

Drifting

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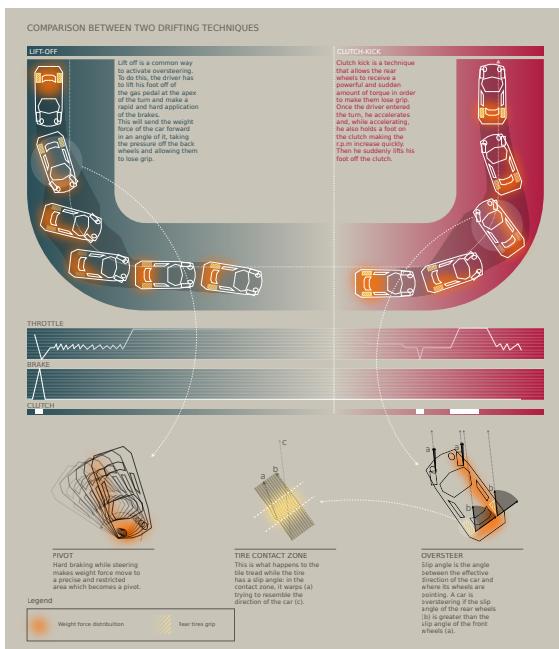
0.1 Drifting



Steve Moore in his Boss Motorsport S14 Silvia at King of Europe Round 3 on Lydden Hill Race Circuit.



video of several cars drifting



A diagram showing two different drifting techniques

Drifting is a driving technique where the driver intentionally **oversteers**, causing loss of traction in the rear wheels or all tires, while maintaining control for the entirety of a corner. A car is drifting when the rear **slip**

angle is greater than the front slip angle, to such an extent that often the front wheels are pointing in the opposite direction to the turn (e.g. car is turning left, wheels are pointed right or vice versa, also known as **opposite lock** or **counter-steering**).

As a **motorsport discipline**, professional drifting competitions are held worldwide and are judged according to the speed, angle, showmanship and line taken through a corner or set of corners.* [1]

0.1.1 History

Origin

Although the origin of drifting is not known, Japan was one of the earliest birthplaces of drifting. It was most popular in the **All Japan Touring Car Championship** races. Motorcycling legend turned driver, **Kunimitsu Takahashi**, was the foremost creator of drifting techniques in the 1970s. This earned him several championships and a legion of fans who enjoyed the spectacle of smoking tires. The **bias ply** racing tires of the 1960s-1980s lent themselves to driving styles with a high slip angle. As professional racers in Japan drove this way, so did the street racers.

Keiichi Tsuchiya, known as the “Drift King” (ドリキン Dorikin), became particularly interested by Takahashi's drift techniques. Tsuchiya began practicing his drifting skills on the **mountain roads of Japan**, and quickly gained a reputation amongst the racing crowd. In 1987, several popular car magazines and tuning garages agreed to produce a video of Tsuchiya's drifting skills. The video, known as **Pluspy**,* [2] became a hit and inspired many of the professional drifting drivers on the circuits today. In 1988, alongside **Option** magazine founder and chief editor **Daijiro Inada**, he would help to organize one of the first events specifically for drifting called the D1 Grand Prix. He also drifted every turn in **Tsukuba Circuit** in Japan.

Popularity

One of the earliest recorded drift events outside Japan was in 1996, held at **Willow Springs Raceway** in Willow Springs, California hosted by the Japanese drifting magazine and organization **Option**. Inada, founder of the D1 Grand Prix in Japan, the **NHRA Funny Car** drag racer **Kenji Okazaki** and **Keiichi Tsuchiya**, who also gave demonstrations in a **Nissan 180SX** that the magazine brought over from Japan, judged the event with **Rhys Millen** and **Bryan Norris** being two of the entrants.* [3] Drifting has then since exploded into a massively popular form of motorsport in North America, Australia, Asia and Europe.

Drifting has evolved into a competitive sport where drivers compete almost exclusively in rear-wheel-drive

cars, to earn points from judges based on various factors. At the top levels of competition, the D1 Grand Prix in Japan pioneered the sport. Others such as Formula D in the United States, DRIFT ALLSTARS King of Europe and the British Drift Championship in Europe, WDS in China, Formula Drift Asia in the Malaysia/Singapore/Thailand/Indonesia, NZ Drift Series in New Zealand, Australian Drifting Grand Prix and Greek Drift Championship (Drift Wars) have come along to further expand it into a legitimate motor sport worldwide. The drivers within these series were originally influenced by the pioneers from D1 Japan and are able to keep their cars sliding for extended periods of time, often linking several turns.

0.1.2 Drift competition

Drifting competitions are judged based on line, angle, speed and show factor. Line involves taking the correct line, which is usually announced beforehand by judges. The show factor is based on multiple things, such as the amount of smoke, how close the car is to the wall or designated clipping point, and the crowd's reaction.* [4] Angle is the angle of a car and more importantly the turned wheels in a drift, speed is the speed entering a turn, the speed through a turn, and the speed exiting the turn; faster is better.



Team Drift Competition in Melbourne

The judging takes place on just a small part of the circuit, a few linking corners that provide good viewing, and opportunities for drifting. The rest of the circuit is irrelevant, except as it pertains to controlling the temperature of the tires and setting the car up for the first judged corner. In the tandem passes, the lead driver often feints his or her entry to the first corner to upset the chase driver, however in some European series, this practice is frowned upon by judges and considered foul play, resulting in deduction of points.

There are typically two sessions, a qualifying/practice session, and a final session. In the qualifying sessions, referred as **Tansō** (单走:solo run), drifters get individual passes in front of judges (who may or may not be the final judges) to try to make the final 16. This is often on the day preceding the final.

The finals are tandem passes, referred as **Tsuisō** (追走:chasing race). Drivers are paired off, and each heat

comprises two passes, with each driver taking a turn to lead. The best of the 8 heats go to the next 4, to the next 2, to the final. The passes are judged as explained above, however there are some provisos such as:

- Overtaking the lead car under drift conditions is ok if you don't interrupt the lead car's drift.
- Overtaking the lead car under grip conditions automatically forfeits that pass.
- Spinning forfeits that pass, unless the other driver also spins.
- Increasing the lead under drift conditions helps to win that pass.
- Maintaining a close gap while chasing under drift conditions helps to win that pass.

Points are awarded for each pass, and usually one driver prevails. Sometimes the judges cannot agree, or cannot decide, or a crowd vocally disagrees with the judge's decision.* [5] In such cases more passes may be run until a winner is produced. Sometimes mechanical failure determines the battle's outcome, either during or preceding a heat. If a car cannot enter a tandem battle, the remaining entrant (who automatically advances) will give a solo demonstration pass. In the event of apparently close or tied runs, crowds often demonstrate their desire for another run with chants of 'one more time'.* [6]

There is some regional variation. For example in Australia, the chase car is judged on how accurately it emulates the drift of the lead car, as opposed to being judged on its own merit, this is only taken into consideration by the judges if the lead car is on the appropriate racing line. Other variations of the tansou/tsuiso and the tansou only method is the multi-car group judging, seen in the **Drift Tengoku** videos where the four car team is judged in groups.* [7]

0.1.3 Cars

Usually, drift cars are light to moderate weight rear-wheel-drive, all-wheel-drive coupes and sedans offer a large range of power levels. There have also been AWD rally cars that have been converted to RWD.

Despite the export of Japanese Domestic Market (JDM) vehicles to continents outside Japan,* [8] drifters in other countries prefer to use local examples as drift cars.

A high volume of JDM imports were brought to countries such as Australia, however it is not unusual to see Australian domestic vehicles such as the **Holden Commodore** or **Ford Falcon** utilised in drifting competitions.* [9]

The American market enjoyed a relatively high volume of JDM cars being imported over the last decade, despite Japanese domestic vehicles being right-hand-drive



Shoji Nakazawa, drifting his 13B-powered Toyota AE86

only.*[10] Locally sold imports such as the Lexus SC and Nissan 240SX feature heavily in American drifting, however they are usually modified with JDM engine transplants to mirror their Japanese domestic equivalents (usually with a Toyota 1JZ-GTE/2JZ-GTE or Nissan CA18DET/SR20DET respectively).*[11]

In the UK, there are a high level of Japanese imports used within the drifting scene, due in part to the UK sharing a right hand drive layout with Japan. However these cars often command stronger premiums over UK market cars, partly due to import costs. There are plenty of UK and European models used as drift cars as well, older BMW's are particularly prominent due to cost and availability, with Volvo 300 series and Ford Sierras also proving popular.*[12]*[13]

As an example, the top 15 cars in the 2003 D1GP,*[14] top 10 in the 2004 D1GP,*[15] and top 10 in the 2005 D1GP* [16] were:

In the Formula Drift Professional series, cars range from highly tuned Japanese automobiles reflecting the original styles of drifting, to all new age makes and models. Due to no power limit restrictions in the series, it is not uncommon for competitors to utilize a variety of different powerplants. Popular variations of Chevrolet "LS" engines are often being seen bolted down to Japanese frames.*[17]

The top cars in the Red Bull Drifting Championship: * [18]

0.1.4 Drift tuning

Drivetrain

A proper mechanical **limited slip differential** (LSD) is considered almost essential for drifting. Attempting to drift with an open or viscous differential in a sustained slide generally yields relatively less impressive results. All other modifications are secondary to the LSD.*[19]

The preferred form of LSD for drifting is the clutch type, in "2-way" form, for its consistent and aggressive lockup



Nissan Silvia S15 drifting

behavior under all conditions (acceleration and deceleration). Some drift cars use a spool "differential", which actually has no differential action at all - the wheels are locked to each other. Budget-minded drifters may use a **welded differential**, where the **side gears** are welded to give the same effect as a spool. This makes it easier to break rear traction because it reduces maximum traction in all situations except traveling in a straight line. Welded differentials have an inherent risk involved: due to the tremendous amounts of internal stress the welds may fail and the differential completely lock up leaving the rear wheels immobilized. Helical torque sensing differentials such as the **Torsen** or **Quaife** (available on cars in certain stock trims such as S15, FD3S, MX-5, JZA80, UZZ3x) are also adequate. It is common for drifters to change the final gear ratio depending on the type of track layout.

The **clutches** on drift cars tend to be very tough ceramic brass button or multiple-plate varieties, for durability, as well as to allow rapid "clutch kick" techniques to upset the balance of the car. Gearbox and engine mounts are often replaced with urethane or aluminum mounts, and dampers added to control the violent motion of the engine and gearbox under these conditions.

Gear sets may be replaced with **closer ratios** to keep the engine in the **power band**. These may be coarser dog engagement **straight cut gears** instead of **synchronised helical gears**, for durability and faster shifting at the expense of noise and refinement. Wealthier drifters may use **sequential gearboxes** to make gear selection easier and faster, while sequential shift lever adapters can be used to make shifts easier without increasing shift time.

Steering & suspension

Steering angle modifications are also crucial as the driver progresses. The first stage of this is usually a modified steering knuckle or upright. Extended control arms are employed on **MacPherson strut** vehicles like the Nissan S-Chassis, as to allow for more clearance for higher steering angles. Companies like Wisefab, IRP (Individual Racing Parts), Voodoo13, and Parts Shop MAX have developed

full lock kits including modification of the vehicles original scrub radius, kingpin axis, **Ackermann angle**, amount of bump steer, caster angle, and kinematics as to maximize front grip and eliminate mechanical bind at steering angles in excess of 60°. While MacPherson strut vehicles are prevalent in profession drifting, **Double wishbone suspension** vehicles can also be competitive, with often better caster and camber curves.

Spring rates and dampers (**shock absorbers**) are tuned also at higher skill levels, depending on track layout.

Typically, dedicated drifting cars are modified to eliminate "**Ackermann steering geometry**", which is included on almost all production cars. While Ackermann geometry is helpful in making a car turn easier, it inhibits the ability to slide sideways at full lock necessary to compete in drifting.

Cockpit



Cleaning up severed bumpers during drift meet

Because of the large amount of **centrifugal force** encountered during drifting, drivers find it preferable to be retained firmly by a **racing seat** and **five-point harness**. This allows the hands to merely turn the wheel, instead of bracing the body in the seat. The same applies for the feet, which are free to move rapidly between **clutch**, **brake** and **accelerator pedals**. The **steering wheel** should be relatively small, dished, and perfectly round, so that it can be released and allowed to spin through the hands as the caster returns the front wheels to center. The locking knob on the **hand brake** is usually replaced with a spin turn knob; this stops the hand brake locking on when pulled. Nearly all drivers move the hand brake location or add an extra hydraulic hand brake actuator for greater braking force. Additional gauges used to monitor **boost levels**, **oil pressure** and **temperature**, **intake** and **coolant temperatures**, **air-fuel ratio** (also called λ , or "Lambda" ratio), etc.

Tires

Competitive drifters often run **DOT-approved** (road legal) tires similar to **racing slicks** in rubber composition, but with shallow treads included. This is permitted, with the exception of some major championships including



S13 Silvia - tire stretched over a wide rim, increasing sidewall rigidity. The rim has a low offset to increase track.

D1GP and Formula Drift which only permits commercially available tires that are approved by the sanctioning body. Professional drifting has come to the point where grip is tuned into cars to be defeated. It makes for a faster drift necessary in the current professional climate. Tires typically used by drifters are around the DOT treadwear rating of 200. Examples include the Hankook Ventus RS-3, Falken Azenis RT615K, Nitto NT05, Yokohama ADVAN Neova AD08R, and Achilles Radial 123s.

0.1.5 R/C drifting

Main article: [Radio-controlled drifting](#)

R/C drifting refers to the act of drifting with a **radio-controlled car**. R/C cars are equipped with special low grip tires, usually made from **PVC** or **ABS** piping. Some manufacturers make radial drift tires that are made of actual rubber compounds. The car setup is usually changed to allow the car to drift more easily. R/C drifting is most successful on 4WD (four wheel drive) R/C cars. Com-

panies such as Tamiya, Yokomo, Team Associated, and Hobby Products International^{*}[20] have made drift cars and supported the hobby.^{*}[21]

0.1.6 Drifting in the media

Film

One of the key sources responsible for the international spread of drifting is the Japanese anime series *Initial D*, which features Takumi Fujiwara, a high school student who learns to drift on the Mt. Akina *touge* (mountain pass) using a custom tuned Toyota Trueno AE86. Hollywood embraced the drifting subculture in the film *The Fast and the Furious: Tokyo Drift*, which is based solely on drifting.

Paul Newman's character Doc Hudson, a 1951 Fabulous Hudson Hornet in *Cars* (2006), uses drifting techniques on a dirt track in the desert to demonstrate his skills to skeptical NASCAR rookie Lightning McQueen.

Computer/console gaming

Drifting's popularity in computer games extends back to early arcade racers where the techniques for games such as *Sega Rally* and *Ridge Racer* involved drifting. The technique is now considered mainstream in modern games in all their forms. In-game communities have developed games such as *Assetto Corsa*, *Forza Motorsport* and *Gran Turismo*, made up of teams who battle in user-created tournaments.

Drifting also features heavily in the *Need for Speed* franchise (notably games since *Need for Speed: Underground*), Grid, the *Juiced* franchise and in Japanese domestic console games such as *Initial D: Extreme Stage* (PS3), which is based solely on drifting.

Drifting and the related technique of Powersliding feature heavily in the *Mario Kart* franchise, where a successful drift or powerslide around corners will award the player with a short nitrous oxide boost known as "mini-turbo". Similar gameplay mechanics also exist in games from the *Asphalt* series, where drifting and other fast-paced vehicular maneuvers are a recurring theme.

Browser-based games include NZ Performance Car's *Drift Legends* (the first online game to feature real race-tracks, and now ported to iPhone/iPod touch^{*}[22]) and Mercedes-AMG's *Wintersport Drift Competition* (the first manufacturer-backed drifting game). Drifting games for mobile devices are readily available from major developers and independent studios.

Documentaries

High Performance Imports. Volume 10, features Australian journalists from express publications, and Aus-

tralian professional drifter Darren Appleton traveling to Japan, purchasing a drift vehicle (Nissan R32 GTS-T 4-door), traveling with the likes of D1 champions and entering a drift event.^{*}[23]

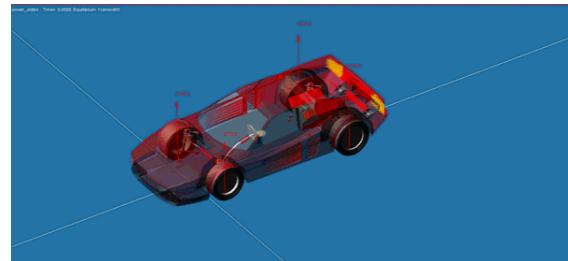
0.1.7 See also

- Opposite lock
- Tafheet—illegal street drifting in Arab countries

0.1.8 References

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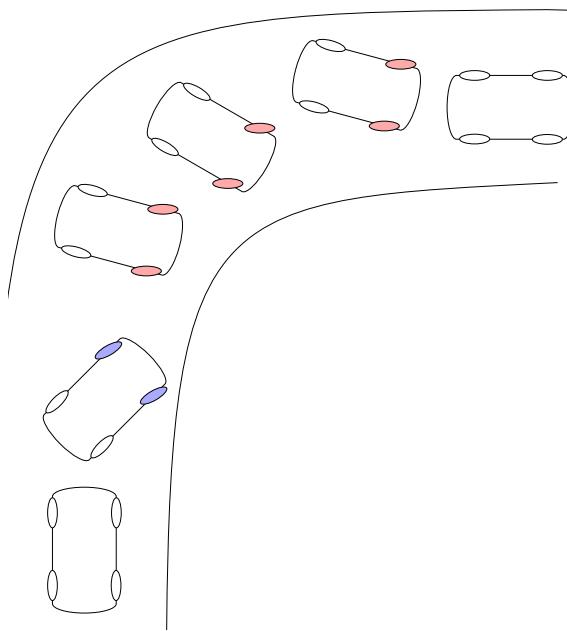
Powerslide simulated using MSC Adams

0.1.9 External links

0.2 Opposite lock

For the similar technique used in bikes, see [Countersteering \(Motorcycle\)](#).

Opposite lock, also commonly known as **counter-**



A diagram showing the use of opposite lock steering with a car driving up and turning to the right. Note the angle of the front wheels where blue indicates right steer, red left steer.

steering,*[1] is a colloquial term used to mean the steering associated with the deliberate use of oversteer to turn a vehicle rapidly without losing momentum. It is typified by the classic rallying style of rear-wheel drive cars, where a car travels around a bend with a large drift angle. The terms “opposite lock” and “counter-steering” refer to the position of the steering wheel during the maneuver, which is turned in the opposite direction to that of the bend.

The technique works best on loose surfaces where the friction between the tires and the road is not too high, but can also be used on asphalt or other surfaces with high friction if the vehicle has enough power to maintain speed.

Before entry to the bend, the car is turned towards the bend slightly, but quickly, so as to cause a rotating motion that induces the rear of the car to slide outwards. Power is applied which applies further sideways movement. At the same time, opposite lock steering is applied to keep the car on the desired course. As the car reaches the bend it will have already turned through most of the needed angle, traveling sideways and losing some speed as a result. A smooth application of power at this point will accelerate the car into the bend and then through it, gradually removing the sideways component of travel.

For front-wheel drive vehicles, there is much less natural tendency for the rear wheels to break traction because they are not transmitting power, so often such vehicles are set up with a strong bias to the rear brakes, allowing the driver to control traction using the brake pedal. The brake bias (front/rear) may be continually controllable by the driver using a hand lever. [Left-foot braking](#) is the favoured technique for using opposite lock in a front drive vehicle.

Opposite lock can be a useful technique for saving a car from a loss of control such as an unintentional skid.

A related technique is the [handbrake turn](#), in which the rear wheels are deliberately locked in order to break the friction between the tires and the road, allowing the car to be spun around a very tight bend or junction, etc.

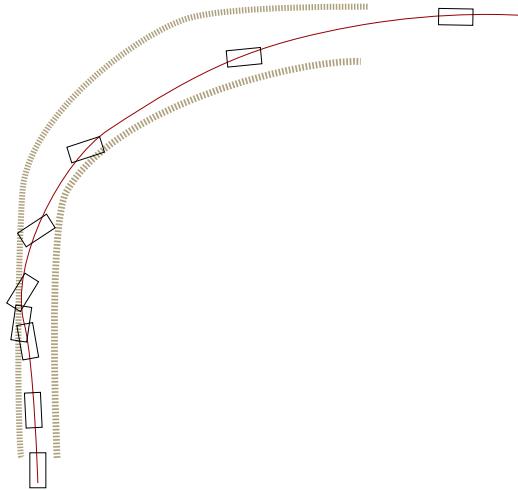
0.2.1 See also

- Drifting (motorsport)
- Scandinavian flick

0.2.2 References

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0.3 Scandinavian flick



Scandinavian flick, showing a car entering at the bottom of the image

The **Scandinavian flick**, **Finnish flick**, **Manji drifting**, or **pendulum turn** is a technique used in **rallying**. While approaching the turn, the driver applies a slight steering input to the opposite direction of the turn, then steering into the turn, while sharply lifting off the throttle and (in some cases, depending on speed and type of layout) lightly applying the brakes. This will cause the car to slide sideways facing slightly away from the turn. Then steering input is applied towards the turn and as the driver releases the brake pedal while still holding down the throttle the car will slingshot itself around the corner to the desired direction. Of course, countersteering will again be required to control the induced oversteer. A 2007 research paper initiates a mathematical analysis of this technique.*[1]

This technique is used to help the driver get around corners that have an increasing radius, but it is also used as a show off as the result of the flick involves the car oversteering heavily.

0.3.1 Origin of the name

Though it is not clear who the first person to invent it was, the technique was named after the Scandinavian rally drivers of the 1960s who widely used it. The front wheel driven cars of the '60s, such as the Mini and the extremely popular Saab 96 in Scandinavia, were easier to turn with if the brake pedal was stabbed to induce weight transfer from rear to front and rear grip reduced until it started to slide. The “flick” part comes from the technique of “flicking” the wheel in a direction opposite of the turn to build up angular momentum.

The Scandinavian rally drivers were, and still are, predominantly the best drivers in Europe for driving in ice

and snow conditions, due to their inclement weather in winter months. Because they drove on ice and snow regularly, they were the first drivers to develop techniques to drive at speed in these slippery conditions.

Since the concept was understood and developed, it has also found its way into drifting and tarmac driving events. It has even gone as far as Australia, where it has been used to induce oversteer in V8 Supercars. The Japanese name of this technique, *Manji drift*, is named after a Japanese meaning of swastika for the likeness of drift lines.

0.3.2 Physics involved

Every time a vehicle turns, the vehicle resists the change of direction due to **inertia**. This resistance results in a phenomenon known as understeer, which seems to push the vehicle outward during the turn, this is due to the loss of traction between the front (steering) wheels and the road surface. This is particularly noticeable in Front Wheel Drive vehicle, as the drive to the wheels for a given throttle input overcomes the traction of the tire to the road surface (more power to the driven wheels creates more loss of traction, hence powerful Front Wheel Drive vehicles suffer with understeer). This is partially neutralized by the friction between the tires and the road, so the vehicle rather tilts than slides, but ultimately the front wheels will break traction in a corner. In some rear wheel driven vehicles, the suspension geometry is set up to create “push on” understeer, as this is easier to deal with for the driver than un-predictable and harder to address oversteer). As you abruptly flick the steering wheel in the opposite direction, the inertia of the vehicle that has been trying to slide in the opposite way is added to the force applied by the engine and the friction of the front wheels, thus exceeding the force necessary to break traction between the tires and the tarmac. Since most cars have their engines in the front, the load on the rear tires is less, so they break traction first, effectively causing the rear to slide out. Suddenly lifting the throttle causes additional weight transfer to the front, making the load on the rear wheels even less.

0.3.3 Real life usage

Most cars today are FWD and are prone to **understeer**. This makes a vehicle stable at high speed but requires larger steer inputs near the limits of adhesion. Skilled drivers are able to allow for understeer by using a maneuver similar to the Scandinavian flick, though with less steering input and control the possible slide by using an opposite lock. In the best of cases, the driver would use the inertia of the feint to make the car enter the bend without initiating a slide. This requires excellent knowledge of the specific car. However, less skilled drivers must not attempt to use this technique, as it can prove very dangerous.

The ability of a vehicle to handle sudden changes in direction at high speeds without sliding or rolling over is assessed through the so-called **Moose test**. This scenario occurs when the driver is trying to avoid an obstacle (allegedly a moose, or any other large animal that may appear on the road) in his or her lane and then returning to the lane to avoid oncoming traffic. The succession of sharp turns in opposite directions combined with lifting off the throttle is exactly how the Scandinavian flick is performed. Since the technique is used at race speeds, it's not normal for a vehicle to start a slide while driving at cruise speeds.

It is possible to induce oversteer at 30 mph (50 km/h), which is well in the cruise speed range. However, it is not likely that in real life the driver would change the steering input from hard left to hard right within 2 seconds.

Of course, when driving in winter in Nordic countries, one can utilize flick even at low speeds. This technique is trained by some countries in the Scandinavian/Nordic regions during basic driver training. It may also be trained in the UK for professional drivers (Police, Emergency Medical Response, Military) who may be required to drive on **snow tires** in ice/snow conditions, as a vehicle can behave differently and require different driver skills in winter conditions.

It is frequently used by former racing driver Tiff Needell on the motoring programme *Fifth Gear* and previously during his time as a presenter on *Top Gear*.

It was also used in the BBC television series *Top Gear*, in which Richard Hammond tries to achieve the Scandinavian flick whilst cornering in his “lightweight, mid-engined” Suzuki Super Carry. The result was a less than spectacular roll-over to its side.*[2] Additionally, it is featured on *Top Gear* in an episode in which James May hones his rally skills in the woods and snowy landscape of Finland.

0.3.4 Usage in drifting

In terms of drifting, the Scandinavian flick is classified as a weight transfer drift. It is also known as a Feint drift or Inertia drift. It's widely used in **rallying**, because it is simple to perform and does not require engine power, nor does it cause a loss of speed at the exit of the corner. A drawback of the technique is that it requires somewhat wider tracks than the other drifting techniques.

Many drift drivers will utilise the feint or weight transfer drift on track, in order to send the rear of their car into a more accentuated drift where the track width allows them. In most situations, this is preferable to drivers of lower powered cars, who cannot induce a drift with engine power alone, but it is also useful to drivers of turbo charged cars, when they find that their car is not “on boost”. Many Japanese based vehicles use smaller capacity engines with larger turbos, so can “fall” off the

power band created by the forced induction. The alternative methods to create power pre-corner include the feint drift incorporated with a “clutch kick”, which starts the weight transfer, but allow the engine to free-rev and create boost pressure in the turbo to create more power to break the traction of the rear wheels when the clutch re-engages on the drivetrain with the car unsettled.

0.3.5 Dangers

There are two basic dangers when performing the Scandinavian flick

- If the center of gravity is too high (as in a SUV or a tall van), there's a great chance the vehicle would roll over instead of sliding.
- It takes practice to learn how to control the vehicle during the slide. A less experienced driver would be prone to overcompensating for the slide and driving off the bend.

Also, a drift is not likely to occur if the camber of the rear wheels is set too negative. On the other hand, if the camber of the front wheels is set too positive, they will break traction in the same moment the rear ones do, so the car will slide uncontrollably rather than pivoting around the front wheels.

0.3.6 See also

- Drifting (motorsport)
- Left-foot braking
- Moose test
- Opposite lock

0.3.7 References

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0.4 Tafheet

Arab Drifting, **Saudi Drifting**, or **Middle East drifting**, known in Arabic-speaking countries as **Tafheet** (تَفْهِيْط), or **Hajwalah** (هَجْوَلَة), is an illegal street racing-like phenomenon believed to have started in the late 1970s that involves trying to “drift” cars; to drive cars that

are generally non-modified factory-setup rental cars at very high speeds, around 160–260 km/h (100–160 mph), across wide highways throwing the car left and right. In the process, racers often drive dangerously close to traffic, barriers, and spectators watching from the roadsides without any protection.*[1]*[2]*[3]*[4]

Tafheet driver practice and events are generally seen on the wide sectioned highways of Riyadh, Al-Qassim Province and, less notably, in other parts of Saudi Arabia.*[5]

The technique does not involve recognised high-speed rally racing skills such as high-speed cornering using power slides. The skill involves sliding around on a wide flat straight road section at high speed, drifting sideways, and recovering with opposite lock, repeatedly. Tafheet practice and events occur with little or no concern for vehicle occupants, other drivers, or spectator safety. Many videos and compilations of the minor and horrific accidents that result are posted online.*[1]

0.4.1 Culture

Some of the more popular tafheet maneuvers include:

- Tanteel: repeatedly creating a power slide and steering it back with opposite lock at high speed 160–260 km/h (100–160 mph), starting with 4 or more power slides and usually concluded with Ta'eed, Sefty, or Axeyat. It is also considered the main maneuver.
- Ta'eed: spinning the car a full 360 degrees while driving either straight or sideways more than once
- Sefty: spinning the car a full 360 degrees starting from any side and then spinning the opposite side of the first 360 with a short power slide between
- Tatweef: passing another vehicle, truck, or more going sideways at very high speed up to 160 km/h (100 mph) on public highway no matter how busy the traffic is
- Axeyat: turning the car 180 degrees from side to another completing a full 360 by starting from the right to the left or opposite, kind of street sweeping

Lack of hobbies or other suitable activities in the country, owing to Saudi Arabia's harsh desert climate and lack of interest in the arts by mainstream society, has been cited as the motivation for youths to participate in drifting exhibitions.*[3]

The cars are generally stock rental cars and are basic mid-size front wheel drive vehicles, minimizing personal cost and repair liability.*[4] While there have been instances involving high-end vehicles such as Ferraris and Nissan GT-Rs, these are relatively less common compared to joyriders stealing sedans or compact cars for the purpose of drifting, abandoning them after an event.*[3]

0.4.2 Response

Often the police receive reports about high-speed drifting from concerned citizens demanding an arrest because of the risk to public safety. The drifters are rarely caught as the events are organised using an illegal spotter or spotters who use mobile phones to disband the vehicle activity before the police arrive on the scene. Although the police response is rapid, investigations often prove fruitless; generally, the spectators and drivers have left or are dispersing into regular traffic when the police arrive. Videos of tafheet events are often uploaded to the Internet to be seen by the spectators and drivers. Occasionally, police attempt to intercept the drivers but are chased away by both the drivers and spectators.

In June 2012, a middle-aged Saudi drifter nicknamed "Mutannish" (the nickname means "one who ignores") was sentenced to death by beheading for killing two people while drifting his car near Unaizah in Al-Qassim Province.*[6]

In March 2014, a 23-year-old Saudi nicknamed "The King of Nazeem Neighborhood" was sentenced to ten years in prison and 1,000 lashes for a series of car drifting and firearms offenses in Riyadh and Al-Qassim Province. The drifter was also banned from driving for life.*[7]

To combat this, academies and leagues have since been established by professional racers in the region, in an effort to mitigate illegal street drifting incidents and to educate youths against the dangers of such activities, encouraging them instead to participate in officially sanctioned events.

0.4.3 See also

- Street racing
 - Mat Rempit
 - Boy racer
 - Hoon

0.4.4 References

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0.5 Tōge

For the videogame franchise, see Touge series.

Tōge (峠, also spelt *touge*) is a Japanese word literally meaning “pass”. It refers to a mountain pass or any of the narrow, winding roads that can be found in and around the mountains of Japan and other geographically similar areas, like the legendary Nordschleife in Germany.



Takenouchi Pass (竹内峠) in Nara

In order to decrease the incline of mountain roads, thereby making them easier for commercial trucks to pass, engineers place a series of S bends in steep roads that provide access to and from high mountain elevations. These passes have become popular with street racers and motorsport enthusiasts, because they provide a challenging – albeit dangerous – course.

0.5.1 Racing

There are 3 main types of tōge battles:

Cat and mouse/sudden death

The cars start almost bumper to bumper (one in front of the other). The lead car wins if the space between the cars increases considerably. If any car spins out or crashes, the other car wins the race. In the event of the following car keeping pace, the race is usually rerun with the positions swapped.

This style of battle is often chosen when the road is not wide enough to allow passing, but if the car in front is



The Dark Pass (暗峠), Osaka

somehow passed, the overtaken car loses if it does not re-pass.

Grip Gambler

If the road is wide enough, this method comes into use. Instead of the lead and chase type of start, the cars are lined up next to each other. If there exists a power handicap, a rolling start would be employed up until the 1st turn. Whoever is in the lead at the end of the “tōge” road, is the winner.

Time attack/ghost battle

Ghost battles are challenges in racing. Opponents do not actually race at the same time, instead, they are timed separately over a particular length of road and the racer with the quickest time wins.

Spontaneous tōge battles may also be initiated by random encounters between racers on the street. The challenge is communicated through the use of the hazard lights, then, depending on the race setting, one of the first two tōge types is chosen for the battle.

0.5.2 Misconceptions

Stemming from this surge in popularity, the term has been pirated and misused by overzealous enthusiasts (often incorrectly as a verb) to erroneously describe almost any event involving street racing, even when there are no mountain passes involved.

Another common mistake is the association of drifting (motorsport) with tōge, implying at times that the words share the same definition. While drift is considered a style or form of driving, tōge does not necessarily have any binding relationship to motorsports. Drifting can be used on the tōge to prevent the chaser from following their proper line. For example if the lead car were to drift, it would eliminate about 60 percent of the chaser's possible

lines forcing them to choose slower lines that cannot be predicted. Also in doing this one can cause the chaser to slow down in order not to crash into the drifting car in front, which might cause complications due to keeping rpm's high and traction and all other variables to consider in slowing down for a corner.

Tōge in time trial format could be said to be a subset of Tarmac Rally. With the Rallye Monte Carlo and Tour de Corse demonstrating the parallel, separated only by cultural heritage.

0.5.3 Media

Tōge racing's notoriety outside Japan may be largely attributed to entertainment media such as *Ridge Racer* (The name *Ridge Racer* can be roughly translated to Japanese as *Tōge no Hashiriya*) and *Initial D* (originally manga, and later anime, and in 2005, live action under the title Chinese: 頭文字 D; pinyin: *Tou Wen Zi D*).

Race Driver: Grid also features *tōge*. There is a *touge* event in which the driver must race twice, once up and once down the mountain, and there is also “Midnight Touge,” which takes place during the night and only features one race, either up or down the mountain.

Best Motoring International first featured the Touge Showdown in Best Motoring International Vol. 2 New M3 Takes on JDM Super Sports released in 2001. This is arguably the first time the word *touge* was used in US media and not translated as “mountain pass” or another other English word.

The 2006 racing game *Need for Speed: Carbon* has *touge* races known as Canyon Duels, that use the cat-and-mouse/sudden death format of *touge* racing on fictional mountain routes, such as Deadfall Junction and Eternity Pass.

0.6 Radio-controlled drifting

Radio-controlled drifting refers to the act of drifting with a **radio-controlled car** (R/C car). Special R/C cars are equipped with low-traction tires to aid in the ease of inducing and maintaining controlled oversteer. Car setups are often modified to allow the car to drift more easily, by replacing motors, shocks, tires, weight balance, brakes, and other factors. R/C drifting is typically performed with four wheel drive (4WD) electric R/C cars, although some practitioners use gas-powered (nitro) R/C cars and/or rear-wheel drive vehicles.

As a hobby, radio-controlled drifting is one of many variations of R/C car types and activities. Informal or formal practice events and competitions are held worldwide. When one judging R/C drifting competitions, R/C drifting typically follows the guidelines and judging criteria set by professional drifting organizations like the D1



Competition for radio-controlled drifting in Bienal do Automóvel exhibition, in Belo Horizonte, Brazil.

Grand Prix. These judging criteria often include drift factors such as drift line, drift angle, speed, and show factor. Some R/C drifting competitions include the use of *tsuiso* or tandem-drift competition in which competitors are paired together to drift in a lead-chase format. This hobby was founded in Japan but has gained popularity in other countries.

0.6.1 Tires

Unlike R/C racing where rubber or foam tires are constantly changed and have short life spans, R/C drifting can be done with tires made of **ABS plastic** piping. ABS piping can be purchased pre-cut from various R/C drifting companies or one can also fabricate one's own tires with ABS piping purchased from a plumbing or hardware store. For 1/10 scale R/C vehicles, 2-inch-diameter (51 mm) ABS piping fits snug over the appropriate wheels for that scale vehicle. Drift tires can also be created out of white PVC piping due to the inherent frictionless behavior exhibited by PVC on concrete; however, the inherent white coloration of the material can be undesirable. Some users will paint these wheels to compensate.

Most pre-fabricated drift tires are made of rubber, plastic or polymers and come in many varieties of traction as well as tread. ABS tires last for hours, and PVC for longer, due to their physical hardness. Other types of plastics such as PVDF, PE, PP and their derivatives are also used due to their amount of traction and sliding combination. Fabricated drift tires are comparatively cheaper than manufactured drift tires. Manufactured drift tires promised a more realistic and controllable driving experience under certain circumstances. There are many makers of drift tires especially from Japan as the main source of RC drifting.

The development of tires within Japan itself is staggeringly fast compared to the rest of the world that have little access and yet couldn't relinquish its dependencies. This has reflected to less growth of development of drift tires

either being use or make between the two sides. However, R/C drift is still a new art, and advances in the state of technology for drift tires are still in the works.

0.6.2 Customization

A notable aspect of R/C drifting is the creation and customization of the vehicle body or shell. Using paint, decals, and other craft type items some enthusiasts make replicas of their favorite real-world drift cars or come up with their own unique designs. Additional aesthetic modifications include LED light kits, ground effects, wide body kits, **FMICs** (Front Mounted Intercooler), decals, flared guards, and roll cages so they can achieve a realistic looking drift car. The aesthetics of painting one's own car is also a point of interest for some hobbyists. Some will go as far to create their own shells.

Another aspect in customization of an R/C drift car is the modification of the car's handling. Most R/C enthusiasts prefer of using "Countersteer conversion", a kind of drive ratio customization by means of changing the default front and rear gear/pulley settings (stock drive ratio is 50/50) to desired drive ratio (e.g. 30% in front drive and 70% in rear drive) to make a realistic drifts (usually seen of slower front drive and faster rear drive to make a **rear wheel drive-like** handling). However, some R/C companies doesn't support this kind of modification and doesn't give any qualification for their officially sponsored events because most enthusiasts can create this kind of modification from recycled parts (gear and pulley fabrication) or parts from **third-party** companies (e.g. a **Yokomo** pulley, used on **Tamiya** chassis which is actually not compatible but fitted through altering of parts), that makes the R/C car out-of-warranty; so most of the R/C drifting events are usually in open category.

0.6.3 References

0.6.4 Further reading

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0.7 Initial D

Initial D (Japanese: 頭文字 D (イニシャル・ディー) Hepburn: *Inisharu Dī*) is a Japanese sports manga series written and illustrated by **Shuichi Shigeno**. It was serialized in *Young Magazine* from 1995 to 2013, with the chapters collected into 48 *tankōbon* volumes by **Kodansha**. The story focuses on the world of illegal

Japanese street racing, where all the action is concentrated in the mountain passes and rarely in cities or urban areas, and with the drift racing style emphasized in particular. Professional race car driver and pioneer of drifting **Keiichi Tsuchiya** helped with editorial supervision. The story is centered on the prefecture of **Gunma**, more specifically on several mountains in the **Kantō region** and in their surrounding cities and towns. Although some of the names of the locations the characters race in have been fictionalized, all of the locations in the series are based on actual locations in Japan.

Initial D has been adapted into several television anime and original video animations series by OB Studio Comet, Studio Gallop, Pastel, A.C.G.T and SynergySP. A live action film by **Avex** and **Media Asia** was released in 2005 and its sequel, *Initial D 2*, will be released in 2016. Both the manga and anime series were initially licensed for English-language distribution in North America by **Tokyopop** (2002–2009),^{*[1]} however, the anime license has since been picked up by **Funimation Entertainment**, while the manga is no longer available in English.

0.7.1 Synopsis

See also: [List of Initial D chapters](#)

The protagonist, **Takumi Fujiwara**, is a gas station at-



The first battle of the series, Keisuke Takahashi (RX-7) vs. Takumi Fujiwara (Trueno), as seen in the anime.

tendant working with his friend **Itsuki** to buy a car, which they plan to drift on the twisting roads surrounding nearby Mount Akina. Unbeknownst to his colleagues, Takumi moonlights as a tofu delivery driver for his father's store before sunrise each morning, passively building an impressive amount of skill behind the wheel of the family car, an aging Toyota Sprinter Trueno.

Shortly after the story begins, the RedSuns, an amateur racing team from Akagi Prefecture, challenge the local Speedstars team to a set of races on Mount Akina. Dispirited after watching the RedSuns' superior performance during a practice run, the Speedstars expect to lose. Later that night, the RedSuns' #2 driver, heading home after the last practice run, is defeated soundly by a mysterious

Sprinter Trueno, despite driving a much more powerful car. An investigation into the identity of the driver leads to Bunta Fujiwara, Takumi's father. The Speedstars beg Bunta to help them defeat the RedSuns, and he initially refuses, later relenting to "maybe" show up at the race. At the same time, Takumi asks Bunta if he can borrow the car for a day to take a trip to the beach with a potential girlfriend, and Bunta seizes the moment by granting permission (plus a full tank of fuel) on the condition that Takumi defeats the RedSuns driver.

On the night of the race, the Trueno does not show up, and the Speedstars enlist a backup driver for the first run. At the last moment before the race starts, the Trueno arrives. Takumi steps out of the car to the bewilderment of the Speedstars, who were expecting Bunta. He easily defeats the RedSuns driver by utilizing a dangerous technique on the mountain road's hairpin corners.

The RedSuns' embarrassing defeat sets up the plot for the rest of the series: drivers from neighboring prefectures come to challenge Takumi and the "Legendary Eight-Six of Akina" and thus prove themselves as racers. Eventually, the plot moves away from Mount Akina as Takumi becomes bored with racing solely on that road. He joins an experimental racing team formed by the disbanded RedSuns and challenges more difficult opponents on their home courses in the pursuit of his dream to be "the fastest driver out there".

0.7.2 Characters

Main article: List of Initial D characters

- **Takumi Fujiwara** (藤原拓海 *Fujiwara Takumi*, "Tak")

The main character of the series, Takumi develops his racing skills to be one of the fastest drivers in Kanto while driving an old Toyota Sprinter Trueno AE86. This is due to Takumi's job delivering tofu to Lake Akina every morning for 5 years (since 7th grade). Although Takumi believes this to be just a job, he had actually been manipulated subtly by his father into developing driving skills, without being fully aware of Bunta's intent.

Voiced by: Shin-ichiro Miki (Japanese); Dave Wittenberg (Tokyopop dub)/Joel McDonald (Funimation dub) (English)

- **Bunta Fujiwara** (藤原文太 *Fujiwara Bunta*)

Bunta is the owner of the Fujiwara Tofu Shop and is the father of Takumi. He used to be the No.1 downhill racer in Mt. Akina years

ago, but now guides Takumi's racing development. He is the original driver of the mysterious "Ghost of Akina" AE86 Sprinter Trueno that holds the record of the fastest downhill time at Akina. Later in the series, as Takumi used the Trueno more than Bunta, he buys a Subaru Impreza WRX, which Takumi alternates between the Impreza and his Eight-Six for deliveries.

Voiced by: Unshō Ishizuka (Japanese); Kerrigan Mahan (Tokyopop dub)/Kent Williams (Funimation dub) (English)

- **Ryosuke Takahashi** (高橋涼介 *Takahashi Ryōsuke*, "Ry")

Ryosuke is one of the most skilled drivers in the series as RedSuns/Project D's leader and older brother to Keisuke. He drives a **Mazda Savanna RX-7 FC3S**. Ryosuke is a very cerebral driver as he pores over technical data and is able to tell what kind of modifications have been made to a car just by hearing it, and what a driver is capable of just by watching the car drift. He is also referred to as "Akagi's White Comet" (赤城の白い彗星 *Akagi no Shiroi Susei*) in reference to his early racing days.

Voiced by: Takehito Koyasu (Japanese); Lex Lang (Tokyopop dub)/J. Michael Tatum (Funimation dub) (English)

- **Keisuke Takahashi** (高橋啓介 *Takahashi Keisuke*, "K.T.")

Keisuke is the number two driver for the RedSuns and the hillclimb ace for Project D. Keisuke drives a **Mazda RX-7 FD3S**, and is a skilled driver second only to his brother. Keisuke is a rather hot-headed and does not like losing. He isn't analytical like his older brother, but his ability to think less while he is driving, and to do only what he feels amazes Ryosuke. Because of his initial encounters with Takumi, he is Takumi's main rival.

Voiced by: Tomokazu Seki (Japanese); Steven Jay Blum (Tokyopop dub)/Todd Haberkorn (Funimation dub) (English)

0.7.3 Media

Manga

- *Initial D* manga Japanese release: 48 Volumes (1995–2013, Vol. 48 released in November 2013)



The Initial D franchise logo.

- *Initial D* manga Tokyopop release: 33 Volumes (2002–2009, expired license)

The first *Initial D* volume was released in Japan on November 6, 1995 and concluded on July 29, 2013.*[2] The manga has been translated officially into Chinese, French and English over its publication run. As of 2013, 48 volumes have been published.

The manga and anime were originally licensed for English releases in North America by Tokyopop. The company changed the names of the characters in the anime edition, and subsequently changed them in the manga to match.*[3] These name changes were to reflect the name changes that Sega implemented into the western releases of the *Initial D A Stage* video games {see below} due to name length limits. Tokyopop also cut out a character's *enjo kōsai* relationship with another and edited sex scenes, appearing in volumes 1 and 9 in the original manga. In addition, "street slang" was interlaced in translations (a drift was described as "slammin'", for example).

The manga also had some translation errors. One example was the technical term "*Wastegate*" (which is a mechanism used to regulate the boost pressure generated by a turbocharger) that was translated as "West Gate". Another was an inaccurate explanation of how an engine's displacement is calculated (the explanation given is how a ship's displacement is calculated, which is totally different). Many of the explanations of automotive design and function, as well as the specification sheets of the various cars, were incorrect.

In August 2009, Kodansha announced that they would not be renewing their licensing agreements with Tokyopop, citing "tense relations" between the two companies. This meant that Tokyopop could no longer release new volumes of Kodansha manga properties, nor re-release Kodansha titles that were already printed. Tokyopop ceased the release of *Initial D* after volume 33, which was released on December 30, 2008. Volume 34 had a scheduled street date of April 7, 2009, but never released.*[4] There have been no announcements as to a new distributor in North America for continuing or restarting the manga.

Anime

See also: List of *Initial D* episodes

Avex has released the anime in several parts called **Stages**. One noticeable feature is that it uses Eurobeat music as background music in race scenes.

- *Initial D* (referred to retroactively by fans as "First Stage") —26 episodes (1998)
- *Initial D Second Stage* —13 episodes (1999)
- *Initial D Extra Stage* —2-episode OVA side-story focusing on Impact Blue (2000)
- *Initial D Third Stage* —a 114-minute movie (2001)
- *Initial D Fourth Stage* —24 episodes (2004–2006)
- *Initial D Extra Stage 2* —a 50-minute OVA side-story focusing on Mako and Iketani (2008)
- *Initial D Fifth Stage* —14 episodes (2012–2013)*[5]
- *Initial D: Final Stage* —4 episodes (TV), compilation movie (DVD/Blu-ray) (2014)
- *New Initial D the Movie - Legend 1: Awakening* —feature movie (2014)
- *New Initial D the Movie - Legend 2: Racer* —feature movie (2015)
- *New Initial D the Movie - Legend 3: Dream* —feature movie (2016)

The Battle Stages are **Musical Films** serving as a compilation of the racing action scenes in the preceding series reanimated and remastered with more advanced CGI and stripped of all but minimal character dialog.

- *Initial D Battle Stage* —a 50-minute movie (2002)
- *Initial D Battle Stage 2* —a 1-hour movie (2007)

In 1998, *Initial D* was adapted into an animated television series produced by OB Planning and Prime Direction. The first episode premiered on Fuji TV on April 8, 1998. The initial series ran for 26 weekly episodes with the finale airing on December 5, 1998.

The second series, named "Second Stage", aired from October 14, 1999 to January 20, 2000 with a one-week break over the New Year period. This was followed by animated feature film in 2001 and an OVA documenting all battles from the previous three stages, with the battles from First Stage being re-animated.

Initial D: Third Stage was a feature film covering the story arcs between the second and fourth stage, released in Japan on January 13, 2001.

In 2004, *Initial D: Fourth Stage* aired on SkyPerfecTV's pay-per-view service, airing two episodes back-to-back every two months. 24 episodes were made until the final episodes were aired in February 2006.

Following *Second Stage* in 2000, *Initial D: Extra Stage* was aired as a spinoff to the original series. This story focused on the all-female Impact Blue team of Usui Pass and their point of view of the recent events of *Second Stage* and the upcoming *Third Stage* movie. This was followed by *Extra Stage 2* in 2008, which look at the relationship between Impact Blue's Mako Sato and Iketani of the SpeedStars (following on from the original side-story in the manga).

Following eight years after the release of "Fourth Stage" in 2004, Animax airs "Initial D: Fifth Stage". Animax has aired the series on a pay-per-view basis on SKY PerfectTV!'s Perfect Choice Premier 1 channel.* [6] The first two episodes aired on November 9, 2012. The rest of the episodes were broadcast two per month till May 10, 2013.* [6]

In 2014, "Initial D: Final Stage" became the latest installment in the anime series. Animax has aired its first two episodes on a pay-per-view basis on its own brand new ANIMAX PLUS channel, on May 16, 2014, on its new subscription VOD (Video On Demand) service, which allows subscribers to watch all the latest anime series. Initial D Final Stage will start right after where Fifth Stage left off. There are a total of four episodes that makes up this mini stage.* [7] The final two episodes were broadcast on June 22, 2014.

Since the anime's original run, Japanese musical group m.o.v.e has performed all of the opening and some ending themes of the series. This followed on from the success of one of their first hits, "Around the World", which was used as the first opening of *First Stage*. Their latest single to be used in the series is called "Outsoar The Rainbow" and it is used as *Final Stage*'s opening.* [8] They had another recent unreleased song, "Days". It was played on the finale of "Final Stage".

Like in the manga, Tokyopop change elements of the anime to suit Western audiences. As well as changing the names and used western slang, the company also changed the anime's music from the series' staple eurobeat tracks to originally developed tracks of rap and hip-hop via Stu Levy (DJ Milky), the Tokyopop CEO and an in-house musician.* [9]

In 2006, Funimation Entertainment announced that it would be distributing the DVDs of the anime (since Tokyopop's original distributor went bankrupt). This new distribution was marked by slightly revised packaging and two box sets corresponding to the licensed seasons Tokyopop had dubbed, although the DVDs themselves were exactly the same as the original Tokyopop release.

Tokyopop had completed an English dubbed version of Third Stage, and reportedly screened it at the Big Apple Anime Fest on August 29, 2003.* [10] They briefly men-

tioned that their version of Third Stage would retain the original Japanese soundtrack, in contrast to their treatment of the anime series. This version of the film was never released on DVD, nor was it ever mentioned by Tokyopop past the original announcement.

At the New York Anime Festival 2009, Funimation Entertainment announced that it would be re-releasing and re-dubbing *Initial D: First Stage*, Second Stage, Extra Stage, Third Stage, and Fourth Stage. Their release included a brand new English dub and retained the original music from the Japanese in an uncut format. Funimation released the series out of order, with the Third and Fourth Stages releasing before the First and Second Stages.* [11] Funimation has not specified whether or not they will dub and release Extra Stage 2 (the first Extra Stage was included in the Second Stage box set) or either of the Battle Stages, nor have they made a decision about 5th Stage and Final Stage.

In July 2013 it was announced that another feature film titled *New Initial D the Movie* and a last anime series, *Initial D Final Stage*, will be produced.* [12] The movie is a retelling of the early Stages with a wholly new voice cast and is split into three parts, with the first part released on August 23, 2014.* [13]

Games

- *Initial D Arcade Stage / Initial D* (2002—Arcade (NAOMI 2))
- *Initial D Arcade Stage Ver.2 / Initial D Ver.2* (2003—Arcade (NAOMI 2))
- *Initial D Arcade Stage 3 / Initial D Version 3* (2004—Arcade (NAOMI 2))
- *Initial D Arcade Stage 4 / Initial D 4* (2006—Arcade (Lindbergh))
- *Initial D Arcade Stage 4 Limited* (2007—Arcade (Lindbergh))
- *Initial D Arcade Stage 4 Kai* (2008—Arcade (Lindbergh))
- *Initial D Arcade Stage 5* (2009—Arcade (Lindbergh))
- *Initial D Arcade Stage 6 AA* (2011—Arcade (RingEdge))
- *Initial D Arcade Stage 7 AAX* (2012—Arcade (RingEdge))
- *Initial D Arcade Stage 8 ∞ (Infinity)* (2014—Arcade (RingEdge) / (RingEdge 2))
- *Initial D* (1999—Sega Saturn)
- *Initial D* (1999—PS1)

- *Initial D Gaiden* (1998—Game Boy)
- *Initial D: Ryosuke Takahashi's Fastest Typing-theory* (2001—PS2)
- *Initial D Another Stage* (2002—GBA)
- *Initial D Collectible Card Game* (2003—Collectible Card Game)
- *Initial D: Special Stage* (2003—PS2)
- *Initial D Mountain Vengeance* (2004—PC) (not classified as a real *Initial D* game)
- *Initial D: Street Stage* (2006—PSP)
- *Initial D Extreme Stage* (2008—PS3)
- *Initial D RPG* (Sony Ericsson mobile phone)
- *Initial D: Perfect Shift Online* (2014—Nintendo 3DS eShop) (free-to-play)

Feature film

Main article: *Initial D* (film)

A live-action movie based on *Initial D* was released



*Fujino Store Tofu Shop in Gunma, which was renamed and modeled to Fujiwara Tofu Shop for the live-action film.** [14]*[15]

on June 23, 2005 in Asia. The movie was jointly produced by Japan's Avex Inc. and Hong Kong's Media Asia Group. It was directed by Andrew Lau and Alan Mak, whose credits include the 2002 Hong Kong blockbuster *Infernal Affairs*. The adaptation featured Taiwanese singer Jay Chou as Takumi Fujiwara and Hong Kong stars Edison Chen as Ryosuke Takahashi and Shawn Yue as Takeshi Nakazato. Despite many changes to the original story, the movie was met with critical acclaim and was nominated for multiple awards, including Best Picture, at the Hong Kong Film Awards and Golden Horse Awards, winning many of them.

A sequel has been in discussion since the following year after the movie has debuted. However, a concrete conclusion could not be reached due to several obstacles which



A replica of Takumi's AE86

includes the storyline, filming locations, casts, and safety reasons. As of March 2015, director and producer, Andrew Lau, has once again reconfirmed in an exclusive interview that a sequel will surely follow but is tight-lipped on the release date. Jay Chou and Edison Chen will reprise their roles in the sequel.

0.7.4 Reception

Some fans of *Initial D* reacted negatively to the Tokyopop's extensive editing and changes made in the English-language version of the manga. Similar reactions were made towards their English dub's script and voice acting, and the removal of the original music from the anime series. Tokyopop said that it was trying to Americanize the series so it could be aired on television, while at the same time keeping the Japanese spirit of the series.*[16]

According to Funimation officials, the re-release of the anime has “done well”.*[17] Reviews of the series note a marked improvement from the Tokyopop iteration, with most complaints leveled against the lack of anamorphic widescreen on the DVDs.

0.7.5 See also

- List of *Initial D* characters and teams
- List of *Initial D* chapters
- List of *Initial D* episodes
- *Initial D Arcade Stage*
- *Initial D: Street Stage*
- *Initial D Extreme Stage*

0.7.6 References

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- [15] "The Real Life Initial D On Display - Speedhunters". *Speedhunters*. Retrieved 19 April 2016.
- [16] "Tokyopop Open Letter regarding Initial D." *Tokyopop at Anime News Network*. July 13, 2002. Retrieved on September 28, 2009.
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0.7.7 External links

- *Initial D* at Kodansha's official site (Japanese)
- Avex webpage for *Initial D* (Japanese)
- Initial D Fifth Stage Official Website - *Animax* (Japanese)
- Initial D Arcade Stage Version 3.0
- Initial D Games Official Website - *Sega*
- Initial D Games Official Website - *Sega* (Japanese)
- North America Premier of the Live-action *Initial D* film
- *Initial D* (manga) at Anime News Network's encyclopedia

0.8 The Fast and the Furious: Tokyo Drift

"Tokyo Drift" redirects here. It is not to be confused with *Tokyo Drifter*.

The Fast and the Furious: Tokyo Drift is a 2006 American crime action film directed by Justin Lin, produced by Neal H. Moritz and written by Chris Morgan. The third installment of *The Fast and the Furious* franchise, it takes place chronologically between the events of sixth and seventh films. The film stars Lucas Black, Nathalie Kelley, Sung Kang, Bow Wow and Brian Tee. The film was shot in Tokyo and parts of Los Angeles, the latter often covered with props and lights to create the illusion of the Tokyo style.

Vin Diesel reprises his role as Dominic Toretto in a cameo at the end. This is the first Fast & Furious film to not star Paul Walker.

0.8.1 Plot

This film's story occurs sometime after Fast & Furious 6 with a scene that was later made concurrent with events in Furious 7.

In Arizona, 17-year-old high school students Sean Boswell (Lucas Black) and Clay (Zachery Ty Bryan) race their cars to win the affections of Clay's girlfriend Cindy (Nikki Griffin). When Sean cuts through a structure and catches up to Clay, Clay hits Sean's car repeatedly until they reach a high-speed turn, which causes both cars to crash; Sean's car is totaled. Clay's wealthy family helps him escape punishment, but Sean is sent to live in Tokyo, Japan, with his father, a U.S. Navy officer, in order to avoid juvie or even jail.

While in school, Sean befriends Twinkie (Bow Wow), a military brat who introduces him to the world of drift racing in Japan. Sean has a confrontation with Takashi (Brian Tee)—aka D.K. (Drift King)—over Sean talking to Takashi's girlfriend Neela (Nathalie Kelley). Though forbidden to drive, Sean decides to race against Takashi, who has ties to the Yakuza. He borrows a Nissan Silvia from Han Seoul-Oh (Sung Kang), now a business partner to Takashi, and loses, totaling the car because of his lack of knowledge of drifting—racing that involves dangerous hairpin turns.

