alone and nature would slowly break down the vehicle through the endless cycles of seasonal weather and other hazardous natural phenomena. Pre- and postwar, and many late-model cars slowly turn into horrid rust buckets as sheet metal slowly dissolves away. Modern and near-future cars' abundant plastic panels and components discolor, fade, and fall away exposing the metal frames and delicate electronic controlled systems.

Tires deflate within a few years, though the rubber and synthetics will remain intact and last for centuries. Paint deteriorates quickly, and once faded away, rust corrodes the cars metallic bodies as the years pass. Left unprotected for a century, most passenger cars, even in forgiving environments will be reduced to skeletons and practically unrepairable. Intense time and effort would be required to restore the vehicle to its former glory. Another century, the family car is barely a recognizable heap of scrap metal and withered plastics, and that's only if it has not been buried under snow, sand, dirt, vegetation or even underwater. A few lucky ones will have trees growing from between them and splitting the frames.



The following is just an idea for how to simulate the damage upon a vehicle that's been forgotten in a post-apocalyptic setting. All of the areas and buildings listed are those that have been abandoned. Decide how long the vehicle has been sitting before its discovery, and make a vehicle durability check with the roll modified by location, climate and past events.

Repairing. Have the character make a technical science-*repair* skill check for each point of damage, a failure may indicate more time is needed, the part doesn't fit, the component is simply useless after attempts to repair it, a supporting part is missing or broken. The *jury-rig* or *invention* skill may be applied when using parts from a different brand or similar model. Applying the penalties for the Money Pit flaw is a good effect for a wasteland-restored car.

Repair times: 1 hour per stun damage, 1 day per wound damage, 1 week per moral damage?

Protection level is the number of years in which vehicle does not receive exposure damage from sitting underneath this structural unit. For example, a car lost for 100 years and then found within an indoor mall has only taken 40 years of weathering damage from exposure (100 - 60). They are cumulative with each other, simply add them if using the real exposure time scale.

Aggravated damage is further penalty applied to the die roll based on climate and previous past events.

GW Time refers to Gamma World time. In that setting, vehicles do not weather as fast from damage and last much longer, allowing some special units to still be driven after centuries if repairs are completed. The time is based on a divided scale of ten factors. For example, that setting takes place about 800 years after society fell. Therefore, each factor would be 80 years of exposure to the elements. The factor listed next to the structure or condition is the percentage of exposure the vehicle has received. Multiple conditions are cumulative, just multiply them together.

Unit standing means just that, most of the structure is upright and still has most of its ceiling protecting the interior. However, glass windows may have been blown out long ago, and various scattered debris may have piled around and damaged the car.

Unit collapsed is, of course, a fallen structure. Not much protection, the collapsed components have damaged the vehicle, and what little protection it still offers is due to the vehicle being mostly buried.

ADJUSTMENT TO EXPOSURE TIME

<u>Suburbia</u>	<u>Protection level</u>	<u>Unit standing</u>	<u>Unit collapsed</u>
Barn, locked shed	-20 years	<i>GW time 8/10</i>	<i>GW time 9/10</i>
Garage, standard house	-40 years	<i>GW time 7/10</i>	<i>GW time 9/10</i>
Garage, mansion	-60 years	<i>GW time 6/10</i>	<i>GW time 8/10</i>
*Subsurface garage	-80 years	<i>GW time 5/10</i>	<i>GW time 8/10</i>

<u>Downtown</u>			
Dealership showroom floor	-40 years	<i>GW time 7/10</i>	<i>GW time 9/10</i>
Autoshop, repair garage	-60 years	<i>GW time 6/10</i>	<i>GW time 9/10</i>
Public storage-rental unit	-60 years	<i>GW time 6/10</i>	<i>GW time 8/10</i>
Indoor mall	-60 years	<i>GW time 6/10</i>	<i>GW time 8/10</i>
Lobby, large office building	-60 years	<i>GW time 6/10</i>	<i>inaccessible</i>
Public parking garage			
Multi-level open-air	-40 years	<i>GW time 7/10</i>	<i>GW time 9/10</i>
*Subsurface complex	-80 years	<i>GW time 5/10</i>	<i>inaccessible</i>
*Subway or underground rail	-80 years	<i>GW time 5/10</i>	<i>inaccessible</i>

<u>Other situations</u>			
In cargo plane	-40 years	<i>GW time 7/10</i>	<i>GW time 9/10</i>
In semi van-trailer	-40 years	<i>GW time 7/10</i>	<i>GW time 9/10</i>
In heavy-duty metal container (hailed by semi, train or ship)	-100 years	<i>GW time 4/10</i>	<i>GW time 8/10</i>
Mountain tunnel pass	-60 years	<i>GW time 6/10</i>	<i>inaccessible</i>
*Sealed vault or Bunker	-120 years	<i>GW time 3/10</i>	<i>inaccessible</i>

<u>Modifications</u>			
Lightly or moderately armored	-10 years	<i>GW time 9/10</i>	---
Heavily armored	-20 years	<i>GW time 8/10</i>	---
Roll cage	-10 years	<i>GW time 9/10</i>	---

***Note.** Listings for underground areas apply only to those that are dry and not flooded out. Many of them in major cities will be swamped due to failed pumps allowing water to flow in and pool.