To repay his debt for the car he destroyed, Sean must work for Han. Later on, Han becomes friends with Sean and teaches the young racer how to drift. He also loans him another car for future races. Han explains that he is helping him because he is the only person willing to stand up to Takashi. Sean moves in with Han and soon masters drifting, gaining some repute after defeating DK's right-hand man, Morimoto. Sean soon asks Neela out on

a date, and learns that after her mother died she moved in with Takashi's grandmother, resulting in her hooking up with him. Takashi beats up Sean the next day, telling him to stay away from Neela; Neela subsequently leaves Takashi and moves in with Sean and Han.

Takashi's uncle Kamata (**Sonny Chiba**) (the head of the **Yakuza**) reprimands Takashi for allowing Han to steal from him. Takashi and Morimoto confront Han, Sean, and Neela about the thefts. Twinkie causes a distraction, allowing Han, Sean, and Neela to flee, pursued by Takashi and Morimoto. During the chase, Morimoto is killed in a crash, leaving Takashi to pursue Han, Sean, and Neela on his own. Han allows Sean to overtake him in order to hold him off, but the chase ends when Sean and Neela crash. Meanwhile, moments after escaping from Takashi, Han is critically injured when his **Veilside Mazda RX-7** is rammed by an oncoming car that catches on fire, and explodes; the explosion kills Han just seconds before Sean has a chance to save him.

Takashi, Sean, and his father become involved in an armed standoff which is resolved by Neela agreeing to leave with Takashi. Twinkie gives his money to Sean to replace the money Han stole, which Sean then returns to Kamata. Sean proposes a race against Takashi to determine who must leave Tokyo. Sean and Han's friends then build a **Ford Mustang '67**, with a **Skyline GT-R RB26DETT** engine salvaged from Han's **Nissan Silvia**, and other spare parts.

That night, on the mountain, crowds gather to see the race; Takashi takes the lead initially, but Sean's training allows him to catch up. Determined to win, Takashi resorts to ramming Sean's car, eventually missing and driving off the mountain while Sean crosses the finish line. Kamata keeps his word and lets Sean remain in Tokyo (In a deleted scene, Kamata has Takashi taken away).

The next night, Sean, the new "Drift King," is challenged by a new driver who knew Han: **Dominic Toretto** (**Vin Diesel**).

0.8.2 Cast

Main article: List of The Fast and the Furious characters

- **Lucas Black** as Sean Boswell, a 17-year-old social outcast interested in illegal street racing.
- **Nathalie Kelley** as Neela, an Australian who is Takashi's girlfriend, but later on falls for Sean. She is an outsider due, since her mother died when she was ten and she was a hostess. Takashi's family took her in and raised her. She drives a **2004 Mazda RX-8**.
- **Sung Kang** as Han Seoul-Oh, Takashi's friend and business partner (and old friend of Dominic Toretto) who becomes friends with Sean and teaches him how to drift. After gaining his share of the Rio heist and also **cleaning his record** and **losing Gisele**, he settles in **Tokyo** and owns a tuning shop. He works with Takashi mainly since his garage is on the turf of Takashi's uncle Kamata, who is the head of the **Yakuza**.
- **Bow Wow** as Twinkie. He is Sean's first friend in Tokyo and introduces Sean to the drift world. He drives a **2005 Volkswagen Touran** with a **Hulk** theme. He dislikes racing, instead making a living by selling stolen American goods to classmates and drivers.
- **Brian Tee** as Takashi/DK (Drift King). He is a professional street racer and is crowned as Drift King (or DK). He is respected only because his uncle is the head of the **Yakuza**.
- **Leonardo Nam** as Morimoto, Takashi's closest friend and right-hand man. He drives a yellow-black **2003 Nissan 350Z**. He is a typical high-school bully, and is not very smart.
- **Brian Goodman** as Lieutenant Boswell, Sean's father, a **U.S. naval** officer stationed in **Tokyo**. He owns a **1967 Ford Mustang GT**, which he is rebuilding in his garage.
- **Zachery Ty Bryan** as Clay, the football quarterback of Sean's school whom Sean challenges for a race. He is a typical rich kid and owns a **2006 Dodge Viper SRT-10**.
- **Nikki Griffin** as Cindy, Clay's girlfriend, who suggests that Clay and Sean compete to win her affections.
- **Jason Tobin** as Earl, one of Han's friends.
- **Keiko Kitagawa** as Reiko, Earl's friend.
- **Lynda Boyd** as Ms. Boswell, Sean's mother, who, fed up with moving herself and Sean around, sends her son to Tokyo to live with his father.
- **Sonny Chiba** as Kamata, Takashi's uncle. He is the head of the **Yakuza** who also manages business on his turf.
- **Vin Diesel** as Dominic Toretto. He is Han's old friend, and arrives in **Tokyo** when he hears the news of Han's death. His cameo at the end of this film was originally meant to foreshadow his appearance in a chronological sequel, before it was instead decided to set the fourth film before this one.

0.8.3 Production

Development

“After I'd seen *Better Luck Tomorrow*, I knew Justin was a director I wanted to do business with. He was the first we approached, and...he loved the idea of filming it. This movie needed enthusiasm, and he was the director to do it. Absolutely tireless.”

Neal H. Moritz *[3]

Neal H. Moritz, who had produced the two previous installments, began working on the film in 2005. On June 8, 2005, Moritz hired Justin Lin to direct *The Fast and the Furious: Tokyo Drift*.*[4] Lin, who wasn't intimately familiar with drifting when he was approached to helm the project, recalled: “I was in film school when *The Fast and the Furious* came out, and I saw it along with a sold-out crowd who just ate it up. What really excited me about directing this film was the chance to harness that energy —create a whole new chapter and up the ante by bringing something new to the table for the audience who loves action and speed.” *[3]

Vin Diesel agreed to make a cameo in the film in exchange for Universal's ownership to rights of the *Riddick* series and character, in lieu of financial payment.*[5]

Technical

The S15 Silvia which Black's character trashes in his first race in Japan is depicted as having an RB26DETT engine swap which itself is donated to the Mustang. However, the car in the movie was actually powered by the S15's original SR20DE engine.*[6] The Veilside Fortune body-kitted RX-7 driven by Sung Kang's character was originally built by Veilside for the 2005 Tokyo Auto Salon but was later bought by Universal and repainted (the original was dark red, not orange and black like in the film).*[7]

The car in which Vin Diesel's character appears at the end of the film is a highly customized 1970 Plymouth Satellite, Steven Strope's “Hammer”, built for the SEMA show. It started life as a Satellite, but now is a GTX clone.

SCC tested the cars of the film, and noted that the cars in *Tokyo Drift* were slightly faster in an acceleration match up with the cars from *2 Fast 2 Furious*.*[8]

Notable drifting personalities Keiichi Tsuchiya, Rhys Millen, and Samuel Hubinette were consulted and employed by the movie to provide and execute the drifting and driving stunts in the film.*[9] Tanner Foust, Rich Rutherford, Calvin Wan, and Alex Pfeiffer were also brought in when it was revealed that none of Universal's own stunt drivers could drift.*[10] Some racing events were filmed within the Hawthorne Mall parking lot in Los Angeles.*[11]

Toshi Hayama was also brought in to keep elements of the film portrayed correctly after being contacted by Roger Fan, an old high school friend who starred in Justin Lin's *Better Luck Tomorrow*, the organizers of the Japanese se-

ries, and his former boss at A'PEXi. Among them were keeping certain references in check (the usage of nitrous oxide in straights but not in turns, keeping the usage of references from sponsors to a minimum, etc.).*[12] Hayama also joked that a prop car was “stolen” by some of the action stars who took the car for an impromptu “drift session” from which the car never returned.*[10]

0.8.4 Reception

Box office

Tokyo Drift brought in over \$24 million on its opening weekend. The movie itself was in limited release in Japan (released under the name *Wild Speed 3*). As of January 28, 2007, the domestic box office take totalled \$62,514,415 with another \$95,953,877 from the foreign box office, resulting in total receipts of \$158,468,292.*[2] *Tokyo Drift* grossed lower than its predecessor films. However, it was considered successful enough to justify continuing the series with a fourth film, as long as Vin Diesel returned to the main cast.

Critical reaction

The Fast and the Furious: Tokyo Drift gained a 37% on Rotten Tomatoes based on reviews from 113 critics, with an average rating of 4.8/10, and the site's consensus reading: “Eye-popping driving sequences coupled with a limp story and flat performances make this *Drift* an adequate follow-up to the previous *Fast and Furious* installments. Strictly for the racing crowd and fans of the first two films.” *[13] On Metacritic, which determines a normalized rating out of 100 from mainstream critics, the film received a score of 46 out of 100 based on reviews from 31 critics.*[14]

Roger Ebert of the *Chicago Sun-Times* praised the film, giving it three out of four stars, saying that director Justin Lin “takes an established franchise and makes it surprisingly fresh and intriguing,” adding that *Tokyo Drift* is “more observant than we expect” and that “the story [is] about something more than fast cars”.*[15] Michael Sragow of *The Baltimore Sun* felt that “the opening half-hour may prove to be a disreputable classic of pedal-to-the-metal filmmaking.”*[16] Kirk Honeycutt of *The Hollywood Reporter* said that “it's not much of a movie, but a hell of a ride”.*[17]

Michael Medved gave *Tokyo Drift* one and a half stars out of four, saying: “There's no discernible plot [...] or emotion or humor.”*[18] James Berardinelli from ReelViews also gave it one and a half stars out of four, saying: “I expect a racing film to be derivative. That goes with the territory. No one is seeing a Fast and the Furious movie for the plot. When it comes to eye candy, the film is on solid ground—it offers plenty of babes and cars (with the latter being more lovingly photographed than the for-

mer). However, it is unacceptable that the movie's action scenes (races and chases) are boring and incoherent. If the movie can't deliver on its most important asset, what's the point?"*[19]

Richard Roeper strongly criticized the film, saying, "The whole thing is preposterous. The acting is so awful, some of the worst performances I've seen in a long, long time."*[20] Similarly, Peter Travers of *Rolling Stone* said that *Tokyo Drift* "suffers from blurred vision, motor drag and a plot that's running on fumes. Look out for a star cameo—it's the only surprise you'll get from this heap."*[21] Mick LaSalle of the *San Francisco Chronicle* said: "[The main character] has no plan and no direction, just a blind desire to smash up automobiles and steal a mobster's girlfriend. [...] As for the racing scenes, who cares about the finesse move of drifting, compared to going fast? And who wants to watch guys race in a parking lot? For that matter, who wants to watch guys race down a mountain, with lots of turns?"*[22]

Rob Cohen, who directed the first film of the series, was very critical of this film, saying: "If you were to just watch *Tokyo Drift*, you'd say 'I never want to see anything related to *Fast & Furious* again.'"*[23]

0.8.5 Music

The *Original Motion Picture Soundtrack* was released on June 20, 2006. AllMusic rated it three stars out of five.*[24] RapReviews rated it two out of ten.*[25] Another album, the *Original Score*, has 30 tracks, most composed by Brian Tyler and one track "Welcome to Tokyo" composed by Tyler and the musician Slash. The album was released by Varèse Sarabande on June 27, 2006, with 64 minutes and 10 seconds worth of music.*[26] Tyler partnered with music producers Pharrell Williams and Dr. Dre for the 2006 film *The Fast and the Furious: Tokyo Drift*.

Original Motion Picture Soundtrack

Songs featured in the film, but not in the soundtrack

- "My Life Be Like (Ooh Ahh)" by GRITS featuring TobyMac (3:53)
- "Rising Sun by DBSK (4:42)
- "Rock Star" by N.E.R.D (4:29)
- "Bawitdaba" by Kid Rock (4:27)
- "Chaos Step" by The Mad Capsule Markets (3:20)
- "You'll Be Under My Wheels" by The Prodigy (3:59)
- "There It Go (The Whistle Song)" by Juelz Santana (3:04)

- "I Got It from the Town" by MC Hammer (3:51)
- "Top of The World" by Shonen Knife (3:55)
- "Mamacita" by Pharrell featuring Daddy Yankee (5:08)
- "Mission Banana Muffins" by Qyphone (4:07)
- "Hey, Mami" by FannyPack (3:23)
- "Game Show" by Addicted2fiction (1:05)
- "Jake Alert" by Jake One featuring Malay (0:34)
- "Realizer" by The Crystal Method (3:48)
- "Big Money Talk" by Lyrics Born (3:53)
- "Tokyo Is Great, But Where Are The Bees?" by Chris Beanz (28:33)

Charts

Original Motion Picture Score

All music composed by Brian Tyler except where noted.

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- [12] Interrogation Room: What up, Toshi? by Jonathan Wong
Super Street September 2006, pgs. 144-118
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- [17] Review by Kirk Honeycutt, The Hollywood Reporter
- [18] Review, Michael Medved, MichaelMedved.com, 21 June 2006
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- [22] Review, Mick LaSalle, San Francisco Chronicle
- [23] Rob Cohen Hated The First Two 'Fast & Furious' Sequels Because They Were Just Done For The Money
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0.8.7 External links

- Official site
- *The Fast and the Furious: Tokyo Drift* at AllMovie
- *The Fast and the Furious: Tokyo Drift* at the Internet Movie Database
- *The Fast and the Furious: Tokyo Drift* at Metacritic
- *The Fast and the Furious: Tokyo Drift* at Rotten Tomatoes

Chapter 1

D1 Grand Prix

1.1 D1 Grand Prix

The **D1 Grand Prix** (D1 グランプリ *D1 guranpuri*), abbreviated as **D1GP** and subtitled *Professional Drift*, is a production car drifting series from Japan. After several years of hosting amateur drifting contests, Daijiro Inada, founder of *Option* magazine and Tokyo Auto Salon, and drifting legend, Keiichi Tsuchiya, hosted a professional level drifting contest in 1999 and 2000 to feed on the ever increasing skills of drifting drivers who were dominating drifting contests in various parts of Japan. In October 2000, they reformed the contest as a five round series. In the following year for the following round, the introduction of the two car tsuisou battle, run in a single-elimination tournament format, a common tradition for *tōge* races which became popular with car enthusiasts.

Since then, the series has spread from the United States to United Kingdom and Malaysia to New Zealand with an ever increasing fanbase all over the world. The series has become a benchmark for all drifting series as its tsuisou format became widely adopted in drifting events throughout the world and is the most highly regarded of all series. The series helped to turn not just its personnel but also many of its drivers into celebrities with appearances in TV shows and car magazines all over the world along with scale models and video game appearances for their cars. It was credited for the increase several-fold in tuning businesses specialising in drift set-ups.

1.1.1 History

The art of drifting can be traced to the early days of motorsport when pre-war Grand Prix and dirt track racing drivers such as Tazio Nuvolari used an at-the-limit form of driving called the four-wheel drift.

The bias ply racing tires of the 1960s-1980s lent themselves to driving styles with a high slip angle. As professional racers in Japan drove this way, so did the street racers.

As street *tōge* racing became increasingly common, one of the first drifting contests was hosted by the Japanese *Carboy* magazine in 1986 and then in 1989, the year after the first introduction of the Video Option series, Daijiro



D1 Grand Prix Sponsor Box for the 2006 season

Inada (稻田大二郎) decided on introducing a rival drifting event which was judged by Keiichi Tsuchiya known as the *Ikaten*. Through the years, the standards of drifting drivers has risen rapidly and drivers began to dominate the series. As a result, Inada decided on a new series to accommodate the more experienced and skilled drivers. In 2000, a new series called **All Japan Professional Drift Championship** (全日本プロドリフト選手権, Zen Nihon Puro Dorifuto Sensyukien) consisting of Keiichi Tsuchiya (土屋圭市) and Manabu Orido (織戸学) as judges, and Manabu Suzuki (鈴木学) as commentator. Other personnel consisted of Kitahara, as the tech inspector, and Takayasu Ozaku (*more commonly known as Zaku the perverted cameraman*) as the series' long serving cameraman. Racing driver Tarzan Yamada

made appearances in earlier rounds and Inada himself would usually make guest appearances in the opening ceremony and judging stand.

The first ever event was at **Ebisu Circuit** in Fukushima, Japan, in October 2000 with an entry of forty and a crowd of three thousand. Drivers were judged individually and were treated as the first round of the **2001** season, shortly renamed as **D1 Grand Prix**. From round two onward, the series took a different turn. Unlike drift events which judged the cars individually each round then eliminating the rest, the series introduced the one-to-one round battle called the **tsuiso (twin run)** round which has been the tradition for **Tōge** races and has since been adopted for drifting events all over the world. Aftermarket parts manufacturers **BLITZ**, **HKS** and **A'PEX** soon began to get involved by sponsoring drivers entering the competition.

In **2002**, the number of cars competing in the tsuiso rounds was reduced from ten to eight, and was reduced to 6 by round two, as the second tansou rounds increased to twelve. That was increased to sixteen by round four which stands to this day.

The series remained domestic until **2003** when an exhibition round was hosted at **Toyota Speedway** at Irwindale, California, USA and produced by American marketing company, Slipstream Global. That same year, **Grassroots Motorsports** also presented the D1 Grand Prix with the Editors' Choice Award.*[1] Slipstream Global would later create the **Formula Drift** Championship in **2004**. With a sellout crowd of ten thousand, which broke the record for the venue and the series, this venue became the series' opening round in **2004**. The US round saw the introduction of the English speaking commentator **Toshi Hayama**, who also dealt with the organisation of the non-Japanese events.

That year also saw the car accessories store **Autobacs** as the title sponsor, and brought the first non-circuit event at Odaiba in Japan in **January 2004**, held in a **Fuji Television** car park. It also later ran as a championship round. In December **2004**, the D1GP was held in the **California Speedway** in Fontana, California, as a non-championship US vs. Japan event, running alongside the **JGTC** race as part of the non-championship **GT Live** event. **Manabu Orido** resigned as a judge at the end of the season to become a driver.

The other regular staff for the **2005** season were D1 girls **Kazumi Kondo** (近藤和美) and **Hatsuno Sugaya** (菅谷はつ乃) who previously had careers as **JGTC** race queens. For the **2006** season, **Hatsuno** was replaced by **Jyuri Tamashiro** (玉城珠里).

As the series has always been Japanese dominated with few non-Japanese making it to the best 16, in the first round of the **2005** season, after narrowly beating **Masato Kawabata** who spun during their tsuiso round battle, **Rhys Millen** became the first non-Japanese driver to advance to the best 8 round. He lost to **Yasuyuki Kazama** after a sudden death tsuiso battle. That year saw the introduction

of the **D1 Street Legal** category which was unveiled at the Odaiba round, for cars which are built to be driven on the road.

The series' only guest commentator was the TV presenter, singer, **Super GT** driver and amateur drifter **Hiromi Kozono** (ヒロミ; real kanji name 小園浩巳) who guest commented at the **2005 Odaiba Allstar** event.

In October **2005**, the D1GP ventured to Europe with an exhibition round at **Silverstone**, Northamptonshire, UK. This event provided an upset, as after putting on a good performance in the first run, the Irishman **Darren McNamara** advanced to the best 8 round after overtaking the series regular **Hiroshi Fukuda** on the first run. Like **Rhys Millen** in the first round, McNamara fell victim to **Kazama** after losing four to six then tying in the other round. With a crowd attendance of five thousand, in the following year the D1GP ran its own national series in the UK.

At the non-championship **D1 USA vs Japan Allstar** Exhibition at Irwindale Speedway in December **2005**, the series had its first non-Japanese winner for both car and driver: **Vaughn Gittin** with his **Ford Mustang GT**. At the following season opener in March **2006**, **Samuel Hubinette** with his **Dodge Viper SRT/10** took things further by making it into the best 8 by beating Gittin in a sudden death tsuiso battle, Hubinette made it to the semi-final when he defeated **Takahiro Ueno**, only to be beaten by **Nobushige Kumakubo** in his **Subaru Impreza GDB**. Kumakubo went on into the finals to be beaten by **Yasuyuki Kazama**, who won his third successive first round championship event.

In **2006**, the D1GP ventured into the highly lucrative Asian market by hosting a feeder series in **Malaysia**, as well as in **New Zealand**, both of which are currently only running a drivers' search event, which gives the drivers who do well in any of the national series a chance to compete at the final non-championship event held in Irwindale in addition to the final round which only the three UK series drivers was invited by **Tsuchiya**, who was impressed by their skills during the UK exhibition event. **McNamara**, the only of the three drivers to qualify in the points-scoring final round and to enter with his own car, finished in the last 8 in both events, only to lose to **Nomura** in both through a sudden death match. As that was the only year to have a franchise in the UK, McNamara would compete in the US series.

In **2007**, the former D1GP driver, **Hisashi Kamimoto** retired from driving to join as judge.*[2] The D1 Gals of **2006** was replaced by the "**D1 Sisters**" who were audition winners and representative of the agency **D-Sign**, consisting of **Hiromi Goto**, **Yuria Tachiki**, **Asami Kikuchi** and **Ayaka Tashiro**.*[3]

Since the series began, **Video Option** has always covered all of the official D1GP events. Its English language sister title **JDM Option**, which was established in **2004**, also covers the events. In **2007**, the sports channel, **J Sports ESPN**

began screening highlights of the series with Suzuki and Nomura as presenters, with the D1 Sisters making guest appearances.

For the 2009 season, the US arm underwent a new management team to kickstart a new domestic series*[4] Tsuchiya, who was also on the executive board, stepped down when the organization went under new management.*[5]

In December 2010, Keiichi Tsuchiya and Daijiro Inada both decided to resign from D1GP due to consistent irresponsible management.*[6]

1.1.2 Road to D1



A Toyota Corolla Levin AE86 adorning an official D1GP sunvisor during a practice run

Usually, drivers in Japan have to make it to the top of the championship table in one of four major national drifting series':

- **Advan Drift Meeting**
- **A'PEX Cup**
- **ORC Drift Championship**
- **BN Sports D1 Drift Championship**

Outside Japan, drivers have to enter a **Driver Search**. Once they have qualified, they receive a **D1 License**, which enables them to enter the qualifying rounds and the newly introduced national series, plus the exhibition events that they are invited to.

In a championship event, usually entries are restricted to one hundred cars. Each car gets an allocation of three individual **tansou** (*solo run*) qualifying runs: only the best one counts. At the end of the day, the top twenty qualifiers join the ten seeded cars who are determined by the top ten on the D1GP championship tables. The seeded drivers are usually a red background on their number to identify them.

On race day, after two sets of practice runs are done through, competitors will go through a starting ceremony which they will be introduced to the crowds and then a driver will be rounded up in group of fours and be given a set of three qualifying runs to make it into the best 16 **tsuiso** (*twin run*) round battles, which involves two cars drifting simultaneously. The Tansou groups would be given, Priority A, B and C. “A” indicates seeded drivers and “C” indicates as qualifiers. The Tansou rounds always starts with the series leader and then goes through to the last driver with the highest number, which usually indicates that he is a qualifier. At the end of the drivers three rounds, only the best run counts and on each run, they are judged with an assistance of a *DriftBox*, which determines angle, keeping to the correct racing line and speed. That will be given a score up to a maximum of 100.0, should a driver score that point, he will be given a bonus score of 1 point which will be added to his score they accumulates during the tsuio round.

At the end when all drivers are judged, the judges picks the sixteen drivers for the tsuio round, the highest scoring driver will be paired up against the sixteenth highest scorer, the second highest will be paired against the fifteenth highest and so on. Between this and the following tsuio round, there is a *pit walk* session at the paddock area for spectators, usually off-limits to them, where they can get close to the D1 personnel, drivers and cars. This usually lasts up to an hour which the crowds disembark back to the crowd area ready for the tsuio round.

During a tsuiso round battle, one car follows another through the course, attempting to keep up with or even pass the car in front. It does not matter if the drifting line is wrong: it matters who has the most exciting drift. Normally, the leading car usually produces a maximum angle drift, but still closes off the inside line to prevent passing. The chasing car usually drifts with less angle, but very close to the lead car. However, the chasing car does not even have to keep up. In fact, in some cases, if a car that was left behind on the straight manages produces a beautiful drift, it could win that round. A spin, under-steer, or collision, results in a disqualification and a zero score for the offending party in that battle.

At the **final** round, the two finalists will be gathered in front of the judging stand, which they park up together and stand by their car to be formally addressed by the judges, the driver would return to the starting line to continue with their last sets of tsuio rounds. Until 2004, there was a third place playoff for the losing semi finalists, which has been dropped. Should there be no sudden death rounds being called up, the finalists would return in front of the judging area with the losing drivers, who would return from the starting line; where the winner's name will be called up by the lead judge, which a large trophy and bottle of champagne will be presented to them by the D1 Gals. A cheque would usually be presented to the top 3 drivers, the winner's cheque is usually worth ¥1million or \$5000 in US events. After the name is an-

nounced, in some event, the driver would be given a toss-up by competitors, a common tradition in some sports and usually the spectators will be invited onto the track.

As a D1 Licence has a lifespan of twelve months, a driver must qualify into the best 16 spot for an automatic renewal for the next year. Failing to do so, they must re-enter the Driver Search.

1.1.3 Typical D1GP Vehicle Regulations

Considering the fact that the D1GP is a series geared towards production cars only, there are a number of different race regulations that the vehicle must undergo in order to be eligible to compete. They are:

- Only Two wheel drive (FR/RR/MR). The vehicle has to be a production, road-going model by a major vehicle manufacturer and must be rear-wheel drive, front-wheel drive, or all wheel drive from the factory.
- Vehicles constructed by a vehicle manufacturer solely for the purpose of racing are prohibited.
- front wheel drive (FF) cars with an RWD platform conversion are allowed.
- all wheel drive (4WD) cars without any RWD platform conversion, are prohibited.
- The vehicle must retain the original chassis/body—only stock body constructed from a vehicle manufacturer is allowed.
 - No tube frame vehicles or tube frame chassis extensions are permissible unless part of the OEM structure
 - Space frame chassis are not permitted, additional triangulation and bracing of suspension turret/mounting points is allowed so long as the car vehicle contains its original monocoque chassis.
 - Vehicles must retain their original VIN in its OEM position as well as the OEM chassis plate where applicable -- VIN must not be altered, clearly visible and readable.
 - Convertible vehicles must have a hard top installed and a roll cage which will be effective in the event of a vehicle rolling onto its roof. The hard top must be securely fastened to the body.
 - The vehicles appearance must be similar to that of the original vehicle.
- Semi-Slick Tires/DOT-R Compounds (S-Tires) were prohibited after the first season as they are not road legal, after Nobuteru Taniguchi used them to

win the championship in 2001. The series now only permits commercially available road tires approved by the organization.

- Catalytic converters must be installed to keep the vehicle to the maximum noise limit at race circuits.

In the past, Drivers' Search rules were more lenient to that of the championship rules until 2005, which the same rules apply to this day. For a full list of these regulations, please view them at [The Official D1GP Rules Page](#).

1.1.4 D1 Street Legal

See also: [ja:D1ストリートリーガル](#)

As the D1GP category was moving away from its grassroots during the earlier days, and budgets and development costs were getting higher, the organisers introduced the **D1 Street Legal** (*D1 ストリートリーガル* (*D1 sutoriito riigaru* in katakana), as **DISL**) category at the Odaiba round in 2005 for road driven cars which were different from the main category as they are trailer driven between races.

Being a budget series, this meant that there is tighter restrictions on how a car can be modified. For example, the car must have a working car stereo system and must have the original engine to whom it was originally supplied with. Also there is no wide body extension and wings must be within the width of the car. The car must also retain many of its original features, especially dashboard, doors, etc. which sometimes can be replaced/removed/modified in the D1GP category. In all the car has to prove its road-worthiness by its entrant providing a shaken (Japanese motor-vehicle inspection) certificate.

Initially, the new series was treated to two exhibition rounds in 2005, and was given a full seven round the following year. Although the series is geared towards novice drifters, it also attracts D1GP star drivers including the Suenaga brothers, **Masao** and **Naoto**, many of its former D1GP regulars, and fan-favourites like **Ken Nomura**.

In 2006, the organisers started a divisional series called **D1SL Divisional Series** which does not require a D1 License and is broken up in four regions: north, south, east, and west, with rounds that consist of 3 to 4 events in each region and a point scoring system that is the same as the other series'. The winner of the series at the end is awarded a D1 License.

1.1.5 Typical D1SL Vehicle Regulations

Although the items that are prohibited in D1GP also applies in D1SL, additional prohibited items in D1SL cars include:

- Sequential transmission.
- Fuel cells.
- Carbon/beamless/FRP door replacements, must be OEM doors with side impact bars intact if possible.
- Airjacks.
- Tubbed fenders/one-off metal body components, must be one that is available to the public.
- Custom/standalone relay/fuse switchboxes.
- Acrylic glass/polycarbonate window inserts and replacements, must be OEM glass.
- complete dash replacement parts, must be stock.

Other restrictions in the category are that:

- Spoilers must stay within the width of the vehicle.
- Brakes must be stock dimensions; no swaps from other models of same make are allowed.
- Vehicles must retain OEM parts (ac/navigation/heater)
- A functioning car audio system must be in place.
- A 6-point roll cage with 4-point harness must be in place (same as that of D1GP).
- Restriction of engine swaps from other model into other model, as S15 Silvia Spec-S to Spec-R specification (SR20DE→SR20DET) may be permitted but a RB26DETT into an HR32 Skyline GTS-t is not unless the model is a BNR32, nor even is converting an AE85 to AE86 is permitted. Engines from other manufacturer's car (e.g. Darren McNamara's 13B-REW powered AE86) are not permitted as well. A bolt on turbocharger or supercharger is permitted, the engine in the car can be determined by the VIN plate

1.1.6 D1 National Series

During the 2005 exhibition event at Silverstone, a domestic series was announced with a plan to run the UK round as part of the world series for the following year, though plans for a point scoring round at that location never materialised. The series took over where the **Autoglym Drift Championship** left off, which was formerly run by the OPT Drift Club, an offshoot of a tuning business called Option Motorsport. The club held a championship in 2002 called **D1UK** (the previous moniker), though not related to the magazine, for the 2004 season, the business was forced to drop the Option and D1 name for legal reasons.

The difference between the Autoglym series, which was sponsored by the car care product manufacturer, and the **D1GB** is that the former had a separate championship for beginners called Clubmans which was run in a tansou (*solo run*) format only and did not require the common safety amenities (e.g. rollcages), and the latter is a main championship for experienced drivers which consists of the usual tsuiso (*twin run*) rounds. The other difference is, D1 regulation is more stringent on car modifications. The club was since absorbed into the D1 franchise as a national series.

The GB series, was followed by a Malaysia series (**DIMY**), though the series and drivers' search began earlier than its UK counterpart due to the difference in climate with its first round in March, compared with the UK series in May. The MY series tends to have the privilege of having Tsuchiya to judge the rounds, whereas the UK series only had Dorikin and Manabu Suzuki as judges in Round 2, on the weekend of the D1GP exhibition event. The New Zealand series are currently run as a drivers' search rounds, which awards a D1 License to the winners and allow the top four to compete in the world exhibition event in the US in December.

At the end of the season, the series went through a major technical hitch as the D1 organisation refused to foot the fee to import the top 5 cars to Irwindale as promised, therefore the organizers of the D1GB dissolved its association with the D1 organisation* [7] and formed the **European Drift Championship** (EDC) which uses the same rule as the series itself. As a compromise, the D1 organisation instead gave the top three drivers a chance to compete in US based cars for both the point scoring and World All-Star round. The D1 franchise would itself move to the US after three seasons of being opening points scoring round.

Drifting Team List

- Team Orange D1 world drifting champions is led by Nobushige Kumakubo and directed by Hiroki Furuse aka "Sleepy" - **Team Orange**'s Manager. He is also EDC Judge for European Drift Championship. He was consultant for the Codemasters video game, **Race Driver: Grid** and also with **Team Orange**. They played as stunt drivers in the feature film **The Fast and the Furious: Tokyo Drift**, produced by Universal. In 2011, they did a **Tuning Film Documentary** written and directed by Diego Vida and produced by FanVision.

1.1.7 Championship Winners

[Driver](#)

1.1.8 (Non Championship) All Star Winner

[Drivers all-time score table](#)

1.1.9 Statistics

[Car all-time winning table](#)

- Youngest Driver to compete —Ken Gushi, age 18, 2004 Round 1.
- Youngest Driver to enter Best 8 —Darren McNamara, age 21yrs 3mths, 2006 Round 8
- Youngest Driver to win —Youichi Imamura, age 24yrs 5mths, 2000 Round 1.
- Youngest Championship Winner —Youichi Imamura, age 27yrs 5mths, 2003 Season.
- Oldest Driver to enter Best 16 (Non-Championship) —Rod Millen, age 55, 2005 D1 USA vs Japan All-star Exhibition.
- Oldest Driver to compete (D1SL) —Daijiro Inada, age 59, 2006 Round 2.
- Oldest Driver to win (D1GP) —Ken Nomura, age 43yrs 10mths, 2009 Round 1.
- Oldest Driver to win (D1SL) —Kazuyoshi Okamura, age 47, 2006 Round 5.
- Oldest Championship Winner —Nobushige Kumakubo, age 42yrs 9mths, 2012 Season.
- Most Wins in a single Season —3 wins, Yasuyuki Kazama, 2005 Season; Youichi Imamura, 2010 Season, Daigo Saito, 2015 Season
- Most Points in a single Season —170pts, Masato Kawabata, 2015 Season.
- Most Championship Wins —4 wins, Youichi Imamura (2003, 2009-2011)
- Narrowest title margin —1pt; Yasuyuki Kazama (97pts) over Masao Suenaga (96pts), 2005 Season and Nobushige Kumakubo (110 pts) over Ken Nomura (109 pts), 2006 Season; Masato Kawabata (100pts) over Nobushige Kumakubo (99pts), 2007 Season.
- Widest title margin —38pts; Masato Kawabata (170pts) over Daigo Saito (132pts), 2015 Season.
- Highest amount of entries – 109 (Rd 7, 2003).
- Lowest amount of entries – 25 (Rd 5, 2001).

All-Time Winners list

excludes non-championship, D1SL & non-Japanese National events

1.1.10 See also

- Drifting (motorsport)
- Video Option
- Option (car magazine)
- D1 Grand Prix (video game)
- D1GP Arcade
- 8-Ball (band)

1.1.11 Gallery

- Masato Kawabata's, Nissan Silvia S15
- Ryuji Miki's, Nissan Silvia S15
- Nobushige Kumakubo's Subaru Impreza GDB
- Ken Nomura's Nissan Skyline ER34
- Tsuyoshi Tezuka's Nissan Skyline BNR32 (B324R)

1.1.12 D1 Grand Prix USA Drivers

Alphabetical order

- Kelvin Arreola
- Marc Bergeon
- David Blunt
- James Bondurant
- Mike Burns
- Caper Canul
- Tyler Cox
- Chelsea DeNofa
- Joe Dycus
- Michael Essa
- Ron Freitas
- Chase Goodman
- Andrew Hately

- Joe Haven
- Harri Hokkanen
- Yoichi Imamura
- Daijaro Inada
- Jason Jiovani
- Ed Johnson
- Jeff Jones
- Chris Kregorian
- Nobushige Kumakubo
- Janne Leinonen
- Aaron Losey
- Quoc Ly
- Cyrus Martinez
- Omeed Moinee
- Patrick Mordaunt
- Ken Nomura
- Cody Parkhouse
- Ross Petty
- Juha Rintanen
- Tom Roberts
- James Robinson
- Austin Robison
- Bryan Rogers
- Daigo Saito
- Cody Sarem
- Tony Schulz
- Ben Schwartz
- Bill Sherman
- Joshua Steel
- Kazuhiro Tanaka
- Harri Tervola
- Takahiro Ueno
- Russell Walker
- Forrest Wang

1.1.13 References

- [1] <http://www.grassrootsmotorsports.com>
- [2] D1 Grand Prix Drifting - THANKSGIVING WEEKEND DOUBLE-HEADER
- [3] JDM OPTION / Vol.38 - Driftworks Drifting Shop
- [4] “Have no Fear, 2009 D1 series is here! : Breaking Drift News” . Wreckedmagazine.com. Retrieved 2012-08-15.
- [5] “Formula Drift is seeing a big influx” . Press-Telegram. Retrieved 2012-08-15.
- [6]
- [7] D1GP Drivers Not to Appear at D1GP All-Stars Drifting: Drift Live

1.1.14 External links

Official sites

- Official D1 Grand Prix Malaysia Site
- Official NZ Site

English

- Official US Site

Japanese

- Official Japanese Site
- Official D1GP Game
- D1GP Arcade Official site

Fan site

- Wrecked Magazine Unofficial D1GP Coverage
- MotorMavens Unofficial D1GP COverage
- DriftLive.com - Unofficial D1GP Coverage
- autoshowevents.com

Japanese

- D1GP Supporter
- D1GP.info

D1 personnel's site

- World 104 (Toshi Hayama) (Japanese)

Japanese

D1 Gal/Sisters' site

- D Sign official site

2004-2005

- Hatsuno-Jyuku (Hatsuno Sugaya)

2006

- Innocent Jyuri (Jyuri Tamashiro)

2007

- Asami Kikuchi official page
- Hiromi Goto's official page
- Yuria Tachiki's blog page
- Ayaka Tashiro's blog page

1.2 Keiichi Tsuchiya

Keiichi Tsuchiya (土屋圭市 *Tsuchiya Keiichi*, born January 30, 1956) is a professional race car driver. He is also known as the **Drift King** (ドリキン *Dorikin*) for his nontraditional use of drifting in non-drifting racing events and his role in popularizing drifting as a motorsport. He is also known for touge (mountain pass) driving.

The car he drives, a Toyota AE86 Sprinter Trueno, has become one of the most popular sports cars; the car is also known as “Hachi-Roku” in Japan (*hachi-roku* meaning “eight six”); his car is also called “The Little Hachi that could.” A video known as *Pluspy* documents Tsuchiya's touge driving with his AE86. He also is a consultant for one of the popular comic books and manga, *Initial D*, of which the main character Takumi Fujiwara is a character which describes him.

1.2.1 Biography

Tsuchiya started his career through the Fuji Freshman series in 1977. Unlike many drivers who came from wealthy families or motorsport backgrounds, he honed his skills from street racing and became an underground legend.

Racing career

National championships

He would continue to take part in the Japanese Formula Three Championship, Japanese Touring Car Championship (JTCC), the latter while driving a Nissan Skyline GT-R (previously in the Cosmo Oil Sierra Cosworth) in the Group A championships and later a Honda Civic in the Supertouring car championships.* [1]

Le Mans

He went on to score a class win and an 8th place overall at the 1995 24 Hours of Le Mans in a Honda NSX. In 1999 of the same race, this time in a Toyota GT-One, during the last hour while co-driver Ukyo Katayama was building up pace to the leading BMW V12 LMR he was forced into the grass by a backmarker privateer's BMW LMP, blowing the tire out. They survived the ordeal and went on to score the fastest lap but were forced to settle for second.

NASCAR

He has raced in NASCAR-sanctioned exhibition races at Suzuka Circuit (Suzuka Thunder 100) and at Twin Ring Motegi Superspeedway for the 1998 NASCAR-sanctioned exhibition and 1999 NASCAR Grand National Division, AutoZone West Series races at the circuit, both named the Coca-Cola 500K.

Drifting career

When Tsuchiya was a freshman in circuit racing, he got his racing license suspended because of the illegal racing he was still doing (cause of the Drift Pluspy video). In the movie series *Shuto Kousoku Trial*, he advised street racers to leave the illegal racing scene if they want to become involved with professional racing.

After his retirement

After his retirement, he remained in racing and is now an official Drift Muscle judge after quitting D1 in January 2011 and was Team Director for both GT500 for one year and GT300 Class of ARTA JGTC Team until the team disbanded their GT300 operation at the end of the 2005 season. He owned the aftermarket company Kei Office until he sold the business in the end of 2005 to form DG-5. His trademark color is jade green which appears on his overalls and helmet and is the adopted color of the former company. It was also the colour of the D1 Grand Prix Kei Office and DG-5 S15 Silvia of driver and employee Yasuyuki Kazama who also wears a suit similar in pattern.

He also hosts the video magazine "Best Motoring" which features road tests of new Japanese cars including a special section called "Hot Version" which focuses on performance-modified cars. He is a guest presenter in *Video Option*, a monthly video magazine, similar to Hot Version except regularly covers the D1GP and its sister video magazine *Drift Tengoku* which deals purely with drifting.

He has been an editorial supervisor on the televised anime *Initial D* and *Wangan Midnight*. He appeared in episode 23 of *Initial D* First Stage as a special guest. He also appeared in the semi biographical film *Shuto Kousoku Trial* 2, 3, 4, 5, and 6 was also featured in the Super GT magazine show in Japan. His life in driving is parallel to that of the *Initial D* main character, Takumi, as both of them started exploring their local touge while doing regular deliveries for their family businesses. In the Initial D 3rd Stage, the color can also be seen on the overalls and helmet of the sportsbike rider who overtook Takumi as he was en route to an initiation battle with Ryosuke Takanashi. The color of Tomo's racing suit from the Initial D 4th Stage is jade green and has a similar pattern to Tsuchiya's suit. He also made an appearance opposite *Top Gear's* Jeremy Clarkson in a Motorworld in Japan special showing drifting competition in the late 1980s in Japan.

After 1995, he sometimes appeared as a Formula One guest commentator in Japanese Fuji TV.

In 2006, he made a cameo as a fisherman in the movie *The Fast and the Furious: Tokyo Drift* in which he served as a stunt coordinator and stunt man.*[2]*[3]

In 2014, he announced a joint venture with King of Europe ProSeries in order to create King of Asia ProSeries*[4]

AE86 Specs

1.2.2 Career results

- 1977 Debut in Fuji Freshman series.
- 1977-1984 Ran selected entries in All Japan Touring Car championship.
- 1984 Fuji Freshman series race (Toyota AE86)= 6 wins
- 1985 All Japan Touring Car championship (Toyota AE86) 1st in Class 3
- 1986 Corolla Sprinter Cup-2 podium places
- 1987 All Japan Touring Car championship (Honda Civic) –1 win
- 1988 Toyota Cup-1st overall
 - All Japan Touring Car championship (BMW E30) –3rd in Class 2
- Macau Guia race (BMW M3) –4th overall
- 1989 All Japan F3 championship
 - All Japan Touring Car championship (Ford Sierra Cosworth) –1 win
- 1990 All Japan Touring Car championship (Ford Sierra Cosworth)
 - Macau Guia race (Ford Sierra Cosworth)
 - New Zealand Touring Car series (Toyota)
- 1991 All Japan F3 championship (Ralt-Mugen)–10th overall
 - All Japan Touring Car championship (Nissan Skyline GT-R) –5th overall
- 1992 All Japan Touring Car championship (Nissan Skyline GT-R)
- 1993 All Japan Touring Car championship (Taisan Nissan Skyline GT-R) –1 win
 - Japan Endurance series (Honda Prelude) –2nd Tsukuba 12 Hours
- 1994 All Japan GT championship (Porsche 911T) –1 win
 - All Japan Touring Car championship (Honda Civic)
 - Suzuka 1000 km (Porsche 911T) –1st in class, 2nd overall
 - Le Mans 24 Hours (Honda NSX) –18th overall
- 1995 All Japan GT championship (Porsche911TRSR)
 - All Japan Touring Car championship (Honda Civic)
 - Suzuka 1000 km (Honda NSX) –5th overall
 - Tokachi 12 Hours (Honda NSX) –1st overall
 - Le Mans 24 Hours (Honda NSX) –1st in class
- 1996 All Japan GT championship (Honda NSX) –13th overall
 - Entered NASCAR Thunder Special race at Suzuka
 - Le mans 24 Hours (Honda NSX) –3rd in class
- 1997 All Japan GT championship (Porsche 911/Dodge Viper)
 - Fuji InterTec race (Toyota Chaser)
 - Suzuka 1000 km (Lark McLaren F1 GTR) –9th overall
 - Entered NASCAR Thunder Special race at Suzuka

- Le Mans 24 Hours (Lark McLaren F1 GTR)
-qualified 10th, retired from race
 - 1998 All Japan Touring Car championship (Toyota Chaser) –7th overall
 - All Japan GT championship (Toyota Supra) –8th overall
 - Le Mans 24 Hours (Toyota GT-One) –9th overall
 - NASCAR at the California Speedway.
 - 1999 Japan Touring Car Championship (Advan Altezza Touring car).
 - Le Mans 24 Hours (Toyota GT-One) –2nd overall
 - 2000 Le Mans 24 Hours (Panoz LMP-1 Roadster-S)
–8th overall
 - 2000-2003 he joined team ARTA racing an NSX once again in the All Japan GT championship.
 - 2004-2005 studied in Australia to complete inter-course.
- Best Motoring International
 - Drift Japan » Keiichi 'Drift King' Tsuchiya - Driver Profile and Overview
 - 2012 Tsuchiya AE86 Specs by TEC ART
 - 2002/2003 TRD Tsuchiya AE86 Specs

1.2.3 Racing record

Complete JGTC/Super GT results

(key) (Races in **bold** indicate pole position) (Races in *italics* indicate fastest lap)

Complete 24 Hours of Le Mans results

1.2.4 See also

1.2.5 References

- [1] Keiichi Tsuchiya. driftjapan.com
- [2] Fast & Furious 6. “10 Things You Probably Didn't Know About The Fast & Furious Films” . *BuzzFeed*.
- [3] *The Fast and the Furious: Tokyo Drift* (DVD).
- [4] <http://www.kingofasia.net>

1.2.6 External links

- (Japanese) Official site
- IMDb profile
- Keiichi Tsuchiya driver statistics at Racing-Reference
- AsianAthlete.com profile
- (Japanese) Bridgestone Automobile Radio

Chapter 2

D1GP venues

2.1 Autopolis

Autopolis (オートポリス *Otoporisu*) is an international racing circuit located near Kamitsue village in Ōita Prefecture, Japan (30 km Northeast of Kumamoto).^{*[1]} Opened in 1990, it hosts a range of domestic and international motorsport events throughout the year. Although the track meets a high standard in terms of its facilities, it has never hosted a Formula One race. Due to the circuit ending up in financial difficulties, it has changed hands several times but still operates to this day.

2.1.1 History

The circuit, located within Aso Kujiyu National Park, was built at a cost of \$500 million by the wealthy real-estate developer and investment banker Tomonori Tsurumaki who made headlines in 1989, when during a Paris auction, he successfully bid a Pablo Picasso painting *Les Noces de Pierrette* for \$51.3 million from his Tokyo hotel room. Following his successful bid, he announced that his painting was to hang at the art gallery of the auto racing resort, under development at the time.^{*[2]}

The circuit was designed by Yoshitoshi Sakurai who was the project leader of the Honda F1 team during the 1960s.^{*[3]}

Tsurumaki ordered 30 Buick powered US built single seater race cars called “Sabre Cars” for a race to take place on his circuit’s grand opening, on November 1990 consisting of a mixture of invited US CART drivers such as Stan Fox, Johnny Rutherford, Dick Simon, Gary and Tony Bettenhausen, against local Japanese drivers. After the grand opening, Tsurumaki planned on a series with the cars, known as **Formula Crane 45**. A few races were run in 1991, with only a handful of cars competing.

The only major international race held at Autopolis was the 1991 World Sportscar Championship season final race, the 1991 430km of Autopolis which was won by Michael Schumacher and Karl Wendlinger in a Mercedes-Benz C291 fielded by Sauber.

To promote the venue’s intention to host a Formula One race, it sponsored the Benetton Formula One team in

1990 and 1991. The cars featured prominent Autopolis logos. Visitors criticized the track for being too remote to the hotels which required a several hours bus ride and felt that it was unsuitable for an F1 race. By then, hopes were fading, Tsurumaki turned up at the 1992 Portuguese Grand Prix. Whilst staying in Estoril, \$250,000 of cash and jewels was stolen from his hotel room.

Tsurumaki also invested in race horse **A.P. Indy**^{*[4]}^{*[5]} and paintings of renowned painters such as Picasso, Monet, Van Gogh, Chagall, Renoir and Magritte before his company, **Nippon Tri-Trust** collapsed, leading to his bankruptcy in 1993.^{*[6]} The circuit plus the paintings and contents ended up in the hands of **Hazama** who was responsible for the construction of the race track.^{*[7]}

By 1995, the company offered the site for sale at 10% of its build cost which consisted of three hotels, swimming pools and an artificial ski slope. The paintings by then remained in a bank vault waiting to be sold.^{*[8]}

Autopolis was purchased by Kawasaki in 2005.^{*[9]}

The circuit currently holds events for the Super GT as well as Super Formula, MFJ Superbike and Super Taikyu.

2.1.2 The circuit

The circuit is located in an upland area of the island which means the air is thin with low atmospheric pressure, similar to **Autódromo Hermanos Rodríguez** in Mexico City. It has an elevation change of over 50 metres (160 ft) with the first section generally downhill and the latter part of the course runs uphill.^{*[1]}



2.1.3 References

- [1] 15 Oct 2010 - 17 Oct 2010 Autopolis International Circuit, Japan - afos.com
- [2] Japanese Developer Buys Picasso at Record Price - New York Times
- [3] F1 News - Grandprix.com > GP Encyclopedia > Circuits > Nippon Autopolis
- [4] SPORTS PEOPLE: HORSE RACING; Sold! For \$2.9 Million - New York Times
- [5] National Museum of Racing - Hall of Fame
- [6] Yakuza: Japan's Criminal Underworld By David E. Kaplan, Alec Dubro
- [7] The Art of a Failed Economy | www.japaninc.com
- [8] F1 News - Grandprix.com: Autopolis going to the wall
- [9] Kawasaki Takes Over Autopolis Racing Course - News Releases KHI

2.1.4 External links

- Official website in Japanese
- Circuit map and full history at RacingCircuits.info
- Article about the origins of the Autopolis circuit
- Circuits' Map
- Satellite picture by Google Maps

Coordinates: 33°2'13"N 130°58'22.9"E / 33.03694°N 130.973028°E

2.2 Ebisu Circuit

Ebisu Circuit (エビスサーキット) is an established race complex at 1 Sawamatsukura, Nihonmatsu-shi, Fukushima Prefecture, 964-0088, Japan. The complex features 7 individual tracks plus 2 skid pan type circuits. The circuits are, Nishi (West), Kita (North), Higashi (East), Minami (South) as well as Drift Land, the School Course, The Touge (mountain pass) and 'KuruKuru Land' which are the skidpans. The most famous circuit is the Minami or South course which is for D1 and other drifting events. The Higashi or East circuit features a 420 metre long main straight with 20 ground floor pit garages and is used mainly for grip events.* [1]

Designed* [2] and built by drift driver Nobuhige Kumakubo, Ebisu Circuit is one of the premier drifting-based tracks in the world. However, Nobuhige also holds other motorsport events there including Endurance Races, FJ1600 Races and in previous years events like "Big-X".*[3]*[4] The complex also has a Safari park.

2.2.1 References

- [1] "Ebisu Circuit" . motoracing-japan.com. 1996. Retrieved 2009-05-03.
- [2] "Ebisu" . needforspeed.com. 2011. Retrieved 2011-06-09.
- [3] "Nobuhige Kumakubo" . driftjapan.com. 2007-04-06. Retrieved 2009-05-03.
- [4] "Big-X" . www.7tune.com. 2009-03-26. Retrieved 2009-06-14.

2.2.2 See also

Drifting at Wikibooks

2.2.3 External links

- Official web site (Japanese)

2.3 Fuji Speedway

Coordinates: 35°22'18"N 138°55'36"E / 35.37167°N 138.92667°E

Fuji Speedway (富士スピードウェイ *Fuji Supīdōwei*) is a motorsport race track standing in the foothills of Mount Fuji, in Oyama, Suntō District, Shizuoka Prefecture, Japan. It was built in the early 1960s. In the 1980s, Fuji Speedway was used for the FIA World Sportscar Championship and national racing. Originally managed by Mitsubishi Estate Co., Fuji Speedway was acquired by Toyota Motor Corporation in 2000. The circuit hosted

the Formula One Japanese Grand Prix in 2007, after an absence of 30 years, replacing the Suzuka Circuit, owned by Honda.* [2] After Fuji Speedway hosted the 2008 race, the Japanese Grand Prix returned to Suzuka for the 2009-onward races. Fuji Speedway is known for having one of the longest straights in motorsport tracks, at 1.475 km (0.917 mi) in length.* [3] The circuit has FIA Grade 1 license.* [4]

2.3.1 History

1963–79: F1 launches in Japan

Fuji Speedway Corporation was established in 1963, as **Japan NASCAR Corporation**. At first, the circuit was planned to hold **NASCAR**-style races in Japan. Therefore, the track was originally designed to be a 4 km (2.5 mi) high-banked **superspeedway**, but there was not enough money to complete the project and thus only one of the bankings was ever designed. **Mitsubishi Estate Co.** invested in the circuit and took the management right on October 1965.

Converted to a road course, the circuit opened in December 1965 and proved to be somewhat dangerous with the banked turn (named “**Daiichi**”) regularly resulting in major accidents. **Vic Elford** recalls:

“In 1969 I spent two months in Japan doing a test contract for Toyota and their **Toyota 7** (5 litre V-8), which along with a big Nissan (6.3 litre V-12), was destined for CanAm. My last testing and then the subsequent Sports Car GP were at Fuji, but the track was run in a clockwise direction. The reason that banking was so horrific, was that at the end of the straight we went over a blind crest at around 190/200 mph and *dropped into* the banking. At other tracks (Daytona, Monthlery, etc.) you climb up the banking. One of the results was that although there were many brave Japanese drivers there were not too many with great skill and the death toll from that one corner was horrendous. To such an extent that the big Gp 7 cars were then banned in Japan and thus, neither Nissan or Toyota ever made it to CanAm.”

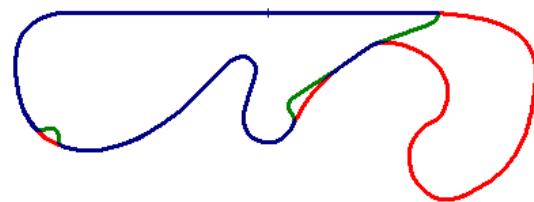
After a double fatal accident in 1974 on the Daiichi banking where drivers **Hiroshi Kazato** and **Seiichi Suzuki** were both killed in a fiery accident that injured 6 other people, a new part of track was built to counteract the problem, and the resultant 4.359 km (2.709 mi) course which also eliminated 5 other fast corners proved more successful. In 1966, the track hosted a USAC Indy Car non-championship race, won by Jackie Stewart. The track had a 24-hour race in 1967.* [5]

The speedway brought the first **Formula One** race to Japan at the end of the 1976 season. The race had a dra-

matic World Championship battle between **James Hunt** and **Niki Lauda**, and in awful rainy conditions, Hunt earned enough points to win the title. **Mario Andretti** won the race, with Lauda withdrawing due to the dangerous conditions.

There was less celebration after the second race in 1977 as **Gilles Villeneuve** was involved in a crash that killed two spectators on the side of the track, leading to Formula One leaving the speedway. When Japan earned another race on the F1 schedule ten years later, it went to Suzuka instead. F1 didn't return to Fuji until 2007.

1980–2000: National racing venue



Fuji Speedway former layouts: Red 1965–1974, Blue 1975–1985, Green 1986–2004



The abandoned “30° Bank” of the old track

Fuji remained a popular sports car racing venue and **FIA World Sportscar Championship** visited the track between 1982–1988 and it was often used for national races. Speeds continued to be very high, and two **chicanes** were added to the track, one just past the first hairpin corner, the second at the entry to the very long, very fast final turn (300R). But even with these changes the main feature of the track remained its approximately 1.5 km (0.93 mi) long straight, one of the longest in all of motorsports.

The long pit straight has also been utilised for **drag racing**. **NHRA** exhibitions were run in 1989, and in 1993 **Shirley Muldowney** ran a 5.30 on the quarter-mile strip at Fuji. Local drag races are common on the circuit.

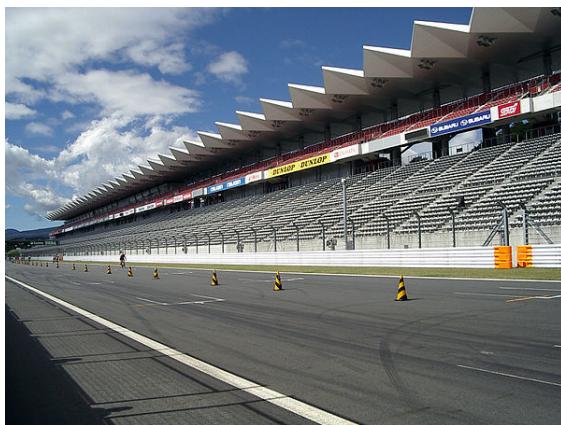
The track continues to be used for Japanese national races, but plans to host a **CART** event in 1991 were abandoned and it was not until the autumn of 2000 that the majority of the stocks of the track was bought by **Toyota**

from Mitsubishi Estate,*[6] as part of its motor racing plans for the future.

On May 3, 1998 there was a serious multi-car crash during a parade lap before a JGTC race. The cause was a pace car going twice over the recommended speed in torrential rain. Ferrari driver Tetsuya Ota suffered serious burns over his entire body after being trapped in his car for almost 90 seconds.*[7] Porsche driver Tomohiko Sunako fractured his right leg.*[7] For further information see 1998 JGTC Fuji incident.

2001–present: renovations

In 2003 the circuit was closed down to accommodate a major reprofiling of the track, using a new design from Hermann Tilke. The track was reopened on April 10, 2005. The circuit hosted its first Formula One championship event in 29 years on September 30, 2007. In circumstances similar to Fuji's first Grand Prix in 1976, the race was run in heavy rain and mist and the first 19 laps were run under the safety car, in a race won by Lewis Hamilton.



Rebuilt grandstand in the 2000s

The circuit has always hosted the NISMO Festival for historic Nissan racers, since the takeover and refurbishment in 2003, the event took place at TI Circuit. When the festival returned in 2005, the organisers allowed the circuit owner to bring in their Toyota 7 CanAm racer to re-enact the old Japanese GP battle. Toyota also hosts its own historic event a week before the NISMO festival called Toyota Motorsports Festival. Close to the circuit is a drifting course, which was built as part of the refurbishment under the supervision of “Drift King” Keiichi Tsuchiya. The short course nearby was built under the supervision of former works driver and Super GT team manager Masanori Sekiya and there is a Toyota Safety Education Center, a mini circuit. In addition to motorsports, Fuji also hosts the Udo Music Festival.

The only time the circuit is run on a reverse direction is during the D1 Grand Prix round as Keiichi Tsuchiya felt the new layout meant reduced entry speed, making

it less suitable for drifting.*[8] The series has hosted its rounds since 2003, with the exception of the 2004 closure, the circuit became the first to take place on an international level racetrack*[8] and the first of the three to take place on an F1 circuit. The course starts from the 300R section, slide through the hairpin, then through 100R and ends past the Coca Cola curve. With the reprofiling, as cars no longer run downbank, entry speeds have since been reduced, the hill at the exit making acceleration difficult.*[8] As part of the 2003 renovations, most of the old banked section of track was demolished. Only a small section remains to this day.

Following both poor ticket sales and even worse weather it was decided by FOM that the FIA Japanese Grand Prix would be shared between Fuji Speedway and Suzuka on alternate years with Suzuka holding the next race on Sunday, October 4, 2009. After the global recession and its own operational deficit, Toyota decided to discontinue the hosting of Japanese Grand Prix since 2010.*[9]

2.3.2 Records



Main gate of the circuit

2.3.3 New corners

This is the official listing of the new twelve corners. Only some corners have Japanese names, most of which are a result of sponsorship agreements. The rest are named after the radius of the corner in meters.

1. First Corner 27R
2. 75R
3. Coca Cola Corner 80R
4. 100R
5. Advan Corner 30R
6. 120R



The fifteenth corner

- 7. 300R
- 8. Dunlop Corner 15R
- 9. 30R
- 10. 45R
- 11. Prius Corner 25R
- 12. Panasonic Corner 12R

The Dunlop corner differs with the configuration used. In the full configuration, it consists of a tight right hairpin turn followed by a left-right flick. In the GT course it is a medium speed right-hander, bypassing turns 11 and 12.

2.3.4 Fuji Speedway in videogames

The Fuji circuit is well known to fans of the arcade racing game *Pole Position*, as cars raced on the circuit in the popular loop. Fuji Speedway (renamed “Namco Circuit” in the *Namco Museum* ports and “Blue Speedway” in *Namco Museum: Virtual Arcade*) was thus the first circuit ever to be featured in a video game.

Fuji is also featured in *Top Gear*, *TOCA Race Driver*, *Gran Turismo 4*, *Gran Turismo 5: Prologue*, *Gran Turismo (PSP)*, *Gran Turismo 5* and *Gran Turismo 6*. For *F1 Challenge '99-'02*, *Grand Prix Legends*, *rFactor*, *GTR 2 - FIA GT Racing Game*, *GT Legends* and *RACE 07 - The Official WTCC Game* the track is available as free downloadable add-on.

2.3.5 Fuji Speedway in television

The Fuji circuit is featured prominently in the Japanese television drama *Engine* as the main setting for the racing scenes, as well as the home of the (fictional) “Regulus Cup” .

The track was also featured in an episode of the 11th season of the British automotive show *Top Gear* in which

host Jeremy Clarkson takes a Nissan GT-R through its paces.

Part of the *Gaki no Tsukai* 2013 New Year's Holiday No-Laughing Earth Defense Force punishment game was also shot at Fuji Speedway.

2.3.6 2007–2008 Japanese Grand Prix

Main articles: 2007 Japanese Grand Prix and 2008 Japanese Grand Prix

During the 2007 Japanese Grand Prix, Fuji Speedway met with a lot of problems such as the paralysis of the transportation network provided by the shuttle buses, poor facilities including some reserved seats without a view, lack of organization, and expensive meals that meant a simple lunch-box was sold for 10,000 yen (US\$87) at the circuit.*[14]*[15]

Newspaper accounts of the event also alleged problems with Toyota bias and control. During the 2007 Japanese Grand Prix, the circuit prohibited the spectators from setting up the flags and banners to support the teams and drivers,*[16]*[17] with the exception of the Toyota F1 team whose owner also owned the circuit.*[18] Therefore, there were very few flags and banners in the event compared with other Grand Prix events.*[19]*[20]

For the 2008 Japanese Grand Prix race, organizers responded to lessons learned the previous year by reducing the total number of spectators allowed at the event. Compared to 140,000 persons allowed for Sunday events in 2007, attendance was restricted to 110,000.*[21] Additionally, walkways and spectator facilities were improved, along with larger screens.*[22] However, the race was also affected by rainy weather, which has historically interfered in a number of past races at the circuit, and later in 2013, led to interference with a 6-hour endurance race at the track for the FIA World Endurance Championship.

2.3.7 Notes

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- [5] “1967 Toyota 2000 GT - Conceptcarz” . conceptcarz.com. Retrieved June 29, 2016.
- [6] Suzuka responds to Fuji pressure – December 23, 2000

- [7] "Super GT: AUTOBACS CUP GT Championship 1998 Round 2 – Race Review, Fog Bank Ends 2nd Round of GTC". Retrieved December 25, 2009.
- [8] JDM Option Vol.21
- [9] "Toyota to pull out of hosting 2010 Japan GP". *Mainichi Daily News*. July 7, 2009. Retrieved July 7, 2009
- [10] After abolishing the high-banking in 1974
- [11] The chicanes were added in 1984 and 1987.
- [12] "1992 AJTCC - round 8". *touringcarracing.net*. Retrieved June 29, 2016.
- [13] Reprofiled by Hermann Tilke in 2003
- [14] "富士スピードウェイ：コース見えず、トイレやバスは大渋滞 30年ぶりF1に課題 (Fuji Speedway: Can't see the course, and the rest rooms and the shuttle buses are crowded. There is a problem in F1 has not held for 30 years)" (in Japanese). *Mainichi Shimbun*. October 1, 2007. Retrieved October 3, 2007.
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- [16] "Notes on the reserved seat" (in Japanese). kansenzyuku.com. September 28, 2007. Archived from the original on August 24, 2008. Retrieved September 30, 2007.
- [17] "日本GP・横断幕の事 (About banners at the Japanese GP: Q&A with Mr. Ikeya, Fuji Speedway)" (in Japanese). champion-ship. October 1, 2007. Retrieved October 1, 2007.
- [18] "Captured image from the race on Sunday" (in Japanese). Formula One Administration. September 30, 2007. Retrieved September 30, 2007.
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- [20] "Kenji Sawada's Report from circuit" (in Japanese). Kenji Sawada, an official F1 photographer. September 30, 2007. Archived from the original on October 13, 2007. Retrieved September 30, 2007.
- [21] "Fuji to limit attendance for 2008 GP". flupdate.com. Retrieved June 29, 2016.
- [22] "Fuji gets better toilets but still needs a roof". *F1 Fanatic*. f1fanatic.co.uk. February 20, 2008. Retrieved June 29, 2016.

2.3.8 External links

- Fuji Speedway official website
- Fuji Speedway info from official F1 website
- Map and circuit history at RacingCircuits.info
- Google Map

2.4 Nihonkai Maze Circuit

Maze Sea Circuit (Japanese: 日本海間瀬サーキット) is a 1.243mile (2.000 km) Japanese motor racing circuit at Maze, Iwamuro-mura in the Nishikanbara District of Niigata Prefecture.*[1]

2.4.1 History

The circuit was established in 1967 by Dr. Yoshikazu Fujita, a local physician. In 1970 the track was paved and redesigned into a road racing course. Between 1978 and 1987 the track was closed.

When it reopened in 1987, racing was changed to a clockwise direction. The track layout was also realigned to improve safety conditions.

In September 2008, Round 5 of the D1 Grand Prix with Nissan sporting coupés was held at the circuit.

2.4.2 References

- [1] "Motor Racing Japan - Nihonkai Maze Circuit". motorracing-japan.com. 1996. Retrieved 2011-06-06.

2.4.3 External links

- Official circuit website (Japanese)

2.5 Odaiba

Coordinates: 35°37'48"N 139°46'30"E / 35.63°N 139.775°E



Odaiba as seen from the Rainbow Bridge in 2014

Odaiba (お台場) is a large artificial island in Tokyo Bay, Japan, across the Rainbow Bridge from central Tokyo. It was initially built for defensive purposes in the 1850s, dramatically expanded during the late 20th century as a seaport district, and has developed since the 1990s as a major commercial, residential and leisure area. Odaiba, along with **Minato Mirai 21** in Yokohama, are two of the only places in the Greater Tokyo Metropolitan area where the seashore is accessible, and not blocked by industry and harbor areas.

Daiba (台場) formally refers to one district of the island development in Minato Ward. The *Odaiba* name is commonly used to refer to the entire **Tokyo Waterfront Secondary City Center** (東京臨海副都心 *Tōkyō Rinkai Fukutoshin*) which includes the **Ariake** and **Aomi** districts of **Kōtō Ward** and the Higashi-Yashio district of **Shinagawa Ward**.

2.5.1 History



View of Odaiba from the north with Fuji TV building in the center, Daikanransha Ferris wheel to the left, shopping malls in the front, and Nikko hotel to the right

The name *Odaiba* comes from a series of six island fortresses constructed in 1853 by Egawa Hidetatsu for the **Tokugawa shogunate** in order to protect **Edo** from attack by sea, the primary threat being Commodore Matthew Perry's Black Ships which had arrived in the same year.*[1] *Daiba* in Japanese refers to the cannon batteries placed on the islands. In 1928, the *Dai-San Daiba* (第三台場) or "No. 3 Battery" was refurbished and opened to the public as the Metropolitan Daiba Park, which remains open to this day.



Dai-Roku Daiba (第六台場) or "No. 6 Battery", one of the original Edo-era battery islands, as viewed from the Rainbow Bridge. The developed area of Odaiba is in the background.

From the originally planned 11 batteries, only five were ever finished. The modern island of Odaiba began to take shape when the Port of Tokyo opened in 1941. Until



One of the cannons of Odaiba, now at the Yasukuni Shrine. 80-pound bronze, bore: 250 mm (9.84 in), length: 3,830 mm (150.79 in).

the mid-1960s all except two batteries were either removed for unhindered passage of ships or incorporated into the Shinagawa port facilities and Tennozu island. In 1979 the then called *landfill no. 13* (now **Minato-ku Daiba**, **Shinagawa-ku** Higashi-Yashio and **Kōtō-ku Aomi** districts), was finished directly connecting with the old "No. 3 Battery". "No. 6 Battery" was left to nature (landing prohibited).

Tokyo governor Shunichi Suzuki began a major development plan in the early 1990s to redevelop Odaiba as **Tokyo Teleport Town**, a showcase for futuristic living, with new residential and commercial development housing a population of over 100,000. The redevelopment was scheduled to be complete in time for a planned "International Urban Exposition" in spring 1996.

Suzuki's successor Yukio Aoshima halted the plan in 1995, by which point over JPY 1 trillion had been spent on the project, and Odaiba was still underpopulated and full of vacant lots. Many of the special companies set up to develop the island became practically bankrupt. The collapse of the **Japanese asset price bubble** was a major factor, as it frustrated commercial development in Tokyo generally. The area was also viewed as inconvenient for business, as its physical connections to Tokyo—the **Rainbow Bridge** and the **Yurikamome** rapid transit line—made travel to and from central Tokyo relatively time-consuming.

The area started coming back to life in the late 1990s as a tourist and leisure zone, with several large hotels and shopping malls. Several large companies including **Fuji Television** moved their headquarters to the island, and transportation links improved with the connection of the **Rinkai Line** into the JR East railway network in 2002 and the eastward extension of the Yurikamome to Toyosu in 2006. **Tokyo Big Sight**, the convention center originally built to house Governor Suzuki's planned intercity conventions, also became a major venue for international expositions.

Odaiba is one of the venue locations in the upcoming **2020 Summer Olympics**. The events to be held there under the venue plan include **beach volleyball** at Shiokaze Park, **triathlon** and **marathon swimming** at Odaiba Marine Park, and **gymnastics** at a new gymnastics venue.*[2]



Odaiba at night with *Yakatabune* boats in the bay foreground

2.5.2 Attractions



Rainbow Bridge



Miraikan

Today's Odaiba is a popular shopping and sightseeing destination for Tokyoites and tourists alike. Major attractions include:

- Palette Town:
 - Daikanransha, a 115-metre (377 ft) Ferris wheel
 - Megaweb, exhibition hall of car maker Toyota
 - Tokyo Leisure Land, 24-hour video gaming, karaoke, bowling
 - Venus Fort, a Venice-themed shopping mall
- Zepp Tokyo, one of Tokyo's largest performance halls/nightclubs
- Fuji Television studios with a distinctive building designed by Kenzo Tange
- Miraikan, Japan's National Museum of Emerging Science and Innovation
- Rainbow Bridge connecting Odaiba to the heart of Tokyo
- Tokyo Big Sight Tokyo International Exhibition Center
- Aqua City shopping center
- Diver City shopping center
 - Gundam Front Tokyo, featuring an 18 meter tall *Gundam* statue^[3]
 - Zepp DiverCity
- Decks Tokyo Beach shopping mall, featuring Sega Joyopolis and Little Hong Kong
- Museum of Maritime Science (*Fune no kagakukan*) with swimming pool
- Oedo-Onsen-Monogatari sentō
- Shiokaze park with BBQ places and Higashi Yashio park
- Telekom Center Building (MXTV's former headquarters) with observation deck
- One of two beaches in urban Tokyo (swimming prohibited), along with Kasai Rinkai Park in Edogawa Ward
- A replica of the Statue of Liberty
- Panasonic Centre, a science and technology showroom



Replica *Statue of Liberty* in Odaiba, with the *Rainbow Bridge* behind it.

2.5.3 Transport



Yurikamome automated guideway transit service

Two Shuto Expressway lines access Odaiba: Route 11 enters from central Tokyo crossing the Rainbow Bridge, while the Wangan Route enters from Shinagawa Ward through the Tokyo Port Tunnel and from the bayfront areas of Tokyo and Chiba Prefecture to the east.

By public transport Odaiba is accessible via the automated Yurikamome transit system from Shimbashi and Toyosu. The privately operated Rinkai Line runs between Shin-Kiba and Ōsaki but many trains connect directly to Shibuya, Shinjuku, and Ikebukuro. City buses provide cheaper if slower access. Ferries connect Odaiba with Asakusa running along the Sumida River and the Kasai Rinkai Park in eastern Tokyo.

2.5.4 Cultural references

Odaiba, The Rainbow Bridge, and other parts of the surrounding area are referenced in the Digimon Adventure franchise. The area is noted in many major areas of the plot.*[4]*[5]*[6]*[7]*[8]*[9]*[10]

2.5.5 References

- [1] *The architecture of Tokyo* Hiroshi Watanabe p.143
- [2] “Venue Plan” . Tokyo 2020 Bid Committee. Retrieved 8 July 2013.
- [3] “Giant 60-Foot 'Mobile Suit Gundam' Statue Presides Over DiverCity Tokyo Plaza (PHOTO)”. *The Huffington Post*. 2012-05-01. Retrieved 2015-05-11.
- [4] “Odaiba - Shiria-mae Crossing” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [5] “Odaiba” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [6] “Odaiba” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [7] “Odaiba” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [8] “Odaiba” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [9] “Odaiba - Dai-san Daiba/Dai-roku Daiba, Daibakōen” . marron.extracaffeine.com. Retrieved 2015-12-15.
- [10] “Odaiba” . marron.extracaffeine.com. Retrieved 2015-12-15.

2.5.6 External links

- Area Guide of Odaiba with sightseeing spots
- historical map from 1892 (in Japanese)
- Fuji-TV Odaiba Live Camera - YouTube

2.6 Okayama International Circuit

Okayama International Circuit (岡山国際サーキット), named **TI Circuit Aida** (TI サーキット英田) until December 31, 2004, is a 2.301-mile (3.7 km) private motorsport race track in Mimasaka, Okayama Prefecture, Japan. TI was the abbreviation of "Tanaka International" after the name of the golf club owner, Hajime Tanaka, though the name of the circuit was officially "TI Circuit Aida".

As well as hosting racing events, the circuit has rental facilities including bikes and go-carts available.

2.6.1 History

The course was opened in 1990 as a private race track for the wealthy.*[2] Soon, it hosted its first race, staged by veteran British drivers.

In 1994 and 1995, the TI Circuit hosted the Formula One Pacific Grand Prix; both events were won by Michael Schumacher in his early title-winning years. This race made Japan one of only seven countries to ever host more than one Formula One event in the same year. It was discontinued primarily due to its location in a remote area of Japan.

In March 2003, “Tanaka International Company”, parent company of “TI Circuit Company”, applied for Civil Rehabilitation Law. After the application, Unimat Holding Co., Ltd. announced that it would support TI Circuit Company. The owner of the circuit was renamed **Okayama International Circuit Co., Ltd.** on May 1, 2004, and the name of the circuit was renamed “Okayama International Circuit” on January 1, 2005.

On October 26, 2008, the circuit hosted a round of the Formula V6 Asia and FIA World Touring Car Championship. The WTCC race was the first world championship FIA race since 1995. However, it was announced

on June 21, 2010 that Suzuka Circuit would host the Japan round of the 2011 WTCC season instead of the Okayama International Circuit.*[3]

2.6.2 References

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- [2] “Course guide” (in Japanese). Okayama International Circuit website. Retrieved 2012-12-28.
- [3] “FIA WTCC TO RACE AT SUZUKA IN 2011” . fia-wtcc.com. 2010-06-21. Retrieved 2010-07-20.

2.6.3 External links

- Okayama International Circuit official website – (Japanese)
- Asian Festival of Speed results

Coordinates: 34°54'54"N 134°13'16"E / 34.91500°N 134.22111°E

2.7 Tsukuba Circuit

The **Tsukuba Circuit** is a motorsport race track located in Shimotsuma, a neighboring city of Tsukuba, Ibaraki Prefecture, Japan. It is 2.045 kilometres (1.271 mi) long, has 32 pits and the longest straight is 437 metres (0.272 mi) long.*[1] There is a small **chicane** corner that is used for motorcycle racing only and increases the total length to 2.070 kilometres (1.286 mi). The track was established in 1966 with the aim of attracting young people to participate in motor sports, but was not actually completed until 1970.*[2] At the present time, an event is held every week.*[3] The track has a large variety of corners, ranging from wide sweepers to hairpins.*[2] The circuit accommodates 8500 spectators on the track, 3000 in the stands, 5000 on lawn seats, and 500 standing over the pits.*[2]

The track has appeared in numerous video games, including *Forza Motorsport*, 2, 3, and 4, *Gran Turismo 4*, *Gran Turismo PSP*, *Gran Turismo 5*, and 6, *Tourist Trophy*, *Enthusia Professional Racing*, *rFactor*, and *D1 Grand Prix*. The track is commonly used for tuner events and has appeared in the final installment of the *Shuto Kousoku Trial* series, *SKT Max*. The circuit has also gained popularity because of its heavy use by Best Motoring to test and race a variety of vehicles.



An satellite image of Tsukuba Circuit in 1990

2.7.1 Time Attack

Time Attack (alternatively known as **Super Lap** or **Tuner Battles**) originated in Japan when the tuning media organized the event on race circuits such as Tsukuba Circuit, where it commonly occurs, as a proving ground for street tuned cars built at a large budget by highly respected tuning companies. As a result of the quick rise in popularity, tuners developed cars especially to use to beat the competition,*[4] including the purpose built **HKS CT230R Lancer Evolution**, with its body made entirely out of carbon fibre. The official lap record is held by the Autobacs ARTA NSX, which ran a 51.8 second lap. This lap was beaten on Boxing Day 2015 by Tomohiko “Under” Suzuki and the Scorch Racing Team S15 with a time of 51.127 seconds on Yokohama Advan A050 Semi-Slick Tires.

Unlike other timed motorsport disciplines such as sprinting and hillclimbing, the car is required to start off under full rolling start conditions following a warm up lap where they will have to accelerate out as fast as possible to determine how fast they enter their timed lap.*[4] Commonly, as cars consist of modified roadgoing cars, cars are required to wear tires authorized for road use and in all, drivers are allocated to three laps in a final event run; warm-up, timed and cool-down.*[4]

2.7.2 Time Attack Results

2007 17th Annual Revspeed Super Battle at Tsukuba Circuit

2.7.3 References

- [1] “Tsukuba Circuit”. Moto Racing Japan. Retrieved 2006-11-06.
- [2] “Go! Go! Speed Racer!”. Ibaraki Prefecture. Retrieved 2006-11-06.
- [3] “What is the Tsukuba Circuit?”. She Japan. Retrieved 2006-11-06.

[4] Time Attack FAQ's

2.7.4 External links

- Official Webpage (Japanese)
- Tsukuba Circuit on Google Maps

Coordinates: 36°09'6"N 139°55'17"E / 36.15167°N
139.92139°E

Chapter 3

Notable D1GP drivers

3.1 Youichi Imamura

Youichi Imamura (今村陽一 *Imamura Yōichi*, 11 May 1976, Yamanashi) is a Japanese professional drifting driver, currently competing in the D1 Grand Prix series for team OTG MotorSports and Falken w/ Pentronas.

He has always enjoyed driving, so drifting was a natural thing for him. His other passion is flowers as his parents ran a florist and he has always helped them out. So he has always known that he'd be a florist, when he is not drifting he is working in a florists in Yamanashi called Silky House. His favourite time of the week is when he and his wife drive out to collect stock, Sometimes he cannot make it as he's at a photo shoot or a D1 event, so he uses the internet to check up.

He has been competing in the D1 Grand Prix series since it began in October 2000. His best year so far was the 2003 season where he won the series title in his A'PEXi Mazda RX-7 (FD3S). After A'PEXi left the series he switched to ORC and has been working with the team to improve the performance of the Nissan Fairlady Z coming in sixth in the 2007 series. In 2008, he switched to the newly formed team Auto Produce Boss with Potenza D-1 Project, driving their Nissan Silvia S15 which was actually Yasuyuki Kazama's 2005 Championship car. In 2009 he won the championship in this car, making him the only two time D1 champion ever. He also has the most wins of any D1 driver with ten.

Like rival drifter who he was team mate to, Ryuji Miki, he also competed in the Net'z Cup, a one make series for the Toyota Altezza between 2005 and its final season in 2006, [1] his racing antics were documented twice on Video Option.

D1 Grand Prix

3.1.2 Sources

- JDM Option
- D1 Grand Prix
- Silky House Flower Boutique
- Home page
- Auto Produce Boss

3.1.3 References

[1] (Japanese) BATTLEGEAR.NET レース&イベントレポート

3.2 Masato Kawabata



Kawabata's S15 Silvia with 2005 livery

Masato Kawabata (川畑真人 *Kawabata Masato*, 15 October 1977, Osaka) is a Japanese professional drifting driver, currently competing in the D1 Grand Prix series for Team Toyo.

3.1.1 Complete Drifting Results

(key)

3.2.1 Biography

Kawabata first received his license at 18 and at that point he bought the Nissan 180SX. He practiced alone until he

met late D1 driver Atsushi Kuroi who started to teach and advise Kawabata. At age 19, Kawabata entered a drift magazine sponsored contest and took first place. At 21, GP Sports started to sponsor Kawabata with a full line of aero parts. Kawabata and first appeared in the D1 Grand Prix in round 4 of 2002.*[1]

Kawabata took his first win at Fuji Speedway in 2006*[2] and went on to finish 4th in the overall points. In 2007 he did even better however winning two rounds and the overall title by one point over Nobushige Kumakubo.

3.2.2 2007 Fuji Speedway accident

In 2007, at round 2, held in Fuji Speedway, during a sudden death round against Daigo Saito, Saito dipped into the inner apex of the 300R corner and jumped the curb of the track, causing his front wheels to lose traction, which resulted Saito's car to understeer and collecting Kawabata's Silvia onto the tyre barrier in the process, severely destroyed both cars. The impact between the cars and when they were hurled into the track protection barrier happened at speeds of over 150 km/h. Kawabata had to be taken to hospital for treatment for whiplash injuries, Saito miraculously evaded any physical damages. Kawabata won the round which he was unable to continue, leaving Atsushi Kuroi without an opponent. For the following round, he returned with a new car and took the win at the next round at Sportsland SUGO.*[3]*[4]

3.2.3 Complete Drifting Results

(key)

D1 Grand Prix

3.2.4 References

- [1] J.D.M. OPTION INTERNATIONAL (2006)
- [2] [D1GP/D1SL NEWS REPORT] J.D.M. OPTION INTERNATIONAL (2006)
- [3] [D1GP/D1SL NEWS REPORT] J.D.M. OPTION INTERNATIONAL (2007)
- [4] YouTube - Broadcast Yourself

3.2.5 External links

- JDM Option
- Employer's site
- D1 Supporter profile

3.3 Yasuyuki Kazama

Yasuyuki Kazama (風間靖幸 *Kazama Yasuyuki*, born 1 February 1970, Nagano, Japan) is a drifting driver from Japan.

Kazama was first introduced to drifting at age 17 when he watched Gengo-San, who later became his spotter and mentor, drifting on a touge.*[1]

As soon as he got his driving licence he began drifting in his Toyota Corolla Levin AE86 with the proceeds of his job in a filling station. He later escaped death when his car slid down underneath a crash barrier and fell 30 feet down the mountain.*[2]

He later made a name for himself in drifting contests, driving a Nissan Silvia S14, and became one of the first drivers to use a S15 for drifting and was heavily in debt until his patience paid off when he was sponsored by Kei Office, a tuning company which was owned by Keiichi Tsuchiya whom he later worked for as a mechanic. From when he first started in D1GP series at the end of 2000, he had moderate success, but when he teamed up with Gengo, things started to pay off when he took up a runner-up spot at Round 2 in 2002 and then won his first event in Round 1 in Irwindale and took four other wins and a title in 2005 only beating Masao Suenaga by 1 point.

He is known as **Waku Waku Kun** or **Rodeo Clown** due to his reputation as a clown within the series and his being well known for his Rodeo Drift, a form of doughnutting by sitting on the driver's door of the car which he first practiced at the Big-X events, then later at D1GP pre-tsuiou rounds warm-ups in 2004 when he changed the side windows of his car to make it possible to perform the trick. Even though his previous employer Tsuchiya sold off his company at the end of 2005, he still continued to work at Tsuchiya's then-new company, DG-5, up until 2007. Kazama also owns his own shop called Rodextyle. Kazama is also known in the United Kingdom for his only mainstream TV appearance outside Japan in the BBC2 show *Top Gear*, in which he teaches Richard Hammond drifting in a stock Vauxhall Monaro VX-R. As with the rising popularity of the drifting scene there, he has made two appearances in both *Autocar* in April 2006, driving a Caterham Seven and February 2007 issue of the *Octane*.* [3]*

3.3.1 Drifting results

(key)

D1 Grand Prix

3.3.2 References

- [1] <http://www.d1gp.co.uk> D1GP UK official site
- [2] Max Power (magazine), June 2005

[3] *Octane* February 2007

3.3.3 External links

- DG-5: sponsor's site
- Rodextyle old official blog site.
- Rodextyle current official blog site.
- Rodexshop
- MSN Cars: How to drive sideways
- D1 Supporter profile

3.4 Nobushige Kumakubo



Nobushige Kumakubo (熊久保信重 *Kumakubo Nobushige*, born February 10, 1970, Fukushima Prefecture) is a drifting driver from Japan who competes in the D1 Grand Prix series and racetrack and land owner. Nicknamed *Kuma*, he is commonly referred to one of the pioneers of drifting.

Born to a wealthy family who owned a large portion of land in the Fukushima countryside, with the easy accessibility of the family plot, Kumakubo was able to use some of it to build and develop the Ebisu Circuit.*[1]

Kumakubo also used the circuit to host numerous drifting events as well as various motorsport events. As the lead driver of Team Orange, as his car has always been orange, he started at the D1GP series in a Nissan Silvia, in 2005, whilst stumbling through the numerous rallying magazines in his office and considering that the Subaru Impreza was the car to have as many rear wheel drive cars were considered not suitable for drifting or in need of development to be considered suitable, also in a way to bring Impreza owners to his track, Kumakubo commissioned tuning company JUN Auto to build an Impreza WRX STI Impreza, significantly with a radiator on the rear passenger side.*[1]

The car debuted at the Odaiba round, unlike others who switched to newer models, his performance would pay off when he was runner up at the Silverstone exhibition round

and for the 2006 season, he had beaten Ken Nomura by just 1 point. Midway through the 2007 D1 series Kumakubo switched from the Impreza to an Evo 9 (built also by JUN Auto) during round 5 at Ebisu.

He has also built a Mitsubishi Lancer Evolution X in the Team Orange livery which was on show at Tokyo Auto Saloon.

He also runs the **Big X** the invitation only outdoor show that combines drifting, FMX, supermoto, car stunts and other extreme sports featuring the experts from each field.

Big X's drifting squad is called DriftXtreme, which the well known drivers of the D1GP are invited to join including team mate Kazuhiro Tanaka and Naoto Suenaga.

Kumakubo is currently competing in the European Drift Championship *[2] in his Subaru Impreza WRX STI. His Team Orange teammate Kazuhiro Tanaka is also competing.

3.4.1 Complete Drifting Results

(key)

D1 Grand Prix

3.4.2 References

- [1] Nobushige Kumakubo » Driver Profile » Drift Japan
- [2] Japanese Drifter Kumakubo to enter EDC2008!

3.4.3 External links

- Yuke's D1 Project Blog (Nobushige Kumakubo)
- D1 Supporter profile

3.5 Ken Nomura

For the baseball player, see Kenjiro Nomura. For the artist, see Kenjiro Nomura (artist).

Ken Nomura (Shinjitai: 野村謙 *Nomura Ken*, born Fukuoka, May 9, 1965) is a drifting driver from Japan. He made his debut in the D1 Grand Prix in the 3rd round in 2001, driving the Blitz D1 Spec ER34 Skyline which he still drives. His nickname is Nomuken (のむけん) or Monkey Magic (as a reference to his company).

In his youth, Nomura was a baseball player and was very well known within his region, but his career never progressed any further through injury and turned to property developing.*[1] Once he gained his driving licence, he was dedicated to night-time street drag racing and then progressed to touge racing.*[1] In 1992, Nomuken

was runner up in the “All Japan Ikaten” Finals and later in 1996 opened his own tuning shop Uras (reverse for saru, Japanese for monkey), producing drift specific products.*[1]

When he first joined the D1GP series in 2000, his performance was average, he had been away from drifting for some time before competing in its inaugural year. But as soon as he signed a contract with parts manufacturer Blitz as a works driver, his skills quickly developed.*[1]

In the D1 events, he is known for his imitation of a monkey, as the pioneer of the smoke technique, he drifts with the most smoke. He is widely a fan favorite in the series.*[1] He also competes in the budget spinoff series, D1 Street Legal with a toned down version of his Skyline.

In 2006, Ken Nomura won the D1GP Non Championship Event World All Star.

He has also appeared for a TV commercial for his sponsor, Dunlop Tires in Japan, appears as a guest presenter in Video Option and Drift Tengoku as well as a columnist for the Option magazine and judges in drift events.

3.5.1 Complete Drifting Results



Nomukens Blitz ER34 Skyline GT-T

(key)

D1 Grand Prix

3.5.2 References

[1] Ken Nomura » Driver Profile » Drift Japan

3.5.3 External links

- Company Site
- Official site
- Blitz official site
- D1 Supporter profile

3.6 Daigo Saito

Daigo Saito (斎藤太吾 *Saitō Daigo*, 7 March 1980, Saitama) is a Japanese professional drifting driver, currently competing in the D1 Grand Prix series for ATR Radial / Monster Energy / Sunoco and Formula DRIFT USA and World Championship series for Achilles Radial. Saito holds the distinction of being the first driver to win the two drifting majors, D1GP in 2008 and Formula D in 2012.

3.6.1 Biography

From an early age he was into motorbikes as his father was, and got his motorcycle license at 16. One night when he was out riding with his friends they stumbled upon a drift meeting in the hills of Karuizawa, there he saw a white Mercedes-Benz saloon drifting. From then on he wanted to drift himself and he wanted to drift a saloon. As soon as he was 18 he got his drivers license, his father did not want him to drift so bought him a Mini Cooper as his first car. At this time he did not know that it would not be a good car to drift so he tried, and ended up writing it off. He then bought a Nissan Silvia S13 without asking his parents and set about practicing, his first practice session lasted 36 hours only stopping for food and fuel. He learned a lot from this first practice session though he totalled the Nissan Silvia S13 a couple of weeks later.

In 2005, Saito won the title for privateers.

He started competing in the D1 Grand Prix in the third round of the 2004 season in his red Toyota Mark II JZX90 since then he has improved steadily, winning the championship in 2008.

3.6.2 Formula Drift (America)

For 2012, Saito joined the Formula Drift series in the Achilles Radial Lexus SC430 powered by a 2JZ. He got his first podium finish in his first event of the series at the Streets of Long Beach. He followed that up with another 3rd-place finish in Round 2: Atlanta and then a 1st-place finish at Round 3: Palm Beach and a 4th-place finish at Round 4: Wall Speedway. He won the championship and was rookie of the year after winning 1st place at Irwindale, Round 7.*[1]

As part of the Achilles Radial Drift Team, his car is maintained and transported by Bridges Racing.

Saito finished in third place during his second season in Formula DRIFT USA. He won three rounds (Atlanta, New Jersey & Irwindale) and second place at West Palm Beach. A crash during practice at Seattle and vehicle issues in Texas effectively removed him from the chance of winning back-to-back championships.

Saito debuted a 1,200 hp Nissan GTR in April 2015 at

the Formula DRIFT Streets of Long Beach event, and will campaign the car for the 2015 Formula DRIFT USA season.

3.6.3 Complete drifting results

(key)

D1 Grand Prix

D1 Street Legal

Formula Drift

3.6.4 References

- [1] “Formula D Series 2012 Standings” . Formulad.com. Retrieved 2012-07-25.

3.6.5 Sources

- JDM Option
- D1 Grand Prix
- Formula Drift

3.6.6 External links

- D1 Supporter profile
- D1 Supporter profile (D1SL)
- Daigo Saito official web site

3.7 Masao Suenaga

Masao Suenaga (末永正雄 *Suenaga Masao*, 13 February 1978, Kagoshima) is a Japanese professional drifting driver, currently competing in the D1 Grand Prix series for RE Amemiya and Greddy. He is the younger brother of Naoto who both were taught by Nobushige Kumakubo.

He began his motorsport career racing minibikes in the Kyūshū area, later winning a title. Following this, his motorcycle racing career ended at the age of 20 caused by injuries. As Naoto was involved in the 'Tono Club' hashiriya group (which one of the members included Katsumi Ueo), he also became involved which he was taught how to drift by Naoto. Masao later joined the 'Gowasu?' hashiriya group.*[1]

He has been competing in the D1 Grand Prix series since 2002. In 2002 and 2003 he was the youngest driver to compete in the top 16 and he was soon picked up by RE Amemiya a renowned tuner of rotary powered cars. So he switched from his Nissan Silvia to a Mazda RX-7

(FD3S) went from strength to strength. The Silvia would be driven by Naoto until he became one of the Kumakubo led Team Orange drivers. Masao took his first win in 2005 and went on to place second overall. He had a slight lull in his performance in 2006, but was back on form in 2007 winning twice and finishing the season in third.

He is one of the few D1GP drivers to compete the spinoff D1 Street Legal series in his own FD RX-7 winning the first two rounds of the inaugural season.

Suenaga competed in the M150 20B-Powered FD3S RX-7 in the inaugural Formula Drift: Asia at Fuji Speedway Japan where he would take first place against Masashi Yokoi.

3.7.1 Complete Drifting Results

(key)

D1 Grand Prix

D1 Street Legal

3.7.2 Sources

- D1 Grand Prix

3.7.3 References

- [1]

3.7.4 External links

- (Japanese)Gowasu? の ホーム ページ - Official page
- (Japanese)D1 Supporter profile
- (Japanese)D1 Supporter profile (D1SL)

3.8 Tsuyoshi Tezuka



Tezuka's Bee*Racing Skyline B324R

Tsuyoshi Tezuka (手塚強 *Tezuka Tsuyoshi*, 14 December 1975, Gifu) is a Japanese professional drifting driver, currently competing in the D1 Grand Prix series for Bee*Racing.

He developed a love for cars from an early age, his first was a Toyota Crown but to start with he was more interested in drag racing than drift. That soon changed as he found out how much it cost to make a fast drag car. One of his co-workers were interested in drifting and he decided to give it a go, even though his car was automatic and everyone said it would not work. He got hooked and found out how expensive drifting was often spending more than \$800 a month on petrol. He used many different cars over this time from a Nissan Laurel (C33), Toyota Mark II and Toyota Chaser (JZX81) to a Toyota Cresta (JZX90), though all of them were 4-door. He chose these cars as he likes big displacement and big power, also the sound of straight 6 engines.

He works as the manager at a used car dealership called Kids Heart in the Aichi Prefecture. It is well known largely for the Nissan approved conversion of the Sileighty and many of the cars it sells are sought after by racers. He also runs a car graphics shop and website which he set up called T2 Koubou, as he enjoys working on computers and makes his own websites.

He started drifting professionally at the first round of the D1 Grand Prix, he was very happy that his family approved of this career choice, even more so when they come to cheer him on. In 2005 he was signed by Bee*Racing a tuning firm renowned for their Nissan Skyline GT-R (R32) known as the B324R. Since then his driving has come along a lot, finishing 9th in the 2006 season, 4th in the 2007 season, and gaining his first win in the third round of the 2008 series.

3.8.1 Complete Drifting Results

(key)

D1 Grand Prix

3.8.2 Sources

- JDM Option
- D1 Grand Prix

3.8.3 External links

- Official Site
- D1 Supporter profile

3.9 Nobuteru Taniguchi

Nobuteru Taniguchi (谷口信輝 *Taniguchi Nobuteru*, born May 18, 1971, Hiroshima) is a Japanese racing driver and drifting driver who currently competes in Super GT and D1 Grand Prix. Taniguchi is commonly nicknamed “NOB” (first three letters from his name, meaning “No One Better”) or “The Pimp” as a reference to his S15 Silvia which he is best known for.

3.9.1 Career

Taniguchi began his motorsport career when he was racing minibikes and won a Honda sponsored All Japan Mini Bike race, which took place at its Suzuka Circuit.^{*[1]} Taniguchi would progress into four wheels and became interested in drifting when he acquired a Toyota AE86.^{*[1]} He also worked at Takahiro Ueno’s car bodykit company, Car Make T&E to supplement his racing career whilst competing in various one make series racing with the Toyota Celica and Vitz and participating in drift events.^{*[1]} In 1999, he came into the attention of HKS when he won a Suzuka Clubman Race in a Honda Civic sponsored by Bride. HKS signed him up as a test driver and as a sponsor, as well as sponsoring his S15 Silvia for drift events.^{*[1]}

Drifting

Taniguchi won the first season of D1 Grand Prix in 2001 for HKS. HKS and Formula Drift made an exclusive partnership in 2007 that brought NOB to the United States to perform drifting exhibitions at Formula Drift events. Taniguchi made his first appearance at Formula Drift’s second event Road Atlanta, May 11 and 12, 2007.

Mid way through the 2004 season of D1, NOB switched to an Altezza which had not been properly set up and had shown some technical issues that many believe cost him the championship that year. During the 2005 season, the switch to Altezza was proving to be a mistake for HKS and NOB which led them to quit the series at the end of the season. Both of them did not return to the D1 series until 2008 as a spot participant. And they fully returned to the series again in 2012 with a Toyota 86.

Taniguchi has gone through four cars with HKS for D1, between 2001 and 2005, the RS1 Hyper Silvia S15 (Crashed by Keiichi Tsuchiya, eventually rebuilt for 2002 and later revised as a backup car with a similar build to the RS2 in 2003), and RS2 Hyper Silvia S15 (RS2 from HKS Power Japan, later moved to HKS Europe), the Genki RP Altezza, which was designed without experimental/prototype HKS parts, for the purpose that a private drifter could copy the car. He also drifts in Toyota Aristo (Lexus GS300 in US) for non-D1 events.

Taniguchi had the most wins in D1 Grand Prix until his

tally was overtaken by Youichi Imamura in 2005.

Racing

He was also a test driver for HKS in 2004 and 2007 where he drove the HKS **Time Attack** Mitsubishi Lancer Evolution 7 and set a 54.37 second lap time at **Tsukuba Circuit** (famous for its complexity and focus on cornering skills), and again in 2007, where he drove the all carbon fiber body HKS CT230R Mitsubishi Evolution and set the current Tsukuba **Time Attack** record of 53.589 seconds ([video](#)).

Taniguchi and HKS have not limited their racing campaign to Japan. In 2005, Taniguchi drove the HKS USA Mitsubishi Evolution in the Car and Driver Super Tuner Challenge against top US manufacturers and drivers. Taniguchi beat the nearest competitor by three seconds, and set the day's fastest $\frac{1}{4}$ mile, 0-60, and road course times. In 2006, Taniguchi drove the HKS Speed Source RX-8 in the Grand Am Cup race at Arizona's Phoenix International Raceway and set the fastest qualifying time for any Mazda RX-8.

Taniguchi won the **Super Taikyu** series in Japan in 2002 and 2005. In 2002 he began competing in **JGTC** with **RE Amemiya** in a **Mazda RX-7**. He has continued to compete in the series as it became **Super GT** in 2005. Having previously raced for Team Taisan in 2007/08 he has returned to Amemiya in 2009. After RE Amemiya's withdrawal at the end of 2010 season, he moved to **Goodsmile Racing** using a BMW Z4 GT3 which also ends his drought of **GT300** Champion title in 2011 season. Again with the BMW Z4 GT3, Taniguchi captured 3rd place in the 2014 season finale at Twin Ring Motegi, secured 78 points in total for his season, narrowly winning the **GT300** Champion title again with no points difference but only 1 more race victory.

He made his **World Touring Car Championship** debut with **Proteam Motorsport** at the **2009 FIA WTCC Race of Japan**, at the Okayama International Circuit.

He has won the 2009 **Super Taikyu** Championship with his team mate Masataka Yanagida and Fariqe Hairuman in Petronas Syntium Team BMW Z4M Coupé. He also won the A5 petrol class and second overall in 2010 **Dubai 24 Hour** with his team mate Fariqe Hairuman, Masataka Yanagida and Johannes Stuck in Petronas Syntium Team BMW Z4M Coupé.* [2]

Other Work

Taniguchi appears in many DVD series, such as **Video Option**, **Drift Tengoku**, **Best Motoring**, **Rev Speed Video** and **Hot Version**. He now lives in an apartment in Yokohama opposite his friend and former employer Ueno.

3.9.2 Complete Drifting Results

(key)

D1 Grand Prix

3.9.3 Racing record

Complete JGTC/Super GT results

(key) (Races in **bold** indicate pole position) (Races in *italics* indicate fastest lap)

* Season still in progress.

3.9.4 References

- [1] Nobuteru Taniguchi » Driver Profile » Drift Japan
- [2] <http://www.petmos.com.my/en/4-Wheels/News/2010/DUBAI24HRS--PST-quartet-take-the-Dubai-24Hours-by-.aspx>

3.9.5 External links

- Official Site
- Drift Japan » Nobuteru "NOB" Taniguchi - Driver Profile, History and Overview
- Video featuring Taniguchi's HKS CT230R Mitsubishi Evolution 53.589 second lap record
- D1 Supporter profile

3.10 Daijiro Yoshihara

Daijiro Yoshihara (commonly known as *Dai*, born December 24, 1978, Tokyo, Japan) is a veteran driver in the motorsport of Drifting, often regarded as one of the world's best. With 10 years of competition, Dai has always been a thrill seeker and it was only natural for him to get into drifting. At the age of 11, Dai discovered the excitement of throwing his bicycle around corners at high speeds and skidding along the curbs in tight turns. At age 16, Dai got motorized and took to nearby mountains on his 400cc motorcycle. Finally at age 18, Dai got into his first car, a 1985 Toyota Corolla Levin. He soon fell in love and gained the passion for driving on windy roads in the local mountains of Japan.

3.10.1 Drifting Background

Although Dai always loved drifting, there was no real opportunity in the sport that would allow him to make a living. So when Dai turned 21, he turned to more stable

pursuits taking on jobs at various companies including a car dealership, a telephone company, and a trucking service. However, in 2003, a friend of Dai offered him an opportunity of a lifetime—to drive in a drift competition in the United States. Having always admired the U.S. and finally having an opportunity to make money as a drifter, Dai was thrilled and accepted the offer. Although Dai had never been to the states nor had ever competed in a drift competition, Dai had to trust his instincts and risk the comfortable life he had just barely started.

In early 2003, Dai came to the U.S. to drive his Nissan S13 from Pacific Rim Motorsport Fashion in the upcoming inaugural D1 Grand Prix USA. Having never competed, Dai was an amateur driver with no competition experience. During his first competition among professional drivers, Dai qualified and finished in the top 16 out of 32 competitors. With such a promising finish, he then decided to compete in the Drift Showoff in Irwindale, CA and took a podium spot to finish 2nd overall.

After finishing well in multiple competitions in 2003, the next step was full-time competition in the U.S. when he signed up for his first Formula Drift Championship Series in the 2004 season. Dai finished in the top 8 at two rounds and placed 2nd at two of the rounds placing him 2nd overall in the championship run. Dai was not only finishing at the top of each event but was also earning the title as the man with the fastest entry speed every time. In 2005 and 2006 he continued to shine in the Formula Drift series standing on the podium numerous times. Throughout 2007 he was continually fighting for the championship, which finally placed him 3rd overall.

In 2008, Dai took the opportunity and challenge to drive a factory backed Pontiac GTO for RMR Racing. With the help from sponsorships and guidance from teammate Rhys Millen, Dai continued to flourish and place no lower than the top 8 contenders. To end the 2008 season, Dai took the podium again and placed 2nd overall during the Red Bull Drifting World Championship.* [1] Throughout the 2008 season, Dai took podium twice and eventually finished 4th overall in the Formula D series.* [2]

For the 2009 season, Dai decided to join Falken Tire's Drift team, one of the companies that helped kick start his drifting career. Dai piloted the Falken Tire / Discount Tire Lexus IS350 powered by a large V8 motor.* [3] Throughout the 2009 season, Dai and his new team experienced development problems with the Lexus. After a major crash that retired the Lexus during the middle of the season, Dai and his team built a traditional competition drift vehicle, a Nissan 240sx (S13 chassis) to finish off the season. Dai finished in 11th place for overall championship points.

In 2010, Dai came back, signing another season with the Falken Tire / Discount Tire team. Drifting in the Nissan 240sx towards the end of the 2009 season showed promise, thus settling the Nissan as their competition vehicle of choice for the 2010 season. The Nissan received

a motor transplant and major suspension tuning. Coupled with a V8 motor and suspension tweaks, Dai came out strong with a number of podium finishes and ended the 2010 drift season in 4th place in overall championship points.

Dai resigned and continued to drive for Falken Tire for 2011. Competing in the same Nissan 240sx as he did in the 2010 season; however, with more changes to the car, Dai finished the 2011 season as Formula DRIFT champion and also won the Triple Crown award.

Formula Drift continues to see Dai gracing the track sideways, driving the Nissan S13 through 2012 and 2013 where he finished 7th and 11th respectively. For the 2014 Formula Drift season, he has now made the move with the 2014 Falken Subaru BRZ.

3.10.2 Achievements

DRIFTING

Formula DRIFT Championship Series – 2004 to Present

- Drift Competitor
- 2004 Championship Points, 2nd Place Overall
- 2005 Championship Points, 5th Place Overall
- 2006 Championship Points, 5th Place Overall
- 2007 Championship Points, 3rd Place Overall
- 2008 Championship Points, 4th Place Overall
- 2009 Championship Points, 11th Place Overall
- 2010 Championship Points, 4th Place Overall
- 2011 Championship Points, 1st Overall
- 2011 Tires.com Triple Crown, 1st Overall
- 2012 Championship Points, 7th Overall
- 2013 Championship Points, 11th Overall
- 2014 Championship Points, 18th Overall

Pro Drift Ireland - 2012

- 2nd Place, Round 5

D1 Grand Prix All Star Exhibition at Irwindale Speedway
– 2005 & 2006

- Drift Competitor

- Best 16

D1 Grand Prix – 2004

- Drift Competitor
- Best 16

D1 Grand Prix Driver Search - 2003

- Drift Competitor
- U.S. Qualifier

D1 Grand Prix – 2003

- Drift Competitor

- Best 16

Drift Showoff at Irwindale Speedway – 2003

- Drift Competitor

- Podium, 2nd place

DRIFTING JUDGE

Professional Asia Drift Series Judge – 2009 to Present

- Formula DRIFT Asia: Malaysia, Singapore, Thailand

- Good Year International Drift Series: Thailand

- Red Bull Car Park Drift 2014: Dubai, UAE

DRIFTING INSTRUCTOR

International Drifting Academy – 2011

- Drift Driving Instructor

TIME ATTACK / ROAD RACE

25 Hours of Thunderhill - 2013

- 3rd Place, E3 Class

MotoIQ Pacific Tuner Car Championship – 2011

- Competitor

- Podium, 1st Place, 2011

Super Lap Battle – 2006 & 2010

- Competitor

- Podium, 1st Place, 2006

- Podium, 1st Place, 2010

GYMKHANA

Gymkhana Grid – 2010

- Competitor

- Podium, 1st Place, 2010

Magazine, Commercial & TV Stunt

Mini/BMW USA, “Mini Commercial” – 2014

- Stunt driver for television commercial

Falken Tire Corporation, “Azenis Commercial” – 2013

- Stunt driver for television commercial

Nissan North America, “Juke Commercial” – 2011

- Stunt driver for television commercial

Falken Tire Corporation, “Azenis Commercial” – 2011

- Stunt driver for television commercial

Mini/BMW USA, “Mini Commercial” – 2011

- Stunt driver for television commercial

Road & Track Magazine – 2010

- Vehicle Test Driver

Mitsubishi Motors “Mitsubishi Lancer Evo SE” - 2010

Viral video

- Stunt Driver

Falken Tire Corporation – 2009

- Tire Test Driver

Spike TV, “1000 Ways To Die” – 2009

- Stunt driver for television series

EA Games, “Need For Speed” – 2007

- Stunt driver for video game commercial

3.10.3 Behind the Smoke on GTChannel

Yoshihara stars as himself in the reality/documentary web series *Behind the Smoke*. *Behind the Smoke* is produced by [GTChannel](#) in association with [Discount Tire](#). *Behind the Smoke*'s first episode was released in April 2011. *Behind the Smoke* follows Yoshihara throughout his champion winning 2011 Formula D season both on and off the track providing drifting fans an exclusive look into the reality of competing in the top drifting series of N.America. Yoshihara's crew members Scott Dodgion of SPD Metal Works, [Mike Kojima](#) of MotoIQ and Chris Marion of KW Suspension are also regular casts of the weekly show. The first season of BTS documented his 2011 Formula D championship season. During the three seasons it has been online, the show has accumulated more than 3 Million views in total. In 2012, *Behind the Smoke* won a Bronze Telly Award for Online Video Reality Show. *Behind the Smoke* is produced and directed by Taro Koki of GTChannel which also represents [Best Motoring](#) and [Hot Version](#) internationally.

3.10.4 References

[1] [Formula D Driver Bio](#)

[2] [Import Tuner](#)

[3] [Falken Tire](#)

3.10.5 External links

- [Official Website](#)
- [Falken Tire](#)
- [Formula Drift](#)
- [Dai Yoshihara's Blog on GTChannel](#)

Chapter 4

Formula D

4.1 Formula D

For the board game, see **Formula D** (board game).

Formula DRIFT or **Formula D** is the premier United



Formula DRIFT race car on track



Formula DRIFT race car showing Engine

States drifting series. Formula Drift, Inc. was co-founded by Jim Liaw and Ryan Sage in 2003 as a sister company to the now defunct Slipstream Global Marketing, the same partnership that introduced D1 Grand Prix to the United States. The new entity would solely own, operate and launch the first official drifting series in North America. 2014 will be Formula Drift's eleventh year of competition.

With more than 60+ currently licensed drivers competing , Formula Drift is recognized as the premier North

American professional drifting championship series. The series consists of a seven round championship played out at race tracks across the United States. Judged on execution and style, rather than who finishes the course in the fastest time, Formula Drift brings together traditional racing and extreme sports.

Formula Drift works closely with a huge variety of endemic and non-endemic business partners from energy drinks to the military. Most notably Formula Drift works with the largest amount of tire suppliers to a single series. Achilles, Falken, Hankook, Maxxis, Kenda, Nitto, GT Radial, and Yokohama all work together to supply teams and develop test their products.

4.1.1 Home

Formula Drift is home to 60+ professional drift drivers. The competition for Formula Drift licenses is intense. Drivers in the U.S. can compete in a number of regionally sanctioned Pro-Am series for licensing.

- Evergreen Drift – Pacific Northwest
- Hold the Line - Northeast (2011)
- USDrift - Mid-Atlantic (2006-2008, 2013+)
- Just Drift – Southern California
- Lone Star Drift - Texas
- Midwest Drift Union – Midwest
- Streetwise Drift – Southeast
- Golden Gate Drift – Northern California
- Vegas Drift- Southwest

Winners and high finishers of these feeders series are then able to enter the Formula DRIFT Pro 2 series, a secondary national tour where they compete to move up to the main series.

4.1.2 Abroad

Drivers from around the world have set their sights on Formula Drift as the series of choice world wide in which to compete. This also includes the legions of talented drivers from Japan, who have competed previously in the **D1 Grand Prix**. Other drivers who crossed over to Formula Drift from foreign series are the Irish drivers Darren McNamara, James Deane, Eric O'Sullivan, and Dean Kearney. These drivers rose to acclaim in their European home series before making the move stateside.

4.1.3 Tracks

Current tracks

- Rd. 1 Long Beach GP street course, Long Beach, CA. Seasons 2006 - 2016
- Rd. 2 Road Atlanta, Braselton, GA. Seasons 2004 - 2016
- Rd. 3 Orlando Speed World in Orlando, FL. Season 2015 - 2016
- Rd. 4 Wall Speedway in Wall, NJ. Seasons 2005-2007, 2009-2016
- Rd. 5 Evergreen Speedway in Monroe, WA. Seasons 2006 - 2016
- Rd. 6 Texas Motor Speedway in Fort Worth, TX. Seasons 2013 - 2016
- Rd. 7 Toyota Speedway at Irwindale Irwindale, CA. Season 2004 - 2016

Former tracks

- Palm Beach International Raceway in Palm Beach, FL. Seasons 2011 - 2013
- Las Vegas Motor Speedway in Las Vegas NV. Seasons 2009 - 2012
- Sonoma Raceway in Sonoma, CA. Seasons 2004 - 2010
- Summit Point Motorsports Park in Summit Point, WV. Season 2007
- Old Bridge Township Raceway Park in Englishtown, NJ. Season 2008
- Reliant Center in Houston, TX. Seasons 2004 - 2005
- Soldier Field in Chicago, IL. Season 2005 - 2006

International presence

Formula Drift has increased its international presence every year since 2008 with the addition of demonstration and sister series in other countries. “Taking the Formula Drift brand internationally is a huge milestone. Our priority is to continue to build the Series here while growing the sport of drifting as a whole,” said Jim Liaw, president and co-founder of Formula Drift. “We are very careful in choosing our event partners and take careful consideration of the boundaries of our international affiliates such as Drift Australia, MSC, and Pro Drift.” *^[1]

Sister series **Formula Drift Asia.** Formula Drift Asia was created in 2008 with the inaugural FD Singapore competition. The first real international competition of its in Asia, held at the Changi Air Show Grounds. This historic event was sold out before the gates opened. Since then, Formula Drift Asia became its own championship series, the first Pan-Asian professional drifting championship. In 2009 and 2010, the Championship made stops in Singapore, Thailand and Malaysia. For the 2011/2012 Championship tour, Formula Drift Asia added an additional stop in Indonesia.

FD Asia web site.

- Rd.1  Marina Bay Street Circuit, Marina Bay, Singapore Season 2010
- Rd.2  Bangkok Wonderworld, Bangkok, Thailand Season 2010
- Rd.3  Dataran Merdeka Kuala Lumpur, Malaysia. Season 2010

The first Formula Drift Asia Champion was Tengku Djan.

Formula D Australia. The series was announced in June 2005. Formula D Australia visited three tracks in 2005.

- Mallala Motor Sport Park in South Australia.
- Oran Park Raceway in New South Wales.
- Winton Motor Raceway in Victoria.

The series was held in conjunction with the DRIFT Australia Championship. After the season, the series' website was no longer updated, and has since been taken down.

Exhibition events

-  Date TBD International Competition – Qatar Racing Club
-  Date TBD International Competition – Yas Marina Circuit

- February 5, 2012 Demonstration – Figali Convention Center
- May 27, 2012 International Competition – Location TBD
- June 11, 2011 Formula Drift Ultimate Challenge at Texas Motor Speedway, Fort Worth, TX
- February 25, 2011 Yas Marina Circuit, Abu Dhabi, UAE
- February 12, 2011 Figali Convention Center, Ciudad de Panamá, Panamá
- January 17, 2010 Figali Convention Center, Ciudad de Panamá, Panamá
- March 8, 2009 Figali Convention Center, Ciudad de Panamá, Panamá
- August 23, 2008 Monterrey Autodromo, Monterrey, Mexico
- April 27, 2008 Changi Air Show Grounds, Singapore

4.1.4 Regulations

Formula Drift has continued to refine its rulebook and technical regulations year to year in terms of car and competition regulations.

Car eligibility

Cars and their builds are constantly under review by the Formula Drift staff. The rule book is revised every year to promote fair and exciting drifting. Some cars and practices are written out of the rule book in order to keep a realistic and level playing field. During the 2004 season, the Dodge Viper Competition Coupe was permitted to compete, whereas it was ineligible in Formula Drift.

Although Formula Drift does not permit front-wheel drive cars, it does allow all-wheel drive cars to be converted to rear wheel drive, such as the Subaru WRX and Mitsubishi EVO. In the United States, the Scion tC is sold only in the FWD layout, but because it shares the same chassis as the AWD Toyota Avensis (sold only in the United Kingdom and Europe), it can be converted to a competition-ready RWD layout.

A trademark of Formula D competition car's is the very open engine rulebook. Formula Drift allows engines from other manufacturers to be swapped into competition cars. "Engine, transmission, ECU and/or final drive modifications are free, but only the rear wheels may propel the vehicle". This results in a huge variety of engine/chassis combinations as well as huge power outputs commonly in excess of 850+ whp. Vehicles wishing to compete for the

Manufacturers Championship must use an engine from the same manufacturer as the chassis. Engine swaps remain very common with older models but can be seen with new builds as well. Normally aspirated Chevrolet V8 engines are often used because of their availability and lower operating costs.

Suspension modification is widely open to development as long as stock pickup locations are utilized. Suspension tuning is a vital part of any successful Formula D team.

To keep cars in check Formula D institutes a maximum tire size based on the vehicles total weight.

Formula Drift cars are given fixed numbers for their cars and are not necessarily based on rankings.

Scoring and judging

Formula D uses its own scoring system that may differ from other drifting organizations. Often scoring systems for qualifying, tandem battles, and penalties are different.