MODIFIERS TO GRADE OF DAMAGE

<u>Climate / Terrain</u>	<u>Aggravated damage</u>
Near the coast, salty air	+1
Heavy rain	+1
Forrest, jungle	+1
Sandstorms	+1
Desert, minimal rain	-1
Barren, extreme cold	-1
<u>Past events</u>	<u>Aggravated damage</u>
Vandalism, war zone	+1
Major earthquake	+2 (within a building)
Firestorm, wildfires	+3
Hurricanes, tornados, etc	+3
Tsunami	+3
Flooded environment	+3
Submerged underwater	(vehicle is useless)

<u>GW time exposure</u> GW years x 1%	<u>Real Exposure ?</u> +1 year	<u>Marginal</u> (1/2) s	<u>Ordinary</u> (1/4) s	<u>Good</u> 1 s	<u>Amazing</u> none
GW years x 5%	+5 years	(1/2) s 1 w	(1/2) s	(1/4) s	1 s
GW years x 10%	+10 years	(3/4) s 1 w	(1/2) s 1 w	(1/2) s	(1/4) s
GW years x 20%	+20 years	(3/4) s (1/4) w	(3/4) s 1 w	(1/2) s 1 w	(1/2) s
GW years x 30%	+40 years	(3/4) s (1/4) w 1 m	(3/4) s (1/4) w	(3/4) s 1 w	(1/2) s 1 w
GW years x 40%	+60 years	all stuns (1/4) w 1 m	(3/4) s (1/4) w 1 m	(3/4) s (1/4) w	(3/4) s 1 w
GW years x 50%	+80 years	all stuns (1/2) w 1 m	all stuns (1/4) w 1 m	(3/4) s (1/4) w 1 m	(3/4) s (1/4) w
GW years x 60%	+100 years	all stuns (3/4) w 1 m	all stuns (1/2) w 1 m	all stuns (1/4) w 1 m	(3/4) s (1/4) w 1 m
GW years x 70%	+120 years	all stuns (3/4) w 2 m	all stuns (3/4) w 1 m	all stuns (1/2) w 1 m	all stuns (1/4) w 1 m
GW years x 80%	+140 years	all stuns all wounds 2 m	all stuns (3/4) w 2 m	all stuns (3/4) w 1 m	all stuns (1/2) w 1 m
GW years x 90%	+160 years	all stuns all wounds (1/2) m	all stuns all wounds 2 m	all stuns (3/4) w 2 m	all stuns (3/4) w 1 m
GW years x 100%	+180 years	Destroyed	all stuns all wounds (1/2) m	all stuns all wounds 2 m	all stuns (3/4) w 2 m
	+200 years	-----	Destroyed	all stuns all wounds (1/2) m	all stuns all wounds 2 m
	+220 years	-----	-----	Destroyed	all stuns all wounds (1/2) m
	+240 years	Vehicle is completely broken down.			

BUILD EXAMPLES

<i>Rock Crawler</i>		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Jeep	-	45	100	180	100	11/11/5	
Modifications								
Drivetrain:	All-terrain tires	-	-	(-10)	-	-	-	
Drivetrain:	Shorter drive axle	-	-	(-20)	(-30)	-	-	
Drivetrain:	Locking differential	-	-	-	-	-	-	
Body:	Roll cage - amazing	-	(-5)	-	-	(-10)	+2s, +2w, +1m	(-1)
Engine:	Basic NA tune, bolt-ons	-	+10	+10	+30	-	-	
Suspension:	Articulated suspension	-	-	(-10)	-	-	-	
Final specs:		0	50	70	180	90	13/13/6	(-d4)

Here is a good example of a seriously capable Jeep modified for tackling tight and rugged mountain trails. Roll cage is advised unless you want your first ride to turn fatal. Basic bolt-ons, a short axle and good tires are must haves for overcoming the challenging aspects of the course. Articulated suspension to maximize tire contact with the crooked surfaces. Driver ignores 2 steps of penalty at speeds equal to ACC rating or less for off-road conditions, otherwise just ignore 1 step of penalty if below cruising speed. Driver gains 1 step bonus for recovery in mud, snow, sand and rock crawling. Ignore 1-step penalty driving a steep incline, and gain 1-step bonus on the recovery roll on steep incline.