Qualifying - Formula D competitors are allowed two non-consecutive judged solo runs to post their highest possible score in order to compete. The top 32 drivers with the highest qualifying scores are entered in a competition bracket pairing the highest scoring drivers against the lowest scoring drivers. 1st v. 32nd, 2nd v. 31st, 3rd v. 30th, etc. The drivers are judged on line, speed, angle, and overall impact. The judges can also make additional request at the drivers meeting for actions or techniques that will weigh in their decision making (ex; entry technique, racing line, proximity, etc.). Formula D drivers are scored on a points-deduction system where every driver will start their judged run with a perfect score of 100 pts. For every mistake, points will be deducted. These points will vary between .25 point to the most severe mistakes (-1.75).^{* [2]}

Competition - The top 32 qualifying drivers are paired up in an elimination bracket pairing the highest scoring drivers against the lowest scoring drivers. The biggest difference from qualifying is that now drivers face off head to head on the track in a tandem battle. The two cars run together side by side, each driver trying to show greater skill than the other. The highest qualifying driver leads on the first run, then on the second run the lower qualifying driver leads. Drivers are judged on the same basic criteria as qualifying but an emphasis is put on the interaction between the two drivers competing head to head. The lead driver will set the pace and driving line often trying to produce a gap between themselves and the following driver. The following driver will try to stay on top of the lead driver as close as possible without making contact with their vehicle. The goal is to mimic or "shadow" the lead drivers run while staying on their door throughout the run. It is possible for either driver to win either run. Often one driver will have a points advantage going into the second run. Driver mistakes (ex. 2 wheels

off course, spinning out, avoidable contact, etc.) can also cause them to be given an automatic zero. The 3 judge panel then will look at both runs and determine one of three outcomes; Driver 1 advances, Driver 2 advances, or if a winner can not be determined a “One More Time” will be called. In the event of a “One More Time” the drivers will then complete a new pair of runs. The drivers will face off again until a winner can be determined. The winner advance to the next bracket.

Competition Time Out - Drivers have a one-time option to utilize a “Competition Time Out” in order to attempt to fix their vehicle. In the event that a driver or car can not come to the start line in time for their tandem run the other driver will be allowed to run a solo lap to advance.

Overtaking - Formula D rules are structured so as not to encourage drivers to overtake their opponents; doing so incurs a penalty. Overtaking is only permitted when the lead car makes a mistake such as coming to a complete stop or going completely off course.*[2]

The current judges are Andy Yen, Ryan Lanteigne, and Brian Eggert. Doug Artus is the Race Manager for the series.*[2]

4.1.5 Formula Drift Champions

US

- 2004 Samuel Hübinette - Mopar Viper Competition Coupe
- 2005 Rhys Millen - RMR Pontiac GTO
- 2006 Samuel Hübinette - Mopar Viper SRT-10
- 2007 Tanner Foust - AEM/Memphis Audio Nissan 350Z
- 2008 Tanner Foust - AEM/Rockstar Nissan 350Z
- 2009 Chris Forsberg - NOS Energy Nissan 350Z
- 2010 Vaughn Gittin Jr. - Team Falken Monster Energy Ford Mustang
- 2011 ● Daijiro Yoshihara - Falken Tire / Discount Tire Nissan 240SX
- 2012 ● Daigo Saito - Achilles Radial / Bridges Racing Lexus SC430
- 2013 Michael Essa - GSR Autosport / Yokohama Tire BMW M3
- 2014 Chris Forsberg - CFR / Hankook Tire Nissan 370Z
- 2015 Fredric Aasbø - Rockstar / Hankook Tire Scion tC

ASIA

- 2012 ● Daigo Saito - Achilles Radial Lexus IS C
- 2013 ● Daigo Saito - Achilles Radial Lexus IS C
- 2014 ● Kuniaki Takahashi - TOYOTA G'SPORTS GRX130

4.1.6 Honors

Rookie of the Year

- 2006 Bill Sherman - Nissan 240SX
- 2007 Darren McNamara - Toyota Corolla Coupe GT/Nissan SR20
- 2008 ● Michihiro Takatori - Nissan Skyline ER34
- 2009 Eric O'Sullivan - Subaru Impreza WRX STI
- 2010 Fredric Aasbø - Toyota Supra JZA80
- 2011 Aurimas “Odi” Bakchis - Nissan Silvia S14
- 2012 ● Daigo Saito - Lexus SC430
- 2013 Mats Baribeau - Toyota Mark II
- 2014 Geoff Stoneback - Nissan Silvia S14

Most Improved Driver

- 2007 Bill Sherman - Nissan 240SX
- 2008 Stephan Verdier - Subaru Impreza WRX STI
- 2009 Stephan Verdier – Cooper Tire Subaru Impreza WRX STi
- 2010 Mad Mike Whiddett - Mazda RX8
- 2011 Matt Powers - Nissan 240SX*[3]
- 2012 ● Robbie Nishida - Lexus SC300
- 2013 Darren McNamara - Nissan Silvia S14
- 2014 Dean Kearney - Dodge Viper

Driver of the Year

- 2007 Chris Forsberg
- 2008 Ryan Tuerck
- 2009 Chris Forsberg
- 2013 Fredric Aasbø

Hardest Charging Driver

- 2007 Chris Forsberg
- 2008 Robbie Nishida
- 2010 Fredric Aasbø
- 2011 Matt Powers*[3]
- 2012 Daigo Saito
- 2013 Robbie Nishida
- 2014 Chelsea DeNofa

Spirit of Drifting

- 2007 Joon Maeng
- 2008 Patrick Mordaunt*[4]
- 2009 Taka Aono
- 2011 Walker Wilkerson*[3]
- 2012 Danny George*[5]
- 2013 Robbie Nishida
- 2014 Forrest Wang

Superstar of the Year

- 2008 Tanner Foust

Best Drifting Style

- 2008 Daijiro Yoshihara
- 2011 Daijiro Yoshihara*[3]
- 2012 Fredric Aasbø*[6]
- 2013 Daigo Saito

Best Personal Style

- 2011 Matt Powers*[3]
- 2012 Ryan Tuerck*[7]
- 2013 Matt Powers
- 2014 Ryan Tuerck

Best Looking Car

- 2011 Matt Field's S14*[3]

Crew Member of the Year

- 2011 Mike Kojima*[3]
- 2012 Mike Kojima*[8]
- 2014 Brian Wilkerson

Team Manager of the Year

- 2011 Chris Forsberg*[3]
- 2012 Stephan Papadakis*[9]
- 2013 Michael Essa
- 2014 Stephan Papadakis

Comeback of the Year

- 2011 Rhys Millen*[3]
- 2013 Michael Essa

Fan Favorite

- 2011 Walker Wilkerson*[3]
- 2013 Fredric Aasbø
- 2014 Fredric Aasbø

4.1.7 All-time Formula Drift event winners list

1. Samuel Hübinette - 9 wins (2004 at Road Atlanta, Houston, and Infineon; 2005 at Road Atlanta and Chicago; 2006 at Long Beach, Chicago and Wall Speedway; 2007 at Summit Point)
2. Chris Forsberg - 8 wins (2005 at Irwindale; 2007 at Road Atlanta and Infineon; 2008 at Long Beach; 2009 at Road Atlanta and Seattle; 2013 at Seattle; 2014 at Long Beach)
3. Daijiro Yoshihara - 8 wins (2006 at Irwindale; 2007 at Seattle and Wall Speedway; 2010 at Road Atlanta and Wall Speedway; 2011 at Road Atlanta and Monroe; 2013 at Long Beach)
4. Tanner Foust - 7 wins (2006 at Road Atlanta; 2007 at Irwindale; 2008 at Englishtown and Sonoma; 2009 at Las Vegas; 2010 at Seattle and Irwindale)
5. Rhys Millen - 7 wins (2004 at Irwindale; 2005 at Wall; 2006 at Infineon; 2008 at Road Atlanta and Seattle; 2011 at Las Vegas; 2012 at Las Vegas)

6. Vaughn Gittin, Jr. - 7 wins (2008 at Irwindale; 2010 at Long Beach and Sonoma; 2012 at Wall Speedway; 2012 at Seattle; 2014 at Road Atlanta and Miami)
7. Fredric Aasbø - 6 wins (2014 at Wall Speedway and Texas; 2015 at Long Beach, Wall, Seattle, and Irwindale)
8. Daigo Saito - 6 wins (2012 at Palm Beach and Irwindale; 2013 at Road Atlanta, Wall Speedway and Irwindale; 2014 at Irwindale)
9. Justin Pawlak - 4 wins (2011 at Long Beach and Palm Beach; 2012 at Long Beach and Road Atlanta)
10. Ryan Tuerck - 3 wins (2009 at Long Beach and Irwindale; 2015 at Orlando)
11. Tyler McQuarrie - 2 wins (2010 at Las Vegas; 2011 at Irwindale)
12. Michael Essa - 2 wins (2013 at Palm Beach and Texas)
13. Darren McNamara - 2 wins (2009 at Wall Speedway; 2014 at Monroe)

One win each for:

1. Ken Gushi (2005 at Houston)
2. Calvin Wan (2005 at Infineon)
3. Yukinobu Okubo (2006 at Seattle)
4. Mitsuru Haraguchi (2007 at Long Beach)
5. Toshiki Yoshioka (2008 at Las Vegas)
6. Stephan Verdier (2009 at Infineon)
7. Conrad Grunewald (2011 at Wall Speedway)
8. Aurimas Bakchis (2015 at Road Atlanta)
9. Masashi Yokoi (2015 at Texas)
10. Chelsea Denofa (2016 at Long Beach)

To this date, only 4 drivers have won both Formula Drift and D1 Grand Prix events, they are Mitsuru Haraguchi, Toshiki Yoshioka, Vaughn Gittin, Jr., and Daigo Saito.

4.1.8 Formula Drift television coverage

Former *Fox Soccer USA* host Brandon Johnson hosted the *Formula D* show for G4 in 2006. Rossi Morreale was the show's host in 2005. Johnson was joined by *Attack of the Show* co-host Olivia Munn who covered the pits and drivers during the events and drifting expert Adam Matthews who provided commentary and insight on the tandem battles. G4 aired each round on a tape-delayed basis. Jarod DeAnda is the public address announcer at each event, earning him the moniker, "The Voice of Formula D." In 2005, G4 used DeAnda's event commentary track, but for 2006, used Johnson and Matthews calling each battle like a typical play-by-play/color commentator combination. Johnson and Matthews were on-site for each event, but it sounded as if they had taped their commentary after the event had already taken place. This practice is not uncommon in the motorsports business in post-production.

In the 2005 season, there were two people working the pits —driver interviewer Mayleen Ramey, who was a roving reporter for the half-hour episodes, and a second anchor, who patrolled around the car show at each event. In 2005, G4 used three reporters for this job. From the round in Wall to the round in Houston, actor Emeka Nnadi held the job. At the Infineon round, *Attack of the Show!* co-host Kevin Pereira took the duties, while *Street Fury* host Big C finished things out in Chicago and Irwindale. Also, G4 showed half-hour episodes in-between rounds, most of which focused on the network having its own drift car built from scratch, with other segments focusing on the aspects of drifting. One of the first half-hour episodes in 2005 had one Formula D competitor, Chris Forsberg go to Japan, and meet up with another competitor, Daijiro Yoshihara, to explore the country and get more perspective on the birth of drifting. Episodes that featured event coverage lasted an hour-and-a-half, and featured the top 16 tandem rounds, including those that needed to be run again, because the judges deemed them too close to call. These episodes aired the night after the next round in the series had already taken place.

In 2006, however, coverage was dramatically different. The half-hour episodes were gone, and event coverage was reduced to an hour, and their scheduling was quite random. The Long Beach and Atlanta rounds premiered on June 18, with the Chicago round airing on July 2, and the Sonoma round airing a week after it took place. During the Sonoma round, G4 noted that the Seattle round would premiere on September 10, but that date was changed to October 8, with the last two rounds (Wall and Irwindale) airing every other week afterward. These episodes featured more interviews and driver profiles, many of which would've been placed in a half-hour show last year, and many of the tandem battles have been cut out, and any battle that needed to be run again did not have its second run shown. This led to some criticism from those in the drifting community, including fans and

some Formula D drivers.

At the 2006 SEMA Show in Las Vegas, Formula D co-founders Jim Liaw and Ryan Sage announced that the series would have a new television partner in 2007. That partner was **ESPN2**. Each round began airing in a one-hour block on November 15 with the Long Beach round. All subsequent airings were supposed to be every Thursday afterward, but beginning with the Evergreen Speedway round on December 5, the air dates for new rounds switched to Wednesday.

The ESPN deal lasted just one season. **SPEED Channel** will air all rounds of the 2008 Formula D season, as well as the World Championship, scheduled for after the Irwindale round. Airings will take place on Sundays, beginning with the Long Beach round on October 26. All airings will begin at 4 PM Eastern.*[10]

For 2010 Formula Drift announces a comprehensive race programming schedule with **VERSUS** in which Drifting, the fastest-growing motorsport, will slide into more than 75 million U.S. homes. The seven-stop Formula DRIFT Championship Series programs will air over fourteen Sundays during the 2 PM (EST) / 11 AM (PST) time slot beginning Sunday, August 30. Each episode will showcase all the on- and off-track action as the world's top drift drivers battle for the coveted title of Formula DRIFT Champion. The first episode, airing on August 30, will feature a comprehensive overview of the sport and drivers. Each episode will re-air the week following the initial airing.*[11] Coverage is slated to remain the same for the 2011 season.

In 2012 NBC's merger with Comcast, Comcast's sports channels were combined under the **NBC Sports** division, in an arrangement known as the **NBC Sports Group**, which also comprises Golf Channel, the Comcast SportsNet regional sports networks, and Versus, which was re-launched as the **NBC Sports Network** on January 2, 2012.

4.1.9 Internet Coverage

In 2010 Formula D joined forces with **Justin.tv** to bring a live stream of all 7 events. All rounds were broadcast via **Justin.tv** complete with practices and all rounds of competition were included. During the 2010 season over 1,000,000 viewers tuned in to watch the live action unfold over the 7 Pro Championship events.

2013 Formula D partnered with [livestream.com/formuladrift Livestream] for the domestic series.

2014 Formula D partnered with **Daily Motion** for its live stream.

4.1.10 Print Coverage

At the 2010 SEMA show, FD co-founder Jim Liaw announced the Formula Drift would begin the quarterly

publication of a Formula Drift's magazine in 2011. The publication will be handled by Haymarket Media Group.

4.1.11 See also

4.1.12 References

- [1] “Formula DRIFT - 404” .
- [2] “Judging Information” . Archived from the original on 2007-01-26.
- [3] <http://www.driftuniversity.com/formula-drift-2011-awards/>
- [4] “Formula DRIFT Awards Banquet” .
- [5] “2012 Formula Drift Spirit of Drifting – Danny George” . *Breaking Drift News*.
- [6] “2012 Best Drifting Style – Fredric Aasbo” . *Breaking Drift News*.
- [7] “2012 Best Style – Ryan Tuerck” . *Breaking Drift News*.
- [8] “2012 Formula Drift Crew Member of the Year – Mike Kojima” . *Breaking Drift News*.
- [9] “2012 Team Manager of the Year – Stephan Papadakis” . *Breaking Drift News*.
- [10] “Formula DRIFT - 404” .
- [11] 2010 Versus package, additional text.

4.1.13 External links

- Formula D's official website
- Wrecked Magazine - Drifting's home in the USA
- DriftLive.com - Unofficial Formula D Coverage

Chapter 5

FD venues

5.1 Evergreen Speedway

Evergreen Speedway is an automobile racetrack located within the confines of the **Evergreen State Fairgrounds** in **Monroe, Washington**. The stadium can accommodate up to 7500 spectators in the covered grandstand and an additional 7500 in the uncovered modular grandstands.*[1] The layout of the track is unique in that it incorporates an oversized 5/8-mile paved outer oval, a 3/8-mile paved inner oval, a 1/5-mile paved inner oval, a 1/8-mile dragstrip, and the #2 ranked figure-eight track in the United States. The track is the only sanctioned **NASCAR** track in Washington State. Evergreen Speedway hosts Formula D the third weekend in July every year. Along with NASCAR, the multi-purpose track can be configured to road courses with sanctioned SCCA, USAC, ASA and NSRA events. Under new ownership for the 2011 season and beyond, Evergreen Speedway has become a NASCAR Top Ten Short Track in North America for the 2012, 2013 and 2014 racing season.

5.1.1 History

Originally an unpaved horse track, in 1954 Jimmie Collier convinced **Snohomish County** officials to allow him to convert the track for use in racing his **Ford Model T** roadster. The track was paved in the early 1960s and in 1967 the original bleachers were demolished and the current grandstands built.*[2]

Through the years the track played host to a wide variety of racing events including Sprint Cars, Roadsters, Midgets, Figure Eights, Foreign Stock, Modified, Hobby Stocks, Jalopies, Limited Sportsmen, Demolition, Grand National, Winston West, NASCAR Northwest Tour, Super Stocks, Mini Stocks, Stinger-8, Hornets and Bombers. Evergreen Speedway also hosted the “500,” the richest and most prestigious race in the west.*[3]

The **NASCAR Craftsman Truck Series** ran an event at Evergreen Speedway once per year from 1995 to 2000.*[3]

High Road Promotions LLC owner Douglas Hobbs won the Snohomish County bid to operate Evergreen Speedway until 2036. The 25 year contract, beginning in March

2011, ensures NASCAR will remain in the state of Washington. As the only NASCAR track in Washington state, Evergreen Speedway was the first West Coast facility to feature a 500 lap NASCAR event. Douglas Hobbs has extensive automobile, world stage events management, such as four Olympic Games and regional and NASCAR experience, assisting Evergreen Speedway landing the Craftsman Truck Series to Evergreen Speedway.

Evergreen Speedway today

Today Evergreen Speedway hosts a number of local as well as regional racing series'. The **NASCAR Whelen All American Series** runs on a weekly basis. Some of the classes that can currently be seen are Speedway Chevrolet Super Late Models (Super Stocks), Les Schwab Street Stocks (Bombers),*[4] Foster Press Mini Stocks], Super Figure-Eights, Outlaw Figure-8s, Stinger-8s, Northwest Legends, Hornets, Jr. Hornets (14-15 year olds), School Bus Races, Crash Cars, Demolition Derbies, Drifting, Autocross, and drag racing.

2012 marked the addition of the **Richard Petty Driving Experience**.*[5]*[6] New to Evergreen Speedway is a state of the art Motocross Track and beginners MX track for riders 65cc and under.*[7]*[8] Also new to Evergreen is a new ATV race facility.*[9]

Evergreen Speedway is the premiere “Short Track” on the West Coast, in addition to being named the #2 Figure 8 track in America. Being one of 11 NASCAR tracks in the USA to host the Whelen All American and K&N Pro Series West makes Evergreen Speedway one of America's premiere short circle tracks.

Evergreen Speedway is one of the stops of the **Formula Drift** professional drift series.*[10]

Along with the professional drift series, Evergreen Speedway is also the location for the Evergreen Drift ProAm series. Evergreen Drift is the Northwest series that feeds drivers into the Pro ranks of FD. Through Evergreen Drift, Evergreen Speedway plays host to not only the series events but also many open drift and drift school events.*[11]

In 2016, Evergreen Speedway will be hosting a **Global RallyCross Championship** round.*[12]

5.1.2 Trivia

- Evergreen Speedway was featured as one of the playable tracks in 1999's *NASCAR Craftsman Truck Series Racing* video game.
- Was nicknamed "The Superspeedway of the West" by NASCAR racing legend David Pearson.*[1]
- Some of the more notable drivers to have raced at Evergreen include: Bill Elliott, Geoff Bodine, Sterling Marlin, Harry Gant, Ken Schrader, Derrike Cope, Davey Allison, Greg Biffle, Ron Hornaday Jr., Kevin Harvick, Michael Waltrip, Mike Skinner, Tobey Butler, Hershel McGriff, Art Pollard, Harry Jefferson, Jack Jeffery, and Don Dowdy.

5.1.3 References

- [1] "Evergreen Speedway - AutoRacing.com: NASCAR, F1, News, Reviews, Blogs, Events, Photos and Videos" . AutoRacing.com. Retrieved 2013-05-27.
- [2] <http://www.evergreenspeedway.net>
- [3] Archived February 15, 2009, at the Wayback Machine.
- [4] "薬剤師資格取得日記< evergree に憧れて>". Evergreenspeedway.net. Retrieved 2013-05-27.
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- [6]
- [7] "Motocross Track First 2 Practices This Week" . Evergreen Speedway. 2011-09-06. Retrieved 2013-05-27.
- [8] "Evergreen Speedway Motocross Track" . Mxtrack-guide.com. Retrieved 2013-05-27.
- [9] "... The Internet Source for Motorsports News and Information" . Whowon.com. 2012-01-10. Retrieved 2013-05-27.
- [10] "FD Monroe" . Formulad.com. Retrieved 2013-05-27.
- [11] "Evergreen Drift" . Evergreen Drift. Retrieved 2013-05-27.
- [12] Leone, Chris (February 23, 2016). "RED BULL GLOBAL RALLYCROSS RETURNS TO SEATTLE AT EVERGREEN SPEEDWAY ON SEPTEMBER 17" . Global RallyCross Championship. Retrieved February 26, 2016.

5.1.4 External links

- Evergreen Speedway
- Evergreen Drift at Evergreen Speedway
- Evergreen Street Drags at Evergreen Speedway

5.2 Irwindale Speedway

The **Irwindale Event Center** (aka **Irwindale Speedway** and **Irwindale Dragstrip**) is a motorsports facility located in Irwindale, California, United States. It opened on March 27, 1999 under the official name **Irwindale Speedway**. Toyota purchased the naming rights to the facility in 2008, and from that time until 2011 it was also known as the **Toyota Speedway at Irwindale**.*[1]

The speedway features banked, paved 1/2- and 1/3-mile oval tracks and a 1/8-mile drag strip. From its opening until 2011 it was primarily used for NASCAR races such as **NASCAR K&N Pro Series West** and **Whelen All-American Series** events. In late 2011, NASCAR announced it was dropping Toyota Speedway from its schedule. The company that manages the track, Irwindale Speedway LLC, filed Chapter 7 bankruptcy on February 13, 2012.*[2]

In January 2013, it was announced that the track would be re-opening as the Irwindale Event Center, and would operate as a **Whelen All-American Series** venue for the 2013 season.*[3] For the past decade, the **Formula D** Championship Series has featured sold out events at the venue.

In 2015, plans were made to demolish Irwindale Speedway and build an **outlet mall** on the site of the track. As of 2016, the track is still open for business.

5.2.1 2003-present

From 2003 to 2010, the main 1/2-mile oval hosted the **NASCAR Toyota All-Star Showdown**. In this event, the top 30 drivers in the **NASCAR K&N Pro Series** and the top 40 drivers in the **NASCAR Whelen All-American Series** come from their respective regional tours to compete in a "best-of-the-best" race. The races were televised live on the **Speed Channel**. It was also the home of the **Turkey Night Grand Prix** race, a Thanksgiving midget car racing tradition in southern California since 1934, when the race debuted at Gilmore Stadium. Among the 2005 participants were Tony Stewart, Jason Leffler, and J. J. Yeley. It was also seen in an episode of *Malcolm in the Middle*, titled "Stock Car Races" and also used in the opening scene of the pilot episode of *Fastlane*.

In 2012, Irwindale Speedway LLC, the management group that ran the track, filed for Chapter 7 bankruptcy on the same day track management canceled the 2012 racing season.

In the paperwork filed at the United States Bankruptcy Court, Central District, it shows that Irwindale Speedway LLC owed creditors \$331,773.11. The largest amount is \$150,000 owed on a personal-injury claim.

Irwindale Speedway LLC owed Nu-Way Industries Inc., the company that owns the property where the track and offices are built, \$55,000 in rent.

Irwindale Speedway LLC has two more outstanding personal injury claims with unknown values. There is also a debt of \$8,093.51 owed to the city of Irwindale Police Department, \$16,379.58 owed to the Golden State Water Company and \$1,437.50 owed to the San Gabriel Valley Tribune for advertising.

In late 2012, Jim Cohan, who ran the LA Driving Experience at the track was able to secure funding to re-open the speedway under his management. The track is back on the NASCAR Home Tracks schedule running a bi-weekly schedule for 2013 and up to the present.

5.2.2 Lucas Oil California Classic

In 2010, they hosted the first Lucas Oil California Classic on Thanksgiving weekend. This was a two-day (Actually 3 due to rain on Saturday night) event for the Spears SRL Southwest Tour, Super Late Models, and Late Models. They will run 125, 100, and 75 laps respectively, for a \$50,000+ purse. However, attendance declined in recent years, with only 900 viewers in the stands at a race prior to closure.

5.2.3 Drag strip

The 1/8-mile drag racing strip opened on September 29, 2001. In 2003, in cooperation with local law enforcement, Irwindale Speedway opened its own dragstrip and hosts legal drag races for street-legal cars, trucks, and motorcycles. The dragstrip is proud to extinguish the “nowhere else to go” excuse used by illegal street racers, and local police often hand out flyers to offenders for free entry into drag races at the dragstrip to promote safe racing and has re-opened.

5.2.4 The House of Drift

The venue is also known for drifting events; when it hosted D1 Grand Prix's first overseas event in 2003, with a sell-out crowd attendance of 10,000, it had surpassed all other events Irwindale hosted in the past, the previous being 8,700. Since then, it has become the series regular opening round in February and a non championship event in December and has also hosted a round of the domestic series, Formula D. The venue has been expanded to accommodate 15,000 spectators. The circuit is regarded as one of the most popular courses for crowds and drivers despite the unforgiving concrete wall which drivers usually brush through with their rear bumpers. Because of its popularity, the circuit is nicknamed the *The House of Drift*.

5.2.5 Record

The 2003 *Guinness Book of World Records* lists the fastest-ever top speed of a radio-controlled car as 111 mph (178.63 km/h) set by Cliff Lett of Associated Electrics. Lett, a Team Associated professional driver and one of the designers and developers of the aforementioned RC10, set the record with a heavily modified Associated RC10L3 touring car at Irwindale Speedway on January 13, 2001.

5.2.6 Possible Closure and Demolition

In September 2013, the property housing the Irwindale Event Center was purchased by Irwindale Outlet Partners, LLC for \$22 million. The lease for the Irwindale Event Center continued on a year-by-year basis. In March 2015, plans were made to demolish Irwindale Speedway and replace it with Irwindale Outlet Center, an outlet mall, but the closure has been delayed. The track is currently running the 2016 season and no announcements have been made as to if there is going to be a 2017 season.

5.2.7 See also

- List of sports venues with the name Toyota
- West Coast Stock Car Hall of Fame

5.2.8 References

- [1] Lair, Keith (March 17, 2008). “An optimistic outlook”. *San Gabriel Valley Tribune*. Retrieved 2008-03-21.
- [2] Haddock, Tim (February 14, 2012). “Irwindale group files for bankruptcy”. *ESPNLosAngeles.com*. ESPN. Retrieved February 15, 2012.
- [3] Peltz, Jim (January 4, 2012). “Irwindale Speedway to again host minor-league NASCAR racing”. *Los Angeles Times*. Los Angeles, CA. Retrieved 2013-01-05.

- Racing West News: Drag Racing Update @ Racing West News

http://la.curbed.com/archives/2013/10/sgvs_irwindale_speedway_will_close_and_be_redeveloped.php

5.2.9 External links

- Official website

Coordinates: 34°6'34"N 117°59'17"W / 34.10944°N 117.98806°W

5.3 Las Vegas Motor Speedway



LVMS in October 2015

Las Vegas Motor Speedway, located in Clark County, Nevada in Las Vegas, Nevada about 15 miles northeast of the Las Vegas Strip, is a 1,200-acre (490 ha) complex of multiple tracks for motorsports racing. The complex is owned by **Speedway Motorsports, Inc.**, which is headquartered in Charlotte, North Carolina.

5.3.1 History

Following the closure of Stardust International Raceway in late 1970s, plans were developed for a new racing facility in Las Vegas: the Las Vegas Speedrome. It consisted of a road course and drag strip. Through changes of ownership, a 3/8-mile short track would become part of the complex by the later-1970s. A new \$72 million superspeedway opened on the site in September 1996. The first race at the speedway was on September 15 with an Indy Racing League event which was won by **Richie Hearn**. The first NASCAR Sprint Cup (then Winston Cup) event was held March 1, 1998 with **Mark Martin** winning the inaugural event. In December of that year, **Speedway Motorsports, Inc.** purchased Las Vegas Motor Speedway. Veteran motorsports publicist Chris Powell was named the speedway's president and general manager and still holds that position today.

The **Winston No Bull 5 Million Dollar Bonus** was held at the track from 1999 to 2002. **Jeff Burton** won a million dollars in 2000 and **Jeff Gordon** won the bonus in 2001. **Burton** and **Sterling Marlin** were not eligible in 1999 or 2002. The drag strip was rebuilt and relocated into the current The Strip at Las Vegas Motor Speedway. The 3/8-mile oval was rebuilt with a new pit lane and start-finish changed to the opposite side. In 1998, Las Vegas Motor Speedway was sold by **Richie Clyne** and **Ralph Englestad** to **Speedway Motorsports, Inc.**, owned by **Bruton Smith**, for \$215 million in December. During the 2004 and 2005 seasons, **Champ Car** also held races at the speedway, which were both won by **Sébastien Bourdais**.

In 2006, plans were announced to reconfigure the track after the **Sprint Cup Series** race held in March, increas-

ing the banking from 12-20°.*[1] This reconfiguration entailed “progressive banking” which increases the degree of banking on a gradient towards the outside of the track. This increased side-by-side racing. The speedway also constructed a fan zone called the **Neon Garage**. This area has live entertainment, unprecedented access to the drivers and teams, such as viewing areas for fans to watch their favorite driver’s car get worked on and talk to the drivers, and is home to the Winner’s Circle. The speedway moved pit road 275 feet (84 m) closer to the grandstands, built a new media center and added a quarter-mile oval for **Legends Cars**, **Bandoleros**, and **Thunder Roadsters**, in the tri-oval area.

On August 8, 2006, the newly reconfigured track reopened to stock cars. **Kurt Busch**, the 2004 NASCAR Sprint Cup Champion and Las Vegas native, became the first Sprint Cup driver to test a stock car on the newly reconfigured track in his #2 Penske Dodge. **Burton** won the first Nationwide Series race on the new surface, taking a **Monte Carlo SS** to Victory Lane. The following day, **Jimmie Johnson** drove a Chevrolet to Victory Lane, capturing the first Sprint Cup Series win on the new pavement.

In March 2011, Insomniac Events announced that their largest rave festival in North America, **Electric Daisy Carnival (EDC)**, would take place at Las Vegas Motor Speedway for the first time on June 24–26. More than 235,000 people attended the three-day event. The 2012 event was held June 8–10 with an attendance of 315,000 people. The 2013 event was held June 21–23 with an attendance of approximately 345,000 people. The 2014 event was held on June 20–22, and the 2015 event is scheduled for June 19–21. Insomniac has signed a ten-year contract with LVMS to host EDC through 2022.*[2]

A road course designed by **Romain Thievin** was added in 2012. The course is 1.4 miles (2.3 km) long with 11 turns and an 1,800-foot (550 m) straight.*[3]

2011 IndyCar accident

On October 16, 2011, the final race of the 2011 **IndyCar** season, the **IZOD IndyCar World Championship**, was held at Las Vegas. However, the race was marred by a horrific crash on lap 11 that involved 15 cars, some of which burst into flames. The crash began when **Wade Cunningham** made light contact with **James Hinchcliffe**, and the situation turned into a big pile-up of cars. The crash allowed a red flag to be waved almost instantly, due to the remains of the damaged cars and the amount of debris on the track.*[4]

Four of the 15 drivers were taken to the nearby **University Medical Center** for treatment, one of which was two-time **Indianapolis 500** winner and 2005 series champion **Dan Wheldon**, who suffered severe blunt force trauma to the head after his car flew into the catch fence. He was pronounced dead on arrival two hours later and **IndyCar**’s of-

ficials formally decided to abandon the race.*[5] Instead of completing the race with 188 laps to go, the 19 drivers who were not involved went back out on the track and did a five-lap salute in Wheldon's honor.*[6]

In December 2011, IndyCar announced that they would not be coming back to Las Vegas Motor Speedway in the 2012 season and beyond and that the future of IndyCar depended on what they would learn from the ongoing investigation of the crash that claimed Wheldon's life.*[7]

5.3.2 Records

- NASCAR Sprint Cup Series Qualifying: Kurt Busch, 27.498 sec. (196.378 mph), March 4, 2016
- NASCAR Sprint Cup Series Race: Brad Keselowski, 2 hrs. 35 min. 24 sec. (154.633 mph), 2014 Kobalt 400
- NASCAR Xfinity Series Qualifying: Greg Biffle, 28.830 sec. (192.300 mph), October 25, 2003
- NASCAR Xfinity Series Race: Jeff Burton, 2 hrs. 13 min. 13 sec. (135.118 mph), 2000
- NASCAR Camping World Truck Series Qualifying: Mike Skinner, 30.326 sec. (178.065 mph), 2006
- NASCAR Camping World Truck Series Race: David Starr, 1 hr. 37 min. 3 sec. (135.394 mph), 2002

NASCAR Sprint Cup Series records

(As of March 8, 2015)

* from minimum 5 starts.

5.3.3 Tracks

- Inside Road Course: 1.1 miles (1.8 km), with a 0.76 miles (1.22 km) road configuration and a 0.33 miles (530 m) oval configuration
- Outside Road Course: 2.4 miles (3.9 km)
- The Bullring: 0.375 miles (604 m) paved oval
- Dirt Track: 0.5 miles (800 m) clay oval
- The Strip: 0.25 miles (1,320 ft) drag strip
- Exotics Racing Course: 1.4 miles (2.25 km) road course, with a 1.2 miles (1.9 km) configuration
- Off-road Course: an 850 by 750 ft (260 by 230 m) area which may accommodate multiple configurations

Superspeedway track length

The NASCAR timing and scoring use a length of 1.5 miles (2.4 km).*[8] This length was also used by IRL between 1996 and 2000.*[9] In their last race in 2011 Indycar remeasured track length to 1.544 miles (2.485 km).*[10] This is the result of the reconfiguration of the track. Between 2005 (old layout) and 2011 (new layout), no indycar race was held there. NASCAR still use the old length of exactly 1.5 miles for the reconfigured oval.

5.3.4 Other events

- The RE/MAX World Long Drive Championship was held here in December 2013. Tim Burke won the event.
- The track is the finish line for the 24th season of *The Amazing Race* broadcast on May 18, 2014. Dave and Connor O'Leary won the race.
- Electric Daisy Carnival (EDC), an electronic music festival hosted by Insomniac Events is held at the speedway each year.



*[11]

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- [6] “IndyCar's 5-lap salute to Wheldon” . reddit.

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- [8] Las Vegas Motor Speedway at NASCAR.com
- [9] 2000 IRL race result on champcarstats.com, 2005 CCWS race result on champcarstats.com
- [10] 2011 race result on champcarstats.com
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5.3.6 External links

- Las Vegas Motor Speedway Official Site
- Map and full circuit history at RacingCircuits.info
- Las Vegas Motor Speedway race results at Racing-Reference
- The Bullring race results at Racing-Reference
- Las Vegas Motor Speedway Page on NASCAR.com
- Jayski’s Las Vegas Speedway Page – Current and Past Las Vegas Motor Speedway News
- High Resolution image from Google Maps
- Dream Racing at Las Vegas Motor Speedway
- Richard Petty Driving Experience at Las Vegas Motor Speedway
- Las Vegas Motor Speedway Tickets
- Exotics Racing at Las Vegas Motor Speedway

Coordinates: 36°16'17"N 115°00'40"W / 36.27134°N 115.01112°W

5.4 Long Beach Grand Prix

For the Formula One race, see United States Grand Prix West. For the 2014 race, see 2014 Toyota Grand Prix of Long Beach.

The **Toyota Grand Prix of Long Beach** is an open-wheel race held on a street circuit in Long Beach, California. Christopher Pook is the founder of the event, which began as a vision while working at a travel agency in downtown Long Beach. It was the premier circuit in Champ Car from 1996-2008. The 2008 race was the last for Champ Cars as the series merged with the Indy Racing League.*[1]*[2] It is now an event on the IndyCar Series calendar.

The Long Beach Grand Prix in April is the single largest event in the city of Long Beach. Attendance for the weekend regularly reaches or exceeds 200,000 people.

The Long Beach Grand Prix is the longest running major “street” race held on the North American continent. It started in 1975 as a Formula 5000 race on the streets of downtown, and became a Formula One event in 1976. Incredibly, in an era when turbocharged engines were starting to come to prominence in Formula One, Long Beach remains one of the few circuits used from the time Renault introduced turbos in 1977 until the last Long Beach Grand Prix in 1983 that never once saw a turbo powered car take victory.

John Watson’s win for McLaren in the final race at Long Beach holds the F1 record for the lowest ever starting position for a race winner. In a grid consisting of 26 cars, Watson started 22nd in his McLaren-Ford. That same race also saw Watson’s team mate (and 1982 Long Beach winner) Niki Lauda finish second after starting 23rd on the grid. René Arnoux, who finished third in his Ferrari 126C2B, was the only driver to ever finish on the Formula One podium at Long Beach using a turbocharged car.

From 1984 to 2008 it was a CART Indycar/Champ Car event. Other popular events during the Grand Prix week include a Pirelli World Challenge race, an IMSA WeatherTech SportsCar Championship race, and the Motegi Racing Super Drift Challenge. Toyota has been a sponsor of the event since its beginning and title sponsor since 1980, believed to be the longest continuously running sports sponsorship in the U.S.

The Long Beach Grand Prix has been announced since 1978 by Bruce Flanders (and his assorted guest announcers).

5.4.1 Circuit



Mark Smith driving in the 1993 race

The current race circuit is a 1.968-mile (3.167 km) temporary road course carved out of the city streets surrounding the Long Beach Convention Center which actually doubled as the pit paddock during the days of Formula One. The circuit also goes primarily over the former location of The Pike historic amusement zone. It is particularly noted for its last section, which sees a hairpin turn followed by a long, slightly curved front straightaway.

which runs the length of Shoreline Drive. The circuit is situated on the Long Beach waterfront, and is lined with palm trees (especially along the front straightaway towards the **Aquarium of the Pacific**), making for a scenic track.

5.4.2 Events

Although the Verizon IndyCar Series race is the main event, a number of other races are also held. On April 8, 2006, the **Grand-Am** Daytona Prototypes took to the streets, replacing the suspended **Trans-Am Series**. Other races have included **Indy Lights** (which ran from 1990-2001 and 2009-15) and the popular **Toyota Pro/Celebrity Race** which ended its 40-year run in 2016. Beginning in 2007, the **American Le Mans Series** replaced Grand-Am. Starting in 2013, the circuit has also held the **Stadium Super Trucks**.^{*[3]} Additionally, a week of fairs, music, and promotional activities is held.

2008 and the Long Beach/Motegi “split weekend”

During negotiations which led to the merging of the Champ Car World Series and the IRL IndyCar Series, a problem came in the form of a scheduling conflict between the Champ Car race scheduled at Long Beach and the IndyCar race held at **Twin Ring Motegi** the same weekend. **Honda**, who owns the Motegi complex and also supplies equipment to the IndyCar Series, could not change their scheduled race date of April 19. Likewise, Long Beach could not change their race weekend (with the Champ Car race scheduled for April 20), such change being a difficult task considering the civil and infrastructural preparations required for a temporary street circuit.

However, all problems were resolved when the two open wheel series agreed to merge in February 2008. **Tony George** (president of the **Indy Racing League**), with **Kevin Kalkhoven** and **Gerald Forsythe** (the former co-owners of Champ Car) planned an unprecedented “split weekend” of races at Twin Ring Motegi and Long Beach. This compromise allowed all IRL drivers to race in Japan, while ex-Champ Car drivers raced at Long Beach. Both races counted towards the **2008 IndyCar Series Championship**. The Long Beach Grand Prix allowed all Champ Car drivers to race with their turbocharged **Panoz-Cosworth** Champ Cars that would have been used had the merger not taken place. Long Beach/Motegi was the only split weekend of the 2008 IndyCar Series.

Drifting

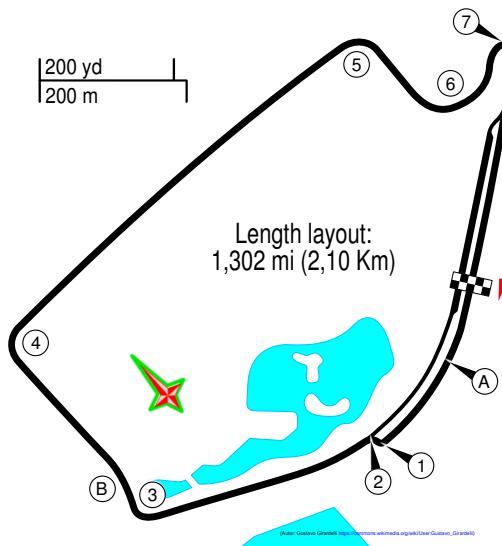
Beginning in 2005 the event included a demonstration by participants in the **Formula D** drifting series. Since 2006 Formula D has held the first round of their pro series on Turns 9-11 on the weekend prior to the Grand Prix. In

2013 the **Motegi Super Drift Challenge**, a drifting competition, was added on the GP weekend, using the same Turn 9-11 course as Formula D. The Motegi Super Drift Challenge is the only event during the GP that runs at night, under floodlights.

North American Touring Car Championship

Long Beach hosted the opening round of the **1997 North American Touring Car Championship** season, being won by **Neil Crompton** in a **Honda Accord**.

Formula E



Long Beach Formula E Circuit as used for the Long Beach ePrix.

A modified version of the Long Beach Grand Prix track was used during the **Long Beach ePrix** of the **FIA Formula E Championship**. The track is 2.1 km (1.3 mi) in length and features seven turns.^{*[4]*[5]} Admission to the **first event** was free: “the free admission will afford everyone the opportunity to come out and witness this historic and unique event,” **Jim Michaelian**, president of the **Grand Prix Assn.** of Long Beach, said in a statement.^{*[6]*[7]} The ePrix was held once again in 2016. However, it was not renewed for the third Formula E season in 2017.^{*[8]}

Future

The City of Long Beach and the Grand Prix Association have contracted to hold the Grand Prix through June 30, 2018.^{*[9]}

5.4.3 Winners

Atlantics/Indy Lights

American Le Mans Series / Grand-Am / IMSA

- Overall winners in **bold**



2005 Long Beach Grand Prix, showing turn 10 and the Long Beach skyline.

5.4.4 Broadcasting

5.4.5 References

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5.4.6 Further reading

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- The magic of Long Beach - Racer, David Malsher, 7 April 2014
- Long Beach a success story - ESPN, John Oreovicz, 9 April 2014

5.4.7 External links

- Toyota Grand Prix of Long Beach
- Map and circuit history at RacingCircuits.info

5.5 Palm Beach International Raceway

Palm Beach International Raceway (formerly Moroso Motorsports Park) is a motorsports facility located west of Jupiter, Florida.

5.5.1 History

Early days

The facility opened in 1964,*[1] costing a reported \$1.5 million to build. The track was originally named “Palm Beach International Raceway” and was owned by local contractor Joe Buchek Jr. and his brother Edward.*[2] In March 1965 the inaugural race was held at the track. Some 10,000 spectators attended the event, which was a series of sports car events.*[3]

In September 1965 racing promoter Alec Ullman was set to move the **12 Hour Race in Sebring**, which had been hosted at Sebring International Raceway for the previous 16 years, to the facility. Those plans eventually fell through due to the \$1.5 million it would cost to expand the site.*[4] In November 1969 a controversial rock concert was held at the facility after months of legal battles. During the rock festival artists such as Janis Joplin, The Rolling Stones, Sly & The Family Stone and Jefferson Airplane performed. Since then, several artists including Eric Clapton have performed there. Another concert featuring Led Zeppelin, Bachman-Turner Overdrive and J. Geils Band was in the works in 1975 but organizers cancelled it when they decided the facility couldn't handle the estimated 50,000 fans that were expected to attend.*[5]

In April 1971 the Grand American Series of Professional Drag Racing had one of the first major drag racing events held at the track.*[6] The facility hosted an air show November 7, 1971. The **Air Force Thunderbirds** were

scheduled to perform but had to cancel due to flooding on the track. In 1979 famous sports car and Indy 500 racer Lyn St. James made her professional debut at the facility, which ended in a major accident in which her car crashed into the swamps and sank in the mud.*[7]

Moroso era



Moroso Motorsports Park in 2003

In 1981, Dick Moroso*[8] the owner of Moroso Racing Parts, purchased the track and renamed it "Moroso Motorsports Park". In 1982, Moroso spent a reported \$100,000 to upgrade the facility to host the opening event in the SCCA Trans Am Series.*[9] The facility was scheduled to host a circus in 1987, but it was cancelled after promoters found out about a poor safety record.

The facility hosted several SCCA national and regional events. The track was also host to several IHRA and NHRA special events and the "Super Chevy Show", which drew more than 100,000 spectators over the three-day event for several years. The event was later replaced with the "All Chevy Show" which generally occurs in March. In 1996, Moroso considered spending \$2 million on a one-mile oval track for stock car racing, but those plans fell through. In 1998, Moroso died from brain cancer and his family inherited ownership of the track. In 2002, MTV filmed a drag racing documentary at the track.*[10]*[11] The Speed Channel show *Pinks* visited the facility in 2007 to film an episode.

The raceway featured quite prominently in *Top Gear's* 2007 USA Special. Jeremy Clarkson, James May, Richard Hammond, and The Stig's American cousin all raced cars at the speedway, that the former three had purchased in Miami earlier. This was its most notable appearance on television, and one of the most recent appearances.

Modernization

In 2008, a group of local motorsports enthusiasts *[12] purchased Moroso Motorsports Park. The new owners

closed the track, remodeled it into a state-of-the-art motorsports facility and changed the track's name back to "Palm Beach International Raceway." The old facility was completely altered, adding a new road course similar to the original but with some minor modifications. Low-glare lighting was added to the track along with brand new safety barriers and an amount of other upgrades. The track hosted an ARCA Remax Series event*[13] and several drag racing events. The facility again hosted to the show "Pinks All Out" on March 6, 2010.*[14] The facility also host a wide variety of motorsports events, including "Mud Bog"—an event for **ATV** and offroad enthusiasts—CCS, Radical East USA's racing school, Skip Barber Racing School, the Ferrari Cavallino Classic, Porsche BMW Owner's Club (PBOC) and the Florida Sports Car Championship - Street Survival which teaches teenagers the driving skills necessary to survive on today's roadways.

The facility is popular with teams from all forms of racing for testing. Several **IndyCar Series** teams use the track for winter testing, as do several sports car teams from the **Rolex Sports Car Series** including locally based Orbit Racing, as well as Riviera Beach-based Extreme Speed Motorsports.*[15] Once the track gets its FIA Grade 2 certification it will be eligible to host a wide variety of motorsports events including **IndyCar Series**, **Indy Lights**, **Grand Am** and other major forms of racing.

5.5.2 Facility



Map of the facility

Road course

The road course's length is 2.043 miles and was designed by Martyn Thake with help from several other in-house designers.*[16] It is paved with 5-inch-deep (130 mm) asphalt on an aggregate base. It features a 90-foot-wide (27 m) section on the back straight for adding a chicane in the future. The course is currently awaiting a FIA Class II certification.*[17]

Drag strip

The drag strip is an **IHRA**-sanctioned 1,000-1,320-foot concrete course*[18] built to **NHRA** specifications, as well.

Kart course

The go-kart track is a 0.8-mile track with three straight and 26-foot-wide (7.9 m) corners. The course is considered a World Karting Association Master Track.*[19]

5.5.3 Race winners

Road course

ARCA Remax Series

5.5.4 Incidents and accidents

- On May 26, 2009, a 9-year-old boy was seriously burned when his go-kart overturned and caught fire. He was rushed to Jackson Memorial Burn Center in Miami in critical condition.*[21] The boy's family filed suit against the Palm Beach International Raceway, the track's investors, go-kart maker Carter Brothers, and go-kart engine manufacturer Briggs & Stratton for personal injury, after the accident caused the 9-year-old to lose all ten of his fingers.*[22]
- In January 2010, 18-year-old Casey Bicknell crashed his **Chevrolet Corvette** on the Quarter Mile Drag Strip while travelling over 109 mph. He sustained a traumatic brain injury in the incident and was not expected to survive but is currently in an assisted living facility.*[23]

Fatalities

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The esses during practice for the 2006 Petit Le Mans.

5.5.6 External links

- Official website
- ARCA Schedule
- 24 Hours of LeMons site

Coordinates: 26°55'19.54"N 80°18'20.06"W / 26.9220944°N 80.3055722°W

5.6 Road Atlanta

Road Atlanta is a 2.54-mile (4.088 km) road course located just north of **Braselton, Georgia, USA**. The facility is utilized for a wide variety of events, including professional and amateur sports car and motorcycle races, racing and driving schools, corporate programs and testing for motorsports teams. The track has 12 turns, including the famous "esses" between turns three and five; and Turn 12, a downhill, diving turn. The track is owned by **NASCAR** through its subsidiary **Panoz Motorsports**, and is the home to the **Petit Le Mans**, as well as **AMA** motorcycle racing, and smaller events throughout the year.

5.6.1 History

In 1969, David Sloyer, Earl Walker, and Arthur Montgomery purchased a 750 acres (300 ha) plot of farmland in **Braselton, Georgia**, with the intent to build a world-class road racing facility. When a **Can-Am** race had to be canceled due to flood damage, the series organizers chose Road Atlanta to replace it. The track then began

to take form quickly, taking only six months to excavate, grade, and pave the road course.

The first race was held on September 13, 1970. Vic Elford, in a **Chaparral** 2J, won pole and Tony Dean, in a **Porsche** 908/02, won the 300 km Can-Am event, with Stirling Moss as the **Grand Marshal**. Throughout the 1970s, more top-level series came to Road Atlanta, including Can-Am, **Formula 5000**, **IMSA Camel GT**, and **Trans-Am**.^{*[1]} The Sports Car Club of America (SCCA) held their annual national championship, the **SCCA Runoffs**, at Road Atlanta from 1970 to 1993.^{*[2]} The first road race in **NASCAR Busch Grand National Series** history took place at Road Atlanta in 1986.^{*[3]}

The track was sold in 1978, and was passed from one owner to the next—culminating in bankruptcy in 1993 under the Whittington Brothers (**Don & Bill**). A partnership between business executives Frank Drendel, Jim Kanely, Eddie Edwards, George Nuse, and Bill Waddell was formed to purchase the track. The next three years were spent making gradual improvements to the facility. New buildings were constructed, others were renovated, the track was widened and resurfaced and the grounds were landscaped.

In November 1996, the track was purchased by **Don Panoz**, who would make **Braselton** the base of operations for his motorsports-related ventures. Panoz introduced the first major changes to the track, removing the Dip and creating a chicane at the end of the long back straight. These changes brought the track up to **FIA** standards, so that international events could be held. A new

pit and paddock area was also constructed on the infield side of the track, allowing for larger events, and a 10,000-seat terrace area was constructed around the new Turn 10 complex.

In 1998, major racing resumed at Road Atlanta with the first edition of the *Petit Le Mans* endurance race. The race attracted worldwide attention, and included entries from the *Le Mans*-winning Porsche factory team. The race would be the first race of the *American Le Mans Series* and included a spectacular accident where a Porsche 911 GT1 backflipped and flew into the side barriers. *Petit* has continued to be an annual event at Road Atlanta, and a marquee event in the ALMS.

Prior to the 2007 *Petit Le Mans*, the entire track surface was repaved. The works also included moving the walls in the esses away from the track, with the intention of improved driver safety and better sight lines for spectators.^{*[4]} In the late winter of 2007/2008, the circuit was again modified with the reconfiguration of turns 4 and 12, for the ostensible safety benefit of motorcycle racers (the racing line for cars remained essentially unchanged).

In April 2008, Road Atlanta hosted the 4th stage of the *Tour de Georgia*, one of the largest cycling stage races in the United States. The stage was run using standard racing bikes instead of the more aerodynamic time trial bikes. *Slipstream Chipotle* won the stage with a time of 19:38.86, while *Astana* and *Team High Road* finished second and third respectively.

The October 2008 *Petit Le Mans* had a four-day crowd of 113,000 people with an average weekend crowd of nearly 80,000 fans.^{*[5]} The race entry list includes a number of new and returning cars.

In September 2012, the track was purchased by NASCAR as part of its acquisition of Panoz Motorsports group. The intention was to combine the Grand AM and American Le Mans Series. NASCAR K&N series has announced a return to the track in October 2013 as part of the K&N East series.

5.6.2 Road Atlanta in gaming

Road Atlanta has been featured as one of the main drivable courses in the Xbox video game *Forza Motorsport* and its sequels, and in the 1999 PC racing simulator *Sports Car GT*. The track was also digitally created for Electronic Arts' *F1 series* ('01 - '02), then "modded" to be compatible with multiple PC games. Scratch-made versions of the track have also been created for *rFactor* and Papyrus' *NASCAR Racing 2003 Season*. It also appears in the PlayStation 2 game *Le Mans 24 Hours* and on *iRacing.com*.

5.6.3 Events

Current

- IMSA TUDOR United SportsCar Championship

Petit Le Mans

- IMSA Continental Tire Sports Car Challenge
- IMSA Cooper Tires Prototype Lites
- IMSA Porsche GT3 Cup Challenge presented by Yokohama
- Formula D

Drift Atlanta

- Trans-Am Series
- Historic Sportscar Racing

The Mitty

- Lamborghini Super Trofeo North America
- Optima Batteries ChumpCar World Series
- National Auto Sport Association
- Sports Car Club of America
- WERA Motorcycle Road Racing

The facility is also home to the Skip Barber Racing School.

Former

- Indy Lights (2001)
- NASCAR Busch Series (1986 & 1987)
- NASCAR K&N Pro Series East (2013)
- Pro Mazda Championship presented by Cooper Tires (1999–2010, 2012)
- Star Mazda Series - East Championship (1999–2004)
- Cooper Tires USF2000 (2010)
- Can-Am (1970–1974, 1978–1979, 1982, 1984)
- AMA National Championship (1971–1974, 1980, 1986–1988) (races in 1986–1988 were also counted in the AMA Superbike Championship)
- SCCA National Championship Runoffs (1970–1993) (also known as the American Road Race of Champions, Valvoline Road Racing Classic, and the Champion Spark Plug Road Racing Classic)

- SCCA Formula Super Vee Championship (1971–1975, 1979, 1989–1990)
- SCCA Continental Championship (1972–1973, 1975)
- IMSA GT Championship (1973–1992, 1994–1998)
- AMA Superbike (1980, 1986–1990, 1993–1994, 1998–2010, 2012)
- American Le Mans Series (1999–2013)
- Grand-Am Rolex Sports Car Series (2013)
- World Karting Association

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- [1] “History of Road Atlanta”. Road America. 1970-09-13. Retrieved 2012-10-16.
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- [3] “Busch Series champions and milestones”. Yahoo! Sports. Retrieved 2012-10-16.
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- [5] “ALMS News | American Le Mans Series”. American Le Mans. 2012-10-09. Retrieved 2012-10-16.

5.6.5 External links

- Official Site
- Trackpedia guide to driving this track

5.7 Sonoma Raceway

Sonoma Raceway, formerly **Sears Point Raceway** and **Infineon Raceway** is a 2.52-mile (4.06 km) road course and drag strip located on the landform known as **Sears Point** in the southern **Sonoma Mountains** in Sonoma, California, USA.^{*[1]} The road course features 12 turns on a hilly course with 160 feet (49 m) of total elevation change.^{*[2]} It is host to one of only two **NASCAR Sprint Cup Series** races each year that are run on road courses (the other being **Watkins Glen International** in Watkins Glen, New York). It is also host to the **Verizon IndyCar Series** and several other auto races and motorcycle races such as the **American Federation of Motorcyclists** series. Sonoma Raceway continues to host amateur, or club racing events which may or may not be open to the general public. The largest such car club is the **Sports Car Club of America**.

With the closure of **Riverside International Raceway** in Riverside, California after the 1988 season, NASCAR,

wanting a west coast road course event to replace it, chose the Sears Point facility. Riverside International was razed for a shopping center development.

In 2002, Sears Point Raceway was renamed after a corporate sponsor, **Infineon**. However, as with many renamings of sports complexes, many people still call it by its original name. (It was never affiliated with **Sears, Roebuck and Company**, having been named for the nearby Sears Point Ranch founded in the 1850s by settler Franklin Sears.) On March 7, 2012, it was announced that Infineon would not renew their contract for naming rights when the deal expired in May, and the track management is looking for a new company to take over naming rights.^{*[3]} Until it can find a new corporate sponsor, the course is simply identifying itself as “Sonoma”.

5.7.1 History

1968–1979

The 2.52-mile (4.06 km) road racing course was constructed on 720 acres (2.9 km²) by Marin County owners Robert Marshall Jr., an attorney from Point Reyes, and land developer Jim Coleman of Kentfield. The two conceived of the idea of a race track while on a hunting trip. Ground was broken in August 1968 and paving of the race surface was completed in November. The first official event at Sears Point was an SCCA Enduro, held on December 1, 1968.

In 1969 the track was sold to **Filmways Corp.**, a Los Angeles-based entertainment company for \$4.5 million. In May 1970 the track was closed and became a tax shelter for Filmways after losses of \$300,000 were reported. Hugh Harn of Belvedere and Parker Archer of Napa arranged to lease the track from Filmways in 1973. Bob Bondurant, owner and operator of the **Bob Bondurant School of High Performance Driving**, and partner Bill Benck took over management and control of the leased raceway from Parker Archer and Hugh Harn in 1974. A few years later a group calling itself Black Mountain Inc., which included Bondurant, William J. Kolb of Del Mar and Howard Meister of Newport Beach, purchased the track from Filmways for a reported \$1.5 million.

American Motorcycle Association national motocross races in the hills north of Turn 7 became popular with Bay Area fans, but were phased out by the end of the decade because of rising insurance costs.

1980–2000

In 1981 Filmways regained ownership of the track after a financial dispute with Black Mountain group. Jack Williams, the 1964 NHRA top-fuel drag racing champion, Rick Betts and John Andersen purchased the track from Filmways at an auction for \$800,000. The track was renamed **Sears Point International Raceway**. In 1985 the

track was completely repaved, in part with funds donated from the “Pave the Point” fund raising campaign. The first shop spaces (buildings A, B, C, and D in the main paddock area) were built.



Tony Stewart at Infineon in 2005

In 1986 Harvey “Skip” Berg of Tiburon, CA took control of the track and became a major stockholder in Brenda Raceway Corp., which controlled the track until 1996. Additional buildings constructed on the property brought shop space to more than 700,000 square feet ($65,000 \text{ m}^2$) during 1987. In addition, a five-year contract was signed with the National Hot Rod Association for the California Nationals. The NASCAR Winston Cup Series debuted at the raceway in 1989.

In 1994 more than \$1 million was spent on a beautification project and construction of a 62-foot (19 m)-high, four-sided electronic lap leader board in the center of the road course. In the following years a major \$3 million renovation plan included VIP suites and a two-story driver's lounge/emergency medical facility. In 1995 Trans-Am and SportsCar races returned to Sears Point and the NASCAR Craftsman Truck Series was added to the major-events schedule. Owner “Skip” Berg sold the track to O. Bruton Smith, chairman of Speedway Motorsports, Inc. in November 1996.



Sonoma Raceway Back Side of NASCAR track, 2005

Major renovations began at Sears Point Raceway in 1998 with the creation of “The Chute”, an 890-foot (270 m) high-speed stretch. The first-ever running of the American Le Mans Series took place at Sears Point in July 1999.

In 2000 Sears Point Raceway gained unanimous approval from the Sonoma County Board of Supervisors by a 5–0 vote to begin work on a \$35 million Modernization Plan that included 64,000 Hillside Terrace seats, repaving of both the road course and drag strip and increased run-off around the entire track.

2000–present

After the turn of the millennium, Infineon Technologies bought the naming rights, renaming the course Infineon Raceway. In 2006, the Grand Prix of Sonoma was transferred to the Rolex Sports Car Series, who would limit it to Daytona Prototypes only for 2007–2008 before the event was discontinued altogether. Since 2010, however, the course has seen a mild resurgence, with the circuit becoming a sponsor for various events as well as hosting an increasing amount of lesser series, including the WTCC and the return of the SCCA World Challenge. The year 2012 saw the end of Infineon as the corporate sponsor, with the track renaming itself Sonoma Raceway.

5.7.2 Layouts



Sonoma Raceway

Full circuit



Pit road at Infineon in 2005

The standard, full length road course at Sonoma Raceway is a 2.52 miles (4.06 km) 12-turn course. This course was utilized by all competition through 1997. Most races, including the Grand Prix of Sonoma, use the full course. The course is noted for turns two and three, which are negative-camber ("off-camber") turns, with the inside of the turn higher than the outside. This provides a challenge for the driver, as turn two would normally have the drivers moving to the left side of the track.

The raceway also has a 440-yard (402.3 m) dragstrip used for NHRA drag racing events. The drag strip was originally located on part of the front straightaway of the course. Track changes completed in 2002 separated the road course from the drag strip.* [4]

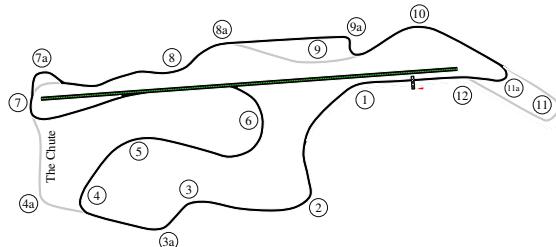
The Sonoma Historic Motorsports Festival, an annual classic car racing event, uses the full circuit.

The Chute

The track was modified in 1998, adding *the Chute*, which bypassed turns 5 and 6 (the Carousel), shortening the course to 1.95 miles (3.14 km). The Chute is only used for NASCAR events such as the Toyota/Save Mart 350, and was criticized by many drivers, who prefer the full layout. In 2001, it was replaced with the 70° turn, 4A bringing the track to its current dimensions of 1.99 miles (3.20 km).* [5]

The Chute was built primarily for spectator visibility, to increase speeds, and improve competition for the stock cars, which are not necessarily groomed well for road course racing. However, it has been criticized for taking away a primary passing point, and some INDYCAR drivers believe eliminating The Chute and replacing it with a new hairpin at Turn 4A, then rejoining the track at Turn 5, would create a circuit with three passing zones (Turn 4, Turn 7, and Turn 11). Furthermore, the speeds of the current layout with The Chute have been slower than if the full configuration was used.

Modified course



Motorcycle course

Variations of Sonoma's circuits are often used. Motorcycles use a 2.22 miles (3.57 km), 12-turn course. It is based on the full layout, and does not include the Chute. This layout, opened in 2003, skips the later section of the

Essees (8A and 9) and the run from Turn 10 to Turn 11 (the hairpin), using instead Turn 11a as Turn 11 has no runoff. This hairpin is located just past the drag strip control tower and offers a fairly straight run to the start-finish line.

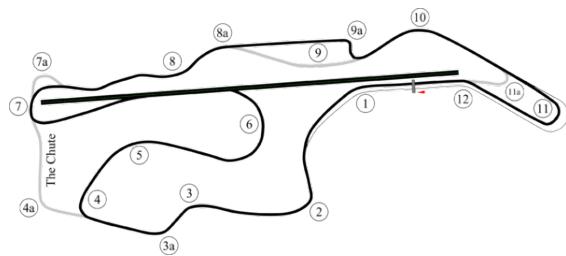
When the Pirelli World Challenge returned to Infineon Raceway in 2011, the modified course was used (as the series doubleheader was acting as a support event for the Indy race). During the broadcast, it was explained that the Indy course skips much of the high-speed essees due to the curving section from Turn 9 to 10 ending with no runoff, especially on the outside of the curved section (bordered by the drag strip), and precariously little runoff in the high-speed Turn 10.

Another factor in removing the hairpin is the fact that the turn is only visible from the garages or the bleachers behind the essees. This is due to grandstands built along the front straight that serve also as the drag strip's grandstands.

In some variants, the end of the dragstrip (instead of the Keyhole) is used to create a Magny Cours-style hairpin that joints the drag strip to Turn 7 to open an overtaking opportunity.

For the 2012 IndyCar race, the course was modified again. The Magny Cours-style hairpin in Turn 7 is being used to create a passing zone. Turn 9A (the chicane similar to Spa's new Bus Stop) is being widened by ten feet (~3 meters) to allow for more room. A new Turn 11B has been made, moving further past the drag strip tower (Motorcycle Turn 11), being lengthened by 200 feet (~61 meters) to create a passing zone (it is located just before the race logos painted in Turn 11), and is located where the drag strip staging area is located.

For the World Touring Car Championship race, the full configuration is being used, but with the bus stop replacing the essees.



WTCC layout

5.7.3 Records

NASCAR Sprint Cup Series records

(As of June 22, 2014)



Jeff Gordon at the 2005 race

5.7.4 Seating capacity



The view from the upper main grandstand at the finish line at Sonoma Raceway

Sonoma Raceway has a permanent seating capacity of 47,000.* [7] This includes the grandstands and terraces around the track. During major races, hospitality tents and other stages are erected around the track, which brings the total capacity up to 102,000 seats. The facility underwent a major expansion in 2004 which resulted in 64,000 hillside seats, 10,000 permanent grandstand seats, a wastewater treatment facility, 100 acres (40 ha) of restored wetlands, permanent garages, new retail space, a go-kart track and a new drag strip.

5.7.5 Current series

- Sonoma Drift Series
- Sprint Cup Series
- Verizon IndyCar Series
- NHRA
- Formula D
- AMA Superbike
- Formula Car Challenge
- TTXGP race
- AFM Motorcycle Racing
- SCCA Pro Racing World Challenge
- NASCAR K&N Pro Series West
- Ferrari Challenge
- 24 Hours of LeMons

- San Francisco Region SCCA
- National Auto Sport Association

5.7.6 Former series

- Grand Am 2006–2008
- American Le Mans Series 1999–2005
- Trans Am Series 1969, 1978, 1981–1993, 1995, 2001
- IMSA GT Series 1976–97
- Can Am Series 1977, 1980, 1984
- Camping World Truck Series 1995–1998
- Formula 5000 1969–1970
- World Touring Car Championship 2012–2013

5.7.7 Major events

- GoPro Grand Prix of Sonoma
- Toyota/Save Mart 350

Trans-Am Series

5.7.8 Artistic presentations

In the 1970 motorcycle road racing film *Little Fauss and Big Halsy*, starring Michael J. Pollard and Robert Redford, Redford's character, Halsy, saw Sears Point as the brass ring in the world of racing, and the film was loosely based around that idea.

Sonoma has been featured in many racing video games, beginning with Papyrus's *NASCAR Racing* for the PC, released in 1994 and has been a frequent addition to NASCAR based games and more recently road course variations have appeared.

5.7.9 See also

- Napa Sonoma Marsh
- Tolay Creek
- Tolay Lake

5.7.10 References

- [1] Contact us at the Wayback Machine (archived February 13, 2014)
- [2] “Raceway Track Facts” . *Sonoma Raceway website*. Speedway Motorsports. Retrieved January 15, 2013.
- [3] “Sonoma Raceway to lose Infineon name” . *San Francisco Chronicle* (Hearst Communications Inc.). March 8, 2012. p. B-2. Retrieved March 8, 2012.
- [4] “Track History” . *racesonoma.com*. Retrieved 30 August 2015.
- [5] <http://www.racingwest.com/news/story.php3/2094/index.htm>
- [6] “NASCAR Sprint Cup Drivers' Statistics for Sonoma Raceway” . *Racing-Reference*. FOXSports. Retrieved 2013-06-23.
- [7] “FAQs” . *corporate-ir.net*. Retrieved 30 August 2015.

5.7.11 External links

- Sonoma Raceway Official Site
- Sonoma Raceway race results at Racing-Reference
- Map and circuit history at RacingCircuits.info
- Trackpedia guide for this track
- High Resolution image from Google Maps

Coordinates: 38°09'36"N 122°27'34"W / 38.16006°N
122.45940°W

- History of raceway

5.8 Wall Township Speedway

Wall Stadium (also known briefly as Wall Township Speedway) is a 1/3 mile, high banked (30° in corners) paved oval track in Wall Township, New Jersey, United States. The track opened to the public in the spring of 1950 and has operated for at least a part of every year since. The track was an early home to racing stars Ray Evernham and the Truex family of Martin, Sr., Martin, Jr. and Ryan Truex. Also, it hosted a NASCAR Grand National Series (now Sprint Cup Series) event in 1958. The more prominent drivers over the years have included Gil Hearne (eight-time champion), Tommie Elliott (the youngest driver ever to race in NASCAR's highest division) and Charlie Kremer, Jr. (both four-time champions), John Blewett III, Jimmy Blewett (two-time champion), Jimmy Spencer (Garden State Classic winner), Tony Siscone (six-time champion), Richie Evans, and Charlie Jarzombek (Garden State Classic winner).

5.8.1 History

Origins

Founders Tom and Jennie Nicol sought to build their own racetrack after enjoying stock car racing at **Long Branch Speedway**. The couple bought 55 acres of land off Route 34 in Wall Township and built a one-quarter mile oval with 30° banking in the turns, unheard of at the time. Racing began in 1950 with the annual Turkey Derby capping each season on the Saturday following Thanksgiving Day beginning in 1974.*[1]

New ownership

After the 2001 season, the late Jennie Nicol's son Tucker (Thomas Nicol, Jr.) decided to sell the speedway and, it was purchased by Timothy Shinn. His co-owners were Tom Mauser, Joe Sanzari, and Fletcher Creamer for the 2002 season. The track was retitled Wall Township Speedway. After two months, Mauser was dismissed as the Track Operations Manager. In 2004, Fred Archer came to the fold as co owner. By 2005, car counts and capacity crowd started to decline and, there were rumors swirling about the track's future.

Demise

After the 2007 season, several employees were laid off. The track closed on March 14, 2008 with the track's marquee reading CLOSED FOR GOOD.*[1]

Revival

After eleven months of silence, former track operations manager Jim Morton secured a lease to operate the race track for one race, the traditional season ending Turkey Derby in November 2008, and the crowd was overwhelming for what was the track's only race of the season.

The track officially reopened for a full season of racing in 2009, capped by the Turkey Derby. The name was changed back to the familiar “Wall Stadium” .

The 2010 season started as usual, but as of September 2, 2010, the track closed once more, due to the expiration of Morton's lease on the property. The marquee, which earlier that week had noted the weekend's upcoming races, simply read “Racing cancelled till further notice” .*[2] However, the 37th annual Turkey Derby ran as scheduled on November 26 and 27, under the terms of a short-term lease to Don Ling and the Blewett family. The track was put up for sale shortly thereafter with an asking price of \$18 million.

Racing resumed in 2011 under new management. Cliff Krause of Holmdel signed a one-year lease with track owners to conduct a full schedule of races.*[3]

After running a full schedule of races, Krause secured a three-year extension on the track's lease after the 2011 Turkey Derby. After its three-year deal, the Krauses signed one more agreement for 2015.

Modifieds dropped from schedule

For several years, two different Modified classes competed at Wall Stadium, the big-block based Modifieds, considered to be the top tier series, and the Modified Affordable Division (MAD), similar to the Stafford Motor Speedway SK Modified division, using small block engines and narrower tires, to reduce costs. Because of a purse structure dispute, in 1993, the senior Modified division left the weekly feature at the track for the now defunct Flemington Speedway.

5.8.2 Events

NASCAR Whelen Modified Tour

The 2003 season, hosted a NASCAR (then Featherlite) Whelen Modified Tour event. The race was contested at 150 laps, and that race was held the next year, and it was quickly dropped from their future scheduling. In 2007, the cars returned to the speedway after, being absent from the schedule for three seasons, and it hosted a “Flash” event with a pair of 50 lap races, and the feature is the final 50. Unfortunately, the Tour cars weren't scheduled again ever since.

Turkey Derby

After the 1974 season, the management/staff added a race for the Thanksgiving weekend, entitled “Turkey Derby”, a 150-lap open competition race for Modified stock cars which attracted many of the top drivers in the division. After a successful debut, the race grew in stature and popularity and, in 1981, attracted a record field of 75 cars including NASCAR National Champions including Richie Evans. From 1974–1992, the Modified race was contested a 150-lap event. When the years went by, the format had been changed to three 50 lap events, if the driver finishes in a certain spot, he will be declared the overall winner. The full blown modifieds, returned in 2002 it was 150 laps. In 2004, it was 125 laps. From 2004–2009, it was 100; since 2010, it has been 150 laps.

Garden State Classic

The Garden State Classic was established in 1957. The format of the event was first consisted of a 300-lap event, originally a NASCAR National Championship Modified race. When the 1980s started, it was cut to 200 laps (to eliminate pit stops, which were impractical at the track, and save the race teams much additional expense. The

purse remained the same), 100 laps (1993–2002), Twin 50's (2003), 100 laps (2004–2007), 150 (2009–2010), and 125 laps (2011–present).

5.8.3 References

- [1] Wall Stadium-Track History, retrieved 2011-01-09.
- [2] “Wall Stadium closed, races cancelled”, Asbury Park Press, 09-03-2010, retrieved 09-05-2010
- [3] Wall Township Speedway website. Retrieved 2011-01-07.

Coordinates: 40°10'31"N 74°6'55"W / 40.17528°N 74.11528°W

5.8.4 External links

- Wall Stadium Speedway
- NJ Racing Nostalgia

Chapter 6

Notable FD drivers

6.1 Tanner Foust

Tanner Foust (born June 13, 1973) is a professional racing driver, stunt driver, and television host. He competes in rally, drift, ice racing, time attack and rallycross with multiple podium placements, national championships, and world records. He is a co-host on the American version of the motoring television series, *Top Gear*.

6.1.1 Background

Growing up in a naval family, Foust spent several years as a child in Scotland, where he discovered rally racing and learned to drive on the country roads near his home. He returned to the United States and went into a pre-med track at the University of Colorado, earning a biology degree. He spent his summers at the track, trading seat time in racecars for mechanic work and driver coaching jobs. After college, he began working as an ice driving coach, an instructor at automotive marketing events and competing in anything he could, including rally and drifting. He made the transition to professional racing in 2003, and soon moved to California to begin stunt driving for Hollywood films. With his passion for cars, he has rapidly become one of the busiest professional drivers in the United States. He considers himself fortunate that, in just over ten years of professional racing, he has had the opportunity to compete against the likes of Rod Millen, Colin McRae, Michael Schumacher, Jenson Button and Sebastian Vettel.*[1]

6.1.2 Career

He was slated to become co-host for the original American version of the motoring television series, *Top Gear*, on NBC and filmed a pilot before the series was dropped. The series has since been picked up by the History Channel and Foust was the only pilot presenter to be picked up when the program finally made it on air in the U.S. in late 2010. He has also hosted other shows including SPEED Channel's *SuperCars Exposed*, SPEED Channel's *Redline TV* and ESPN's *Import Tuners*. On November 21, 2010, he made his debut for the History Channel series, *Top*



Foust in action during the 2014 World RX of Great Britain. Later that same year he won the World RX of Finland.

Gear, the American version of the BBC hit series of the same name.

Foust has been a stunt driver for films such as *The Fast and the Furious Tokyo Drift*, *Iron Man 2*, *Need For Speed* (film) and *The Dukes of Hazzard* and set multiple world records with Hot Wheels and *Top Gear*. He was a prominent competitor in the Formula Drift series, winning the 2007 and 2008 championship. Foust is the first driver in Formula Drift history to win back-to-back series championships. He is the most decorated driver in X Games history with 9 medals. Foust first competed in X Games XIII in 2007 where he won the gold in the rally racing event. He also participated in Rally America in 2009. In 2010 at X Games XVI he won gold in Rally Car Racing and Rally Car Super Rally, driving the Rockstar Energy Ford Fiesta. He also competed in the European Rallycross Championship, becoming the first American to do so. After leaving the drifting scene in favor of RallyCross in 2011, Foust became a regular ERC competitor, taking part in all 10 rounds of the FIA recognized series as well as Global RallyCross - winning the championship. In 2012, Foust continued his success with another Global RallyCross championship.

For 2013, Foust medaled in both racing events at X Games XIX Los Angeles with a gold in Gymkhana Grid and silver in RallyCross. These marked his eighth and ninth X Games medals. He is currently in second place in points behind Ford Racing teammate Toomas Heikkinen. Foust will return for a fourth season as host of *Top*

Gear at the end of the summer.

In Summer 2014 he started shooting the fifth season of *Top Gear*.^{*[2]}

At the Chicago Auto Show in February 2014, Foust announced a new partnership with **Volkswagen** and **Andretti Autosport**. He drove a **Volkswagen New Beetle** for the 2014 Global RallyCross Championship season.

6.1.3 Achievements

- 2005 Rally America PGT Champion [Flatirons Tuning 429 WRX]
- 2006 Summer X Games Rally Third fastest time in the Stadium Super Special
- 2006 Rally America PGT Class Championship Second place overall [Flatirons Tuning 429 WRX]
- 2006 Formula Drift Championship third place overall [McKinney Nissan Silvia]
- 2007 Rally America Series Fourth Place (with 6 podium placements)^{*[3]}
- 2007 Formula Drift Pro Drift Champion [Rockstar-AEM 350z]^{*[4]}
- 2007 X Games Rally Gold Medalist [Rockstar Subaru STI]
- 2008 X Games Rally Silver Medalist [Rockstar Subaru STI]
- 2008 Race of Champions Competitor
- 2008 Formula Drift Pro Drift Champion [Rockstar-AEM 350z]^{*[5]}
- 2009 Formula Drift Sixth Place (with 3 podium placements) [Rockstar-Scion TC]^{*[6]}
- 2009 Race of Champions Competitor
- 2009 X Games Rally Bronze Medalist [Rockstar-Etnies Ford Fiesta]
- 2010 Formula Drift Silver Medalist [Rockstar-Scion TC]^{*[7]}
- 2010 X Games Super Rally Gold Medalist [Rockstar-Etnies Ford Fiesta]^{*[8]}
- 2010 X Games Rally Gold Medalist [Rockstar-Etnies Ford Fiesta]^{*[9]}
- 2010 Race of Champions Competitor
- 2010 Gymkhana Grid Gold Medalist AWD Division [Rockstar-Etnies Ford Fiesta]^{*[10]}
- 2011 World Record for Longest Jump in a four-wheeled vehicle (332 feet)^{*[11]}

- 2011 World Indoor Speed Record till 24.2.2013, new Record holder 25.2.2013 Mikko Hirvonen Finland (Speedcar XTREME)
- 2011 European Rallycross Championship Silver Medalist [Rockstar-Etnies Ford Fiesta]^{*[12]}
- 2011 Global RallyCross Champion [Rockstar-Etnies Ford Fiesta]^{*[13]}
- 2011 X Games RallyCross Silver Medal [Rockstar-Etnies Ford Fiesta]^{*[14]}
- 2012 World Record for Largest Loop-the-Loop in a car (60 feet in diameter)^{*[15]}
- 2012 Global RallyCross Champion [Rockstar-Etnies Ford Fiesta]^{*[16]}
- 2013 X Games Munich RallyCross Bronze Medalist [Rockstar Energy Ford Fiesta ST]^{*[17]}
- 2013 X Games Los Angeles Gymkhana Grid Gold Medalist [Rockstar Energy Ford Fiesta ST]^{*[18]}
- 2013 X Games Los Angeles RallyCross Silver Medalist [Rockstar Energy Ford Fiesta ST]^{*[19]}

6.1.4 Racing record

Complete FIA European Rallycross Championship results

Division 1

Supercar ¹Excluded by the Stewards of the Meeting, but exclusion was later quashed by FIA's International Court of Appeal

Complete FIA World Rallycross Championship results

Supercar * Season in progress.

Complete Global RallyCross Championship results

AWD

Supercar * Season in progress.

^{*} Race cancelled.

6.1.5 TV and film

- *The Dukes of Hazzard* (2005) stunt driver
- *Rally America* (2005–2007) as Himself
- *Formula D* (2005–2007) as Himself



Foust, for Team Hot Wheels, jumping across the Indianapolis Motor Speedway's infield at turn 4

- *Auto Access* (2005–2007) Host
- *Import Racers*: “Bull Run” (2006) as Himself
- *CSI: Miami*: “Driven” (2006) stunt driver
- *Fast & Furious: Tokyo Drift* (2006) stunt driver
- *Master of Champions*: “Premiere” (2006) Contestant
- *RM Classic Car Auction* (2007) Host
- *Redline TV* (2007) Host
- *Dirt*: “Ita Missa Est” (2007) stunt double
- *The Bourne Ultimatum* (2007) stunt performer
- *Numb3rs*: “Velocity” (2007) stunt driver
- *Top Gear* (NBC) (2008) Host
- *Mad Skills: Rhys Millen Is the Kiwi Drifter* (2008) as Himself
- *SuperCars Exposed* (2008–2009) Host
- *Fast & Furious* (2009) stunt double
- *Street Customs*: “GTO” (2009) as Himself
- *Battle of the Supercars* (2010) as Himself
- *Iron Man 2* (2010) stunt double
- *Top Gear* (U.S.) (2010—present) Host
- *Sonic X: The Final Stand* (2011) as Jet the Hawk (voice)
- *Hot Wheels: Fearless at the 500* (2011) as Himself
- *Red Dawn* (2012) stunt double
- *The Bourne Legacy* (2012) stunt double
- *Octane Academy* (2012) as Himself
- *Octane Academy* (2013) as Himself
- *Need for Speed* (2014) stunt driver
- *Hitman: Agent 47* (2015) hitman stunt driver

6.1.6 References

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- [4] “2007 Formula DRIFT Pro Championship Standings” . formulad.com. Archived from the original on August 26, 2008.
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- [9] “Summer X 16 Rally Car Racing Results” . espn.go.com. July 31, 2010. Archived from the original on August 4, 2010.
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- [15] Bane, Colin (June 30, 2012). “Hot Wheels Double Loop Success” . espn.go.com.
- [16] “2012 Championship Standings” . global-rallycross.com.
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- [18] “X Games Day 3 recap” . espn.com
- [19] http://xgames.espn.go.com/video/9536614/tanner-foust-wins-gymkhana-grid

6.1.7 External links

- Official website
- Papadakis Racing Tanner Foust Bio
- Scion Racing About Team Rockstar
- Rockstar Racing Tanner Foust Bio
- Tanner Foust at the Internet Movie Database

6.2 Chris Forsberg

Chris Forsberg (born April 6, 1982), is an American self-taught drifting driver from Doylestown, Pennsylvania who currently competes in the Formula Drift series in his Nissan 370Z for NOS Energy Drink and Hankook Tires.

6.2.1 History

Chris noticed his love for speed and competition at the age of six, racing bicycles with his brother. He first got into cars at the age of 10 attending drag racing events with his uncles at Maple Grove Raceway Park in Pennsylvania. He was then introduced to flat track motorcycle racing watching his cousin slide around the track. This is what planted the seed for sliding things around.

At 14 he used to take out the family tractor and get it into third and slam on the brakes which made it slide around the yard. When he became old enough to drive he borrowed a friend's MKIII Supra and drift it around a cone course he set up in a parking lot. This passion lead him to watching Initial D and Option Videos, which influenced him to sell his truck and purchase his first car, a 1988 Mazda RX-7.

After buying the RX-7 Chris became heavily involved in the east coast drifting scene. By the age of 20 he helped run the first regularly scheduled East Coast Drift events. He was 21 when D1 announced they were coming to America for a drivers search so he packed up his RX-7 on a flatbed rental truck and drove 3,000 miles to California. Chris later became the American Driver for Signal Auto. In 2003, Chris moved to California to further pursue a career in drifting, it was that year Formula Drift debuted their national drift series. Chris has competed in every event since that inaugural season. In 2007, Chris, with the help of his Crew Chief, Kevin Wells, started his own team, Chris Forsberg Racing. His greatest achievement came in 2009 when he earned the title of 2009 Formula Drift Champion as well as Triple Crown Champion. Forsberg was not only the first driver to win both titles in the same year but is the first driver to win a Championship whose career originated in grassroots drifting. In 2014 his consistency reigned supreme again as he was crowned the 2014 Formula Drift Champion with a record breaking 5 podium streak and never finishing outside of the top 4, placing him with the most podium finishes in Formula Drift history. He was also awarded as the Top Qualifier with multiple 1st Place spots. His raw talent and consistent driving style have made him one of the most winningest drivers in Formula Drift History.

After nearly 15 years of competition, he built a reputation for his high speed precision driving skills, and became a major supporter of the drift community worldwide.

6.2.2 Cars driven

- **00-03** Mazda RX7 Mazda RX7 (FC) with a rotary engine initially, then a Nissan SR20DET motor swap
- **03-present** Nissan 350z Nissan 350z (Z33) with a supercharged VQ engine initially, then a Nissan SR20DET motor swap
- **05** Falken Tire Nissan Silvia (S15)
- **06-10** Nissan 350z Nissan 350z Roadster (Z33) with a 420 HP Nissan Titan 5.6L V8
- **11-present** Nissan 370z Nissan 370z (Z34) with an 1000 HP Nissan Titan 5.6L V8

6.2.3 Achievements

2015

- 3rd OVERALL in Formula Drift Series Championship
- Placed 3rd at Formula Drift Round 2, Road Atlanta
- Placed 2nd at Formula Drift Round 3, Orlando
- Placed 3rd at Formula Drift Round 6, Texas Motor Speedway
- Currently the ALL TIME podium finisher in Formula Drift
- Currently the 2nd most winningest driver in Formula Drift
- Currently the record holder for most consecutive podiums (five) in Formula Drift

2014

- FORMULA DRIFT CHAMPION
- Placed 1st at Formula Drift Round 1, Long Beach
- Placed 3rd at Formula Drift Round 2, Road Atlanta
- Placed 2nd at Formula Drift Round 3, Miami
- Placed 2nd at Formula Drift Round 4, Wall
- Placed 3rd at Formula Drift Round 5, Seattle
- Placed 3rd at Formula Drift Round 6, Texas Motor Speedway
- Placed 2nd at Irish Drift Championship Finale, Mondello Park, Ireland
- Placed 2nd at Red Bull Drift Shifters, New Zealand

2013

- 2nd OVERALL in Formula Drift Series Championship
- Placed 3rd at Formula Drift Round 1, Long Beach
- Placed 3rd at Formula Drift Round 4, Wall
- Placed 1st at Formula Drift Round 5, Seattle
- Placed 3rd at Formula Drift Round 6, Dallas
- Formula Drift Ace of the Year

2009

- FORMULA DRIFT CHAMPION
- TIRES.COM TRIPLE CROWN CHAMPION
- Formula Drift Driver of the Year
- Qualified 1st at Formula Drift Round 1, Long Beach
- Placed 1st at Formula Drift Team Drift, Long Beach Grand Prix
- Placed 1st at Formula Drift Round 2, Road Atlanta
- Placed 3rd at Formula Drift Round 4, Las Vegas
- Placed 1st at Formula Drift Round 5, Seattle

2012

- Placed 2nd at Formula Drift Round 3, West Palm Beach
- Placed 3rd at Formula Drift Round 4, Wall

2008

- 5th OVERALL in Formula Drift Series Championship
- 6th OVERALL in Formula Drift World Finals
- Nominated Team Owner of the Year
- Placed 1st at Formula Drift Round 1, Long Beach Grand Prix
- Placed 1st at Formula Drift Team Drift, Long Beach Grand Prix
- Placed 1st in Formula Drift Team Drift Championship with Drift Alliance

2011

- 3rd OVERALL in Formula Drift Series Championship
- Placed 2nd at Formula Drift Abu Dhabi, Yas Marina
- Qualified 1st at Formula Drift Round 3, West Palm Beach
- Placed 2nd at Formula Drift Round 5, Seattle
- Placed 3rd at Formula Drift Round 7, Irwindale
- Judge of the Xtreme Drift Circuit Championship series
- Formula Drift Team Manager of the Year

2007

- TIRES.COM TRIPLE CROWN CHAMPION
- 2nd OVERALL in Formula Drift Series Championship
- Placed 1st at Formula Drift Round 2, Road Atlanta
- 1st privately owned team to win a Formula Drift Pro Championship event
- Qualified 1st at Formula Drift Round 3, West Virginia
- Placed 1st at Ziptied All Star Team Drift, Willow Springs
- Placed 1st at Formula Drift Team Drift, San Jose
- Placed 1st at Formula Drift Round 5, Infineon Raceway
- Placed 2nd at Formula Drift Round 7, Irwindale Speedway
- Judge of the 2007 Drift Mania Canadian Championship series

2010

- 6th OVERALL in Formula Drift Series Championship
- Placed 1st at Formula Drift Team Drift, Long Beach Grand Prix
- Placed 3rd at Formula Drift Round 2, Road Atlanta
- Judge of the Xtreme Drift Circuit Championship series

2006

- Formula Drift Best Looking Car of the Year
- Placed 1st at Formula Drift Team Drift, Long Beach
- Placed 1st at World Drift Series Team Drift Beijing, China

2005

- Formula Drift Best Comeback of the Year
- Placed 1st at Formula Drift Round 6, Irwindale
- 1st American to defeat a Japanese D1 driver in tandem competition
- Placed 5th in first ever D1 Grand Prix US vs. Japan, Irwindale Speedway

2004

- 3rd OVERALL in Formula Drift Series Championship
- Placed 2nd at inaugural Formula Drift, Road Atlanta
- Placed 3rd at Formula Drift Round 2, Houston
- First American built drift car on the cover of a national magazine
- Only driver to defeat champion Samuel Hubinette in Formula D 2004 season competition.

2003

- Course designer and instructor at first organized East Coast events. (DGTrials 2003)
- Aces High member of DGTrials.
- Featured in October 2003 Wired magazine article on drifting, alongside Tony Angelo

6.2.4 External links

- The Official Web Site of Chris Forsberg
- Drift Alliance
- NOS Energy Drink
- Hankook Tire
- Nissan
- Champion Spark Plugs
- Valvoline

- AEM
- Voodoo13
- Clarion
- Hoonigan
- Mishimoto
- Takata Racing Harnesses
- Advanced Clutch Technology
- Universal Technical Institute
- SSR Wheels
- Driveshaft Shop
- Seibon Carbon
- KW Automotive
- APR Performance
- VP Racing Fuels
- Alpinestars
- Stilo Helmets
- Recaro
- Ellsworth Bicycles
- Yakima
- BASF Paint
- Formula D profile

6.3 Vaughn Gittin

Vaughn Gittin, Jr. (born September 20, 1980), commonly known as **JR**, is an American self-taught professional drifter from Maryland who currently competes in the **Formula D** series in his 2013 Monster Energy Nitto Tire Ford Racing Mustang RTR. Vaughn is the creator of Mustang RTR, his version of a new generation of Mustang that is available at Ford dealers

6.3.1 Racing career**Drifting**

Vaughn Gittin Jr. has become one of drifting's most iconic figures and his machine, the Monster Energy Nitto Tire Ford Racing Mustang, one of the sport's most identifiable cars. Vaughn is known best by his aggressive, foot to the floor, big smoke driving style. Being such a fierce competitor, Vaughn is known as the only American to win a D1 Grand Prix event twice. In 2005 Vaughn

won the D1GP USA vs. Japan. In 2007, he brought America the gold once more by winning the D1GP World Championship. In 2010, Vaughn earned his first Formula Drift Championship, becoming the second-ever Champion with a strictly-drifting background. In 2011, Vaughn competed in China's premier drift series, WDS, and took home the Championship. In 2012, Vaughn was shy just one spot of the Championship, taking second place overall. He has achieved five wins and multiple podiums throughout his Formula Drift career.

In 2011, Vaughn had a Formula Drift season of ups and downs, but finished off the year with one podium. Vaughn traveled to China throughout the year to compete in WDS (World Drift Series) and came out on top with the Championship. Vaughn also had the opportunity to travel to Saudi Arabia, to share drifting with the Middle East. That is where he created his video "Drifting in the K.S.A". In 2011, Ford launched their "Octane Academy" with Vaughn as one of the featured drivers, alongside Ken Block, Brian Deegan, and Tanner Foust.

For the 2010 season, Vaughn made the switch over to a 2011 Monster Energy Falken Tire Ford Mustang. When the season ended, Vaughn had been on the podium for 6 out of 7 Formula Drift events. Vaughn's consistency within the season earned him his first Formula Drift Championship, a goal Vaughn has chased after for the previous seven years. In 2010, Vaughn also continued to travel the world performing drifting exhibitions to help promote drifting.

Also in 2010, Vaughn launched his brand for a new generation of Mustang with the RTR. This is a dealer-installed package for the 2011 Ford Mustang GT V8 available at select Ford dealerships.

Vaughn became the new face of the Ford Mustang in 2009, as he introduced the 2010 version to the world by drifting it onstage during its live reveal on Speed TV. He also had the opportunity to tour Japan with a 2010 Mustang while stopping to drift at legendary tracks. Competition-wise in the 2009 season, Vaughn retired his 2005 Ford Mustang for the new 2010 version, a car that gave him much success. In this year Vaughn came close to the Championship with a 5th-place finish.

Vaughn began his career as a professional driver in 2004 when he drove his personal Nissan S13 in Formula Drift. In 2005, he switched machines to a new Ford Mustang, which brought him many victories. In 2008, Vaughn got the attention of Ford Racing who decided to back this American Mustang driver.

NASCAR

On August 4, 2014, Gittin announced he would make his NASCAR Canadian Tire Series debut at Circuit Trois-Rivières in the No. 9 for Micks Motorsports.* [1] Qualifying 32nd and the only American in the field, Gittin spun in

turn six on lap 7, but finished on the lead lap in 14th.* [2]

6.3.2 2013 Monster Energy Nitto Tire Ford Mustang RTR specs

- Engine: Ford Racing / Roush Yates* [3] built 6.7L V8
- Tires: Nitto NT05
- Filtration: K&N Air, Oil & Breather Filters
- Clutch: Exedy Twin Plate.
- Suspension: Tein coilovers
- Brakes: Wildwood front and rear big brake kit
- HP/Torque: 845 horsepower / 623 ft.lbs torque

6.3.3 Sponsors

- Monster Energy
- Nitto Tires
- Ford
- K&N Filters
- Bosch Auto Parts
- HPI Racing
- Magnaflow
-
- Exedy Clutches
- Electric Vision
- Mustang RTR
- Alpinestars
- Ford Racing
- Hoonigan
- SCT Performance

6.3.4 Achievements

2012

- 1st-place winner at Formula D Rd. 4, Wall Stadium
- 1st-place winner at Formula D Rd. 5, Evergreen Speedway
- 1st-place winner at WDS, Tianjin, China

2011

- Placed 2nd at Formula Drift Round 3, Palm Beach International Raceway, Florida
- JR to be featured in Shift 2: Unleashed as a mentor and with his Monster Energy / Falken Tire Ford Mustang GT as a drifter.
- JR to be featured in Need for Speed - The Run with his Team Need for Speed Ford Mustang RTR-X.
- Placed 11th overall in the Formula D series (375 points)

2010

- Placed 1st at Formula Drift Round 1, Streets of Long Beach Raceway.
- Placed 2nd at Formula Drift Round 2, Road Atlanta Raceway.
- Placed 2nd at Formula Drift Round 3, Wall Speedway, New Jersey
- Placed a podium finish in 6 of 7 events
- Won the 2010 Formula D Championship

2009

- Placed 2nd at Formula Drift Round 3, Wall Speedway, New Jersey
- Placed 5th place overall in the Formula D series (451.50 points)

2008

- Placed 1st at Formula Drift Round 7, Irwindale Speedway
- Placed 8th place overall in the Formula D series (356.5 points)

2007

- Placed 1st at D1 Grand Prix USA All-Star World Championship, Irwindale Speedway
- Placed 2nd at Formula D Round 5, Infineon Raceway
- Placed 2nd at Formula D Round 4, Evergreen Speedway
- Finished 6th place overall in the Formula D series (376.50 points)

2006

- Finished 4th place overall in the Formula D series

2005

- Placed 1st in the D1 Grand Prix America vs. Japan Competition
- Placed 3rd at Formula D Round 4, Infineon Raceway
- Finished 4th place overall in the Formula D series

2004

- Finished 10th place overall in the Formula D series

6.3.5 Other appearances

Vaughn appears in the racing game *Shift 2: Unleashed*, as he is guiding the player through his career and teaching the player how to drift. He is also one of the rivals the player have to beat in two career modes, Drift and Muscle and if they beat him in the 2 story modes, you could earn his **Monster Energy Falken Tire Ford Mustang** in drift mode and his **RTRX** in muscle mode. In the game, the most important thing that Vaughn wants is that the player reaches the **FIA GT1 Championship**.

6.3.6 Motorsports career results**NASCAR**

(key) (**Bold** – Pole position awarded by qualifying time. *Italics* – Pole position earned by points standings or practice time. * – Most laps led.)

Canadian Tire Series**6.3.7 References**

- [1] Cunningham, Jason (August 4, 2014). “Canadian Tire Series News & Notes: GP3R”. NASCAR Home Tracks. Retrieved August 5, 2014.
- [2] “2014 JuliaWine.com Le 50 Tours”. Racing-Reference. Retrieved October 15, 2014.
- [3] Ryan, Nate (April 5, 2012). “Formula Drift champion gets boost from NASCAR’s Roush Yates”. USA Today. Retrieved August 5, 2014.

6.3.8 External links

- Official website
- Formula D profile
- Vaughn Gittin driver statistics at Racing-Reference
- Wrecked Magazine - Drifting Publication's Section for Vaughn Gittin Jr.

6.4 Samuel Hübinette

Samuel Hübinette, aka **The Crazy Swede** (born 15 September 1971, in Jokkmokk, Norrbotten County), is a Swedish professional race car driver and Hollywood stunt driver. He started working as a test driver for Volvo Cars. Today he is one of the top names in drifting, winning the inaugural Formula D series championship in 2004 and 2006.*[1]

6.4.1 Complete drifting results

(key)

D1 Grand Prix

Formula D

6.4.2 Racing record

Complete Global RallyCross Championship results

Supercar

6.4.3 References

- [1] “SamuelHübinette.com – Home of racing champion Samuel Hübinette” .

6.4.4 External links

- Official website
- Formula D profile

6.5 Darren McNamara

Darren 'D-Mac' McNamara is a professional drift driver from Cork, Ireland.

Darren first competed in the Irish Prodrift series and the British D1 Great Britain series (now EDC), winning the Prodrift title in 2006. He drove a Toyota AE86 with a Nissan SR20 engine.

In 2007 he was invited to compete in the American Formula D series in his Corolla. He had a successful season in the underpowered Corolla and Falken Tires built him a new car for 2008: A Saturn Sky with 800 BHP.

He adapted fairly well to the new car in 2008, but the car wasn't fully developed until the 2009 season, when Darren achieved his maiden win at Wall Speedway*[1] and a second place at Road Atlanta.

In the 2012 Formula D Season, McNamara started at Long Beach in the Falken Tire Saturn Sky. After a crash in his top 32 battle with Kenneth Moen, the Sky was damaged and not usable for future competition.*[2] For Round 2 and 3, he piloted the Falken Tire 350Z, formerly driven by Tyler McQuarie. For Round 4 and 5, he competed in the Falken Tire Nissan Silvia S15 with a V8.

For the 2013 season Darren is driving a newly built V8 powered Nissan S14.*[3]

Darren still competes in European events in a Rotary powered Toyota AE86, he has competed in Prodrift and British Drift Championship events in this vehicle.*[4]

6.5.1 References

- [1] <http://www.wreckedmagazine.com/blog/2009/07/01/darren-mcnamara-interview-after-his-first-win-video/>
- [2] <http://formula1d.com/schedule/results/long-beach-results-2012.php>
- [3] <http://www.wreckedmagazine.com/blog/2013/04/05/darren-mcnamara-with-his-zenki-front-nissan-240sx-sneak-preview/>
- [4] http://www.speedhunters.com/2011/08/car_feature_gt_gt_team_need_for_speed_d_mac_86/

6.5.2 External links

- Darren's official website

6.6 Rhys Millen

Rhys Millen (born 6 September 1972),*[1] nephew of IMSA GTS driver Steve Millen, son of Rod and older brother of Ryan, is one of the America's top competitors in drifting. Prior to that he was a top rally driver in the US, and became the first works backed driver from a car manufacturer with GM in 2004 after narrowly losing to Ken Nomura in the US D1 Grand Prix exhibition event in 2003. In 2011 Millen raced a 500 bhp AWD Hyundai Veloster in the US Rallycross championship. In the following years he competed in the Global Rallycross series.

6.6.1 Career

Millen became just the second champion in the short history of the United States' top drifting series, Formula D, just a year after his good friend, Samuel Hubinette, became the maiden series champ. Millen has two wins in his Formula D career: the 2004 season finale at the Irwindale Speedway, and the 2005 season opener at the Wall Speedway in Wall Township, New Jersey. He became the highest placed non-Japanese driver in the US round of the D1GP event in 2005, making it to the last 8 after beating Masato Kawabata, only to lose to Yasuyuki Kazama through a "One More Time" rerun. Millen's father, Rod, also competes in drifting on occasion. In fact, Rod made his Formula D debut at the 2005 season finale at Irwindale, the same event where his son was crowned the champion.

Millen has driven a Pontiac GTO drift car for three seasons (Winning in 2004 and 2005, but losing out to Hubinette in 2006) and a Pontiac Solstice for the 2007 D1 Season. For the 2009 season, he will drive a Hyundai Genesis Coupe.^{*[2]} Red Bull has been a major sponsor of Rhys' drifting efforts, as well as the paint schemes of many of his cars.

Besides racing, Millen is also a stunt driver for films such as *The Dukes of Hazzard*, *Mr. & Mrs. Smith*, and *The Fast and the Furious: Tokyo Drift*. He also did the driving for the first Hyundai Genesis Coupe commercial.

On 31 December 2008, he became the first person to back-flip an off-road truck in the air. He landed off-balance, forcing his vehicle to flip on its side a few times after landing, but then walked away unharmed.

In 2009, Hyundai teamed up with Millen to race the Hyundai Genesis Coupe at the Formula Drift Professional Drifting Championship, the Pikes Peak International Hill Climb and select Redline Time Attack Series events in 2009.^{*[3]*[4]} On July of that year, Millen set a new rear wheel drive record to take Pikes Peak's time attack title.^{*[5]*[6]}

In 2010, Millen, with navigator Antony Jay Hartley, partnered with Hyundai into the sport of rally.

6.6.2 Racing record

(key)

D1 Grand Prix

Formula D

[Complete Global Rallycross Championship results](#)

AWD

Supercar * Season in progress.

* Race cancelled.

6.6.3 References

- [1] "Rhys Millen" . *Global RallyCross Championship*. Retrieved 23 August 2014.
- [2] Serious Wheels - 2009 RMR Red Bull Hyundai Genesis Coupe
- [3] Rhys Millen Hyundai Genesis Coupe Drift Car Gets Lambda Engine 05-06-2009, Edmunds.com
- [4] Rhys Millen's drift car finally ready to run with Hyundai Power 5 May 2009, Autoblog.com
- [5] Red Bull Hyundai Genesis Coupe and Rhys Millen Set World Record to Take Pikes Peak 19 July 2009, Reuters
- [6] VIDEO: Climb Attack with Rhys Millen and the Hyundai Genesis Coupe 30 July 2009, Autoblog.com

6.6.4 External links

- IMDB entry
- Official Site
- Formula D profile
- Rhys Millen Documentary Mad Skills
- Rhys Millen Interview before attacking the Pikes Peak Hill Climb

Chapter 7

Notable drifting cars

7.1 Dodge Viper

The **Dodge Viper** is a sports car manufactured by Dodge (SRT for 2013 and 2014), a division of FCA US LLC. Production of the two-seat sports car began at New Mack Assembly in 1991 and moved to its current home at Conner Avenue Assembly in October 1995.

Although Chrysler considered ending production because of serious financial problems,^{*[1]*[2]} on September 14, 2010, chief executive Sergio Marchionne announced and showed a new model of the Viper for 2012.^{*[3]} In 2014 the Viper was named number 10 on the “Most American Cars” list, meaning 75% or more of its parts are manufactured in the U.S.^{*[4]} The Viper was initially conceived in late 1988 at Chrysler's Advanced Design Studios. The following February, Chrysler president Bob Lutz suggested to Tom Gale at Chrysler Design that the company should consider producing a modern Cobra, and a clay model was presented to Lutz a few months later. Produced in sheet metal by Metalcrafters,^{*[5]} the car appeared as a concept at the North American International Auto Show in 1989. Public reaction was so enthusiastic that chief engineer Roy Sjoberg was directed to develop it as a standard production vehicle.

Sjoberg selected 85 engineers to be “Team Viper”, with development beginning in March 1989. The team asked the then-Chrysler subsidiary Lamborghini to cast a prototype aluminum block for the sports car to use in May. The production body was completed in the fall, with a chassis prototype running in December. Though a V8 engine was first used in the test mule, the V10, which the production car was meant to use, was ready in February 1990. Official approval from Chrysler chairman Lee Iacocca came in May 1990. One year later, Carroll Shelby piloted a pre-production car as the pace vehicle in the Indianapolis 500 race. In November 1991, the car was released to reviewers with first retail shipments beginning in January 1992.

7.1.1 First generation Phase I/II SR (1992–2002)

Phase I SR (1992–1995)

The first prototype was tested in January 1989. It debuted in 1991 with two pre-production models as the pace car for the Indianapolis 500 when Dodge was forced to substitute it in place of the Japanese-built Dodge Stealth because of complaints from the United Auto Workers, and went on sale in January 1992 as the *RT/10 Roadster*.

The centerpiece of the car was its engine. The Lamborghini Company, then owned by Chrysler Corporation, designed the V10 for the Viper by recasting the block and heads in an aluminum alloy, and was based on the Chrysler LA V8 engine. A major contributor to the Viper since the beginning was Dick Winkles, the chief power engineer, who had spent time in Italy.

The engine weighs 711 lb (323 kg) and produces 400 bhp (300 kW) at 4600 rpm and 465 lb·ft (630 N·m) at 3600 rpm, and thanks to the long-gearing allowed by the engine, provides fuel economy at a United States Environmental Protection Agency-rated 12 mpg-US (20 L/100 km; 14 mpg-imp) city and 20 mpg-US (12 L/100 km; 24 mpg-imp) highway.^{*[6]} The body is a tubular steel frame with resin transfer molding (RTM) fiberglass panels. It has a curb weight of 3,284 lb (1,490 kg) and lacks modern driver aids such as traction control and anti-lock brakes. It completes a quarter mile (402 m) in 12.6 seconds and has a maximum speed of over 150 mph (240 km/h). Its large tires allow the car to average close to one lateral g in corners, placing it among the elite cars of its day. However, the car proves tricky to drive at high speeds, particularly for the unskilled.

The car is spartan, although it features inflatable lumbar support and adjustable seats. Along with the absence of exterior door handles, the vehicle lacks side windows and a roof. Although a soft top cover was available, it was designed primarily for indoor vehicle storage. Side curtains of fabric and clear plastic operated by zippers can be inserted into the door and hand-bolted when needed. All of these decisions were made to reduce weight. The battery is located in the sealed compartment over the rear wheels to increase rear-end weight and traction. The car shipped with a tonneau cover and video tape on soft-top assembly (the soft top is removable and folds to fit in the trunk). In

1994 the car came, for the first time since release with several options available to the buyer. These included air conditioning, adjustable suspension, larger diameter wheels to accommodate larger brakes, and a fiberglass hardtop for the roof.

Performance

- 0-60 mph (97 km/h): 4.5 sec *[7]
- 0-100 mph (160 km/h): 9.2 sec
- quarter mile: 12.9 sec @ 113.8 mph (183.1 km/h)*[7]
- top speed: 165 mph (266 km/h) reference: <http://www.vipercentral.com/specifications/>
- 700 ft (210 m) slalom: over 66 mph (106 km/h)
- skidpad average g: 0.96
-
-

Phase II SR (1996–2002)

1996 Although the 1996 model year is the beginning of the second generation, in the Viper community, the 96 RT/10 is sometimes referred to as generation 1.5 since it saw the carryover of many generation 1 parts during the model year while transitioning to generation 2 parts. The roadster relocated the exposed side exhaust pipes to a single muffler at the rear exiting via two large central tail pipes during the middle of the model year. Dodge said the reduced back pressure increased the horsepower to 415 bhp (309 kW; 421 PS) for the 96 RT/10. Torque would also increase by 23 lb·ft (31 N·m) to 488 lb·ft (662 N·m). A removable hardtop was now available along with a sliding glass window. Some steel suspension components were replaced by aluminum, resulting in a 60 lb (27 kg) weight reduction.* [8]

Later in the 1996 model year, Dodge introduced the GTS, a new coupe version of the Viper. Dubbed the “double bubble”, the roof featured slightly raised sections that looked like a bubble to accommodate the usage of helmets and taking design cues from the Pete Brock designed *Shelby Daytona*.*[9] More than 90% of the GTS was new in comparison to the RT/10 despite similar looks. The GTS would come with the same 8.0 liter V-10 engine but power would be increased to 450 hp (336 kW). The 96 GTS would be the first Viper to be equipped with airbags and also included air conditioning, power windows and door locks.* [10]

The 1996 Viper GTS would be chosen as the pace car for the Indianapolis 500.* [11]

1997–1999 Minor updates would continue in 1997 and 1998. In 1997, The RT/10 would receive the 450HP GTS engine along with air-bags and power windows. 1998 Vipers were equipped with second-generation air bags, revised exhaust manifolds (saving 24 lbs over the previous cast iron components) along with a revised camshaft.

For 1999, the Viper received 18 inch wheels, power side mirrors and a handful of other interior upgrades.* [12]

2000–2002 In 2000, the Dodge Viper updated to lighter hypereutectic pistons and factory frame improvements. While the hypereutectic pistons provided less expansion, the forged pistons are preferred for the supercharging and turbo aftermarkets. TSB (Technical Service Bullet) recalls (998 and 999) were done at local dealerships to repair the 1996 to 1999 Viper frames by adding gussets with rivets near the steering box. 2001 saw the addition of ABS.

2002 would be the final year of the second generation Viper. Dodge would build 360 “Final Edition” Vipers (326 coupes and 34 ACR editions)* [13] to commemorate the final year. These models are painted red with white stripes, paying tribute to the famous race-winning Oreca cars. The RT/10 was replaced by the SRT-10 in 2003 and the GTS was replaced in 2006 by the SRT-10 coupe.

Colors and Trim Colors would vary throughout the second generation. Dodge would offer between three and four colors per model year. Some colors such as Steel Gray were only offered one model year (MY2000) while other colors such as red were offered during the entire second generation.* [14] Interior colors and wheel options would also vary throughout the second generation.* [15] The cobalt blue colour of the Dodge Viper GTS seen in the *Viper (TV series)* was exclusively available to the series.

Stripes would be an option beginning in 1996. The GTS stripes were larger fuller stripes than the stripes offered on the 96 RT/10. The GTS had twin stripes (8 inches wide with a 4-inch gap in between) that ran from the front bumper all the way through the rear bumper. 1996 was the only model year the stripes would run through the rear license plate area. Stripes on later models would run from front to rear but did not run through the rear license plate area.

Performance (GTS) (RT/10 from 1998–2002)

Dodge Viper second generation, Phase II SR

- 0-60 mph (97 km/h): 4.0 sec *[16]
- 0-100 mph (160 km/h): 8.6 sec
- quarter mile: 12.2 sec @ 119 mph (192 km/h)*[16]
- top speed: 185 mph (298 km/h)*[16]

- slalom: 73.6 mph (118.4 km/h)*[16]
- skidpad average acceleration: 1.01 g (9.9 m/s²)*[16]

Extensive modifications included a reworked engine with higher power and less weight, an almost completely redesigned chassis that was made 60 lb (27 kg) lighter and 25% stiffer in torsional rigidity through meticulous computer analysis, a thoroughly redesigned suspension, and reduced braking distances; the 1996 to 2002 Viper GTS had a lighter (approximately 650 lb (290 kg)) 450 bhp (340 kW) engine, which could complete the quarter mile in 12.3 seconds, 0.3 seconds and 6 mph (9.7 km/h) faster than its predecessor, and increased top speed by 11 mph (18 km/h) or so. The revised suspension, stiffer chassis, and aerodynamic body raised lateral grip to 0.98 g (9.6 m/s²), although other reports show the 1992 model with 1.0 g. Contemporary tires have improved upon this measure significantly. Slalom runs could often reach or exceed 70 mph (110 km/h). Brakes once again lacked ABS initially, and proved to be the car's weakest point. The brakes hurt the car in numerous comparison tests, such as a 1997 "supercar comparison" by *Motor Trend*, in which the Viper GTS placed at the top against cars such as the Ferrari 355, Chevrolet Corvette, Porsche 911 Turbo, Acura NSX-T, Mitsubishi 3000GT, and the Toyota Supra in all performance exercises except braking. The car not only placed last, but had considerably longer stopping distances than other vehicles. In a *Sports Car International* comparison conducted in 2002, the Viper ACR (with ABS) was compared to the 911 GT2 at Thunderhill Raceway Park. Both cars were very capable, and quick around the test track, but the Viper proved more difficult to drive, and the braking system was blamed very specifically for the gap in lap times (approximately GT2: 2 minutes, ACR: 2:04) between the two cars. Anti-lock brakes were introduced in 2001,*[8] though braking performance was not necessarily significantly improved.

Motorsport Greg Crick won the 2006 Australian GT Championship driving a Dodge Viper GTS ACR.*[17]

7.1.2 Second generation ZB I/ZB II/VX I (2003–2007)

Phase I ZB (2003–2006)

See also: Street and Racing Technology

The **Dodge Viper** underwent a major redesign in 2002, courtesy of DaimlerChrysler's Street and Racing Technology group. The new Viper SRT-10, which replaced both the GTS and the RT/10, was heavily restyled with sharp, angled bodywork. The engine's displacement was increased to 8.3 L (506.5 cu in), which, with other upgrades, increased output to 500 bhp (370 kW) and 525 lb·

ft (712 N·m). Despite the power increases, engine weight was reduced to about 500 lb (230 kg). The chassis was also improved, becoming more rigid and weighing approximately 80 lb (36 kg) less than the previous model. An even lighter and stronger chassis was planned, but was abandoned because of cost, and the initial model was a convertible. In 2004 Dodge introduced a limited-edition Mamba package; Mamba-edition cars featured black interiors, with red stitching and trim and price increased by about MSRP US\$3000. 200 Mambas were produced.

The **Viper SRT-10 Coupe** was introduced at the 2005 Detroit Auto Show as a 2006 model. It shares many of its body panels with the convertible, but takes its side and rear styling from the Competition Coupe. The coupe looks much like the previous Viper GTS and retains the "double-bubble" roof shape of the original along with the original GTS's tail lights, as well as offering the original GTS Blue with white stripes paint scheme on the initial run of First Edition cars like the original Viper coupe. The engine is SAE-certified to produce 510 bhp (380 kW) and 535 lb·ft (725 N·m). Unlike the original coupe, the chassis was not modified. This makes the coupe heavier than the convertible, and thus slightly slower to accelerate. Handling and high-speed performance are improved by the coupe's stiffer frame, reduced drag, and increased downforce.

No 2007 model Vipers were produced; instead, Chrysler extended production of the 2006 model while preparing the updated 2008 model.



Viper 8.3 L Engine

Performance Dodge Viper third generation (SRT-10 roadster)*[18]

- 0-60 mph (97 km/h): 3.8 sec
- 0-100 mph (160 km/h): 8.36 sec
- quarter mile: 11.77 sec @ 123.68 mph (199.04 km/h)
- top speed: 189.5 mph (305.0 km/h)

- slalom: 70.4 mph (113.3 km/h)
- skidpad average acceleration: 1.05 g (10.3 m/s²)
- 100–0: 274 ft (84 m)

Dodge Viper third generation (SRT-10 coupe)

- 0-60 mph (97 km/h): 3.7 sec
- 0-100 mph (160 km/h): 8.36 sec
- quarter mile: 11.77 sec @ 123.68 mph (199.04 km/h)
- top speed: 192.6 mph (310.0 km/h)
- slalom: 70.4 mph (113.3 km/h)
- skidpad average acceleration: 1.05 g (10.3 m/s²)
- 100–0: 274 ft (84 m)

7.1.3 Phase II ZB (2008–2010)

In 2008, with the introduction of the 8.4 L (512.5 cu in) V10, the Viper produced 600 bhp (450 kW) at 6000 rpm and 560 lb·ft (760 N·m) at 4600 rpm, and also received better flowing heads with larger valves, Mechadyne cam-in-cam **variable valve timing** on the exhaust cam lobes, and dual electronic throttle bodies.*[19]*[20] The rev limit could be increased by 300 rpm due to the improved valve-train stability from both the new camshaft profiles and valve-springs. The engine was developed with some external assistance from **McLaren Automotive** and **Ricardo Consulting Engineers**. Electronic engine control is developed by Continental AG; the controller can monitor the crankshaft and cylinder position up to six times during each firing and has 10 times more processing power than the previous unit.