<i>Dune Basher</i>		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Late-model wagon	0	35	100	160	-80	15/15/7	
Drivetrain:	Extreme mud tires	-	-	(-10)	(-10)	-	+1s	
Drivetrain:	Shorter drive axle	-	-	(-20)	(-30)	-	-	
Engine:	Basic NA tune, bolt-ons	-	+10	+10	+30	-	-	
Engine:	Stroker kit	-	+5	+20	+10	-	-	
Suspension:	Off-road lift kit	-	-	(-10)	-	-	+1s	
Final specs:		0	50	90	160	-	17/15/7	

Here is another off-road specialist, but of a different sort. This is more of your high-speed desert runner or mudder. Dont be fooled by the exterior looks of this "sleeper". It may be of a late-model but the original 350 engine has been rebuilt and stroked to a 383. Driver ignores 1 step of penalty for off-road conditions and receives a 2-step bonus on the recovery roll in mud, sand or snow. Vehicle's drive rating worsens by 1-step if beyond cruising speed on the street.

Z-Day Survival Truck		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Full-size 3500 diesel	1	45	100	210	80	17/17/8	
Drivetrain:	All-terrain tires	-	-	(-10)	-	-	-	
Drivetrain:	High-performance brakes	-	-	-	-	+20	-	
Body:	Snow plow	-	(-5)	(-10)	(-10)	(-10)	+1w	
Engine:	Basic turbo tuning	-	+15	+10	+50	-	-	
Suspension:	Heavy-duty suspension	-	-	+10	-	-	+1w	(-1)
Armor:	Light alloy	-	(-5)	(-10)	(-10)	(-10)	-	
Load cost:	10 points	-	(-5)	(-10)	(-10)	(-10)	-	
Crew:	(3) 3 extra passengers							
Weapon:	(2) Mounted .50 cal MG							
Supplies:	(1) Multiple packs of gear							
	(1) Collection of small arms							
	(1) Crate of ammo							
	(2) 55-gal drum of fuel							
Final specs:		1	45	80	230	70	17/19/8	(-d4)
							(d6-1/d6-1/d4-1)	

This truck is a bit excessive and has extensive work done in preparation for the horror that has plagued across the country. I selected a full-size truck for its size and cargo capacity. The original turbo-diesel has been tuned and modified, and combined with the snow plow, allows for easier management of pushing your way through wrecked autos, roadside debris and groups of walking dead. Fabricated Heavy-duty suspension and all-terrain tires to support the truck when conditions force you off the street. Mounted heavy machine gun and armor plating to help keep the nasties at bay or other raiders attempting to jack you. Though the load has reduced it cruising ability, on a clear stretch, the near 600-hp truck definitely has legs.



Wasteland Warrior		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Classic muscle car	1	65	130	230	100	11/11/5	
Flaw:	Money pit - Junker	-	(-5)	(-20)	(-20)	(-20)	-	
Modifications								
Body:	Weight reduction - good	-	+5	+10	-	+20	(-2) s	
Body:	Full roll cage - amazing	-	(-5)	-	-	(-10)	+2s, +2w, +1m	(-1)
Body:	Grille guard	-	-	-	-	-	-	
Engine:	Carb 'n exhaust	-	+5	+10	+10	-	-	
Engine:	Open headers	-	-	(-10)	+10	-	-	
Suspension:	Heavy-duty suspension	-	-	+10	-	-	+1 w	(-1)
Armor:	Light alloy	-	(-5)	(-10)	(-10)	(-10)	-	
Final specs:		1	60	120	220	80	11/14/6	(-d6)
							(d6-1/d6-1/d4-1)	

The "Wasteland Warrior" is a highly modified car of the post-apocalyptic setting. Muscle car was chosen for its raw power from a simpler carbureted big-block V8 which would be easier to maintain in that setting. *(Though gas may be hell to find)* The all-steel body combined with a roll cage, grille guard, heavy-duty suspension, and light alloy plating makes this car focused on toughness, able to protect the driver during a conflict. I kept the modifications low tech as performance autoshops with sophisticated tools no longer exist. Optionally, the owner may have mounted a light automatic weapon or two on the hood or roof.

Armored Hum-vee		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Hum-vee	-	30	90	140	80	16/16/8	
Drivetrain:	All-terrain tires <i>(stock equipped)</i>	-	-	*	-	-	-	
Body:	Grille guard	-	-	-	-	-	-	
Engine:	Turbo kit <i>(stock equipped)</i>	-	*	*	*	-	-	
Suspension:	Off-road lift kit <i>(stock equipped)</i>	*	-	-	-	-	*	
Armor:	Light alloy	-	(-5)	(-10)	(-10)	(-10)	-	
Load cost:	7 points	-	(-5)	(-10)	(-10)	(-10)	-	
Crew:	(3) 3 extra passengers							
Weapon:	(2) Mounted .50 cal MG							
Supplies:	(1) Multiple packs of gear							
	(1) Collection of small arms							
Final specs:		0	20	70	120	60	16/16/8 (d6-1/d6-1/d4-1)	

Here's what happens when I attempted to up-armor the Hum-vee. Its performance is not very good. Like the actual model where the military applies 2,000 lb of plating, the Hum-vee was not designed to be an armored personnel carrier. The armoring is a temporary fix to help protect the troops until an actual JLTV (Joint Light Tactical Vehicle) unit comes into service to replace the 25-year-old design. At the moment, models like the Cheetah and Buffalo MRAP provide much better protection from ambush and devastating roadside mines. Still, the Hum-vees are way more common.