Changes outside of the engine were less extreme, but with a distinction between the third and fourth generation, with changes of the engine hood. The Tremec T56 transmission was replaced with a new Tremec TR6060 with triple first-gear synchronizers and doubles for higher gears. The **Dana M44-4** rear axle from the 2003–2006 model now has a **GKN ViscoLok** speed-sensing limited-slip differential that greatly helps the tires in getting grip under acceleration. Another performance upgrade was the removal of **run-flat** tires; the new **Michelin Pilot Sport 2** tires increased grip and driver feedback and, along with revised suspension (springs, anti-roll bars, and shock valving), made the Viper more neutral in cornering.

The modifications made to the 2008 model year car were enough for Chrysler to make it distinct from the first SRT-10, and the 2008 model became known as Gen IV, just in time for release with Chevrolet's 638 hp (476 kW) Corvette **ZR1**. Another notable change was the reworking of the exhaust system; previous third-generation

Vipers had their exhaust crossover under the seats which resulted in a large amount of heat going into the cockpit, which was done initially to help improve the car's exhaust note, since the first 2 generations of Viper, which had no crossover, were criticized for their lackluster exhaust notes. The 2008 Viper exhaust utilized a new exhaust system with no crossover, reducing the heat that enters the cockpit.



Dodge Viper SRT-10

The electrical system was completely revised for 2008. Changes included a 180-amp alternator, twin electric cooling fans, electronic throttles, and completely new VENOM engine management system. CAN bus architecture has been combined with pre-existing systems to allow for regulatory compliance. The fuel system was upgraded to include a higher-capacity fuel pump and filtration system.*[21]

End of production

On November 4, 2009, Dodge Car Brand President and CEO **Ralph Gilles** had announced that the Viper would end production in the summer of 2010.*[22]

Dodge announced several special edition Vipers for the 2010 model year. The Voodoo edition (31 copies were made) was a special take on the ACR edition which included special black paint and red striping. The Voodoo edition also had a unique interior and steering wheel as well.*[23]

The 1:33 edition was another take on the ACR edition which celebrates the then unofficial lap record at **Mazda Raceway Laguna Seca**. The 1:33 edition had black paint and red two-tone paint. The 1:33 cars have piano black trim inside and red accent stitching on the seats.

On February 10, 2010, Dodge began accepting orders for the Viper SRT10 “Final Edition” models. Only 50 of these units would be produced (20 coupes, 18 roadsters and 12 ACRs). “Final Edition” cars carried the special build code, “AXZ”, and were to be the very last of the Viper cars. “Final Edition” Vipers were available in SRT10 Coupe and Convertible configurations.*[24]

July 1, 2010 brought about the end of production for the

Generation 4 Dodge Viper. During an event hosted by Dodge and the Viper Club of America, the final production Gen 4 Viper, which was given a gold finish and accentuated by contrasting orange stripes, rolled off the assembly line and was presented before attendees of the ceremony. Its completion commemorated the end of the production run of the Gen 4 Viper.*[25]

The Dodge Viper ACR and ACR-X have retained a Nürburgring Nordschleife of 7:12 and 7:03, beating cars worth tenfold the price.

Performance (2008 base model)



The 8.4 L Viper V10 Engine with dual throttle bodies/intake manifolds and 600 hp

Dodge Viper fourth generation, phase II

- 0–60 mph (0–97 km/h): 3.79 sec *[26]
- 0–100 mph (0–161 km/h): 7.6 sec *[26]
- quickest quarter mile: 10.92 sec @ 129.79 mph (208.88 km/h) *[27]
- top speed: 202 mph (325 km/h)
- slalom: 74.2 mph (119 km/h)+
- skidpad average acceleration: 1.05g (10.4 m/s²)
- 100–0 mph (161–0 km/h): 270 ft (82 m)

Car and Driver magazine tested the car, and found a 0–60 mph (97 km/h) time of 3.6 seconds, a 0–100 mph (160 km/h) time of 7.6 seconds, and a quarter-mile time of 11.5 seconds at 126 mph (203 km/h).*[26] Dodge's claims for top speed are 197 mph (317 km/h) for the Roadster and 202 mph (325 km/h) for the Coupe. *Car and Driver* also tested the Viper's track performance, and managed a fast sub-3 minute lap time around Virginia International Raceway. The Viper's time, despite hot weather, was faster than the Corvette Z06, Ford GT, Nissan GTR, Porsche 911 Turbo, 911 GT3, and 911

GT2, Audi R8, and similar cars. According to *Car and Driver* and *Motor Trend*, the car's slightly adjusted suspension setup and new differential gave it cornering ability as sharp as before with better control, feedback, and response.

7.1.4 Third Generation VX (2013–present)

History

At a dealer conference on September 14, 2010 in Orlando, Florida, Chrysler Group and Fiat CEO Sergio Marchionne was reported*[28]*[29] to have concluded his remarks by unveiling a rolling 2012 Dodge Viper prototype. There would be no 2011 Viper. Quotes from the Detroit News from SRT CEO Ralph Gilles that hint to the future of the brand include:

- “The new Viper is not based on anything else” .
- “The Viper cabin is very rearward and the hood is very long. Few cars in the industry are designed with those proportions anymore.”
- “I want the new Viper to be a more forgiving car to drive and accessible to more people. We've never had stability control on a high-performance car, which is about to happen on the new car.”

The Viper was also on display for one night only in Salt Lake City, UT at the 11th Viper Owners Invitational or VOI 11 from September 30, 2010 to October 3, 2010. Ralph Gilles was present gathering feedback from the owners themselves on new exterior design of the snake. The Generation 5 badge was unveiled as well at this event on each dining table in the hall.

In Autumn of 2011, Ralph Gilles announced that the Gen V Viper would debut at the New York Auto Show in April 2012.*[30]

Public unveiling

The 2013 SRT Viper was unveiled at the 2012 New York Auto Show.*[31]*[32]

Preliminary specifications include following:

All-aluminum 8.4 L V10 rated 640 horsepower (477 kW; 649 PS) and at 600 lb·ft (813 N·m), Tremec TR6060 six-speed manual transmission with final drive ratio 3.55, 50 percent improvement in torsional stiffness over previous model, electronic stability control, traction control, 4-channel anti-lock brake system (ABS), carbon fiber and aluminum skin with .364 drag coefficient (Cd), Pirelli P Zero Z-rated tires, 4-piston Brembo brakes with fixed-aluminum calipers with vented 355x32mm diameter rotors, 20 mm lower seating position, 7-inch full-color customizable instrument cluster, Uconnect RA3 or

RA4 Access in-vehicle connectivity system with optional SiriusXM Travel Link, Harman Kardon audio system, bi-xenon projector headlamps with white light-emitting diode (LED) daytime running lamps and LED turn signals, LED taillamps with integrating stop-and-turn illumination and snakeskin texture lens, five-spoke forged aluminum "Rattler" wheel with fully polished (standard), fully painted Hyper Black or fully painted low-gloss black finishes. Top speed of the SRT Viper is 208 mph (332 km/h) and it has 0-60 mph time of 3.50 seconds. It will be the first to feature Viper's third logo, nicknamed "Stryker".

The SRT Viper GTS includes leather upholstery, accented colors in seats, doors, center console and stitching; gun metal trim on the cluster bezel, HVAC outlets, window switch bezels, shifter base, park brake bezel and the integrated passenger grab handle on the center console; Sabelt racing seats with Kevlar and fiberglass shell, carbon-fiber hood, roof, decklid and aluminum door panels, split six-spoke forged aluminum "Venom" wheels with polished face and graphite-painted pockets (standard), fully painted Hyper Black or fully painted low-gloss black finishes.* [33]

Optional SRT Track Package includes Pirelli P Zero Corsa tires, StopTech slotted two-piece rotors and ultra-lightweight wheels in Hyper Black or matte black finishes.

2013–2014 SRT Viper / SRT Viper GTS



SRT Viper GTS

SRT offered two versions of the Viper; the SRT Viper and the GTS. The GTS is the premium model offering more creature comforts over the base model. The most notable exterior difference between the two models is the hood. The base model has six functional hood vents while the GTS model only has two. To commemorate the return of the Viper, in 2013 SRT offered a 'launch edition' package available on 150 GTS models. All launch editions were painted in Viper Blue with twin white stripes, came with a serialized dash plaque placed inside their cabins to increase collectibility, and their interiors are swathed in Black Laguna leather with contrast stitching.

The only notable change for the 2014 model year was the

addition of a third traction control mode for improved rain performance.* [34]

Sales for the 2013 and 2014 Viper were poor. In October 2013, Viper production was reduced by 1/3 due to low sales and growing inventory. In April 2014, Viper production ceased for over two months due to slow sales.* [35] Dodge addressed the issue by reducing the price of unsold 2014 models by \$15,000 and announced the 2015 models would carry this new, lower pricing model.* [36]

2015 Dodge Viper SRT

In 2015, the SRT brand was eliminated and the Viper was renamed the Dodge Viper GTS. In 2015, the V10 received an extra 5 hp raising the output to 645 hp and the highway mpg improved to 20mpg.

Dodge introduced a new GT package to fill the gap between the base Viper and the GTS model. GT buyers get the two-mode, driver-adjustable suspension and five-mode electronic stability control system from the GTS, along with Nappa leather seats with Alcantara accents and contrast stitching.

SRT Viper TA and Dodge Viper TA 2.0

The Time Attack (TA) is a \$16,000 limited edition option package for the 2014 SRT Viper.* [37] It is not available on the Viper GTS, although the last 10 Anodized Carbon Edition GTS models (#41–#50) will be equipped with the TA package.* [38] Of the remaining TAs, there are 93 cars painted in TA Orange, 33 in Venom Black, and 33 in Viper White, each one numbered on the logo on the passenger-side of the dashboard. The vehicle was unveiled in 2013 at the New York International Auto Show.* [39]

The package consists of the Advanced Aerodynamic Package (two-piece front corner splitters and a rear decklid spoiler made from carbon fiber), lightweight Sidewinder II wheels finished in matte-black, Pirelli P Zero Corsa tires, two-mode (Street and Race) Bilstein DampTronic suspension adapted from the GTS, but with firmer levels of damping and a smaller spread between modes, shock dampers, increased spring rates and thicker anti-roll bars, carbon fiber underhood X-brace (instead of the aluminium brace in all other models), carbon fiber rear tail light applique from the Exterior Carbon Fiber Accent Package, two-piece Brembo brake rotors with wider brake annulus, black-anodized Brembo brake calipers painted with the Viper logo in TA Orange, TA logos behind both front wheels and a Stryker decal instead of the standard badge on the hood (TA Orange on the Venom Black cars, black on the TA Orange and Venom White cars), black interior with TA Orange accent stitching on the ballistic cloth seats, instrument panel & cowl, center stack, console, hand brake, shifter boot, and door

panels.

The aerodynamic package adds 200 pounds (90.72 kg) of downforce at 100 mph (160.93 km/h). Top speed is 193 mph* [40] (310.60 km/h) instead of the non-aerodynamics package cars' 206 mph (331.52 km/h). In March 18, 2013 MotorTrend tested the SRT Viper TA in Mazda Raceway Laguna Seca, setting the production car lap record in 1:33.62, besting the previous lap time holder Chevrolet Corvette ZR1's 1:33.70.

The TA edition returned for the 2015 model year and is called the TA 2.0. The 2.0 part of the moniker refers to the updated aero package, which incorporates a bigger rear wing, new front dive planes, and a new carbon-fiber front splitter. The package improves downforce to 400 pounds at 150 mph versus the 2014 Viper TA's 278 pounds at 150 mph. Dodge will build an expected 96 TA editions and will be offered in three colors; Competition Blue, Yorange and Venom Black. Dodge will make 32 of each combination.* [41]

Dodge Viper GTC

In 2015, Dodge offered a GTC model. The 2015 Dodge Viper GTC has a customization program that offers 8,000 colors, and 24,000 hand painted stripes, 10 wheel choices, 16 interior trims, 6 aero options, and an undisclosed amount of standalone options to choose from. There are a total of 25 million possible build combinations.

Ordering a GTC enrolls a customer in a unique VIP program called Viper Concierge, which according to Dodge, "offers an exclusive point of contact throughout the custom Viper build process." The Concierge process will start with the ordering stage, which will include Dodge sending customers a paint chip confirming the owner's choice. Shortly thereafter, Dodge will send buyers a 1:18-scale "speed-form" replica in their chosen custom colors, to confirm or deny the build. Once the buyer's color and option selection is locked-in, that car becomes a one-of-one Viper for that year – no other buyer will be permitted to build a Viper to the same specifications.* [42]

Production

Production of SRT Viper was started in the Conner Avenue Assembly Plant in Detroit, MI with production beginning in late 2012.* [43] Production of SRT Viper TA set to begin at the Conner Avenue Assembly Plant in Detroit, beginning in third quarter 2013.* [39]

Marketing

As part of Chrysler's plan of turning Street and Racing Technology (SRT) as a separate vehicle brand within

Chrysler Group LLC, the SRT Viper became the brand's halo vehicle.* [44]

In May 2014, the SRT brand was re-consolidated under Dodge, with former *SRT* CEO Ralph Gilles continuing as senior vice president of product design and also as the CEO and president of Motorsports.* [45]

The SRT Viper has made several video game appearances in the *Forza Motorsport* franchise in both the road version and the race-spec GTS-R Model, as does in the *Horizon* titles (where only the road-going GTS is in those installments and not the GTS-R), *Need For Speed: Most Wanted* (2012), *Need For Speed: Rivals* in which the GTS variant is in cop form and the Time Attack (TA) being a racer as a pre-order exclusive, *Need For Speed: No Limits*, *Need for Speed*, *Gran Turismo 6* in both the standard GTS and the launch edition models in the game, *Real Racing 3*, and *Driveclub* as one of the DLC cars in the Downforce expansion pack.

* [46]

Motorsport

SRT Viper GTS-R (2012–2015)



2013 SRT Viper GTS-R Le Mans LM GTE Pro Series Racing car

The SRT Viper GTS-R is an LM GTE class race car designed and built by SRT Motorsports and Riley Technologies. It includes Michelin GT tires.

The vehicle was unveiled at the 2012 New York Auto Show, and it made its racing debut at the 2012 Mid-Ohio Sports Car Challenge where two GTS-Rs, driven by Kuno Wittmer/Dominik Farnbacher(Car No. 91), and Marc Goossens/Tommy Kendall(Car No. 93) finished 10th and 12th in the GT class(23rd and 25th overall).

The SRT Viper Racing team entering 2012 ALMS included Dominik Farnbacher, Marc Goossens, Ryan Hunter-Reay, Tommy Kendall, Jonathan Bomarito, and Kuno Wittmer.* [47]

The two GTS-Rs of SRT Motorsports finished 3rd in the GT class championship. The car made its debut at the Le Mans 24 Hours in 2013, where it finished eighth in class and 24th overall.* [48]

In 2014, with the ALMS folding and merging with the

Rolex Sports Car Series, SRT soon entered the **TUDOR United SportsCar Championship GTLM class**. In the opening round, the 2014 24 Hours of Daytona, SRT took 3rd and 6th in class (12th and 27th overall, completing 675 and 653 laps respectively). Both cars were repainted at Watkins Glen in the red and white livery used in the late 1990s to early 2000s. The No. 93 Viper won class at **Indianapolis Motor Speedway Brickyard Grand Prix** in July 2014, after both cars took podium positions in the previous races at The Glen and Mosport.

In March 2014 Chrysler announced that it was withdrawing the Vipers from the **2014 24 Hours of Le Mans**.^{*[48]} The Vipers ended the season at **Petit Le Mans** with a team championship and driver's championship by Kuno Wittmer. Following the end of the 2014 season, Chrysler discontinued the factory program by SRT Motorsports.

SRT Viper GT3-R The Viper GT3-R was made available for race teams in the later half of 2013 at an estimated cost of \$459,000.^{*[49]} The car shares many technologies with the GTE race car but it is built to **Group GT3** regulations. The GT3 car was jointly developed by SRT Motorsports and **Riley Technologies** and the car features the same 8.4 L engine from the road car and is capable of producing 680 hp unrestricted.^{*[50]} However actual output will be nearer 600 hp due to balance of performance employed in GT3 championships. The car weighs in at 1295 kg (2855 lbs) which is inside the 1300 kg limit for GT3 cars. The first win for the GT3-R spec Viper came on July 13, 2014 in the Tudor United SportsCar Championship at **Mosport**^{*[51]} followed by a win in the **Pirelli World Challenge** at the **Streets of Toronto** in the second race on the 20th of July 2014.^{*[52]} Dutch Supercar Challenge squad Team RaceArt won the 2014 and 2015 Super GT class championship in a Viper GT3-R.^{*[53]}

The package consists of the Advanced Aerodynamic Package (two-piece front corner splitters and a rear decklid spoiler made from carbon fiber), lightweight Sidewinder II wheels finished in matte-black, Pirelli P Zero Corsa tires, two-mode (Street and Race) Bilstein DampTronic suspension adapted from the GTS, but with firmer levels of damping and a smaller spread between modes, shock dampers, increased spring rates and thicker anti-roll bars, carbon fiber underhood X-brace (instead of the aluminium brace in all other models), carbon fiber rear tail light applique from the Exterior Carbon Fiber Accent Package, two-piece Brembo brake rotors with wider brake annulus, black-anodized Brembo brake calipers painted with the Viper logo in TA Orange, TA logos behind both front wheels and a Stryker decal instead of the standard badge on the hood (TA Orange on the Venom Black cars, black on the TA Orange and Venom White cars), black interior with TA Orange accent stitching on the ballistic cloth seats, instrument panel & cowl, center stack, console, hand brake, shifter boot, and door panels.

7.1.5 Europe

The first generation, phase II SRT Vipers were exported to Europe, where they were sold as Chryslers.

The second generation, phase I ZB Viper was being sold in Europe during 2005–2006, the first model to be sold as a Dodge, as part of Chrysler's new sales strategy for the European market. In the United Kingdom it is referred to as a **Viper**, but it is actually sold as the **Dodge SRT-10**, as the Viper name is a registered trademark in the UK.^{*[54]} Prodrive currently handles the importation and modification of Vipers to meet European laws.

Features

The all-new 2013 SRT Viper features a cruise control and controls on the steering wheel. **U Connect** Bluetooth phone with Bluetooth Audio streaming is standard, as is an 8.4-inch touch screen display like that on the **Chrysler 300**, **Dodge Charger**, and **Dodge Journey**. It also features an Alpine surround sound system and many exterior, interior, and wheel combinations. There is also a four-inch reconfigurable **Thin-Film Transistor** display in the gauge cluster to display important vehicle information, system messages, and has controls to turn the **traction control**, **stability control**, and other features off. It also has a "Track Mode" with a built-in track timer, "stoplight" countdown timer display, and other features. Power seats, keyless entry, and heated seats are also new options. A navigation system by **Garmin** is also an available option, as is **Sirius-XM** satellite radio and **HD radio**. A built-in HDD for storing music and photos **JPEG** and **MP3** will also be included as standard equipment.

7.1.6 Variants

Viper GTS R Concept (2000)

Ten years after the first Viper Concept was revealed, the 2000 GTS-R concept was shown. Osamu Shikado was responsible for the vehicle's exterior which is 3 inches lower and 2 inches wider than the production Viper at the time. Shikado used race inspired lines with an aggressive stance. Some of these design cues were adapted to the 2003 production Viper. These included a higher belt line, a side gill, 'bump-up' rear fender shape, and a more defined side crease. Viewed from above, the front-to-rear stripe now is tapered.

Unlike most concepts, the 2000 Viper Concept was made as a complete car. It features a complete functional interior with air conditioning, adjustable pedals, and a premium sounds system. Only one 2000 GTS-R Concept was made featuring a dry-sump engine producing five hundred horsepower, fifty more than current production, and 500 lb·ft of torque. The body is a single moulding of carbon-fibre, but with some subtle changes com-

pared with the existing cars. An inch and a half has been taken out between the sill and the roof, which together with a chassis sitting two inches lower, gives the car a lower profile. Three inches have been added to the wheelbase and two inches to the track. The doors have also been lengthed, which combined with the longer wheelbase makes entry and exit from the car easier. Brakes are 14-inch ventilated discs with four-piston calipers and the front has the 19-inch wheels with P285/30 ZR Goodyear tires up and 20-inch rear wheels with P335/30 ZR tires.

Viper GT2



Dodge Viper GT2

In order to meet FIA homologation requirements, as well as to celebrate Chrysler winning the [1997 FIA GT2 class championship](#), 100 modified Viper GT2 Championship Edition street-legal cars were sold. These upgraded GTS cars were rated at 460 hp (343 kW) and 500 lb·ft (678 N·m) of torque. They had bodywork with similar appearance to the GTS-R, with the same color scheme, aerodynamics package, and visual options, in order to publicize the Viper's achievement in the [FIA GT Championship](#).^{*[55]}

Viper ACR



The back of the Dodge Viper ACR at the 2009 North American International Auto Show



Viper ACR Engine



Viper ACR

The American Club Racing (ACR) model was introduced in 1999. This model had suspension and engine enhancements focused on maximizing performance in road racing and autocross environments. Horsepower was bumped to 460 hp (370 kW) in these models, while torque increased to 500 lb·ft (678 N·m). Weight was reduced by over 50 pounds (23 kg) by stripping the interior and removing other non-essential items such as the fog lamps (replacing them with brake ducts). The new stiffer, adjustable suspension removed another 14 pounds (6.4 kg). These models, which also have engine and handling modifications, has an “ACR” badge and 20-spoke BBS wheels.

A new ACR was added to the Viper line-up after the 2008 model year. Its upgrades were more drastic than the original, including street-legal racing tires (Michelin Pilot Sport Cups which Michelin describes as “Ultra-High Performance Sport tires”),^{*[56]} two-piece brake rotors, adjustable suspension, and significant aerodynamic revision. No engine modifications were made, so power and torque remain at 600 hp (450 kW) and 560 lb·ft (760 N·m) as in the standard SRT-10. The ACR is street-legal, and is similar to the MOPAR Viper that Dodge displayed at various auto shows. Weight was also decreased by 40 lb (18 kg) by using the “Hardcore Package”, without AC, radio, speakers, amplifier, trunk carpet, hood pad or tire-inflator. Its aerodynamic upgrades produce up to 1000 pounds (4.45 kN) of downforce at 150 mph (240 km/h), or roughly 10 times the downforce the standard

Viper SRT-10 can produce at the same speed. The interior was upgraded only by the addition of a beacon-tripped lap timer (Hardcore Edition Only).

The Viper ACR was built alongside the standard SRT-10 at the Conner Avenue plant in Detroit. The aerodynamic components were produced by Plasan Carbon Composites and assembled to the vehicle by Prefix Corporation located in Rochester Hills, Michigan.*[57]

On September 14, 2011, on the **Nürburgring Nordschleife**, a 2010 Dodge Viper SRT10 ACR completed the sixth fastest production, street-legal car lap ever recorded with a 7:12.13 elapsed time.*[58] Chrysler's press release claimed a new production car lap record, although three faster laps had been recorded more than two years earlier, albeit by very specialized low production vehicles.

At SEMA 2014 Dodge showed off a Viper ACR Concept car. After lots of rumors and speculation Dodge announced the **Viper ACR** will be returning for 2016. Production of the ACR is set to begin in July 2015.

Viper ACR-X

To commemorate the end of the second generation Viper and mend the gap from the car's production end until the release of the new car, Dodge offered an improved version of the ACR specifically designed to run in the **Dodge Viper Cup Series**. This car, named Viper ACR-X, added to the basic ACR 40 hp (30 kW), a new set of downforce-enhancing front canards, long tube headers from American Racing Headers, and new materials that, along with a stripped interior, reduced weight to 3,300 lb (1,500 kg). It is a purpose-built race car, and is not street-legal. According to Dodge, the car beat the regular record-holding ACR around **Mazda Raceway Laguna Seca** by about three seconds (1:33.9 to 1:31). Price increased by US\$12,000, to \$110,000. Production was planned for the spring of 2010.*[59] As of February 17, the Viper ACR-X's **Nürburgring** lap record is 7:03.058, a full 9.072 seconds faster than the regular ACR.*[60]

Zagato Alfa Romeo TZ3 Stradale

Designed by **Zagato**, the **Alfa Romeo TZ3 Stradale** is the fourth model in Zagato's TZ line and serves as Zagato's tribute to the 100th anniversary of Alfa Romeo. The car itself is based on the Viper ACR-X but with a new carbon fiber body. As planned, only 9 vehicles will be built. Not only is the chassis and powertrain from the Gen IV Viper, but the interior remains mostly the same as well.*[61]

Prefix Viper Medusa Roadster

On July 19, 2014 Prefix Corporation unveiled a Viper Medusa Roadster at a private event at their Prefix Coatings facility in Auburn Hills, Michigan. Created un-

der their latest division named Prefix Performance, the Medusa is a conversion of an existing Gen V Viper. The initial run is limited to 10 custom numbered vehicles at a price of \$35,000 on top of the price of the vehicle.*[62] Vehicles are to be purchased through Tomball Dodge & ViperExchange.com located in Tomball, Texas. Prefix is gauging market interest to determine if it will set up a production line to produce the vehicle in higher volumes.

7.1.7 Concepts

Mopar Concept Coupe



"Mopar Concept Coupe" Viper at the 2007 Detroit Auto Show

A prototype 2008 **Mopar Viper Coupe**, with 675 hp (503 kW), appeared at the 2007 **North American International Auto Show**, but is not planned for production. This concept appears to have been a sneak peek at the Viper ACR. Performance parts from this car are sold by Mopar.

SRT-10 Carbon

For the 2003 **SEMA** show, Chrysler displayed a highly tuned Viper SRT-10 in coupe form. The vehicle's name comes from the carbon fiber used to reduce the weight by 150 lbs (total down to 3200 lbs). However, even more significant were the engine modifications, which increased power to 625 hp; no torque or RPM figures were given. Along with the carbon fiber hardtop, a front splitter and rear spoiler were added; however those parts were not nearly as significant as those on the later SRT-10 ACR, and no downforce/drag information was provided to show that they were even functional. The car was only a concept.

This car was used as a test mule for the development for the Generation V SRT Viper. The car is no longer a show car, and most of its specialty parts were taken off during development for the new Generation V SRT Viper.*[63]

Firepower

Main article: Chrysler Firepower

The **Chrysler Firepower** was a grand touring concept based on the Viper chassis that would have been equipped with the Hemi V-8, with automatic transmission. Price would have been slightly lower than other models.

Copperhead



Dodge Copperhead

Main article: Dodge Copperhead

The **Dodge Copperhead** was a concept car based on the Viper platform that was intended as a cheaper, more agile car. It was powered by a 220 hp 2.7 L V6 engine instead of the Viper's V10. It never reached production. Dodge produced a limited-production Copperhead Edition Dodge Viper, with copper-colored paint similar to the concept car and other changes.

2012 SEMA concept (2012)

The SEMA concept car is a version of 2013 SRT Viper coupe demonstrating Mopar products for SRT Viper. Changes include yellow body colour, carbon fiber parts at underhood, exposed carbon fiber performance cross X-Brace trimmed in a satin finish, a decal-cut Viper "Stryker" logo in the center of X-Brace, engine cover in carbon fiber and aluminum with the SRT logo, prototype aluminum oil filler cap with the SRT logo, a carbon fiber aero package, Mopar coil springs, full black interior with yellow accents, Sabelt hard-shell seats with a six-point safety harness, seat edging in black Katzkin leather with yellow accents in the perforations, Mopar billet aluminum shift knob, billet aluminum HVAC bezels and controls, carbon fiber bulkhead satchel with a universal integrated quick-release camera mount, polished chrome door-sill guards with the Viper logo, race-inspired sandblasted aluminum Mopar bright pedal kit with the Viper logo etched in the pedals, footrest pedal with "Stryker"

logo, optional "Track Pack" wheels finished in hyper-black, a front tow hook and an LED fog lamp kit.

The vehicle was unveiled in 2012 SEMA show.* [64]* [65]

The Mopar performance parts found in the SEMA concept car were sold as 2013 SRT Viper components.* [66]* [67]

7.1.8 Media

Viper Television Series (1994–1998)

Chrysler launched a TV series called **Viper** in 1994 to serve as a promotional tool for the Viper. The show ran until 1998 with 1 NBC season and 3 syndicated follow-up seasons. Viper is a TV series about a special task force set up by the federal government to fight crime in the fictional city of Metro City, California that is perpetually under siege from one crime wave after another. The weapon used by this task force is a grey assault vehicle known as *The Defender* that masquerades as a Dodge Viper RT/10 roadster (and later, the Viper GTS coupe). The series takes place in "the near future". The primary brand of vehicles driven in the show were Chrysler or subsidiary companies. The series ran on NBC for one season in 1994 before being revived two years later for three more seasons of first-run syndication. Reruns of the series have appeared on Sci-Fi Channel and USA Network.

The Viper Defender "star car" was designed by Chrysler Corporation engineers unlike most Hollywood Film/TV cars that are usually customized by film picture designers. The car was built on a heavily modified RT/10 Chassis and is a completely functional prototype. Only 14 Defenders were made. The exterior design of the car was produced by Chrysler stylist Steve Ferrerio.

The Defender is a fictional assault vehicle that is said to be a highly sophisticated vehicle (contrary to the normal Viper's spartan nature) that can, at the flick of a switch, transform from a red RT/10 (later a blue GTS) into a grey/silver weaponized armored coupe.

Among the Defender's features are:

Introduced in Season 1

1. 4WD Mode
2. Hologram Projector (deployed from roof)
3. Probe (deployed from rear hatch)
4. Retractable battering rams
5. Retractable twin weapons pods (deployed from just below each car door) each with a "Static Pulse" (EMP) emitter, missiles / rockets, and a harpoon / tow cable / grapple hook launcher
6. Armor plating

7. Steering wheel controls
8. Rear grapple hook launcher

Introduced in Season 2

1. Turbine Booster
2. Voice amplifier
3. Rear mounted .50 caliber machine gun (replaces rear grapple hook from Season 1)

(Added to the weapons pods)

1. Twin 7.62 mm machine guns
2. Twin Stinger missile launchers
3. Twin high-powered lasers

Introduced in Season 3

1. Bolo / net launcher
2. Flamethrower

Introduced in Season 4

1. Hovercraft mode
2. Torpedo launchers (deployed from front fenders in Hovercraft Mode only)
3. Manual overdrive (never used)
4. Traction control (never used)
5. Rear mounted bomb launcher (only seen in one episode)
6. Cloaking device (only used in two episodes)

7.1.9 Recognition

- John Lingenfelter Memorial Trophy
- 2008 Most Expensive Car for Repair Costs, *Bankrate.com**[68]
- The 25,000th Viper is owned by Kurt Busch and the milestone was commemorated by Bob Nardelli, Chrysler LLC Chairman, in a ceremony at the Conner plant in March 2008.*[69]
- Dodge Viper Meets Forced Induction.*[70]

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7.2 Ford Mustang

The **Ford Mustang** is an American automobile manufactured by **Ford**. It was originally based on the platform of the second generation North American **Ford Falcon**, a compact car.^{*[1]} The original 1962 Ford Mustang I two-seater concept car had evolved into the 1963 Mustang II four-seater concept car which Ford used to pretest how the public would take interest in the first production Mustang. The 1963 Mustang II concept car was designed with a variation of the production model's front and rear ends with a roof that was 2.7 inches shorter.^{*[2]} Introduced early on April 17, 1964,^{*[3]} and thus dubbed as a “1964½” by Mustang fans, the 1965 Mustang was the automaker's most successful launch since the **Model A**.^{*[4]} The Mustang has undergone several transformations to its current sixth generation.

The Mustang created the “pony car” class of American automobiles, affordable sporty coupes with long hoods and short rear decks^{*[5]} and gave rise to competitors such as the **Chevrolet Camaro**,^{*[6]} **Pontiac Firebird**, **AMC Javelin**,^{*[7]} **Chrysler's revamped Plymouth Barracuda**,

and the first generation **Dodge Challenger**.^{*[8]} The Mustang is also credited for inspiring the designs of coupés such as the **Toyota Celica** and **Ford Capri**, which were imported to the United States.

7.2.1 Background

The Ford Mustang was brought out five months before the normal start of the 1965 production year. The early production versions are often referred to as “1964½ models” but all Mustangs were advertised, VIN coded and titled by Ford as 1965 models, though minor design updates for fall 1965 contribute to tracking 1964½ production data separately from 1965 data (see data below).^{*[9]} with production beginning in **Dearborn, Michigan** on March 9, 1964;^{*[10]} the new car was introduced to the public on April 17, 1964^{*[11]} at the **New York World's Fair**.^{*[12]}

Executive stylist John Najjar, who was a fan of the World War II **P-51 Mustang** fighter plane, is credited by Ford to have suggested the name.^{*[13]*[14]} Najjar co-designed the first prototype of the Ford Mustang known as **Ford Mustang I** in 1961, working jointly with fellow Ford stylist **Philip T. Clark**.^{*[15]} The Mustang I made its formal debut at the **United States Grand Prix** in **Watkins Glen, New York** on October 7, 1962, where test driver and contemporary **Formula One** race driver **Dan Gurney** lapped the track in a demonstration using the second “race” prototype. His lap times were only slightly off the pace of the F1 race cars.

An alternative view was that Robert J. Eggert, Ford Division market research manager, first suggested the Mustang name. Eggert, a breeder of **quarterhorses**, received a birthday present from his wife of the book, *The Mustangs* by **J. Frank Dobie** in 1960. Later, the book's title gave him the idea of adding the “Mustang” name for Ford's new concept car. The designer preferred Cougar (early styling bucks can be seen wearing a Cougar grille emblem) or Torino (an advertising campaign using the Torino name was actually prepared), while **Henry Ford II** wanted T-bird II.^{*[16]} As the person responsible for Ford's research on potential names, Eggert added “Mustang” to the list to be tested by focus groups; “Mustang,” by a wide margin, came out on top under the heading: “Suitability as Name for the Special Car.”^{*[17]*[18]} The name could not be used in Germany,^{*[16]} however, because it was owned by **Krupp**, which had manufactured trucks between 1951 and 1964 with the name Mustang. Ford refused to buy the name for about **US\$10,000** from Krupp at the time. Kreidler, a manufacturer of mopeds, also used the name, so Mustang was sold in Germany as the “T-5” until December 1978.

Mustangs grew larger and heavier with each model year until, in response to the 1971–1973 models, Ford returned the car to its original size and concept for 1974. It has since seen several platform generations and designs. Although some other pony cars have seen a revival, the

Mustang is the only original pony car to remain in uninterrupted production over five decades of development and revision.*[19]

7.2.2 First generation (1964½–1973)



"1964½" Mustang convertible. This particular car is the first production model off of the assembly line and was sold to an airline pilot in Newfoundland. He was given the one millionth Mustang in exchange for his historic car[20]*

Main article: Ford Mustang (first generation)

Lee Iacocca's assistant general manager and chief engineer, Donald N. Frey was the head engineer for the T-5 project—supervising the overall development of the car in a record 18 months*[21]—while Iacocca himself championed the project as Ford Division general manager. The T-5 prototype was a two-seat, mid-mounted engine roadster. This vehicle employed the German Ford Taunus V4 engine.

It was claimed that the decision to abandon the two-seat design was in part due to the low sales of the 2-seat 1955 Thunderbird. To broaden market appeal it was later remodeled as a four-seat car (with full space for the front bucket seats, as originally planned, and a rear bench seat with significantly less space than was common at the time). A "Fastback 2+2" model traded the conventional trunk space for increased interior volume as well as giving exterior lines similar to those of the second series of the Corvette Sting Ray and European sports cars such as the Jaguar E-Type. The "Fastback 2+2" was first manufactured on August 17, 1964.

Favorable publicity articles appeared in 2,600 newspapers the next morning, the day the car was "officially" revealed.*[22]*[23] A Mustang convertible also appeared in the James Bond film *Goldfinger* in September 1964.*[24]

Price and sales

To achieve an advertised list price of US\$2,368, the Mustang was based heavily on familiar yet simple compo-



A 1965 Mustang fastback. The Mustang fastback was introduced in September 1964 for the 1965 model year.



1967 Mustang Hardtop

nents, many of which were already in production for other Ford models.*[25] Many (if not most) of the interior, chassis, suspension, and drivetrain components were derived from those used on Ford's Falcon and Fairlane. This use of common components also shortened the learning curve for assembly and repair workers, while at the same time allowing dealers to pick up the Mustang without also having to invest in additional spare parts inventory to support the new car line. Original sales forecasts projected less than 100,000 units for the first year.*[26] This mark was surpassed in three months from rollout.*[3] Another 318,000 would be sold during the model year (a record),*[3] and in its first eighteen months, more than one million Mustangs were built.*[26]

Upgrades

Several changes were made at the traditional opening of the new model year (beginning August 1964), including the addition of back-up lights on some models, the introduction of alternators to replace generators, an upgrade of the six-cylinder engine from 170 to 200 cu in (2.8 to 3.3 l) with an increase from 101 to 120 hp (75 to 89 kW), and an upgrade of the V8 engine from 260 to 289 cu in (4.3 to 4.7 l) with an increase from 164 to 210 hp (122 to 157 kW). The rush into production included some unusual quirks, such as the horn ring bearing the 'Ford

Falcon' logo covered by a trim ring with a 'Ford Mustang' logo. These characteristics made enough difference to warrant designation of the 121,538 early versions as "1964½" Mustangs, a distinction that has endured with purists.*[27]



A 1969 Ford Mustang SportsRoof

Ford's designers began drawing up larger versions even as the original was achieving sales success, and while "Iacocca later complained about the Mustang's growth, he did oversee the 1967 redesign." *[28] From 1967 until 1973, the Mustang got bigger but not necessarily more powerful.*[29] The Mustang was facelifted, giving the Mustang a more massive look overall and allowing a big block engine to be offered for the first time. Front and rear end styling was more pronounced, and the "twin cove" instrument panel offered a thicker crash pad, and larger gauges. Hardtop, fastback and convertible body styles continued as before. Around this time, the Mustang was paired with a Mercury variant, called the Cougar, which used its own styling cues, such as a "cougar's head" logo and hidden quad headlamps. New safety regulations by the U.S. National Highway Traffic Safety Administration (NHTSA) for 1968 included an energy-absorbing steering column and wheel, 4-way emergency flashers, and softer interior knobs. The 1968 models received revised side scoops, steering wheel, and gasoline caps. Side marker lights were also added that year, and cars built after January 1, 1968 included shoulder belts for both front seats. The 1968 models also introduced a new 302 cu in (4.9 L) V8 engine.

The 1969 restyle "added more heft to the body as width and length again increased. Weight went up markedly too." *[28] Due to the larger body and revised front end styling, the 1969 models (but less so in 1970) had a notable aggressive stance. The 1969 models featured "quad headlamps" which disappeared to make way for a wider grille and a return to standard headlamps in the 1970 models. This switch back to standard headlamps was an attempt to tame the aggressive styling of the 1969 model, which some felt was too extreme and hurt sales, but 1969 production exceeded the 1970 total.*[30]

Models

Starting in 1969, to aid sales and continue the winning formula of the Mustang, a variety of new performance and decorative options became available, including functional (and non-functional) air scoops, cable and pin hood tie downs, and both wing and chin spoilers. Additionally, a variety of performance packages were introduced that included the Mach 1, the Boss 302, and Boss 429. The two Boss models were to homologate the engines for racing. The 1969 Mustang was the last year for the GT option (although it did return on the 3rd Generation Mustang for the 1982 Model Year). A fourth model available only as a hardtop, the Grande, saw success starting in 1969 with its soft ride, "luxurious" trim, 55 pounds (24.9 kg) of extra sound deadening, and simulated wood trim.



A 1973 Mustang SportsRoof

Downfall

Developed under the watch of Semon "Bunkie" Knudsen, the Mustang evolved "from speed and power" to the growing consumer demand for bigger and heavier "luxury" type designs.*[31] "The result were the styling misadventures of 1971–73 ... The Mustang grew fat and lazy," *[31] "Ford was out of the go-fast business almost entirely by 1971." *[32] "This was the last major restyling of the first-generation Mustang." *[33] "The cars grew in every dimension except height, and they gained about 800 pounds (363 kg)." *[33] "The restyling also sought to create the illusion that the cars were even larger." *[33] The 1971 Mustang was nearly 3 inches (76 mm) wider than the 1970, its front and rear track was also widened by 3 inches (76 mm), and its size was most evident in the SportsRoof models with its nearly flat rear roofline*[34] and cramped interior with poor visibility for the driver.*[35] Performance decreased with sales continuing to decrease*[36] as consumers switched to the smaller Pintos and Mavericks. A displeased Iacocca summed up later: "The Mustang market never left us, we left it." *[37]

7.2.3 Second generation (1974–1978)

Main article: Ford Mustang (second generation)

Lee Iacocca, who had been one of the forces behind the



1974–1978 Mustang II

original Mustang, became President of Ford Motor Company in 1970 and ordered a smaller, more fuel-efficient Mustang for 1974. Initially it was to be based on the Ford Maverick, but ultimately was based on the Ford Pinto subcompact.

The new model, called the “Mustang II”, was introduced two months before the first 1973 oil crisis, and its reduced size allowed it to compete against imported sports coupés such as the Japanese Toyota Celica and the European Ford Capri (then Ford-built in Germany and Britain, sold in U.S. by Mercury as a captive import car). First-year sales were 385,993 cars, compared with the original Mustang's twelve-month sales record of 418,812.*[38]

Iacocca wanted the new car, which returned the Mustang to its 1964 predecessor in size, shape, and overall styling.*[39] to be finished to a high standard, saying it should be “a little jewel.” * [40] Not only was it smaller than the original car, but it was also heavier, owing to the addition of equipment needed to meet new U.S. emission and safety regulations. Performance was reduced, and despite the car's new handling and engineering features the galloping mustang emblem “became a less muscular steed that seemed to be cantering.*[41]

Engines for the 1974 models included the venerable 2.3 L I-4 from the Pinto and the 2.8 L Cologne V6 from the Mercury Capri. The 1975 model year reintroduced 302 cu in (4.9 L) Windsor V8 that was only available with the C-4 automatic transmission, power brakes, and power steering. This continued through production end in 1978. Other transmissions were the RAD 4-speed with unique gearing for all three engines, and the C-3 automatic behind the 2.3 L and 2.8 L. The 5.0 L designation was not applied until the 1978 King Cobra model. All 302 equipped Mustang II's, except the King Cobra received an updated version of the classic Ford “V8” emblem on each front fender.

The car was available in coupé and hatchback versions, including a “luxury” Ghia model designed by Ford's recently acquired Ghia of Italy. The coupe was marketed as the “Hardtop” but in fact had a thin “B” pillar and rear quarter windows that did not roll down. All Mustangs in this generation did feature frameless door glass, however. The “Ghia” featured a thickly padded vinyl roof and smaller rear quarter windows, giving a more formal look. 1974 models were: Hardtop, Hatchback, Mach 1 and Ghia. Changes introduced for 1975 included availability of an “MPG” model which had a different rear axle ratio for better fuel economy. 1976 added the “Stallion” trim package. The Mach 1 remained through the life cycle 1974–1978. Other changes in appearance and performance came with a “Cobra II” version in 1976–1978 and a “King Cobra” in 1978 of which 4,972 (approx) were built. 1977–1978 hatchback models, in all trim levels was also now available with the very popular T-top roof option, which included a leatherette storage bag that clipped to the top of the spare tire hump.

7.2.4 Third generation (1979–1993)

Main article: Ford Mustang (third generation)

The 1979 Mustang was based on the longer Fox plat-



1985–1986 Ford Mustang GT



1987–1993 Mustang Convertible

form (initially developed for the 1978 Ford Fairmont and Mercury Zephyr). The interior was engineered to accommodate four people in comfort despite a smaller rear seat. Body styles included a coupé, (notchback), hatchback, and convertible. Available trim levels included L, GL, GLX, LX, GT (1982–1993), GTS, Turbo GT (1983–84), GT-350 (1984), SVO (1984–86), Cobra (1979–

81, 1993), Cobra R (1993), and Ghia (1979–81). From 1979 to 1986, the Mustang's Mercury counterpart was called the **Capri**, again using its own styling cues.

The third generation Mustang had two different front end styles. From 1979 to 1986 the car had an angled back front clip and four headlights, known by enthusiasts as "Four Eyes," the same front end styling that was also used on the **Chevrolet Camaro** from 1982 until 1992. Then in the 1987 to 1993 model years, the front clip had a rounded-off shape known as the "aero" style with flush composite headlamps. Also in 1986, engines featured EFI (electronic fuel injection) instead of carburetors. Other changes for the 1986 models included an upgraded 8.8-inch (224 mm) rear-end with four shock absorbers.

In response to slumping sales and escalating fuel prices during the early 1980s, a new **Mustang** was in development. It was to be a variant of the **Mazda MX-6** assembled at **AutoAlliance International** in Flat Rock, Michigan. Enthusiasts wrote to Ford objecting to the proposed change to a front-wheel drive, Japanese-designed Mustang without a V8 option. The result was a major facelift of the existing **Mustang** in 1987, while the MX-6 variant had a last minute name change from Mustang to **Probe** and released as a 1989 model.

7.2.5 Fourth generation (1994–2004)

Main article: **Ford Mustang (fourth generation)**

In November 1993, the Mustang debuted its first ma-



94-98 Mustang Coupe



1999 Mustang GT side view.

ajor redesign in fifteen years. Code-named "SN-95" by

the automaker for 1994–1998, it was based on an updated version of the rear-wheel drive Fox platform called "Fox-4." The new styling by Patrick Schiavone incorporated several styling cues from earlier Mustangs.* [42] For the first time since 1974, a hatchback coupe model was unavailable.

The base model came with a 3.8 OHV V6 (232 cid) engine rated at 145 bhp (108 kW) in 1994 and 1995, or 150 bhp (110 kW) (1996–1998), and was mated to a standard 5-speed manual transmission or optional 4-speed automatic. Though initially used in the 1994 and 1995 Mustang GT and Cobra, Ford retired the 302 cid pushrod small-block V8 after nearly 30 years of use, replacing it with the newer Modular 4.6 L (281 cid) SOHC V8 in the 1996 Mustang GT. The 4.6 L V8 was initially rated at 215 bhp (160 kW), 1996–1997, but was later increased to 225 bhp (168 kW) in 1998.* [43]

For 1999, the Mustang was reskinned with Ford's New Edge styling theme with sharper contours, larger wheel arches, and creases in its bodywork, but its basic proportions, interior design, and chassis remained the same as the previous model. The Mustang's powertrains were carried over for 1999, but benefited from new improvements. The standard 3.8 L V6 had a new split-port induction system, and was rated at 190 bhp (140 kW) 1999–2000, while the Mustang GT's 4.6 L V8 saw an increase in output to 260 bhp (190 kW) (1999–2004), due to a new head design and other enhancements. In 2001, the 3.8 L was increased to 193 bhp.* [44] In 2004, a 3.9L variant of the Essex engine replaced the standard 3.8L mid year with an increase of 3 ft·lb (4 N·m) of torque as well as NVH improvements. There were also three alternate models offered in this generation: the 2001 Bullitt, the 2003 and 2004 Mach 1, as well as the 320 bhp (240 kW) 1999 and 2001,* [45]* [46] and 390 bhp (290 kW) 2003 and 2004* [47] Cobra (also the first Mustang to feature an independent rear suspension).

Ford Australia

This generation was the first one to be officially sold in Australia between 2001 and 2002, to compete against the Holden Monaro (which eventually became the basis for the reborn Pontiac GTO). Due to the fact that the Mustang was never designed for right-hand-drive, Ford Australia contracted Tickford Vehicle Engineering to convert 250 Mustangs and modify them to meet Australian Design Rules,* [48] at a cost of A\$4,000,000.* [49] Sales did not meet expectations, including due to a very high selling price.* [50] For promotional purposes, Ford Racing Australia also built a **Mustang V10** convertible, which was powered by a **Ford Modular** 6.8-Litre V10 engine from the American F truck series but fitted with an Australian-made Sprintex supercharger.* [51]

7.2.6 Fifth generation (2005–2014)

Main article: Ford Mustang (fifth generation)

Ford introduced a redesigned 2005 model year Mustang



2005 Ford Mustang GT Premium Convertible



2007–2009 Ford Mustang GT/CS convertible



2010 Ford Mustang GT



2014 Mustang Convertible

at the 2004 North American International Auto Show, codenamed “S-197,” that was based on the new D2C platform. Developed under the direction of Chief Engineer Hau Thai-Tang, a veteran engineer for Ford’s Indy-Car program under Mario Andretti, and exterior styling designer Sid Ramnarace,* [52] the fifth-generation Mustang’s styling echoes the fastback Mustang models of the late-1960s. Ford’s senior vice president of design, J Mays, called it “retro-futurism.” The fifth-generation Mustang was manufactured at the Flat Rock Assembly Plant in Flat Rock, Michigan.

For the 2005 to 2010 production years, the base model was powered by a 210 hp (157 kW; 213 PS) cast-iron block 4.0 L SOHC V6, while the GT used an aluminum block 4.6 L SOHC 3-valve Modular V8 with variable camshaft timing (VCT) that produced 300 hp (224 kW; 304 PS). Base models had a Tremec T5 5-speed manual transmission with Ford’s 5R55S 5-speed automatic being optional. Automatic GTs also featured this, but manual GTs had the Tremec TR-3650 5-speed.* [53]

The 2010 model year Mustang was released in the spring of 2009 with a redesigned exterior —which included sequential LED taillights —and a reduced drag coefficient of 4% on base models and 7% on GT models.* [54] The engine for base Mustangs remained unchanged, while GTs 4.6 L V8 was revised resulting in 315 hp (235 kW; 319 PS) at 6000 rpm and 325 lb·ft (441 N·m) of torque at 4255 rpm.* [55] Other mechanical features included new spring rates and dampers, traction and stability control system standard on all models, and new wheel sizes.

Engines were revised for 2011, and transmission options included the Getrag-Ford MT82 6-speed manual or the 6R80 6-speed automatic based on the ZF 6HP26 transmission licensed for production by Ford. Electric power steering replaced the conventional hydraulic version. A new 3.72 L (227 cu. in.) aluminum block V6 engine weighed 40 lb (18 kg) less than the previous version. With 24 valves and Twin Independent Variable Cam Timing (TiVCT), it produced 305 hp (227 kW; 309 PS) and 280 lb·ft (380 N·m) of torque. The 3.7 L engine came with a new dual exhaust; gasoline mileage increased to 19 city/31 highway mpg.. GT models included a 32-valve 5.0 L engine (4951cc or 302.13 cu. in.) (also referred to as the “Coyote.”) producing 412 hp and 390 ft-lbs of torque. Brembo brakes are optional along with 19-inch wheels and performance tires.* [56]

The Shelby GT500’s 5.4 L supercharged V8 block was made of aluminum making it 102 lb (46 kg) lighter than the iron units in previous years. It was rated at 550 hp (410 kW; 558 PS) and 510 lb·ft (690 N·m) of torque.* [57]

For 2012, a new Mustang Boss 302 version was introduced. The engine had 444 hp (331 kW; 450 PS) and 380 lb·ft (520 N·m) of torque. A “Laguna Seca” edition was also available, which offered additional body bracing, the replacement of the rear seat with a steel ‘X-brace’ for stiffening, and other powertrain and handling enhance-

ments.

In the second quarter of 2012, Ford launched an update to the Mustang line as an early 2013 model. The Shelby GT500 has a new 5.8 L supercharged V8 producing 662 hp (494 kW; 671 PS). Shelby and Boss engines came with a six-speed manual transmission. The GT and V6 models revised styling incorporated the grille and air intakes from the 2010–2012 GT500. The decklid received a black cosmetic panel on all trim levels. The GT's 5.0-liter V8 gained eight horsepower from 412 hp (307 kW; 418 PS) to 420 hp (313 kW; 426 PS).

7.2.7 Sixth generation (2015–)

Main article: [Ford Mustang \(sixth generation\)](#)

The sixth generation Mustang was unveiled on December



2015 Ford Mustang

5, 2013, in Dearborn, Michigan, New York, Los Angeles, California; Barcelona, Spain, Shanghai, China; and Sydney, Australia.* [58] The internal project codename is S-550.

Changes include widened body by 1.5 inches, 1.4 inches lower body, trapezoidal grille, and a 2.75-inch lower decklid, as well as new colors. The passenger volume is increased to 84.5 cubic feet, and three engine options are available: 2.3 L EcoBoost 310 hp four-cylinder, 3.7 L 300 hp V6,* [59] or 5.0 L Coyote 435 hp V8, with either a Getrag six-speed manual or six-speed automatic transmission with paddle shifters.* [60]* [61]* [62] The newly introduced smaller 2.3 L EcoBoost I4 engine is developed to reach high tariff global markets like China.* [63]

The 2015 Mustang features a new independent rear suspension (IRS) system, developed specifically for the new model.* [64]

The 2015 Mustang became the first version that was factory designed as a right hand drive export model to be sold overseas through Ford new car dealerships in right hand drive markets. During this model year, left hand drive versions were expanded to new export markets.

- Export-spec MY2016 RHD Mustang GT
- Export-spec MY2016 RHD Mustang EcoBoost's interior
- Rear Euro-size license plate bracket on export-spec MY2016 RHD Mustang

In February 2015, the Mustang earned a 5-star rating from the National Highway Traffic Safety Administration (NHTSA) for front, side, and rollover crash protection.* [65]

In May 2015, Ford issued a recall involving 19,486 of the 2015 Ford Mustang with the 2.3 L EcoBoost turbocharged four-cylinder engine with a production date between February 14, 2014, and February 10, 2015 that were built at the Flat Rock Assembly Plant. As of June 2015, 1 million Mustangs and GTs were affected by a recall of airbags made by [Takata Corporation](#). This was after Takata announced that it was recalling 33.8 million vehicles in the U.S. for airbags that could explode and send metal pieces flying at drivers and passengers.* [66] In anticipation of poor sales, Ford exported only 1000 Mustangs for the first time to Australia. However 2000 were ordered, with demand outstripping supply. Models available are a 2.3 litre 4 cylinder twin turbo, or a 5.0 litre V8.

7.2.8 Racing

The Mustang made its first public appearance on a race-track as pace car for the [1964 Indianapolis 500](#).* [13]

The same year, Mustangs won first and second in class at the [Tour de France](#) international rally.

In 1969, modified versions of the 428 Mach 1, Boss 429 and Boss 302 took 295 United States Auto Club-certified records at [Bonneville Salt Flats](#). The outing included a 24-hour run on a 10-mile (16 km) course at an average speed of 157 mph (253 km/h). Drivers were [Mickey Thompson](#), [Danny Ongais](#), Ray Brock, and Bob Ottum.* [13]

Drag racing

The car's American competition debut, also in 1964, was in [drag racing](#), where private individuals and dealer-sponsored teams campaigned Mustangs powered by 427 cu in (7.0 L) V8s.

In late 1964, Ford contracted [Holman & Moody](#) to prepare ten 427-powered Mustangs to contest the [National Hot Rod Association's](#) (NHRA) A/Factory Experimental class in the 1965 drag racing season. Five of these special Mustangs made their competition debut at the 1965 NHRA Winternationals, where they qualified in the Factory Stock Eliminator class. The car driven by [Bill Lawton](#) won the class.* [67]

A decade later Bob Glidden won the Mustang's first NHRA Pro Stock title.

Rickie Smith's Motorcraft Mustang won the International Hot Rod Association Pro Stock world championship.

In 2002 John Force broke his own NHRA drag racing record by winning his 12th national championship in his Ford Mustang Funny Car, Force beat that record again in 2006, becoming the first-ever 14-time champion, driving a Mustang.*[13]

Sports car racing

Early Mustangs also proved successful in road racing. The GT 350 R, the race version of the **Shelby GT 350**, won five of the Sports Car Club of America's (SCCA) six divisions in 1965. Drivers were Jerry Titus, Bob Johnson and **Mark Donohue**, and Titus won the (SCCA) B-Production national championship. GT 350s won the B-Production title again in 1966 and 1967. They also won the 1966 manufacturers' championship in the inaugural SCCA Trans-Am series, and repeated the win the following year.*[13]

In 1970, Mustang won the **SCCA** series manufacturers' championship again, with **Parnelli Jones** and **George Follmer** driving for car owner/builder **Bud Moore** and crew chief Lanky Foushee. Jones won the "unofficial" drivers' title.

In 1975 Ron Smaldone's Mustang became the first-ever American car to win the Showroom Stock national championship in SCCA road racing.

Mustangs competed in the **IMSA GTO** class, with wins in 1984 and 1985. In 1985 **John Jones** won the 1985 GTO drivers' championship; **Wally Dallenbach Jr.**, **John Jones** and **Doc Bundy** won the GTO class at the **Daytona 24 Hours**; and Ford won its first manufacturers' championship in road racing since 1970. Three class wins went to Lynn St. James, the first woman to win in the series.

1986 brought eight more GTO wins and another manufacturers' title. **Scott Pruett** won the drivers' championship. The GT Endurance Championship also went to Ford.

In 1987 **Saleen Autosport Mustangs** driven by **Steve Saleen** and **Rick Titus** won the SCCA Escort Endurance SSGT championship, and in International Motor Sports Association (IMSA) racing a Mustang again won the GTO class in the **Daytona 24 Hours**. In 1989, the Mustang won Ford its first Trans-Am manufacturers' title since 1970, with **Dorsey Schroeder** winning the drivers' championship.*[68]

In 1997, **Tommy Kendall**'s Roush-prepared Mustang won a record 11 consecutive races in Trans-Am to secure his third straight driver's championship.

Mustangs compete in the **SCCA World Challenge**, with Brandon Davis won the 2009 GT driver's championship.

Mustangs competed in the now-defunct **Grand-Am Road Racing Ford Racing Mustang Challenge** for the Miller Cup series.

Ford won championships in the **Grand-Am Road Racing Continental Tire Sports Car Challenge** for the 2005, 2008, and 2009 seasons with the Mustang FR500C and GT models. In 2004, **Ford Racing** retained **Multimatic Motorsports** to design, engineer, build and race the Mustang FR500C turn-key race car. In 2005, **Scott Maxwell** and **David Empringham** took the driver's title. In 2010, the next generation Mustang race car was known as the Boss 302R. It took its maiden victory at **Barber Motorsports Park** in early 2011, with drivers **Scott Maxwell** and **Joe Foster**.

In 2012, **Jack Roush** won the **Continental Tire Sports Car Challenge** race at the **Daytona International Speedway** opening race of the 50th Anniversary **Rolex 24 At Daytona** weekend in a Mustang Boss 302R.*[69]

Stock car racing

Dick Trickle won 67 short-track oval feature races in 1972, a national record for wins in a single season.

In 2010 the Ford Mustang became Ford's **Car of Tomorrow** for the **NASCAR Nationwide Series** with full-time racing of the Mustang beginning in 2011. This opened a new chapter in both the Mustang's history and Ford's history. NASCAR insiders expect to see Mustang racing in **NASCAR Sprint Cup** by 2014 (the model's 50th anniversary). The NASCAR vehicles are not based on production models, but are a silhouette racing car with decals that give them a superficial resemblance to road cars. **Carl Edwards** won the first-ever race with a NASCAR-prepped Mustang on April 8, 2011 at the **Texas Motor Speedway**.

Ford Mustangs also race in the **NASCAR Xfinity Series** since 2010.

Drifting

Mustangs have competed at the **Formula Drift** and **D1 Grand Prix** series, most notably by American driver **Vaughn Gittin Jr.**

Europe

Ford Mustangs compete in the **FIA GT3 European Championship**, and compete in the **GT4 European Cup** and other sports car races such as the **24 Hours of Spa**. The **Marc VDS Racing Team** was developing the GT3 spec Mustang since 2010.*[70]



2005 Canadian Car of the Year

7.2.9 Awards

The 1965 Mustang won the Tiffany Gold Medal for excellence in American design, the first automobile ever to do so.

The Mustang was on the Car and Driver Ten Best list in 1983, 1987, 1988, 2005, 2006, 2011, and 2016. It won the Motor Trend Car of the Year award in 1974 and 1994.

7.2.10 Sales

7.2.11 National Mustang Museum

In May 2016, the National Mustang Museum was announced, with an expected opening in Concord, North Carolina in summer 2017. The decision to locate somewhere in Concord was a result of the success of the 2014 Mustang 50th anniversary celebration at Charlotte Motor Speedway in Concord, with over 4,000 Mustangs registered and an estimated economic impact of US\$8,300,000.*[89]

7.2.12 In popular culture and film

- Favorable publicity articles appeared in 2,600 newspapers the next morning, the day the car was “officially” revealed.*[22]*[23]
- The song *Mustang Sally*, recorded by Wilson Pickett in 1966, is about a man who buys a Mustang for his ungrateful girlfriend. It has been described by one cultural historian as “Free advertising for the Ford Motor Company.” *[90]
- Steve McQueen drove a Highland Green 1968 Ford Mustang GT 390 fastback in the famous chase scene in the 1968 film *Bullitt*.*[91] As a result of that and other Hollywood movies the car “enjoyed celebrity status in the 1960s.” *[92]

- A 1971 Mustang Mach 1 was featured in the James Bond film, *Diamonds Are Forever* (1971).*[93]
- The David Gelb directed documentary *A Faster Horse* covers the vehicle's history creation of the 2015 Mustang.*[94]
- The 1974 version of *Gone in Sixty Seconds* featured a 1971 (fitted to resemble a 1973) Mustang fast-back.*[95]
- The Ford Mustang has appeared in more Hollywood films than any other car.

7.2.13 See also

- Ford Mustang variants
- California Special Mustang
- Ford Mustang SSP

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7.2.17 External links

- Official site
- Ford Mustang at DMOZ

7.3 Mazda RX-7

The **Mazda RX-7** is a sports car that was produced by the Japanese automaker **Mazda** from 1978 to 2002. The original RX-7 featured a 1,146 cc (69.9 cu in) twin-rotor Wankel rotary engine and a front-midship, rear-wheel

drive layout. The RX-7 replaced the RX-3, with both models sold in Japan as the **Mazda Savanna**.

The original RX-7 was a sports car with pop-up headlamps. The compact and lightweight Wankel rotary engine is situated slightly behind the front axle, a configuration marketed by Mazda as “front mid-engine” . It was offered as a two-seat coupé, with optional “occasional” rear seats in Japan, Australia, the United States, and other parts of the world. The rear seats were initially marketed as a dealer-installed option for the North American markets.

The RX-7 made *Car and Driver* magazine's Ten Best list five times. 811,634 RX-7s were produced.* [1]

The RX-7 has become notable through pop culture such as *The Fast and the Furious* series, *Initial D*, *Need for Speed*, *Wangan Midnight*, *Forza Motorsport* and *Gran Turismo*.

7.3.1 First Generation (SA22C/FB)

Series 1 (1978–1980) is commonly referred to as the “SA22C” from the first alphanumerics of the vehicle identification number. In Japan it was introduced in March 1978, replacing the Savanna RX-3, and joined Mazda's only other remaining rotary engine powered products, called the **Mazda Cosmo** which was a two-door luxury coupe, and the **Mazda Luce** luxury sedan.

The lead designer at Mazda was Matasaburo Maeda, whose son Ikuo would go on to design the **Mazda2** and **Mazda RX-8**.* [2] The transition of the Savana to a sports car appearance reflected products from other Japanese manufacturers. The advantage the RX-7 had was its minimal size and weight, and the compact rotary engine installed behind the front axle, which helped balance the front to rear weight distribution, and provide a low center of gravity.

In Japan, sales were enhanced by the fact that the RX-7 complied with Japanese Government dimension regulations, and Japanese buyers were not liable for yearly taxes for driving a larger car. The rotary engine had financial advantages to Japanese consumers in that the engine displacement remained below 1.5 litres, a significant determination when paying the Japanese annual road tax which kept the obligation affordable to most buyers, while having more power than the traditional inline engines.

In May 1980, Mazda released a limited production run of special North American models known as the Leather-sport Models. This package was essentially an uprated GS model with added LS badges on each B-pillar, special striping, and LS-only gold anodized wheels (with polished outer face and wheel rim). All LS editions came equipped with special LS-only full brown leather upholstery, leather wrapped steering wheel, leather wrapped shift knob, removable sunroof, LS-specific four-speaker AM/FM stereo radio with power antenna (though listed as

a six speaker stereo, as the two rear dual voice coil speakers were counted as four speakers in total), remote power door side mirrors, and other standard GS equipment. Two primary options were also available; a three-speed JATCO 3N71B automatic transmission and air conditioning. Other GS options such as cassette tape deck, splash guards, padded center console arm rest and others could be added by the dealer. The LS model was only ever available in three different exterior colors: Aurora White, Brilliant Black, and Solar Gold. No official production records are known to exist or to have been released. This series of RX-7 had exposed steel bumpers and a high-mounted indentation-located license plate, called by Werner Buhrer of *Road & Track* magazine a "Baroque depression."



Mazda RX-7 Series 2 (US)

The Series 2 (1981–1983) had integrated plastic-covered bumpers, wide black rubber body side moldings, wraparound taillights and updated engine control components. While marginally longer overall, the new model was 135 lb (61 kg) lighter in federalized trim.* [3] The four-speed manual option was dropped for 1981 as well, while the gas tank grew larger and the dashboard was redesigned, including a shorter gear stick mounted closer to the driver.* [3] In 1983, the 130 mph speedometer returned for the RX-7. The GSL package provided optional four-wheel disc brakes, front ventilated (Australian model) and clutch-type rear limited slip differential (LSD). Known as the "FB" in North America after the US Department of Transportation mandated 17 digit Vehicle Identification Number changeover. For various other markets worldwide, the 1981–1985 RX-7 retained the 'SA22C' VIN prefix. In the UK, the 1978–1980 series 1 cars carried the SA code on the vehicle VIN but all later cars (1981–1983 series 2 & 1984–1985 series 3) carried the FB code and these first generation RX7's are known as the "FB". The license-plate surround looks much like Buhrer's "Styling Impressions."

In Europe, the FB was mainly noticed for having received a power increase from the 105 PS (77 kW) of the SA22; the 1981 RX-7 now had 115 PS (85 kW) on tap. European market cars also received four-wheel disc brakes as standard.* [4]

The Series 3 (1984–1985) featured an updated lower front fascia. North American models received a differ-



1984–1985 Mazda RX-7 (Series 3; Australia)

ent instrument cluster. GSL package was continued into this series, but Mazda introduced the GSL-SE sub-model. The GSL-SE had a fuel-injected 1.3 L 13B RE-EGI engine producing 135 hp (101 kW) and 135 lb·ft (183 N·m). GSL-SEs had much the same options as the GSL (clutch-type rear LSD and rear disc brakes), but the brake rotors were larger, allowing Mazda to use the more common lug nuts (versus bolts), and a new bolt pattern of 4x114.3 (4x4.5"). Also, they had upgraded suspension with stiffer springs and shocks. The external oil cooler was reintroduced, after being dropped in the 1983 model-year for the controversial "beehive" water-oil heat exchanger.

The 1984 RX-7 GSL has an estimated 29 highway miles per gallon (8.11 litres per 100 km) /19 estimated city miles per gallon (12.37 l/100 km). According to Mazda, its rotary engine, licensed by NSU-Wankel allowed the RX-7 GSL to accelerate from 0 to 50 (80 km/h) in 6.3 seconds. Kelley Blue Book, in its January–February 1984 issue, noted that a 1981 RX-7 GSL retained 93.4% of its original sticker price.

In 1985 Mazda released the RX7 Finale in Australia. This was the last of the series and brought out in limited numbers. The Finale featured power options and a brass plaque mentioning the number the car was as well as "Last of a legend" on the plaque. The finale had special stickers and a blacked out section between the window & rear hatch.

The handling and acceleration of the car were noted to be of a high caliber for its day. This generation RX-7 had "live axle" 4-link rear suspension with Watt's linkage, a 50/50 weight ratio, and weighed under 2,500 lb (1,100 kg). It was the lightest generation of RX-7 ever produced. 12A-powered models accelerated from 0–60 mph in 9.2 s, and turned 0.779 g (7.64 m/s²) laterally on a skidpad. The 12A engine produced 100 hp (75 kW) at 6,000 rpm, allowing the car to reach speeds of over 120 miles per hour (190 km/h). Because of the smoothness inherent in the Wankel rotary engine, little vibration or harshness was experienced at high engine speeds, so a buzzer was fitted to the tachometer to warn the driver when the 7,000 rpm redline was approaching.

The 12A engine has a long thin shaped combustion chamber, having a large surface area in relation to its volume. Therefore, combustion is cool, giving few oxides of nitrogen. However, the combustion is also incomplete, so

there are large amounts of partly burned hydrocarbons and carbon monoxide. The exhaust is hot enough for combustion of these to continue into the exhaust. An engine driven pump supplies air into the exhaust to complete the burn of these chemicals. This is done in the “thermal reactor” chamber where the exhaust manifold would normally be on a conventional engine. Under certain conditions the pump injects air into the thermal reactor and at other times air is pumped through injectors into the exhaust ports. This fresh air is needed for more efficient and cleaner burning of the air/fuel mixture.*[5]

Options and models varied from country to country. The gauge layout and interior styling in the Series 3 was only changed for North American versions. Additionally, North America was the only market to have offered the first generation RX-7 with the fuel-injected **13B**, model GSL-SE. Sales of the first generation RX-7 were strong, with a total of 474,565 first generation cars produced; 377,878 (nearly eighty percent) were sold in the United States alone. In 2004, *Sports Car International* named this car seventh on their list of Top Sports Cars of the 1970s. In 1983, the RX-7 would appear on *Car and Driver* magazine's Ten Best list for the first time in 20 years.

Savanna RX-7 Turbo

Following the introduction of the first **turbocharged** rotary engine in the **Luce/Cosmo**, a similar, also fuel injected and non-intercooled **12A turbo** engine was made available for the top-end model of the series 3 RX-7 in Japan. It was introduced in September 1983.*[6] Power is 165 PS (121 kW) JIS at 6,500 rpm. While the peak power figures were only somewhat higher than those of the engine used in the Luce/Cosmo, the new “Impact Turbo” was developed specifically to deal with the different exhaust gas characteristics of a rotary engine. Both rotor vanes of the turbine were remodelled and made smaller, and the turbine had a twenty percent higher speed than a turbo intended for a conventional engine.*[7] The Savanna Turbo was short-lived, as the next generation RX-7 was just around the corner.

7.3.2 Second generation (FC)

The Series 4 (1985–1988) was available with a naturally aspirated, fuel-injected **13B-VDEI** producing 146 hp (108 kW) in North American spec. An optional turbocharged model, (1985–1988) known as the Turbo II in the American market, had 182 hp / 185 PS (136 kW). The Series 5 (1989–1992) featured updated styling and better engine management, as well as lighter rotors and a higher compression ratio, 9.7:1 for the naturally aspirated model, and 9.0:1 for the turbo model. The naturally aspirated Series 5 FC made 160 hp (119 kW), while the Series 5 Turbo made 200 hp / 205 PS (151 kW).

The rotary engine had financial advantages to Japanese

consumers in that the engine displacement remained below 1.5 litres, a significant determination when paying the Japanese annual road tax which kept the obligation affordable to most buyers, while having more power than the traditional inline engines. The RX-7 in this regard to Japanese owners offered comparable performance to other Japanese performance coupes, while being of lighter weight, with a balanced chassis, and lively performance, without the extra expense of the road tax obligation.

The second generation RX-7 (“FC”, VIN begins JM1FC3 or JMZFC1), still known as the **Mazda Savanna RX-7** in Japan, featured a complete restyling reminiscent of the **Porsche 924**. Mazda's stylists, led by Chief Project Engineer Akio Uchiyama, focused on the Porsche 924 for their inspiration in designing the FC because the new car was being styled primarily for the American market, where the majority of first generation RX-7's had been sold.

This strategy was chosen after Uchiyama and others on the design team spent time in the United States studying owners of earlier RX-7's and other sports cars popular in the American market. The **Porsche 944** was selling particularly well at the time and provided clues as to what sports-car enthusiasts might find compelling in future RX-7 styling and equipment.

While the SA22/FB was a purer sports car, the FC tended toward the softer sport-tourer trends of its day, sharing some similarities with the **HB** series Cosmo. Handling was much improved, with less of the oversteer tendencies of the FB. The rear end design was vastly improved from the FB's live rear axle to a more modern, Independent Rear Suspension (rear axle). Steering was more precise, with rack and pinion steering replacing the old recirculating ball steering of the FB. Disc brakes also became standard, with some models (S4: Sport, GXL, GTU, Turbo II, Convertible; S5: GXL, GTUs, Turbo, Convertible) offering four-piston front brakes. The rear seats were optional in some models of the FC RX-7, but are not commonly found in the American Market. Mazda also introduced Dynamic Tracking Suspension System (DTSS) in the 2nd generation RX-7. The revised independent rear suspension incorporated special toe control hubs which were capable of introducing a limited degree of passive rear steering under cornering loads. The DTSS worked by allowing a slight amount of toe-out under normal driving conditions but induced slight toe-in under heavier cornering loads at around 0.5 G's or more; toe-out in the rear allows for a more responsive rotation of the rear, but toe-in allowed for a more stable rear under heavier cornering. Mazda also introduced Auto Adjusting Suspension (AAS) in the 2nd generation RX-7. The system changed damping characteristics according to the road and driving conditions. The system compensated for camber changes and provided anti-dive and anti-squat effects. The Turbo 2 uses a turbo charger with a twin scroll design. The smaller primary chamber is engineered to

cancel the turbo lag at low engine speeds. At higher revolutions the secondary chamber is opened, pumping out 33% more power than the naturally aspirated counterpart. The Turbo 2 also has an air-to-air intercooler which has a dedicated intake on the hood. The intake is slightly offset toward the left side of the hood.

Though about 800 lb (363 kg) heavier and more isolated than its predecessor, the FC continued to win accolades from the press. The FC RX-7 was *Motor Trend's Import Car of the Year* for 1986, and the Turbo II was on *Car and Driver* magazine's Ten Best list for a second time in 1987.

In the Japanese market, only the turbo engine was available; the naturally aspirated version was allowed only as an export. This can be attributed to insurance companies in many Western nations penalizing turbo cars (thus restricting potential sales). This emphasis on containing horsepower and placating insurance companies to make RX-7's more affordable seems ironic in retrospect. Shortly after the discontinuance of the second generation RX-7's in 1992, an outright horsepower "arms race" broke out between sports car manufacturers, with higher and higher levels of power required to meet buyer demands. This rising horsepower phenomena arose from the US CAFE standards remaining stable while engine technologies marched forward rapidly.

Mazda sold 86,000 RX-7's in the US alone in 1986, its first model year, with sales peaking in 1988.

Australian Motors Mazda released a limited run of 250 'Sports' model Series 4 RX-7's; each with no power steering, power windows or rear wiper as an attempt to reduce the weight of the car. In Japan, there was a special limited release of the FC called Infini with only 600 made for each year. Some special noted features for all Infini series are: infini logo on the back, upgraded suspension, upgraded ECU, higher horsepower, lightened weight, 15-inch BBS aluminum alloy wheels, Infini logo steering wheel, aero bumper kits, bronze colored window glass, floor bar on the passenger side, aluminum bonnet with scoop, flare and holder. The car was thought as the pinnacle of the RX-7 series (until the FD came out). The Infini IV came with other special items such as black bucket seats, 16-inch BBS wheels, Knee pads, and all the other items mentioned before. There are differing years for the Infini, which noted the series. Series I was introduced in 1987, Series II was introduced in 1988, Series III was introduced in 1990, and Series IV was introduced in 1991. Series I and II came in White or Black, Series III came in Forest Green only, and Series IV came in Forest Green or Noble Green. There are only minor differences between the series, the biggest change which was from the Series II being an S4 (1985–1988) and the Series III and IV being an S5 (1989–1991).



1988 Mazda RX-7 Convertible (FC)

Convertible

Mazda introduced a convertible version of the RX-7 in 1988 with a naturally aspirated engine—introduced to the US market with ads featuring actor James Garner, at the time featured in many Mazda television advertisements.

The convertible featured a removable rigid section over the passengers and a folding textile rear section with heatable rear glass window. Power operated, lowering the top required unlatching two header catches, power lowering the top, exiting the car (or reaching over to the right side latch), and folding down the rigid section manually. Mazda introduced with the convertible the first integral windblocker, a rigid panel that folded up from behind the passenger seats to block unwanted drafts from reaching the passengers—thereby extending the driving season for the car in open mode. The convertible also featured optional headrest mounted audio speakers and a folding leather snap-fastened tonneau cover. The convertible assembly was precisely engineered and manufactured, and dropped into the ready body assembly as a complete unit—a first in convertible production.

Several car magazines at the time lauded the convertible. Production ceasing in 1991 after Mazda marketed a limited run of 500 example for 1992 for the domestic market only. In Japan, the United Kingdom, and other regions outside the US, a turbocharged version of the convertible was available.

10th Anniversary RX-7

Mazda introduced the 10th Anniversary RX-7 in 1988 as a limited production run based on the RX-7 Turbo II. Production was limited to 1,500 models. The 10th Anniversary RX-7 features a Crystal White (paint code UC) monochromatic paint scheme with matching white body side mouldings, taillight housings, mirrors and 16-inch alloy 7-spoke wheels. There were two "series" of 10th Anniversary models, with essentially a VIN-split running production change between the two. The most

notable difference between the series can be found on the exterior- the earlier “Series I” cars had a black “Mazda” logo decal on the front bumper cover, whereas most if not all “Series II” cars did not have the decal. Series II cars also received the lower seat cushion height/tilt feature that Series I cars lacked. Another distinctive exterior feature is the bright gold rotor-shaped 10th Anniversary Edition badge on the front fenders (yellow-gold on the Series II cars). A distinctive 10th Anniversary package feature is the all black leather interior (code D7), which included not just the seats, but the door panel inserts as well and a leather-wrapped MOMO steering wheel (with 10th Anniversary Edition embossed horn button) and MOMO leather shift knob with integrated boot. All exterior glass is bronze tinted (specific in North America to only the 10th Anniversary), and the windshield was equipped with the embedded secondary antenna also found on some other select models with the upgraded stereo packages. Other 10th Anniversary Edition specific items were headlight washers (the only RX-7 in the US market that got this feature), glass breakage detectors added to the factory alarm system, 10th Anniversary Edition logoed floormats, 10th Anniversary Edition embroidered front hood protector and accompanying front end mask (or “bra”), and an aluminum under pan.

GTUs (1989-1990)

In 1989, with the introduction of a face-lifted FC RX-7, and to commemorate the RX-7's IMSA domination, Mazda introduced a limited model labeled the GTUs. Starting with the lightweight base model GTU, which came with manual windows, no rear wiper, the sunroof and A/C was dealer optioned, the GTUs added items found on the Turbo model such as four piston front brakes, rear ventilated brake rotors, vehicle speed sensing power steering, one-piece front chin spoiler, cloth covered Turbo model seats, leather wrapped steering wheel, 16 inch wheels, 205/55VR tires, and a GTUs-only 4.300 Viscous-type limited slip differential (all other FC LSD's where 4.100). This allowed quicker acceleration from the non-turbo powered 13B. Mazda built 1100 GTUs's in 1989, with the last 100 re-stamped as 1990 models.

7.3.3 Third generation (FD)

The third generation of the RX-7, **FD** (with FD3S for Japan and JM1FD for the USA VIN), featured an updated body design. The 13B-REW was the first-ever mass-produced **sequential twin-turbocharger** system to export from Japan, boosting power to 255 PS (188 kW; 252 hp) in 1993 and finally 280 PS (206 kW; 276 hp) by the time production ended in Japan in 2002.

In Japan, sales were affected by the fact that this series RX-7 no longer complied with Japanese Government dimension regulations, and Japanese buyers were liable

for yearly taxes for driving a wider car compared to previous generations. As the RX-7 was now considered an upper-level luxury sportscar due to the increased width dimensions, Mazda offered two smaller sports cars, the Eunos Roadster, and the Eunos Presso hatchback.

The sequential twin turbocharged system, introduced on this series in 1992, was a very complex piece of engineering, developed with the aid of Hitachi and previously used on the exclusive to Japan **Cosmo** series (JC Cosmo=90–95). The system was composed of two turbochargers, one to provide boost at low RPM. The second unit was on standby until the upper half of the rpm range during full throttle acceleration. The first turbocharger provided 10 psi (0.7 bar) of boost from 1800 rpm, and the second turbocharger was activated at 4000 rpm to maintain 10 psi (0.7 bar) until redline. The changeover process occurred at 4500 rpm, with a momentary dip in pressure to 8 psi (0.6 bar), and provided semi-linear acceleration and a wide torque curve throughout the entire rev range under “normal operation”. However, under performance driving the changeover process produced a significant increase in power and forced technical drivers to adjust their driving style to anticipate and mitigate any over-steer during cornering. Many owners modified their turbo control systems into a parallel system by removing the exhaust manifold Turbo Control Valve and the turbo coupling “y-pipe” Charge Control Actuator and valve in order to remove the changeover process and to simplify the control system for reliability. Turbo lag was greatly increased below 4500 rpm, but smooth and linear boost could be obtained. The stock turbo control system used 4 control solenoids, 4 actuators, both a vacuum and pressure chamber, and several feet of preformed vacuum/pressure hoses all of which were prone to failure in part to complexity and the inherent high temperatures of the rotary engine.

Australia had a special high-performance version of the RX-7 in 1995, named the **RX-7 SP**. This model was developed to achieve **homologation** for racing in the Australian **GT Production Car Series** and the **Eastern Creek 12 Hour** production car race. An initial run of 25 originals' were made, and later an extra 10 were built by Mazda due to demand. The RX-7 SP produced 204 kW (274 hp) and 357 N·m (263 lb·ft) of torque, compared to the 176 kW (236 hp) and 294 N·m (217 lb·ft) of the standard version. Other changes included a race-developed carbon fibre nose cone and rear spoiler, a carbon fibre 120 L fuel tank (as opposed to the 76 L tank in the standard car), a 4.3:1-ratio rear differential, 17-inch wheels, larger brake rotors and calipers. An improved intercooler, exhaust, and modified **ECU** were also included. Weight was reduced significantly with the aid of further carbon fibre usage including lightweight vented bonnet and Recaro seats to reduce weight to 1218 kg (from 1250 kg). It was a serious road-going race car that matched their rival **Porsche 911 RS CS** for the final year Mazda officially entered. The formula paid off when the RX-7

SP won the 1995 Eastern Creek 12 Hour, giving Mazda the winning 12hr trophy for a fourth straight year. The winning car also gained a podium finish at the international tarmac rally Targa Tasmania months later. A later special version, the **Bathurst R**, was released in 2001 to commemorate this, in Japan only.

In the United Kingdom, for 1992, customers were offered only one version of the FD, which was based on a combination of the US touring and the base model. For the following year, in a bid to speed up sales, Mazda reduced the price of the RX-7 to £25,000, down from £32,000, and refunded the difference to those who bought the car before that was announced. The FD continued to be imported to the UK until 1996. In 1998, for a car that had suffered from slow sales when it was officially sold, with a surge of interest and the benefit of a newly introduced **SVA** scheme, the FD would become so popular that there were more parallel and grey imported models brought into the country than Mazda UK had ever imported.

- Series 6 (1991–1995) was exported throughout the world and had the highest sales. In Japan, Mazda sold the RX-7 through its **ɛfini** brand as the **ɛfini RX-7**. Models in Japan included the Type R, the lightweight sports model Type RZ, the Type RB, the A-spec and the Touring X, which came with a four-speed automatic transmission. Only the 1993–1995 model years were sold in the U.S. and Canada. Series 6 came with 255 PS (188 kW; 252 hp) and 294 N·m (217 lb·ft).
- In 1993, three North American models were offered; the “base”, the touring, and the R models. The touring FD included a sunroof, fog lights, leather seats, a rear window wiper and a **Bose Acoustic Wave system**. The R (R1 in 1993 and R2 in 1994–95) models featured stiffer suspensions, an additional engine oil cooler, an **aerodynamics package**, purple-hued microfiber seats, and Z-rated tires. In 1994, the interior received a small update to include a passenger air bag, and a PEG (performance equipment group) model was offered. This model featured leather seats and a sunroof. It did not include the fog lights or Bose stereo of the touring package. In 1995, the touring package was replaced by the PEP (popular equipment package). The PEP package contained leather seats, sunroof and fog lights, but didn't have the Bose Stereo nor the rear window wiper.
- In Europe, only 1152 examples of this model were sold through the official Mazda network. Only one spec was available and it included twin oil-coolers, electric sunroof, cruise control and the rear storage bins in place of the back seats. It also has the stiffer suspension and strut braces from the R models. Germany top the sales with 446 cars, while UK is second at 210 and Greece third with 168. The European

models also received the 1994 interior facelift, with a passenger air bag.

- Series 7 (1996–1998) included minor changes to the car. Updates included a simplified vacuum routing manifold and a 16-bit ECU which combined with an improved intake system netted an extra 10 PS (7 kW). This additional horsepower was only available on manual transmission cars as the increase in power was only seen above 7000rpm, which was the red-line for automatic transmission equipped cars. The rear spoiler and tail lights were also redesigned. The Type RZ model was now equipped with larger brake rotors as well as 17 inch BBS wheels. In Japan, the Series 7 RX-7 was marketed under the Mazda and **ɛfini** brand name. The Series 7 was also sold in Australia, New Zealand and the UK. Series 7 RX-7s were produced only in right-hand-drive configuration.
- Series 8 (January 1999– August 2002) was the final series, and was only available in the Japanese market. More efficient turbochargers were available on certain models, while improved intercooling and radiator cooling was made possible by a redesigned front fascia with larger openings. The seats, steering wheel, and instrument cluster were all changed. The rear spoiler was modified and gained adjustability on certain models. Three horsepower levels are available: 255ps for automatic transmission equipped cars, 265ps for the Type RB, and 280ps available on the top-of-the-line sporting models. The high-end “**Type RS**” came equipped with Bilstein suspension and 17-inch wheels as standard equipment, and reduced weight to 1,280 kg (2,822 lb). Power was increased with the addition of a less restrictive muffler and more efficient turbochargers which featured abradable compressor seals, 280 PS (206 kW; 276 hp) with 313.8 N·m (231 lb·ft) of torque as per the maximum Japanese limit. The Type RS had a brake upgrade by increasing rotor diameter front and rear to 314 mm (12.4 in) and front rotor thickness from 22 mm (0.9 in) to 32 mm (1.3 in). The Type RS version also sported a 4.30 ratio differential, providing a significant reduction in its 0–100 km/hr time. The gearbox was also modified, 5th gear was made longer to reduce cruising rpm and improve fuel efficiency. The very limited edition **Type RZ** version included all the features of the Type RS, but at a lighter weight (at 1270 kg). It also featured custom gun-metal colored BBS wheels and a custom red racing themed interior. An improved **ABS** system worked by braking differently on each wheel, allowing the car better turning during braking. The effective result made for safer driving for the average buyer. Easily the most collectible of all the RX-7s were the last 1,500 run-out specials. Dubbed the “**Spirit R**”, they combined all the “extra” features Mazda had used on previous limited-

run specials with new exclusive features like cross-drilled brake rotors. Sticker prices when new were 3,998,000 yen for Type-A and B and 3,398,000 yen for Type-C. Mazda's press release said "*The Type-A Spirit R model is the ultimate RX-7, boasting the most outstanding driving performance in its history.*"

- There are three models of "Spirit R": the "Type A", "Type B", and "Type C". The "Type A" is a two-seater with a 5-speed manual transmission. It features lightweight red trim Recaro front seats as seen in the earlier RZ models. The "Type B" has a 2+2 seat configuration and also sports a five-speed manual transmission. The "Type C" is also a 2+2, but has a four-speed automatic transmission. Of the 1504 Spirit R's made, over 1000 were Type A's. An exclusive Spirit R paint color, Titanium Grey, adorned over 700 of the 1500 cars sold.

In Japan the FD3S production span is categorized into 6 models: #1 from 1991/12, #2 from 1993/08, #3 from 1995/03, #4 from 1996/01, #5 from 1998/12 and #6 from 2000/10. The model number (1 to 6) actually shows as the first digit of the 6 digits long JDM VIN, for example in VIN# FD3S-ABCDEF the A is the model number. A total of 9 limited editions (type RZ in 1992/10 (300 cars), RZ 1993/10 (150), R-II Bathurst 1994/09 (350), R Bathurst X 1995/07 (777), RB Bathurst X 1997/01 (700), RS-R 1997/10 (500), RZ 2000/10 (325), R Bathurst R 2001/08 (650), Spirit R 2002/04 (1500) and 2 special editions (Bathurst R 1995/02, R Bathurst 2001/12) were produced.*[9]*[10]



RX-7 Spirit R Type A and Japanese Steam locomotive "C11"

Reviews and awards

The FD RX-7 was *Motor Trend's* Import Car of the Year. When *Playboy* first reviewed the FD RX-7 in 1993, they

tested it in the same issue as the [then] new Dodge Viper. In that issue, *Playboy* declared the RX-7 to be the better of the two cars. It went on to win *Playboy's* Car of the Year for 1993. The FD RX-7 also made *Car and Driver's* Ten Best list for 1993 through 1995, for every year in which it was sold state-side. June 2007 *Road & Track* proclaimed "The ace in Mazda's sleeve is the RX-7, a car once touted as the purest, most exhilarating sports car in the world." After its introduction in 1991, it won the Automotive Researchers' and Journalists' Conference Car of the Year award in Japan.

Handling in the FD was regarded as world-class, and it is still regarded as being one of the finest handling and the best balanced cars of all time.*[11]*[12] The continued use of the front-midship engine and drivetrain layout, combined with a 50:50 front-rear weight distribution ratio and low center of gravity, made the FD a very competent car at the limits.

7.3.4 Motorsport



Winning RX-7 in the GT3 class at the 2010 SCCA National Championship Runoffs.

Racing versions of the first-generation RX-7 were entered at the prestigious 24 hours of Le Mans endurance race. The first outing for the car, equipped with a 13B engine, failed by less than one second to qualify in 1979. The next year, a 12A-equipped RX-7 not only qualified, it placed 21st overall. That same car did not finish in 1981, along with two more 13B cars. Those two cars were back for 1982, with one 14th-place finish and another DNF. The RX-7 Le Mans effort was replaced by the 717C prototype for 1983. In 1991, Mazda made racing history becoming the first Japanese automobile manufacturer to win the 24 hours of Le Mans. The car was a 4-rotor prototype, the 787B. To this day, Mazda is the only Japanese manufacturer to have won the prestigious 24-hour Le Mans race outright. Mazda is also the only manufacturer to win the 24 hours of Le Mans race using something other than a reciprocating piston engine.

Mazda began racing RX-7s in the *IMSA GTU* series in 1979. In its first year, RX-7s placed first and second at the 24 Hours of Daytona, and claimed the GTU series cham-

pionship. The car continued winning, claiming the GTU championship seven years in a row. The RX-7 took the GTO championship ten years in a row from 1982. In addition to this, a GTX version was developed, named the **Mazda RX-7 GTP**; this was unsuccessful, and the **GTP** version of the car was also unsuccessful. The RX-7 has won more IMSA races than any other car model. In the USA SCCA competition RX-7s were raced with great success by Don Kearney in the NE Division and John Finger in the SE Division. Pettit Racing won the GT2 Road Racing Championship in 1998. The car was a 93 Mazda RX-7 street car with only bolt-on accessories. At season end Pettit had 140 points—63 points more than the 2nd place team. This same car finished the Daytona Rolex 24-hour race 4 times.

The RX-7 also fared well at the **Spa 24 Hours** race. Three Savanna/RX-7s were entered in 1981 by **Tom Walkinshaw Racing**. After hours of battling with several BMW 530i's and Ford Capris, the RX-7 driven by **Pierre Dieudonné** and **Tom Walkinshaw** won the event. Mazda had turned the tables on BMW, who had beaten Mazda's Familia Rotary to the podium eleven years earlier at the same event. TWR's prepared RX-7s also won the British Touring Car Championship in 1980 and 1981, driven by **Win Percy**.

Canadian/Australian touring car driver **Allan Moffat** was instrumental in bringing Mazda into the Australian touring car scene which ran to **Group C** regulations unique to Australia. Over a four-year span beginning in 1981, Moffat took the Mazda RX-7 to victory in the **1983 Australian Touring Car Championship**, as well as a trio of Bathurst 1000 podiums, in 1981 (3rd with **Derek Bell**), 1983 (second with **Yoshimi Katayama**) and 1984 (third with former motorcycle champion **Gregg Hansford**). In 1983, **Peter McLeod** drove his RX-7 to win the **1983 Australian Endurance Championship**, while Moffat won the Endurance title in 1982 and 1984. Australia's adoption of international **Group A** regulations, combined with Mazda's reluctance to homologate a Group A RX-7 (meaning that a base number of 5,000 had to be built, plus another 500 "evolution" models), ended Mazda's active participation in Australian touring car racing at the end of the 1984 season.

The RX-7 even made an appearance in the **World Rally Championship**. The car finished 11th on its debut at the **RAC Rally in Wales** in 1981. **Group B** received much of the focus for the first part of the 1980s, but Mazda did manage to place third at the **1985 Acropolis Rally**, and when the **Group B** was folded, its **Group A**-based replacement, the **323 4WD** claimed the victory at **Swedish Rally** in both 1987 and 1989.

7.3.5 Revivals

Mazda has made several references to a revival of the RX-7 in various forms over the years since the RX-7

was discontinued. In November 2012, MX-5 program manager Nobuhiro Yamamoto indicated that Mazda was working on a 16X based RX-7, with 300 horsepower.*[13]*[14]

In October 2015, Mazda unveiled the RX-Vision concept car at the Tokyo Motor Show, powered by a new rotary engine and featured design cues reminiscent to the third generation RX-7. A production version could follow suit by 2017, marking 50 years since the revealing of Mazda's first rotary-powered sports car, the **Mazda Cosmo**.* [15]

7.3.6 Further reading

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7.3.8 External links

- Mazda RX-7 at DMOZ

7.4 Mitsubishi Lancer Evolution

The **Mitsubishi Lancer Evolution**, also known as the **Lancer Evo**, or just **Evo**,^{*[1]} is a high performance sports car manufactured by **Mitsubishi Motors** that is based on the normal **Lancer**. There have been ten official versions to date, and the designation of each model is most commonly a **Roman numeral**. All use two litre, turbocharged engines and all-wheel drive systems.^{*[2]}

The Evolution was originally intended only for Japanese markets, but demand on the “grey import” market led the Evolution series to be offered through **Ralliart** dealer networks in the United Kingdom and in various European markets from around 1998. Mitsubishi decided to export the eighth generation Evolution to the United States in 2003 after witnessing the success **Subaru** had in that market with their long-time direct rival, the **Subaru Impreza WRX STi**.^{*[3]}

Japanese-spec cars were limited by a gentlemen's agreement to advertise no more than 280 PS (206 kW; 276 hp), a mark already reached by Evolution IV. Therefore, each subsequent version has unofficially evolved above the advertised power figures, with the Japanese-spec Evolution IX reaching an alleged output of around 321 PS (236 kW; 317 hp). Various versions available in other markets, particularly the UK, have official power outputs up to 446 PS (328 kW; 440 hp).

The tenth and final generation of the Lancer Evolution was launched in Japan 2007, and overseas markets in 2008.

7.4.1 Evolution I

The first Lancer Evolution used the 2.0 L turbocharged DOHC engine and AWD drivetrain from the original Galant VR-4 in a Lancer chassis, and was sold in GSR and RS models. This engine was also used in the **Mitsubishi RVR** with the Hyper Sports Gear trim package, and the **Mitsubishi Chariot Resort Runner GT**. The RS was a stripped-down version that lacked (power) windows and seats, anti-lock brakes, a rear wiper, and had steel wheels to weigh approximately 70 kg (154 lb) less than the 1,238 kg (2,729 lb) GSR, ready for racing or tuning. The RS version was released with a mechanical plate type rear Limited-slip differential (LSD). The GSR came with all of the conveniences of a typical street car, including a digital screen climate control system. It came with Mitsubishi's 4G63 engine producing 247 PS (182 kW; 244 hp) at 6000 rpm and 309 N·m (228 lb·ft) at 3000 rpm. 5,000 of the first generation Evolutions were sold between 1992 and 1993. Top speed was 228 km/h (142 mph). The GSR version of the Evolution I was the only Evolution Lancer released with a Viscous Limited Slip Rear Differential (**VLSD**). The subsequent Evolution Lancer models all featured rear mechanical plate type LSD's.

7.4.2 Evolution II

The Evolution II was upgraded in December 1993, and was produced until February 1995. It consisted mainly of handling improvements, including minor wheelbase adjustments, lighter front swaybar that connected via swaybar links to the front struts, bodywork tweaks including a larger spoiler, and tires that were 10 mm (0.4 in) wider. This Evolution also has a 50 l (13.2 US gal; 11.0 imp gal) fuel tank. Power output was increased to 256 PS (188 kW; 252 hp) from the same engine and torque was unchanged for both GSR and RS models.

7.4.3 Evolution III

February 1995 saw the arrival of the Evolution 3, which had several improvements over the previous models. New, more aggressive styling and a new nose moulding improved the air supply to the radiator, intercooler and brakes. New side skirts and rear bumper moldings and a larger rear spoiler were added to reduce lift. Improved engine had higher compression ratio than before,^{*[4]} and new turbocharger compressor (65 mm to 68 mm^{*[5]}), which gave power output of 270 bhp (201 kW) at 6250 rpm, 309 N·m (228 lb·ft) at 3000 rpm.

7.4.4 Evolution IV

The Lancer platform was completely changed in 1996, and along with it, the Evolution, which had become extremely popular throughout the world. The engine and transaxle was rotated 180° to better balance the weight and eliminate torque steer. There were two versions available, The RS and GSR. The RS version was produced as a competition car with a limited-slip front differential and a friction type LSD at the rear. It also came with GLX seats and a choice of either 16" or 17" OZ light weight racing wheels. The RS also had wind up windows, optional air conditioning in some models, and a few extra brace bars to strengthen the chassis, one behind the front grill and the other across the boot floor. The GSR and the RS shared a new twin scroll turbocharger which helped to improve response and increase power to 280 PS (206 kW; 276 hp) at 6,500 rpm and 330 N·m (243 lb·ft) and torque at 4,000 rpm. Mitsubishi's new **Active Yaw Control** appeared as a factory option on the GSR model, which used steering, throttle input sensors and g sensors to computer-hydraulically control torque split individually to the rear wheels and as a result the 10000 Evolution IVs produced all sold quickly. The Evolution IV can be distinguished by its two large fog lights in the front bumper (option on RS version), and the newly designed tail lights on the rear, which became a standard design to Evolution V, which would become yet another trademark of the Evolution series. This new generation was slightly heavier than previous Evos—the GSR in particular due to the added technology systems—but to counter this the car produced even more power—the weight of the RS being 1,260 kg (2,778 lb) and the GSR being 1,345 kg (2,965 lb). Much of the technical improvements for this generation were also used in the second generation **Mitsubishi RVR** sold only in Japan.

7.4.5 Evolution V

Many aspects of the car were changed such as:

- The interior was upgraded in the GSR version with a better class of Recaro seat.
- The body kit had flared arches at the front and rear and a new aluminium rear spoiler replaced the IV FRP version and gave an adjustable angle of attack to alter rear down force.
- The track was widened by 10 mm (0.4 in), the wheel offset changed from ET45 to ET38 along with the wheel diameter which rose from 16" to 17" to accommodate Brembo brakes which were added to enhance braking.
- In addition the brake master cylinder bore increased by 0.3 millimetres (0.01 in).

- The engine was strengthened in a few areas and the cam duration was increased. The pistons were lighter with a smaller skirt area. 510 cc injectors were replaced with 560 cc injectors for better engine reliability due to more electrical "headroom" and the ECU was changed to include a flash ROM, allowing more boost pressure to the same TD05-HR as the Mitsubishi Evolution IV.

Furthermore, the turbocharger was again improved. Torque was increased to 373 N·m (275 lb·ft) at 3000 rpm. Power officially stayed the same, at 280 PS (206 kW; 276 hp), though some claim horsepower was actually somewhat higher.

7.4.6 Evolution VI

The Evolution VI's changes mainly focused on cooling and engine durability. It received a larger intercooler, larger oil cooler, and new pistons, along with a titanium-aluminide turbine wheel for the RS model, which was a first in a production car. The Evolution VI received new bodywork yet again, with the most easily noticeable change being within the front bumper where the huge fog lights were reduced in size and moved to the corners for better airflow. A new model was added to the GSR and RS lineup; known as the RS2, it was an RS with a few of the GSR's options. Another limited-edition RS was known as the RS Sprint, an RS tuned by **Ralliart** in the UK to be lighter and more powerful with 330 hp (246 kW).

Yet another special edition Evolution VI was released in 1999: the **Tommi Mäkinen Edition**, named after Finnish rally driver Tommi Mäkinen that had won Mitsubishi four WRC drivers championships. It featured a different front bumper, Red/Black Recaro seats (with embossed T. Mäkinen logo), 17" Enkei white wheels, a leather Momo steering wheel and shift knob, a titanium turbine that spooled up more quickly, front upper strut brace, lowered ride height (with tarmac stages in mind), and a quicker steering ratio. Amongst other colours, the Evo VI came in either red (Tommi Mäkinen Edition only), white, blue, black or silver with optional special decals, replicating Tommi Mäkinen's rally car's colour scheme. This car is also sometimes referred to as an Evolution 6½, Evolution 6.5, or TME for short.

7.4.7 Evolution VII

In 2001, Mitsubishi was forced by the **FIA** to race in the **WRC** using WRC rules for building a car instead of the Group A class rules, and thus did not need to follow homologation rules. The Evolution VII was based on the larger Lancer Cedia platform and as a result gained more weight over the Evolution VI, but Mitsubishi made up for this with multiple important chassis tweaks. The

biggest change was the addition of an active center differential and a more effective limited-slip differential, while a front helical limited-slip differential was added. Torque was increased again to 385 N·m (284 lb·ft) with engine tweaks that allowed greater airflow, and horsepower officially remained at 280 PS (206 kW; 276 hp).

The introduction of the Evolution VII also marked the first time an automatic drivetrain was included within the model lineup—the GT-A. Seen as the 'gentleman's express' version of the visually similar VII GSR and the RS2, the GT-A model was only produced in 2002 and had the following distinguishing interior and exterior specification: GT-A-only diamond cut finish 17-inch (430 mm) alloy wheels, clear rear light lenses and all-in-one style front headlights (later used on the Evolution VIII). The GT-A had the option of either no spoiler, the short spoiler (as per the Lancer Cedia; and later used on the Evolution VIII 260) or the thunderspoiler as used on the standard Evolution VII models. The most distinguishing feature was a smooth bonnet with no air-grills on it at all and the revised front bumper. Although offering inferior cooling capabilities, the bonnet was designed to give a cleaner line through the air with less air resistance at motorway speeds.

Interior could be specified with factory options of a deluxe velour interior, full leather or the Recaro sports seats. The GT-A interior was different in that it had chromed door handles, a different instrument panel (to show the gear selection) and chrome edged bezels around the speedo and tach. The GT-A also had additional sound deadening installed from the factory and the engine manifold and downpipe had been engineered to be quieter.

The 5-speed automatic gearbox had what Mitsubishi called "fuzzy logic", which meant that the car would learn what the driver's driving characteristics were like and would adapt the gear change timings and kick down reactions accordingly. The gears could be manually selected as with most Tiptronic via steering wheel + and - buttons (a pair both sides) or via selecting the tiptronic gate with the gear lever. Power was down a little from the standard manual cars with 272 PS (200 kW; 268 hp). The GT-A gearbox did not appear again in the Evolution VIII but has been installed in the estate version of the Evolution IX Wagon. It was replaced by the Twin Clutch SST gearbox since the introduction of Evolution X.

7.4.8 Evolution VIII

The Mitsubishi Lancer Evolution VIII was modified again in 2003 this time sporting 17" grey Enkei wheels, Brembo Brakes and Bilstein shocks to handle traction and a 5-speed manual gearbox with 280 PS (206 kW; 276 hp) (approx. 234 hp to the wheels). Originally a one off model, sales were so successful in the U.S. that by 2005 it was available in four trims: the standard GSR model in Japan, the RS, 5-speed gearbox, and standard wheels



Mitsubishi Lancer Evolution VIII MR

(lacking excess components, such as interior map lights, power windows/doors, and radio), the SSL (with a sunroof, trunk mounted subwoofer, and leather seats), and the MR, which came with a revised limited-slip front differential, aluminum MR shift knob, handbrake with carbon fiber handle, 17 inch BBS wheels, aluminum roof, and a 6-speed manual gearbox. The new Evolution also sported chrome housing tail lights and head lights.

The Mitsubishi Lancer Evolution VIII MR uses slick-response Bilstein shocks for improved handling. The aluminium roof panel and other reductions in body weight have lowered the centre of gravity to produce more natural roll characteristics. Detail improvements have also been made to Mitsubishi's own electronic four-wheel drive, to the ACD 5 + Super AYC 6 traction control, and to the Sports ABS systems. The Lancer Evolution VIII displayed at the 2003 Tokyo Motor Show took the MR designation traditionally reserved for Mitsubishi Motors high-performance models (first used for the Galant GTO). Other parts on the MR include BBS alloy wheels, the aforementioned Bilstein shocks, and an aluminium roof. In the United Kingdom, many special Evolutions were introduced, including the FQ300, FQ320, FQ340, and FQ400 variants. They came with 305, 325, 345, and 405 hp (227, 239, 254 and 302 kW), respectively.* [6]* [7]* [8]

The FQ400, sold through Ralliart UK, produces 411 PS (302 kW; 405 hp) from its 2.0 L 4G63 engine, the result of special modifications by United Kingdom tuning firms Rampage Tuning, Owen Developments, and Flow Race Engines. At 202.9 hp (151.3 kW) per litre, it has one of the highest specific outputs per litre of any road-car engine. With a curb weight of 1,450 kg (3,197 lb), it achieves 0–60 mph in 3.5 seconds,* [9] 0–100 mph in 9.1 seconds, 1/4 mile in 12.1 seconds at 117 mph (188 km/h), and a top speed of 175 mph (282 km/h) while costing £48,000. BBC's television series *Top Gear* demonstrated that the stock FQ-400 could surprisingly keep up with a Lamborghini Murciélagos around a test track. The Stig recorded a Top Gear Power Lap Times of 1 minute and 24.8 seconds (damp track), 1.1 seconds slower than the Murciélagos time of 1 minute 23.7 seconds (dry track).* [10] In a similar test conducted by *Evo* magazine, the Evolution was able to lap the Bedford Autodrome faster than an Audi RS4 and a Porsche 911 Carrera 4S.

The Lancer Evolution VIII was also the first Evolution to be sold in the United States of America,* [11] spurred by the success of the Subaru Impreza WRX which had been released there just the year prior.* [3] The Evolution VIII found its true competition in the Subaru Impreza WRX STI model the same year as the Evolution VIII's US introduction. With its 2.0 liter 271 horsepower engine, the 2003 Evolution VIII was capable of achieving a 0–100 km time of 5.1 seconds. However, the internal components for the American versions were largely stripped-down versions of the specifications for the Japanese Lancer Evolution VIII. No US-spec Evolution model prior to the Evo X has active yaw control, including the 2006 Evolution IX. The American 2003 and 2004 GSRs are without the helical limited-slip front differential and 6-speed manual transmission. The 2004 US spec RS models, however, do have a front helical limited-slip differential. All 2003, 2004 and 2005 RS and GSR models have the Japanese Evolution VII's 5-speed transmission. The MR edition was introduced to the US in 2005, with ACD and the only model with a 6-speed transmission. The 2005 US spec RS and GSR have the ACD standard, and the front helical limited-slip differential is now standard on all models. The boost, timing, and tuning are also significantly lower than its Japanese counterpart, allowing it to adhere to the strict emissions regulations of the United States. Starting in 2005, the US model Evos were also fitted with a 5500rpm limit on launching in 1st gear to protect the drivetrain.

Most Evolution VIIIs have a carbon fiber rear spoiler with matching body-color endplates. Furthermore, the US versions of the Lancer Evolution VIII 2003–2005 were given bulkier rear bumpers than their Japanese counterparts to accommodate US safety laws in the form of the metal rear crash bar. All Evos have lightweight aluminum front fenders and hoods.

The basic RS Edition does not come with power windows, locks, or mirrors, an audio system, rear wing, sound deadening material, map lamps or an anti-lock braking system. All Evo VIII RS models sold in the US have an air conditioning system.

The 2005 MR/RS editions came with aluminum roof. Additionally, MR Editions come equipped with a 6-speed transmission, Bilstein shocks, Optional graphite grey color and factory optional BBS wheels. The MR Edition also received engine updates and reliability changes, the engine updates include larger turbo diameter mouth, updated cam profiles, lighter balance shafts and changed from single wastegate solenoid to dual solenoid. The reliability changes will be larger oil cooler core, ion coated piston rings, reinforced cylinder head and 5 layer head gasket compared to the 3 layer.* [12]

- **RS** – “rally sport”, revised 5-speed, minimal interior, LSD.
- **MR RS** – same as RS with 6-speed Manual Trans-

mission.

- **GSR** – 5-speed, gauge pack, SAYC (Super Active Yaw Control).
- **MR GSR** – 6 speed transmission, Aluminium roof, BBS Wheels, Bilsteins, MR Badging, Optional graphite grey color, Vortex Generator, engine and reliability updates.* [12]

The National Highway Traffic Safety Administration (NHTSA) has determined crash test ratings of Lancer of different model years.* [13]

7.4.9 Evolution IX



Mitsubishi Lancer Evolution VIII at 2003 Sydney International Motor Show

Mitsubishi introduced the Lancer Evolution IX in Japan on March 3, 2005,* [14] and exhibited the car at the Geneva Motor Show for the European market the same day.* [15] The North American markets saw the model exhibited at the New York International Auto Show the following month.* [16] The 2.0 L 4G63 engine has MIVEC technology (variable valve timing), and a revised turbocharger design boosting official power output at the crankshaft to 291 PS (214 kW; 287 hp) and torque to 392 N·m (289 lb·ft).



Mitsubishi Lancer Evolution sedan (Poland)



Mitsubishi Lancer Evolution wagon (Japan)

The USDM Lancer Evolution IX models: standard (Grand Sport Rally or “GSR” in some markets), RS (Rally Sport), SE (Special Edition) and MR (Mitsubishi Racing) varied slightly in their performance capabilities. Subtleties unique to each model accounted for variations in acceleration, handling and top speed. The RS excluded features standard on the standard, SE and MR models (stereo system, power windows and locks, rear wiper, rear wing, trunk lining and sound insulation). The result is a weight savings of over 60 lb (27 kg). The fuel capacity remains the same as the Evo VIII at 14 U.S. gal (53 L).

Although the RS is the lightest of the group, the RS did not manage to outperform the standard IX and the MR around a road course (even if only by fractions of a second). This was purported to be due to the lack of a rear wing on the RS. In a drag race, the three models are all about even. They are all capable of 0-60 mph times between 4.2-4.5 seconds, and can run quarter mile times ranging from 12.6 to 13.3 (12.7-13.0 USA versions) seconds depending on the model/driver. The RS model was produced for rally and racing teams who wanted a platform to build a race car from. It is stripped of all the creature comforts, and other upgrades that drive the price up for features that the race teams would not require.

The IX MR retained the features of the Evolution VIII MR, like Bilstein shocks, a 6-speed manual transmission, a rooftop vortex generator, BBS forged wheels, HID xenon headlights, foglights, accessory gauge package, “zero lift” kit, special badging and an aluminum roof. All models continued to sport Recaro bucket seats, Brembo brakes and Momo steering wheels. Additional revisions from 2005 included a closer gear ratio for the 5-speed manual transmission, new lighter Enkei wheels on non-MR models, a redesigned front end with a more efficient air dam (the most noticeable feature are the two small oval ducts to cool the intercooler pipes), and a new rear bumper with a diffuser undersurface to smooth out the airflow coming out of the car for non-US models. In an effort to reduce the price increase on the Evolution IX model, HID headlights were no longer standard equipment on the base IX (nor were they standard on the 2005

VIII), and were available only in the SSL package (Sun, Sound, and Leather), SE (Special Edition) and MR trims.

The US versions of the Lancer Evolution IX did not come with the AYC but the ACD was still present. The drivers can select from three different driving modes, “Tarmac”, “Gravel” and “Snow”, and the car’s computer system relatively promotes the active center differential to change the differential locking which, despite popular belief, does *not* change the torque split. The differential is geared at 50:50 and cannot be changed by the push of a button. What this switch actually does is quite simple. Each setting determines how long the ACD will delay in freeing the center differential after a steering input is made. In addition, it will determine how much locking force the ACD will exhibit on the clutch pack and center differential.

Tarmac is the setting to be used in dry, paved conditions. In this setting, the ACD will almost immediately allow the center differential to go into a free state upon detecting a steering input. Additionally, this mode provides the strongest limited-slip clamping force of the three modes. Although the US versions did not come with the AYC, it did come with a rear 1.5way clutch type LSD (limited slip differential)which, limits the slip from both rear wheels causing less traction loss of the rear wheels. The most common setup is the 1.5 way LSD, locking on throttle and partially locking on braking. In racing, Lancer Evolutions are not equipped with AYC or ACD because it is believed that better lap times are achieved by pure driver skill without any computer based assistance systems.

One of the changes from the previous iteration of the Lancer Evolution, was the change in the engine, the new 4G63 came with MIVEC, Mitsubishi’s variable valve lifting technology, which drastically improves the fuel consumption by changing the valve timing on the intake cam. The MIVEC system is similar to Honda’s i-VTEC system only that it doesn’t change valve lift, only intake valve timing.

Three trims were available for Japan, Asia and Europe. Although all models used the same 291 PS (214 kW; 287 hp) engine, the torque differed from one model to another. In Europe, however, the Evolution IX was advertised to have 280 PS (206 kW; 276 hp). The GSR produced 400 N·m (295 lb·ft) of torque, while the RS and GT produced 407 N·m (300 lb·ft).

- **RS** – “rally sport”, revised 5-speed, aluminium roof, gauge pack, minimal interior, LSD and a titanium-magnesium turbine, left-hand drive option available.
- **MR RS** – same as RS with 6-speed Manual Transmission.
- **GT** – revised 5-speed, with some of the GSR’s features (mainly interior pieces).

- **GSR** – 6-speed, Bilstein monotube shocks, aluminium roof, gauge pack, SAYC (Super Active Yaw Control), and double-din radio (this is roughly equivalent to the USDM MR).
- **MR GSR** – same as GSR with BBS 17-inch alloy wheels and 6-speed Manual Transmission.
- **MR Tuned by RALLIART** – Based on Lancer Evolution VI Tommi Makinen Edition, The Japanese Lancer Evolution IX was exclusively tuned by **Mitsubishi Ralliart** features the almost same as the civilian Evo IX MR GSR except for Carbon Fiber front lip Spoiler, Official Ralliart livery, Ralliart RA04 17-inch Black forged aluminum wheels.

In the United Kingdom, the Evolution IX used a different model scheme based on the car's horsepower. There were initially three models available: the FQ-300, FQ-320 and FQ-340 each with around 300(296/221), 320(316/236) and 340(336/250) PS(BHP/KW) respectively. An FQ-360 model was subsequently released as a successor to the Evolution VIII FQ-400. While the new FQ-360 produced less horsepower than its predecessor, it had more torque at 363 lb·ft (492 N·m) at 3200 rpm. All four models were designed to run on super unleaded petrol only. The MR FQ-360 was also released in limited numbers (only 200) in the last year of production.

- **FQ-300, 320, 340** – 6-speed, Bilstein monotube shocks, AYC (Active Yaw Control), super unleaded petrol only
- **FQ-360** – 6-speed, Bilstein] monotube shocks, AYC (Active Yaw Control), Ralliart Sports Meter Kit, carbon front splitter, Speedline alloy wheels, super unleaded petrol only
- **MR FQ-360** – New turbo with titanium aluminium alloy turbo fins, Speedline Turini alloy wheels, Privacy Glass, Lowered Eibach Coil springs (10mm at the front/ 5mm at the rear), IX MR interior, super unleaded petrol only

Four models were available in the US. All models used the same 286 hp (213 kW) engine.

- **Standard** – revised 5-speed, standard model
- **RS** – ralli sport, revised 5-speed, aluminum roof, gauge pack, minimal interior, also no radio
- **SE** – Special Edition, aluminum roof/hood, and front fenders, split seven-spoke forged aluminum BBS wheels in “diamond black” finish, HID headlights with integrated fog lights, red-stitched Recaro seats

- **MR** – 6-speed, Bilstein monotube shocks, split seven-spoke forged aluminum BBS wheels, aluminum roof, hood, and front fenders, gauge pack, HID headlights with integrated fog lights, vortex generator, front brake cooling ducts and custom MR badging.

All of the American models are the same in power, but may differ in performance. The only thing that sets them apart is the Evo RS, which is 80 lb (36 kg) lighter than the MR and SE models.

To the standard model, the Sun, Sound and Leather package added a power sunroof, HID xenon headlamps with integrated fog lights, a slightly different stereo headunit (with no integral amplifier), slightly upgraded speakers in the front doors and parcel shelf, a 4.1-channel amplifier under the driver's seat, a powered, trunk-mounted Infinity subwoofer, black leather seating surfaces, leather-trimmed door panels, slightly revised center armrests in the front and rear, and separate rear side headrests. This model deleted the GSR's headliner-mounted sunglasses holder to make room for the sunroof.