Dont forget that some modifications listed in this resource would be stock equipment on a Hummer.



Armored VIP sedan		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Ultra-luxury car	-	60	110	290	100	13/13/6	
Drivetrain:	High-performance brakes	-	-	-	-	*	-	
Drivetrain:	Drag radial tires <i>(stock equipped)</i>	-	-	-	-	-	-	
Engine:	Turbo kit <i>(stock equipped)</i>	-	*	*	*	-	-	
Engine:	Extra boost	-	+5	+10	+20	-	-	
Suspension:	Cornering pack <i>(stock equipped)</i>	*	-	-	-	-	-	
Armor:	Light alloy	-	(-5)	(-10)	(-10)	(-10)	-	
Load cost:	5 points	-	(-5)	(-10)	(-10)	(-10)	-	
Crew:	(3) 3 body guards							
	(2) 2 other escorts							
Final specs:		0	55	100	290	80	13/13/6 (d6-1/d6-1/d4-1)	

This one is quite simple, take a large luxury sedan, armor it and add some body guards and other escorts that follow a celebrity, corporate exec, politician, or some other wealthy and paranoid individual living near a hostile community. Unlike most trucks, the armoring on this sedan may not be as obvious. Even though the vehicle still had respectable speed with all that mass, boost was upped on the turbo to maintain respectable performance to break away on the highway if someone decides to tail them. Any vehicle that can still keep up will most likely be smaller and lighter, therefore easier to deal with.

Deuce Coupe Hot Rod		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Prewar coupe	1	35	80	140	60	9/9/4	
Drivetrain:	Drag radials	-	-	-	-	+10	-	
Drivetrain:	Race-built transmission	-	+5	+10	+10	+10	-	
Drivetrain:	High-performance discs	-	-	-	-	+40	-	
Body:	Chop top	-	-	-	+10	-	-	
Engine:	Basic NA tuning	-	+10	+10	+30	-	-	
Engine:	Advanced NA tuning-amazing	-	+15	+10	+40	-	-	
Engine:	Tunnel-ram intake	-	+5	+10	+10	-	-	
Engine:	Open headers	-	+5	-	+10	-	-	
Engine:	Stroker and bore kit	-	+5	+20	+20	-	-	
Suspension:	Cornering package	(-1)	-	-	-	-	-	
Final specs:		0	80	140	270	120	9/9/4	

Here we have restored a '32 Ford with the flathead V8 and applied all of the power upgrades for the engine. The engine has been completely worked over. Its all based on natural air induction, no nitrous, no turbo, no blower. This 'lil coupe isn't exactly street legal roaring down the road with its open headers. Fancy paintjob to go along with its chopped top. A scoop sticks out, and the side panels covering the engine bay have been removed to show off the engine in all of its glory. Also has upgraded suspension to handle all that extra power.



Lead Sled Show Car		Drive	Acc	Cruise	Max	Brake	Durability	Check
Model:	Postwar car, standard V8	1	45	90	160	80	11/11/5	
Drivetrain:	Drag radial tires	-	-	-	-	+10	-	
Drivetrain:	Race-built transmission	-	+5	+10	+10	+10	-	
Drivetrain:	High-performance discs	-	-	-	-	+40	-	
Body:	Chop top	-	-	-	+10	-	-	
Body:	Kustom body-lead sled	-	-	-	+10	-	-	
Engine:	Nitrous kit, 150-shot	-	+15	-	+40	-	-	
Engine:	Tunnel-ram intake	-	+5	+10	+10	-	-	
Engine:	Crate engine-good	-	+25	+50	+70	-	-	
Suspension:	Lowered via Kustom body	(-1)	-	-	-	-	-	
Final specs:		0	80	160	270	140	11/11/5	
w/nitrous:		-	95	-	310	-	-	

Take an old, early 50s Mercury and customize it as far as you can. This look-but-dont-touch classic with its all new drivetrain and powerplant is no slouch. Chromed accessories and valve covers, nitrous and a tunnel ram compliment the engine bay. Chopped and swooped body lines, clear-coated paintjob and rich interior complete the package. A vehicle like this is never raced and hardly driven. But otherwise, here's the stats to run something like it.