The Philippines had the Evolution IX until in August 2008, which was offered in two trims, the entry-level RS offering a 5-speed manual transmission, Brembo 17-in. ventilated discs (4-Pot), Brembo 16-in ventilated drum-in-disc (2-Pot) and almost the same features as to that of the GSR trim in the international version. Some RS models had the SAYC option, while some did not. The MR was the top-of-the-line segment, which offered almost the same features as to that of the MR trim in the international version. All of them are powered by the same 2.0 L I-4 4G63 turbocharged MIVEC engine.

Mitsubishi also released an Evolution IX wagon in GT, GT-A and MR models. Variants came in 6 speed manual (GT, MR) or a 5 speed automatic (GT-A). The automatic variant uses a non-MIVEC 4G63 sourced from the evo 7 with a smaller turbo for increased low down torque. It was only sold in Japan and imported to other countries as grey imports. Only 2500 Wagons were produced.*[17]

7.4.10 Evolution X

In 2005, Mitsubishi introduced a concept version of the next-gen Evolution at the 39th Tokyo Motor Show named the **Concept-X**,*[18] designed by Omer Halilhodžić at the company's European design centre.*[19]

Mitsubishi unveiled a second concept car, the **Prototype-X**, at the 2007 North American International Auto Show (NAIAS).*[20]

The Lancer Evolution X sedan features a newly designed 4B11T 2.0L (1998cc) turbocharged, all-aluminium inline-4 **GEMA** engine. Power and torque depend on the market but all versions will have at least 280 PS (206 kW; 276 hp). (JDM version), the American market version



Mitsubishi Lancer Evolution sedan (Australia)

will have slightly more. The UK models will be reworked by Mitsubishi UK, in accordance with previous MR Evolutions bearing the FQ badge. Options for the UK Evolutions are expected to be between 300 hp (220 kW) and 360 hp (270 kW).

Two versions of the car are offered in the U.S. The Lancer Evolution MR, with 6-speed Twin Clutch Sportronic Shift Transmission (TC-SST). The other version is the GSR which has a 5-speed manual transmission system. The car also has a new full-time four-wheel drive system named **S-AWC** (Super All Wheel Control), an advanced version of Mitsubishi's AWC system used in previous generations.^{*[21]} The S-AWC uses torque vectoring technology to send different amounts of torque to the rear wheels.

It also features Mitsubishi's new sequential semi-automatic six speed **SST** twin-clutch transmission with steering-mounted magnesium alloy shift paddles. It has replaced the Tiptronic automatic transmission, hence the SST version replaced the GT-A version (which was used in Evolution VII and Evolution IX Wagon). A five speed manual gearbox will also be available. The new Lancer Evolution will also incorporate Mitsubishi's next generation **RISE** safety body.

The Evolution X went on sale October 1, 2007 in Japan,^{*[22]} January 2008 in the USA,^{*[23]} February in Canada (as the first version of Evolution in Canada)^{*[24]} and in March 2008 in the UK.^{*[25]} The Twin Clutch SST version was available in Japan from November 2007.^{*[26]} Europe will follow with sales in May, GSR and MR version included premium Package. The introduction of the 2010 MR-Touring moved the car even further upscale. Leather and a Moonroof became standard while revising the rear spoiler to just a lip spoiler.

Japanese models

The engine is the 4B11T-type 2.0 litre inline-4 turbo engine. The Evolution X can accelerate from 0–100 km/h in 4.5 to 4.7 seconds. Aluminum is used in the roof panel, hood, front fenders and the rear spoiler frame structure.^{*[27]} The launch model's engine was rated at 280 PS (206 kW; 276 hp) @ 6500 rpm and 422 N·m

(311 lb·ft) @ 3500 rpm. Following the repeal of the 276 horsepower Gentleman's Agreement in Japan,^{*[28]} engine power was raised to 300 PS (221 kW; 296 hp) @ 6500 rpm beginning in 2009 model year.

- **RS** – 5 speed manual transmission. 16-inch wheels.
- **GSR** – Standard rear spoiler. 5-speed manual or 6-speed Twin Clutch SST transmission (magnesium paddle shifters on SST model). 245/40R18 Yokohama ADVAN A13C tire on Enkei 12-spoke high-rigidity cast alloy wheels or optional BBS lightweight alloy wheels. Brembo ventilated disc brakes. Standard S-AWC 4WD system. Driver and front passenger dual-stage airbag. Standard Engine immobilizer with security alarm. Optional Mitsubishi Motors Communication System (MMCS) which comprises a 30Gb hard disk drive audio/navigation system with 7 in (180 mm) LCD screen. Optional Rockford Fosgate premium sound system. Optional keyless remote entry.

GSR can be fitted with following packages:

- High Performance Package – Bilstein single tube shock absorbers and Eibach coil springs, brembo 2-piece disc brakes, high performance tires with stiffer walls and better grip.
- Stylish Exterior Package – Chrome finish for the front grille lattice and beltline molding, body color-keyed fender vents, adds fog lamps.
- Leather Combination Interior – The seats match the color of the exterior.
- Premium Package – All 3 above packages plus 18 in (457 mm) BBS lightweight alloy wheels.
- **GSR-Premium** – Replacement of Premium Package beginning with 2009 model year, but added MMCS and Rockford Fosgate premium audio.
- **GSR Tuned by RALLIART** – The Ralliart version was launched again in 2007, this limited edition for Lancer Evolution X is exclusively tuned by **Mitsubishi Ralliart Japan** equipped with 5 speed manual transmission, Ralliart RA04 Wheels 18 inch forged 1-piece black aluminum sport wheels paired with Yokohama ADVAN Neova AD08 tires. Aerodynamic parts include a newly designed carbon fiber front underspoiler, hood air dam, and front bumper air intake duct, and the intake and exhaust system has been tuned to get the best out of the engine. The interior is fitted with a motor sport shell-type full bucket seat jointly developed with Recaro. Official Ralliart livery was included in the package together with Rockford Fosgate premium sound system with Mitsubishi Motors Communication System (MMCS) which comprises a 30Gb hard disk

drive audio/navigation system with 7 in (180 mm) LCD screen. Its highly tuned **4B11T** engine has maximum power output of 224 KW (300 bhp/ 304 ps) or more.*[29]

- **Final Edition** - A send-off version comprising the last 1000 units to be built. Based on the Evo GSR, this five-speed-manual-only edition comes with black leather Recaros with red accent stitching, 18-inch BBS wheels, Bilstein and Eibach suspension bits, and Brembo brakes, along with the requisite "Final Edition" badging and a numbered dash plaque.*[30]

North American models

Engine produces 295 PS (217 kW; 291 hp) @ 6500 rpm and 407 N·m (300 lb·ft) @ 4400 rpm.

- **GSR** – Same as base Japanese GSR with large spoiler. (available only with manual 5 speed)
- **MR** – 6-speed TC-SST transmission. Suspension with Eibach springs and Bilstein struts. 18-inch BBS forged alloy wheels. Xenon High-Intensity Discharge (HID) headlamps. Color-keyed large rear spoiler. Leather and sueded seating. Electronic keyless entry and starting system. Steering wheel-mounted audio controls. Bluetooth hands-free cellular phone interface system with voice recognition.
- **MR Premium** – MR with a Rockford Fosgate Navigation/Stereo with 9 speakers.*[31]
- **MR Touring** – (2010) Major differences from the MR are the rear-lip spoiler, heated full-leather seats, upgraded interior trim, and a power-sunroof on a steel roof.
- **SE** – (late 2010–11) Is a combination of all three 2010 models; some key features are the GSR front grill and interior, MR rear diffusers, 6-speed TC-SST transmission, Eibach springs and Bilstein struts, MR touring rear-lip spoiler, and heated seats. Only 340 were produced in the United States. A special key fob with the series number and a letter of acknowledgement from Shin Kurihara were given to the purchaser of this trim.
- **Special Action Model (SAM)** – (2015) All Lancer Evolution SAM models will be getting new heated side view mirrors with turn indicators and drop cup holder with lid. Production will be limited to 2,000 to 2,500 units and will be exclusively produced for the United States. Mitsubishi states that Special Action Model will mark the end of production of Lancer Evolution model.*[32]*[33]

Option packages:

- (GSR only) Sight, Sound and Spoiler Package – Xenon HID headlamps with manual leveling; large rear spoiler (starting in 2011, the large rear spoiler is standard in all models); FAST-Key electronic entry and starting system; 750-watt (maximum) Rockford Fosgate audio system; in-dash 6-disc CD changer; Sirius Satellite Radio with three months prepaid subscription.
- (GSR - Canada only) Handling package - Bilstein Shocks, Eibach springs, 2 piece front rotors, forged BBS wheels, large spoiler.
- (MR and MR Touring) Technology Package: Mitsubishi Multi Communication System, GPS navigation with Diamond Lane Guidance; 30GB hard disc drive with Digital Music Server, in-dash DVD/CD player, multifunction 7-inch (180 mm) color LCD touchscreen, 650(710 for 2010 model)-watt (maximum) Rockford Fosgate high-performance audio system, Sirius Satellite Radio with six months prepaid subscription.

UK models

UK cars kept the Evolution X name.

- **GS** – Base Japanese GSR with Enkei or BBS wheels, 5-speed manual transmission\ radio and music server (MMCS), Rockford Fosgate premium audio, iPod/MP3 auxiliary input port.
- **GSR SST (FQ-300, FQ-330)** – GSR FQ-300 with 6-speed TC-SST transmission with SST mode selection (normal, sport, super sport). GSR SST FQ-330 was released in 2009.*[34]

Variants:

- **FQ-300** – Engine rated 300 PS (220 kW; 300 hp) at 6500 rpm and 407 N·m (300 lb·ft) at 3500 rpm.
- **FQ-330** – Engine rated 329 PS (242 kW; 324 hp) at 6500 rpm and 437 N·m (322 lb·ft) at 3500 rpm.
- **FQ-360** – Engine rated 359 PS (264 kW; 354 hp) at 6500 rpm and 492 N·m (363 lb·ft) at 3500 rpm. Carbon fibre front lip spoiler, rear vortex generator, gear knob, hand brake. Front leather Recaro seats.
- **FQ-400** – Engine rated 410 PS (300 kW; 400 hp) and 542 N·m (400 lb·ft) of torque. It also includes 5 speed manual transmission, six-piston brake calipers, upgraded brakes and 18-inch wheels fitted with Toyo Proxes R1R tyres (summers) or Toyo Snowprox S953 tyres (winters), a new aero kit that includes additional cooling intakes, vents, a larger air intake in the hood and ducts. An estimated 100 vehicles would be made.*[35] It accelerates 0–62 mph in 3.8 seconds (est.) and has a top speed of

155 mph (electronically limited).

Standard equipment for the range-topping Lancer Evolution X model is comprehensive, the FQ-400 coming with Bluetooth hands-free telephone connection, a CD-tuner with 30 GB hard drive, DVD satellite navigation and privacy glass. Convenience features like remote central locking, automatic headlamps and windscreens wipers increase the FQ-400's ease of use. Available from June 2009, the FQ-400 is covered by a three-year / 36,000 mile warranty. Cost £49,999 (list price).*[36]

- **FQ-400 MR** – Engine rated 450 PS (330 kW; 440 hp) Released in 2014 as a special edition with only 49 units available. It was available in only the Frost White colour priced at £50,000.

European models

Acceleration: 0–100 km/h 4.8 sec. with 1560 kg, 4.9 sec. with 1600 kg. Engine rated 295 PS (217 kW; 291 hp) at 6500 rpm and 366 N·m (270 lb·ft) at 3500 rpm.

- **GSR** – 5 speed manual (GSR 5 M/T) or 6-speed TC-SST transmission (GSR TC-SST).
- **MR TC-SST** – 6-speed TC-SST transmission. Suspension with Eibach springs and Bilstein struts. 18-inch BBS forged alloy wheels. Xenon High-Intensity Discharge (HID) headlamps. Mitsubishi Multi Communication System.

Brazilian models

The Lancer Evolution X arrived in Brazil in 2008 and is sold only with the twin-clutch transmission.

- **GSR** - 6 speed TC-SST transmission, 18-inch BBS forged alloy wheels, Recaro racing seats, 7-inch multimedia system.
- **2015 John Easton Edition** - Specially created to the Brazilian market, this last edition comes with a 340 CV (335 hp), 48,5 Kgf.m (475 N.m) engine, grill outline in red and is limited to 90 units.

Australian / New Zealand models

Engine rated 295 PS (217 kW; 291 hp) at 6500 rpm and 366 N·m (270 lb·ft) at 3500 rpm.

- **GSR** – 5 speed manual or 6-speed TC-SST transmission.
- **MR** – 6-speed TC-SST transmission. Suspension with Eibach springs and Bilstein struts. 18-inch BBS forged alloy wheels, 2 piece front brake, aluminium

rear spoiler, auto leveling Xenon High-Intensity Discharge (HID) headlamps. Mitsubishi Multi Communication System, leather combination seat trim, heated front seats.

- **Bathurst Edition** – A Team Mitsubishi Ralliart Australia upgraded/tuned version Evolution X with a rated power output of 336 PS (247 kW) and 436 Nm of torque. The Team Mitsubishi Ralliart (TMR) Bathurst Edition is the most powerful road-legal Lancer Evolution X to be offered in Australia as a new car. The Bathurst Edition is available with either the standard 5-speed manual or the quick-shifting TC-SST twin-clutch 6-speed, with a limited run of only 100 units. It is covered by the MMAL factory warranty.

- **Final Edition** - A send-off version comprising the last 1000 units to be built and 150 will be diverted to Australia, 350 to Canada, and only 30 made available in New Zealand. Based on the Evo GSR, this five-speed-manual-only edition comes with black leather Recaros with red accent stitching, 18-inch BBS wheels, Bilstein and Eibach suspension bits, and Brembo brakes, along with the requisite "Final Edition" badging and a numbered dash plaque. This model has 'Enhanced engine power' (over the GSR model) with 226 kW power and 414Nm of torque.*[37]

Southeast Asian models

Philippine models The Philippines received its Evolution X in November 2008, and is the same as the USDM versions. The trims and specs are almost the same, excluding the MR Touring model from the USDM.

- **GSR**- 5-speed manual, and the same specs with the USDM GSR with large spoiler.
- **MR**- 6-speed TC-SST gearbox, and the same specs with the USDM MR, excluding the Technology Package.

Malaysian models In Malaysia, the Lancer Evolution X is available with only a 6-speed Twin Clutch SST transmission. Front license plates are aligned towards the center or right of the fascia. In 2009, the Royal Malaysian Police acquired a fleet of the Lancer Evolution X to be used in high-speed pursuits.

7.4.11 Future

In March 2011, rumours of discontinuation of the Lancer Evolution program started when AutoCar UK's journalist Matt Prior wrote on his interview with Gayu Eusegi, Mitsubishi's Global Product Director, and quoted him saying

'The Lancer Evolution X, Eusegi told me, will be the last Evo. "There is still a demand [for the car]," he said, "but we must stop." Eyebrow up.[38]*

Mitsubishi Motors would later state that “Further to some comments published in the press recently, production of the current Lancer Evolution continues as planned. As for its successor, regulations and market feedback will dictate its engineering package & architecture. Stay tuned..” Industry analysts would read the statement as indirectly hinting that the Evolution nameplate will remain, but is likely to be an environmentally friendly powertrain (possibly electric or hybrid), inline with increasingly stringent emission and environmental regulations.

AutoCar UK later updated its blog post, adding references to EV, further confirming what industry watchers originally speculated. Most recent news shows that Mitsubishi has been leaning towards the **Mitsubishi Concept PX-MiEV** hybrid drivetrain, explaining that the electric motors will act as a turbo for the Evolution. Mitsubishi claims that their more “green” version of the Evolution will be just as good or even better in the performance category.

In October 2011, the President of Mitsubishi Motors, Osamu Masuko, confirmed to AutoCar that work on the next Evo will start in 2012 and will go on sale within the following three years. It is said that the car will feature electric power from a hybrid drivetrain, maintaining performance of 0-62 mph time under five seconds while cutting CO2 emissions.*[39]

The next generation of Mitsubishi Evo will be notably smaller than the last version according to company president Osamu Masuko.

In late March 2014, Mitsubishi spokeswoman Namie Koketsu issued a press release stating “Mitsubishi Motors does not have any plans to design a successor with the current concept, as a high-performance four-wheel drive gasoline-powered sedan. Mitsubishi Motors will explore the possibilities of high-performance models that incorporate electric vehicle technology.”, marking Mitsubishi's exit from the manufacture of performance vehicles.*[40]

7.4.12 Discontinuation

Mitsubishi stated that the Lancer Evolution would cease by end of March 2016, and the car-maker has chosen to focus on vehicles that incorporate electric technology. A “Final Edition” will be offered with special production number badges.

7.4.13 Motorsports

Rally

The Mitsubishi Lancer Evolution is unique among its competitors in the **World Rally Championship** in that it was a homologated **Group A** car slightly modified to be able to race competitively against the then newly formed **World Rally Car (WRC)** regulations from the **1997** season. Mitsubishi continued to adhere to Group A regulations until the **San Remo Rally** in **2001**, **World Rally Car** class cars. Lancer Evolutions were successful in WRC Rallies from **1996–1999**, mostly in the hands of Finnish driver **Tommi Mäkinen**, clinching driver's titles in four-consecutive seasons from **1996–1999** (in Evolutions III, IV, V, and VI), and with the help of teammate **Richard Burns** in clinching the **constructors' championship** for the first, and thus far only time in **1998**. The Evolution however was replaced in late **2001** by the firm's first **World Rally Car**, named simply the **Lancer Evolution WRC**, which was driven by Makinen, **Freddy Loix**, **Alister McRae** and **Francois Delecour** with relatively limited success, until Mitsubishi took a sabbatical from the championship at the end of **2002**. It was succeeded for the **2004 Monte Carlo Rally** by the **Lancer WRC04**. Mitsubishi pulled out of the **World Rally Championship** after the **2005** season with the **Lancer WRC05** still being driven by privateers including Italian former works driver **Gigi Galli** and the Swede, **Daniel Carlsson**, in the years following. The Lancer Evolution however still competes in the **Group N** category.

In some European markets, the Evolution was sold as the **Mitsubishi Carisma GT**, and indeed to this effect the works WRC team's second car in the late **1990s**, usually driven by Burns and subsequently Loix, was customarily entered as a **Carisma GT**. Proton Motors of **Malaysia** raced Evolution III's, Evolution V's (most notable with Proton 1784 where Malaysian driver **Karamjit Singh** won the **2002 Production Car WRC**) and an Evolution VII as the **Proton PERT** in various **Asia-Pacific Rally Championship** and APAC rally series.

Track racing

The Mitsubishi Lancer Evolution won the **2009 Australian Manufacturers' Championship** with a trio of Evolution X models.

The Mitsubishi Evo has recently won and made runner-up in the **2011 Australian Manufacturers' Championship**.

Most recently, (2005-2006) the CT9A chassis Evolution has been dominant in Time Attack (time trials) throughout the world. CyberEvo's CT9A chassis Lancer Evolution (now retired) previously held the OEM chassis record at Japan's Tsukuba Circuit for Time Attack, as well as the Australian record at Eastern Creek Raceway. Sierra Sierra Enterprise's CT9A chassis Evolution holds the U.S. Time Attack record. Currently the Tilton Interiors CT9A chassis Lancer Evolution holds the time attack

record at Sydney Motorsport Park while also being the fastest car using tyres that are not of 'race slick' construction.

The Lancer Evolution VIII was used in Stock Car Brasil from 2005 to 2008, with Cacá Bueno won the series twice from 2006 to 2007.

The car won the 2008 and 2009 WPS Bathurst 12 Hour endurance race

Hill climbing

The car won the European Hill Climb Championship 9 times since 2007, with 9 wins also in the FIA International Hill Climb Cup.

7.4.14 Awards

The Mitsubishi Lancer Evolution won ConsumerSearch's best Aggressive sports sedan in Best Sports Sedans in June 2006.*[41] During 2004–2005 alone it won six major awards, being declared "Sports Car of the Year" in Scotland and France, "Playboy Sports Car 2004" in Poland, "Best New Production Car Under €60,000" in Greece, "Sport Compact Car of the Year" in 2004 and 2005 (*Sport Compact Car* magazine) and "2005 All-Star" (*Automobile* magazine) in the United States and *Motor* magazine's Best "Bang for Your Bucks" Australia.*[42] Also in 2004, the Lancer Evo was presented with the Editors' Choice Award by *Grassroots Motorsports*.*[43] The Lancer Evolution X was named as the "Best Performance Car under \$50K" by Canadian TV show *Motoring 2009*, and won the Automobile Journalists Association of Canada's 2009 "Best New Technology" award.*[44] It was also nominated as one of the top 10 "World Performance Car of the Year",*[45] won the Automotive Excellence Awards' 2008 "Fun to Drive" category,*[46] and took Dave TV's "Sports Car of the Year" award in 2008.*[47]

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7.4.16 External links

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- Official sites: Japan · Australia · Europe · United Kingdom · United States · Brazil

7.5 Nissan 350Z

Main article: Nissan Z-car

The **Nissan 350Z** (known as **Nissan Fairlady Z Z33** in Japan) is a two-seat sports car that was manufactured by Nissan Motors from 2002 to 2009 and marks the fifth generation of Nissan's **Z-car** line. The 350Z entered production in late 2002 and was sold and marketed as a 2003 model. The first year there was only a coupe, as the roadster did not debut until the following year. Initially, the coupe came in base, Enthusiast, Performance, Touring and Track versions, while the roadster was limited to Enthusiast and Touring trim levels. The Track trim came with lightweight wheels and Brembo brakes, but its suspension tuning was the same as all other coupes. The Nissan 350Z has been succeeded by the **370Z** for the 2009 model year.

7.5.1 Background

After the **Nissan 300ZX** was withdrawn from the U.S. market in 1996, Nissan initially tried to keep the Z name alive by re-creating the **240Z** the following year. The car was conceived by Nissan's North American design team in their free time, and the concept was introduced in a four state Road Show in July 1998 to various car media, dealers, and employees. Yutaka Katayama, regarded as the “Father of the Z” unveiled the Z concept sketch to the public when he received a motor industry award. The design, representing a modern vision of the 240Z, did not please the original 240Z designer Yoshihiko Matsuo, who compared it to the Bluebird and Leopard.*[1]*[2]

The 240Z concept was produced for the **Detroit Motor Show** for the following August and September. Nissan was unhappy with the first design as they felt the original 200 bhp (149 kW; 203 PS) 2.4 L engine known as

the KA24DE that was going to be assigned made the car feel underpowered, they also felt the car was considered too “retro” or too “backward” resembling a futuristic 240Z; thus, a redesign was commissioned. During a press conference in February 2000, president **Carlos Ghosn** announced plans to produce the car as he felt the new model would help to assist the company's recovery.*[1]

The Z Concept was unveiled in Detroit Motor Show two years later, which was similar in body shape but with a new front end. The car then underwent a minor redesign and was eventually assigned the **VQ35DE** engine, hence becoming known as the 350Z.*[1]

7.5.2 Concept Models

240Z concept (1999)



The 240Z Concept displayed in the same “Lemans Sunset” color seen on the 350Z

Nissan unveiled the 240Z concept car at the 1999 North American International Auto Show, then later at the Los Angeles Auto Expo. The concept was based primarily on a design sketch by Jerry Hirshberg of Nissan's California design studio. In a reference to the original, it was a bright orange two-seater with swept-back styling. It was fully functional car with its 2.4 L 4-cylinder KA24DE engine from the **Nissan Altima** producing 200 bhp (150 kW) and 180 lb·ft (244 N·m) of torque, and not the Z-car's traditional 6-cylinder engine. It was thought a less than worthy successor to the line.*[3]*[4] The designers used an original 240Z to provide inspiration and the concept was created in only 12 weeks. Automotive critics described “it would be cool but get a new model.” * [5] This design served the intended purpose of creating interest, in the public and the corporation, for a new Z car.

7.5.3 Design and layout

The 350Z is a front-engine, rear-wheel-drive, two-door, two-seat sports car designed by Ajay Panchal of Nissan Design America in **San Diego, California** in 2000.*[6] This program was inspired by the successful reaction to the 1999 240Z concept model.

The vehicle features the long-hood short-deck design

common to the Z-Car family. Currently, external design highlights include: sloping fastback style roof line, unique brushed aluminium door handles, high waistline, and bulging fenders that are pushed out to the corners of the vehicle.

Interior design features brushed aluminium accents. The main gauge pod is mounted directly to the steering column allowing their movement to coincide with steering wheel adjustments. Additional gauges are mounted in a center triple gauge cluster (similar to the 240Z/260Z/280Z). Touring models are equipped with the Bose sound system get a six CD changer and 8-inch Bose sub mounted behind the driver's seat. The 350Z's interior does not have a conventional glove box, but has storage compartments located either behind or between the two seats.

7.5.4 Models



2008 Nissan 350Z coupe (US)



Nissan 350Z roadster (US)

Released on July 2002 in Japan at reorganized Nissan Japanese dealerships called **Nissan Blue Stage**, and August 20, 2002 in the U.S., the 350Z coupé was available in 5 trim packages: '350Z' (Base), 'Enthusiast', 'Performance', 'Touring', and 'Track' editions. In Europe, only the 'Track' trim was available, although it was badged and marketed as '350Z'. The Base model did not include a VLSD or Traction Control and was only available with cloth seats. It did not include cruise control, nor power or heated seats. The Enthusiast model came with traction control, a VLSD, and cruise control. The Performance model came with bigger 18-inch wheels, front air dam, rear spoiler, optional Brembo brakes, and VDC instead of Traction Control. Touring was made more of the luxury model. It had power, leather, heated seats, VDC,

a VLSD, xenon headlamps, optional Brembos, 18-inch wheels, and optional GPS. The Track model included Brembo brakes, front air dam, rear spoiler, traction control, cloth seats, 18-inch wheels, VLSD, and optional GPS.

In 2004 Nissan introduced the 350Z Roadster featuring an electrically retractable soft-top roof. In the U.S. market the car was available in two trim packages (Enthusiast and Touring), while in Europe, the same versions as the coupé were offered. Nissan added the Grand Touring (GT) trim to the Roadster trim packages for 2005.

In 2005 Nissan launched a 35th Anniversary edition, with a revised exterior and interior (see *Special Editions* below). Early 2005 model-year 35th anniversary edition models were equipped with the original **VQ35DE** with 287HP/274TQ and automatic transmission. In January 2005, Nissan introduced the 35th Anniversary 6-speed manual models and Track models (mid-year introduction), which included the updated **VQ35DE** 300HP/260TQ Rev-up engine and new updated CD009 manual transmission. As well as minor changes to suspension tuning and parts.*[7]

For the 2006 model year, the 350Z received changes for its mid-cycle facelift. The **VQ35DE** 300HP/260TQ Rev-up engine that was introduced mid-year 2005 on the Track and 35th Anniversary Edition with 6-speed manual transmission models was offered for every trim level that had a manual transmission option. The **VQ35DE** with 287HP/274TQ continued to be offered with only the 5-speed automatic. New features included bi-xenon projectors, a revised front fascia, new LED rear lights, changes to the interior trim and speed sensitive steering. Touring and Grand Touring models have radio-steering controls standard, MP3 CD compatibility, and Satellite Radio became an available option.

For the 2007 model year, the 350Z was again moderately revised. The **VQ35DE** V6 was replaced with a new **VQ35HR** V6. It produced 306 hp (228 kW) at 6800 rpm with 268 ft-lbf (363 N·m) at 4800 rpm*[8] using the revised SAE certified power benchmark. The **VQ35HR** had a raised redline to 7500 rpm and more torque across the rpm range. The hood was redesigned featuring a bulge reminiscent of the original **240Z** to accommodate the raised deck height of the new **VQ35HR**. In the U.S., trim levels were narrowed down to 350Z (base), Enthusiast, Touring, and Grand Touring, while in Europe the same trim levels remained. Bluetooth was added for the 2007 model year.

7.5.5 Special Editions

Fairlady Z Type E (2004)

A limited run (only 5 units) called the Type E was produced in Japan in order to meet homologation requirements to compete in the Super GT series. The Type-E

featured a longer nose and rear overhang as well as extra aerodynamic aids.

Engine is rated at 206 kW (280 PS) @ 6200 rpm, 363 N·m (37.0 kgf·m) @ 4800 rpm *[9]

350Z Gran Turismo 4 Limited Edition

In Spring 2005, Nissan 350Z **Gran Turismo 4** Limited Edition featured the Nissan 350Z, in Ultra Yellow and Kuro Black body colors. A total of 700 were built. The model with 3.5 liter **VQ35DE** engine has 300 hp (10 hp more than original) at 6400 rpm, but the red line starts at 7000 rpm.*[10]

350Z 35th Anniversary Edition (2005)

To commemorate the 35th anniversary of the début of the Datsun 240Z, Nissan released a tuned version of the 350Z coupé. The 35th Anniversary Z was exhibited at the Specialty Equipment Marketing Association (SEMA) Show in Las Vegas on November 2, followed by the Miami Auto Show in early November. It went on sale in January 2005.

The 35th Anniversary Edition includes an updated **VQ35DE** 300 hp (220 kW) V6 engine for the six-speed manual transmission model. Other equipment (standard on six-speed automatic-equipped versions) includes 18-inch (460 mm) cast aluminium-alloy wheels, front spoilers, Brembo brakes and special Z badging. The car was available in a special “Ultra Yellow” body colors. This Z’s interior also was available with a black set configuration. Also included was a Bose 7-speaker premium sound system. A total of 500 units were built.

350Z GT-S

During the 2006 Goodwood Festival of Speed, Nissan Technical Centre Europe (NTCE) unveiled the 350Z GT-S *[11]. The GT-S featured a unique radial flow supercharger (that could be turned on or off via a switch on the dashboard), raising the **VQ35DE** engine output to 382.6 bhp (285.3 kW; 387.9 PS) and 424.8 N·m (313.3 lb·ft) without modifications to the engine components. The car also featured new body kit for more cooling and downforce and wider 245 and 265/40/18 tires. The car was tested by automotive journalists, but none were marketed.*[12]

2008 Tokyo Auto Salon concepts (2008)

Nissan Fairlady Z Type F, XANAXI NISMO Z (SUPER GT 2007 GT500 Class), ENDLESS ADVAN Z (series winner of the Japan's SUPER TAIKYU 2007 endurance series) and Fairlady Z Version NISMO Type 380RS were unveiled in 2008 Tokyo Auto Salon.*[13]

Fairlady Z Type F (2008-)

It is a version of Nissan Fairlady Z coupe and roadster for Japan market, with:

- choice of 6 body colours (premium blaze red (3 coat colour), premium sunshine yellow (3 coat pearl), premium mystic maroon (multiflex colour), blade silver metallic, diamond black pearl, white pearl (3 coat pearl))
- exclusive red leather seat with heater, red leather wrapped steering wheel and shift knob, red leather parking brake lever, red door trim and arm rest stage, aluminium kicking plate, front and rear fender mould, RAYS forged aluminium wheels, Bridgestone Potenza RE050A 245/40R18 93W front and 265/35R19 94W rear tire, driver power seat (slide, reclining), front passenger power seat (slide), BOSE audio system, VDC, brembo 4-wheel bench rated disk brake, brembo 4-wheel aluminium caliper piston brake. Buyers with premium blaze red, premium sunshine yellow, premium mystic maroon body colour models (100 units each) before 2008-03-31 also receive Fairlady Z original key holder.

The vehicles went on sale in 2008-01-10.* [14]



Modified Nissan Fairlady Z NISMO patrol car (Japan)

NISMO 350Z (2007–2008)

The Nismo edition of the Nissan 350Z Coupé debuted at New York International Auto Show on April 4, 2007. This version featured the same engine as the regular 350Z (VQ35HR) but was only available with a 6-speed manual transmission. It also featured a Viscous Limited-Slip Differential (VLSD) and Traction Control System (TCS). The car featured **NISMO** aerodynamics package based on the Super GT championship car, which included an aggressive front fascia with chin spoiler, side skirts, an extended rear fascia with under body diffuser and a rear wing. The car also had **NISMO**-tuned independent multi-link suspension developed by Yamaha, Brembo brakes with four-piston front and two-piston rear calipers (with 12.8-inch (330 mm) front and 12.7-inch (320 mm) rear rotors) and **NISMO**-branded gunmetal grey **RAYS** alloy wheels (18x9-inch front and 19x10-inch rear with 245/40WR18 front, 265/35WR19 rear **Bridgestone** Potenza RE050A tires) and a **NISMO**-branded tuned exhaust. **Yamaha** also included a front and rear dampener to help with stability with the chassis. The conversion process for the Nismo 350Z began with a limited number of chassis being pulled from the assembly line to be sent to Nissan-tuner **Autech** to have structural seams hand-welded for greater body rigidity. This process made the Nismo 350Z a more capable track car than the other trim levels available at the time.

The **NISMO** 350Z went on sale in the USA in July 2007 at Nissan dealers.*[16]*[17] 1607 were produced for the 2007 and 2008 model years, and it was assumed that if there was a greater demand, more would be produced, limited to 10% of all 350Z sales. The **NISMO** model 350Z had a manufacturer's suggested retail price of \$38,070 for the 2007 model year.

7.5.6 NISMO Editions

Nissan's performance tuning division, **NISMO**, began producing modified versions of the 350Z shortly after its introduction, although in the UK these were only available one year after the car was launched.

NISMO R-Tune (2004)

The R-Tune was introduced into the **NISMO** line-up with modifications including headers, cams, pulleys. The R-Tune voids the Nissan factory warranty, but gains significant horsepower, intended for track racers.

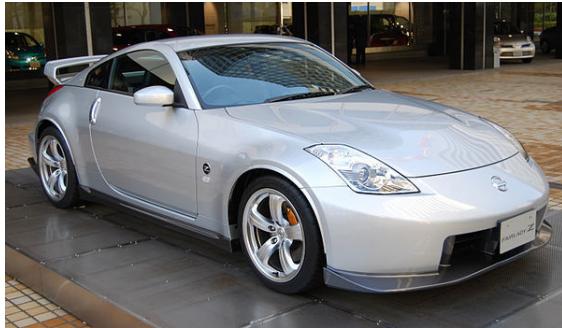
NISMO S-Tune GT (2005)

The S-Tune GT was released by **NISMO** to celebrate its success in motorsport, particularly in the **Super GT** series. The S-Tune GT featured revised long nose bodywork as in the Type-E, a modified version of the **VQ35DE** engine called the S1 with more power (300 PS / 221 kW / 296 hp) and higher **redline** (7200 rpm), as well as a sportier **NISMO** suspension.

20 were produced each month in Japan. Although Nissan did not officially sell S-Tune in UK, Nissan Motor (GB) Ltd. imported 1 S-Tune GT to UK* [15]

NISMO Type 380RS (2007)

Released as the road version for Japanese market of the Type 380RS-Competition race car, it includes a detuned version of the 380RS-C race engine, rated 257 kW (350 PS/348 hp) at 7200 rpm and 397 N·m (40.5 kgf·m/293

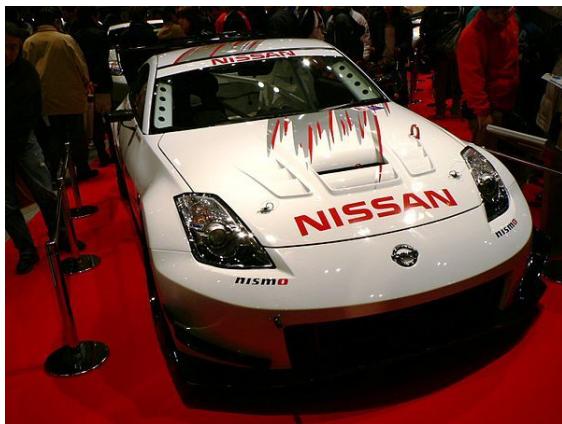


Nismo 350Z

lbf·ft) at 4800 rpm torque. Brembo disc brakes are fitted, as are Bridgestone Potenza RE-01R tires (245/40R18 in front, 275/35R19 in the rear) with RAYS wheels. Front and rear dampers come from Yamaha.

NISMO Type 380RS is priced 5.397 million (5.14 million+tax) yen (\$38695 USD).*[18] Only 300 units were produced from 2007 through to 2008.*[19]

NISMO Type 380RS-Competition



NISMO 380RS-C

It is the race car for which **NISMO** Type 380RS is based. The 3798 cc engine (VQ38HR) is rated 294 kW (400 PS) at 7500 rpm and 421 Nm (43 kgm) at 5200 rpm torque. This in turn is based on the GT 500 race car that Nissan enters into the Super GT championship.

According to Nissan, the race car cost 26.25 million yen.*[20]

Police version

A NISMO version of the Z33 was also used by the Tochigi Prefecture police force.*[21]*[22]



Xanavi Nissan 350Z GT at the 2006 British International Motor Show



Xanavi 350Z, rear



2003 Nissan 350Z competition car at the 2011 Montreal International Auto Show.

7.5.7 Motorsport

Grand Am

Since its introduction in 2002, it did not take long for drivers and teams to enter a Z33 for competition when B.J. Zacharias and Michiel Schuitemaker of Schuitemaker Motorsports helped the car to make its début in the **Grand-Am Cup Series** at the start of the 2003 season. They have taken a few podium finishes with Unitech Racing who is also the other team to field a Z33, but effort was proved to be successful under the name



An **SCCA** GT-2 prepped Nissan 350Z.

of *Geddings Racing* scoring wins along with the other current Grand-Am entrant East Competition Promotorsport. The Grand-Am Cup car has also been used in the new **FIA GT4 European Cup**. Schuitemaker Motorsports with drivers Michiel Schuitemaker and BJ Zacharias won 3rd place in the '03 Grand-Am Cup season. The following year, they improved and finished in 2nd place. Schuitemaker Motorsports was sponsored by 350EVO, a manufacturer of performance 350Z parts. After winning 3rd overall in the '03 season, Nissan had Wright Tuning build a new 350Z race car for the '04 season. This car differed from the '03 car in that it was completely stripped and seam welded. The cage was lighter and stiffer by using different diameter tubing where possible. The car used a Menard's built engine with a Pectel engine management system. Overall racing weight was 2,450 lb (1,110 kg) which was the minimum allowable weight for its class. The '04 chassis proved to be the most successful chassis to run in Grand-Am to date. The '03 chassis was sold to a French team with Edouardo Atkatan as the driver. It still competes in the European "Fun Races" today, winning 2nd place in the inaugural '07 race in Madrid, Spain.

JGTC/Super GT

The 350Z replaced the **Skyline GT-R** as the car for Nissan's factory and customer teams in the **Super GT**'s GT 500 class. The cars used are heavily modified and feature a longer nose and tail (requiring the production of the Type-E homologation special), carbon fiber bodywork, and a tube chassis. In 2004, **NISMO** won the GT500 championship. Until the 2007 season, the car was powered by a **VQ30DETT** V6. In order to increase competitiveness, however, a new 4.5L **V8** powerplant has been developed. The 350Z, with slightly more pedestrian modifications also competes in the GT300 class (having started there even before the **Skyline GT-Rs** were replaced) by teams such as Endless Sports and Mola. In 2003 Hasemi Sports won the GT300 championship with the 350Z. In 2008 season, the 350Zs were all replaced by Nissan **GT-Rs** in the GT500 class, but they have con-

tinued to be used in the GT300 class as the **GT-Rs** exceed the horsepower limits which make it impossible to participate. Thus, two 350Zs competed in the series and MOLA won the both Drivers' and Teams' championships in the GT300 class.

Super Taikyu

The Z33 also appears in the Japan's Super Taikyu series, entered by C-West Labs.

British GT Championship

The British GT Championship also fielded a privateer 350Z which competed in the series until 2006.

SCCA

The car is considered popular choice for amateurs and professionals in **SCCA** events, T.C Kline took third place in the 2003 Touring 2 category in 2003, having been one of three Z33s that made it into the **SCCA** T-2 runoffs. In the **SCCA** GT2 class, Jim Goughary took the title in the car's debut season.

The car has also been used successfully in **SCCA** Solo events, with Carter Thompson just being edged out of a national championship in 2006 by 0.1 second over two days of competition. The 350Z has generally been "in the trophies" at the National Solo Championships since 2006, with the car often competing for the national championship position. There are still several drivers actively competing in the 350Z, as two such drivers, Brian Peters and Glenn L. Austin, are demonstrating that the car can still compete at the highest levels of national autocross competition. During the 2015 Solo season, Jeff Stuart and Bryan Heitkötter are the top two drivers, showing the Z is still very competitive.

NASA

In 2012, NASA (National Auto Sport Association), created a class specifically for the 350Z. The "Spec Z" class includes all trim levels of the popular 2003-2008 Nissan 350Z in a single class focused on close competition, parity and cost containment that will showcase driving ability and car setup skills. The road racing series is backed by Nissan Motorsports and BFG Tires. The 2012 class rules are in their infant stage, but will solidify by mid-2012.

Drifting

The car is used in import events and drifting, where in the latter, some drivers such as Ryuji Miki, Yoichi Ima-mura, and Tanner Foust, have started to use them with success in the **D1 Grand Prix** and **Formula D** series. At

the 2006 D1GP exhibition event at the Las Vegas Motor Speedway, Tanner Foust became the first driver to score a perfect 100 points in a 350Z. In the non-Japanese domestic D1GP spinoff series, D1 Great Britain (D1GB), there are two Z33s that compete in the series. Of the 2007 season, both SVA Imports and Sumo Power 350Z currently competes in the EDC (European Drift Championship), which is run by a different organization to D1, and in Formula D, Foust took runner up spot at round 1^{*}[23] and at round 2, Chris Forsberg would score its maiden victory^{*}[23] in his Roadster equipped with a VK56DE from a Nissan Titan.^{*}[24] His win for the 350Z was followed up by Youichi Imamura's win during the Las Vegas round of the US D1GP series in his RB26DETT engined car. Foust would eventually take the Formula D title.^{*}[25]

The SVA Imports Z33 is significant for being the other drifting car other than the Team Orange Impreza to feature a rear radiators with air ventilation on both sides rather than just one on the Impreza.^{*}[26]

Open Road racing

Option magazine founder Daijiro Inada used an extensively modified 350Z, dubbed *Option Stream Z* to compete in the Silver State Classic Challenge.^{*}[27] The car was equipped with a GReddy/Trust T88 turbo-charger and was stroked to 3.8 L to produce over 900 bhp (671 kW; 912 PS). The *Option Stream Z* was featured in the PlayStation 2 game title *Gran Turismo 4*, PlayStation 3 game *Gran Turismo 5*, and PlayStation Portable (PSP) game *Gran Turismo*.

Speed trials

In 2004, the tuner Dandy and magazine Option entered a Z33 known as the *Option Dandy 380Z* with a donor engine from a wrecked Stream Z minus turbocharger producing 370 bhp (276 kW; 375 PS), to compete in the F/GT class for unblown grand touring sport cars at the Bonneville Speed Week. The car could at best reach 151 mph (243 km/h), which is likely much lower than its true top speed, due to the surface conditions of the salt flats, and the measurement being based on a fixed distance. On pavement, even stock 2005–08 350Zs can reach 156 mph (251 km/h), which is the speed at which the governor is set.^{*}[28]

7.5.8 Advertising and promotions

To promote the 350Z, Nissan released a short film, “*The Run*”, with a 2003 model being driven in a high-speed run through city streets of up to 200 km/h (124 mph). This took place through the narrow cobblestone streets of Prague in the Czech Republic, and lasted six and a half minutes.^{*}[29]^{*}[30]

7.5.9 Specifications

7.5.10 Sales by calendar year

7.5.11 Awards and recognition

The 350Z has been given extensive coverage in the automotive press, and has obtained generally positive reviews. Eddie Alterman, senior editor of Automobile Magazine, said of the 350Z “An outstanding performance value. They got all the important stuff right.”^{*}[31] While David Swigg of Motor Trend said “With a competent driver at the wheel and the traction control switched off, many Boxster drivers would be hard-pressed to post better lap times than with this Z.”^{*}[32] Top Gear magazine later awarded the Nissan Designers with the 2004 Top Gear Magazine Car of the year award.^{*}[33]

Automotive journalists tend to praise such features as the 350Z's value, performance, handling, and braking. Criticisms tend to be directed towards the grade of interior plastics, greater curb weight than its competitors, cabin ergonomics and engine refinement. Other reviews have criticised reflections off the back strut in the rear window.^{*}[34]^{*}[35]

The 350Z has been recognized including the following:

- Japanese Performance Car of the Year 2007 *Top-Speed Magazine*^{*}[36]
- 10 Best Cars 2003 *Car and Driver*^{*}[37]
- Most Significant Vehicle of the Year. Two years running *Edmunds.com*^{*}[38]
- Editors' Most Wanted 2003 *Edmunds.com*^{*}[39]
- International Car of the Year: Most Sex Appeal Award 2003 *Road and Travel*^{*}[40]
- Canadian Car of the Year 2003 *Automobile Journalists Association of Canada*^{*}[41]
- Best New Design 2003 *Automobile Journalists Association of Canada*^{*}[42]
- Driver's Choice Best Performance Car 2003 *MotorWeek*^{*}[43]
- Winner 12 Best Cars Under 30K *Road & Track*^{*}[44]
- Car of the Year 2004 *Top Gear Magazine*^{*}[33]
- Automobile of the Year 2003 *Automobile Magazine*
- Cover of *Forza Motorsport 2* (and shared cover of *Forza Motorsport*)

Safety Record

With 143 deaths per million registrations, the two-door 350Z has been one of the least safe 2005–2008 model cars in the United States.^{*[45]}

7.5.12 See also

- List of Nissan vehicles
- Nissan VQ engine
- Nissan Z-car

7.5.13 References

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7.5.14 External links

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- Nissan 350Z Official UK Site
- Nissan 350Z Official Australia Site

7.6 Nissan Silvia

The **Nissan Silvia** is the name given to the company's long-running line of **sport coupes** based on the **Nissan S platform**. Although recent models have shared this chassis with other vehicles produced by Nissan (most notably the European **200SX** and North American **240SX** in the S13 and S14 generations, and **180SX** in the Japanese market), the name *Silvia* is not interchangeable with the chassis codes.

7.6.1 CSP311

The Nissan Silvia CSP311 made its public debut at the **Tokyo Motor Show** in September 1964 as the “**Datsun Coupe 1500**”. The introductory model was a hand-built coupe based on the **Fairlady** convertible, styled with input from Count **Albrecht Goertz**. Its appearance is similar to the **Lancia Fulvia** coupe. The CSP311 was powered by the 96 hp 1.6 L Nissan R series engine. The engine was equipped with twin **SU carburetors**. Production ceased in 1968 after a mere 554 were made (mainly in 1965), each one of them unique with body panels crafted by hand. Most of the vehicles remained in **Japan**; however, 49 examples were exported to **Australia** and another 10 went to other countries.

The low production numbers and tedious method of construction assured that each car was unique and valuable; this is reflected by the car's purchase price of almost twice as much as the next model in the manufacturer's lineup at the time. After production ceased in 1968, the *Silvia*

nameplate would not grace another Nissan vehicle until 1974. Its marketing approach was similar to the **Isuzu 117 Coupé**. The name “*silvia*” is a variation of the word “*sylvia*”, which is a scientific genus term assigned to a class of birds, possibly a reference to the **Nissan Bluebird** which was in production at the time the *Silvia* was introduced. In Japan, it was sold at **Nissan Bluebird Store** locations, and was marketed with the “**Nissan**” name instead of the more widely used “**Datsun**” brand name.

7.6.2 S10

The S10 was the first mass-produced *Silvia* built on the all-new **S platform**, intended as Nissan's compact, rear-wheel-drive, sporty car **platform**.^{*} [3] Japanese versions were exclusive to Nissan Japanese dealerships called **Nissan Prince Store** along with the larger **Skyline**.

The S10 featured less “traditional” lines than similar offerings from rivals **Toyota** and **Mazda** and was summarily less popular with consumers in most markets. In Japan it was fitted with a 1.8 L **L18 inline-4 engine**, which it shared with the **Datsun 610/Bluebird 180B**. The Japanese version featured **Nissan NAPS** emission control technology at its introduction. In the North American market a version incorporating the larger-displacement 2.0 L **L20B** was offered as the 200B of the same series **Bluebird** and **Skyline**. This model in North America was affixed with the mandated 5 mph (8.0 km/h) bumpers and badged as the **Datsun 200SX**. The S10 *Silvia* and Datsun 200SX were based on the **Datsun Sunny Coupe**. Its success in both markets was limited, most buyers opting for the **Celica** over what was considered the more mundane **S-Chassis**. The car had the same drivetrain as the popular **510**, but with leaf springs fitted at the rear, rather than the 510's independent suspension.



Rear view

7.6.3 S110

This iteration of the *Silvia* (sold in **United States** and **Canada** as the **Datsun 200SX** and in **Mexico** as the **Datsun Sakura** (Japanese for **cherry blossom**)), available as a 2-door hardtop coupe and a new bodystyle 3-door hatchback. The Japanese market version of the hatchback was called the **Gazelle** and was exclusive to



Datsun Silvia 180SX Hatchback (Europe)



1979–1983 Nissan Gazelle (S110)



The facelift model Nissan Silvia Coupe with FJ20E DOHC engine (Japan)

Nissan Bluebird Store locations sold alongside the Fairlady Z, while the coupe bodystyle Silvia remained exclusive to *Nissan Prince Store* locations alongside the Skyline. Its sharp-edged styling was shared with the new *Nissan Leopard* sedan and coupe, also exclusive to *Nissan Bluebird Store*.

This generation Silvia was uniquely progressive in that it was originally intended to feature a **rotary engine**, designed and built by Nissan. The resulting unit was fairly unreliable, and forestalled production. Coincidentally, it shared a chassis code with the *Mazda Cosmo*, the first Japanese production car to feature a rotary engine. The chassis was no longer shared with the B-series *Nissan Sunny*, and was upgraded to the larger A-series *Nissan Stanza* platform.

The car was redesigned shortly after it was released and the stillborn Wankel power plant was replaced by a line of conventional piston engines based on the new Z-series engine. These included the Z20 and the **turbocharged** and **fuel-injected** Z18ET, although the latter of the two was only available to the Japanese domestic market. In USA/Canada the 200SX had the Z20E with H165 rear axle from 1979 to 1981. From 1982 to 1983, it had a Z22E engine with H190 rear axle. Vehicles with engines under 2000cc are still considered “compact” vehicles under **Japanese regulations** regarding exterior dimensions, however, larger engine displacement incurred a higher road tax bill annually.

Gazelle

Nissan rebadged the Silvia as the Gazelle coupé and hatchback so that Nissan's different dealership networks in Japan could all carry their own variants of the model.

There are minor cosmetic differences between the two cars.

North America

The Silvia continued to be sold as the 200SX in North America, with either the two-door coupé or the three-door liftback bodywork. It was originally powered by the 2.0 L **inline-four** L20B engine, although in 1980 California-market cars received the twin-plug Z20 NAPS-Z inline-four of the same displacement.* [5] From the 1981 model year, this became the only engine available to the 200SX. Power is 100 hp (75 kW; 101 PS), channeled through a five-speed manual or a three-speed automatic.* [5]

the top model was the luxurious SL, which received a remote opening hood, trunk, and gas tank lid, more adjustable seats, and a removable glass skyroof.* [5] The hatchback model received sportier trim, while the notchback coupé focused more on luxury.* [6]

240RS



Nissan 240RS

This generation saw the introduction of the Nissan 240RS (BS110), a coupé fitted with the 2.4-liter DOHC FJ24 engine. The 240RS was built between 1983 and 1985, its production extending the end of the S110 itself. The resulting machine became Nissan's official rally car in the World Rally Championship from 1983 to 1985, with best result finished 2nd in the 1983 New Zealand Rally.

7.6.4 S12

The S12 was produced from August 1983 to 1988, with revisions to the exterior trim in 1987 (referred to as “Mark II”). It was sold in two configurations—a coupe (often called a “notchback” due to the side profile view of its rear window section) and a hatchback version.

A number of different engines were equipped in the S12 chassis, depending on production year and more specifically on the geographic market. These engines borrowed from previous designs, or in some cases, inspired future engine platforms (with the exception of the FJ series, which was designed solely with Rally competition in mind). For instance, the CA series initially borrowed design cues from the NAP-Z series. The CA18DET's DOHC head design was similar to that utilized in the later “RB” engine series, the inline-six engine that powered the Skyline GT-Rs. Certain trims had the S12 equipped with an optional V6 engine also shared by the 300ZX (Z31) of the same vintage; this engine would be augmented with dual cam heads for the Z32.

Japan

As with the S110, the S12 chassis in Japan was badged as both a Silvia and a Gazelle. The S12 Silvia in Japan was available in a hatchback as a basic model only, or as a coupé (notchback) in base, RS, and RS-X trims and exclusive to *Nissan Prince Store* Japanese dealerships as a junior companion to the Nissan Skyline. The S12 Gazelle was strictly a hatchback, available in regular, RS and RS-X variants and exclusive to *Nissan Bluebird Store locations* as a junior companion to the Fairlady ZX. The RS was equipped with the 2.0L DOHC “FJ” engine (FJ20E), while the RS-X was equipped with the same engine in a turbocharged version (FJ20ET). In 1987 Nissan discontinued the FJ Series engine in the S12 and replaced it with the CA18DET (with duel cams and a bigger turbocharger—the CA18DET). Japanese spec Gazelle models came with many options like voice command, fog lights and options for a variety of different motors (FJ20E, FJ20ET, CA18DE, CA18E, CA18DET.). The RS-X model also came with different factory alloy wheels. When the S13 Silvia was introduced in 1988 in Japan, the Gazelle nameplate was replaced with the *Nissan 180SX* as a junior companion to the 300ZX, although in Australia there would not be a replacement until the introduction of the Silvia-based *Nissan 200SX* in 1995.

North America

The S12 Silvia brand in North America was badged as a “200SX”. For fear that the North American market would not be as profitable as other markets throughout; without any major innovations, Nissan Executives only scheduled the manufacturing of 5k of each trim package/engine options in the final 2 years before the halt of

US production. Leaving the final year of the S12 1988. The S12 “XE” was strictly a coupe or a “notchback”, and was only available with a 2.0L SOHC, non-turbo engine and made available with either a 5 speed manual or 4 speed automatic gearbox. (CA20E) The hatchback received both the 2.0L SOHC engine, and a 1.8L SOHC Turbo (non-intercooled) engine (CA18ET). For 1987 in the United States, Nissan discontinued the Turbo model and created the “SE” model which had a 3.0L SOHC V6 engine (VG30E), generating 160 hp (120 kW) and 174 lbf·ft (236 N·m) of torque. This was the same engine offered in the non-turbo 300ZX for that generation. For 1988 the “SE” model received a 5 hp (3.7 kW) gain from using the later “W” series revisions of the VG30E with a total output of 165 hp (123 kW) while torque remained the same at 174 lbf·ft (236 N·m).

Europe



Nissan Silvia Hatchback in Europe

The S12 chassis in Europe was badged as a “Silvia”, with notable exception of Sweden where it was sold as a “180ZX”. This is a curiosity because “ZX” is traditionally associated with the Nissan Z platform. The European S12 was available only in the hatchback configuration, with the same 1.8L SOHC Turbo (CA18ET) used in North America, and in some areas the 2.0L DOHC “FJ” engine (FJ20E). The “FJ” engine series was originally designed for the 240RS rally race car as a 2.4L carbureted system (FJ24), and was underbored to 2.0L. It also saw use in the “DR30” Nissan Skyline chassis, in both turbocharged and naturally aspirated versions.

Australia

The S12 chassis in Australia, released in October 1983, was badged as a Gazelle. The Australian Gazelle was available in both hatchback and coupe variants.* [7] It was equipped with the same 2.0-liter SOHC CA20E engine found elsewhere producing 78 kW (105 hp) at 5,200 rpm, and 160 N·m (120 lb·ft) of torque at 3,200 rpm.* [8] This engine was mated to either a five-speed manual gearbox or a four-speed automatic.* [8]



1985–1986 Nissan Gazelle SGL coupe (Australia)



1984–1985 Nissan Gazelle SGL coupe (Australia)



1984–1986 Nissan Gazelle GL hatchback (Australia)

Trim levels comprised the GL hatchback (basic) and the luxury-oriented SGL coupe.

According to the May 1984 brochure, the coupe added: alloy wheels, mudflaps, electric windows/mirrors/antenna, a six speaker sound system (over four), time delay interior lighting, variable intermittent wipers, an armrest, carpet kickpads, and cloth headlining/sunvisors/door trims (over vinyl).^{*[8]} An option pack for the coupe added air conditioning, power steering, and power sunroof. The hatchback's option pack added air conditioning, power steering, and power sunroof.^{*[8]}

By the time of the August 1985 brochure, the coupe's option pack had been deleted, but the standard SGL coupe added power steering and a manual sunroof (a power sunroof was no longer offered).^{*[9]} Air conditioning remained as an option, while power steering was added to the hatchback's option pack.^{*[9]} The alloy wheel design

was also changed.^{*[8]}^{*[9]}

The facelifted “Mark II” models were released to Australia in circa 1986.

Revisions

The S12 chassis in 1984-86 is referred to as “Mark I”, with “Mark II” as a revision in '87. Below lists the description of both.

Mark I The first trim of the S12 chassis. Bumpers featured matte-finish raised surfaces, and sides featured half-inch rubstripping. Cars featured a honeycomb radiator grille, and long corner lights. The RS-X trim in Japan and Europe received a hood bulge accent to accommodate the oversized dimensions of the FJ20E/ET engine, and featured a faux front vent with monogram (either FJ20, DOHC, or TURBO); In North America, the 1984 Turbo came with a “TURBO” monogrammed hood bulge accent, although all subsequent North American Mark I hoods were flat regardless of trim. In some markets, the 1984 and 85 could be had with a foam rubber deck spoiler. In 1986 the foam rubber deck spoiler was changed for a fiberglass version with an integrated third brake light. Some hatchbacks and all Turbo models came with ground effects, as did the RS-X coupes. These had a combination of plastic mudflaps (monogrammed as either “NISSAN”, or “SILVIA” in applicable markets) and accommodating foam rubber sideskirts, as well as a foam rubber lower deflection lip. 1984 year foam rubber sideskirts featured the “NISSAN” monogram.

Mark II In 1987, the bumpers were updated, and the matte finished surfaces were eliminated for a more uniform surface. Rubstripping was increased to 2-inch height w/ scribe detailing. The honeycomb radiator grille was replaced with a slatted version that spanned the entire front end (previous was shorter), and cornerlights were shortened. The “SE” model and the Turbo (Canada, Europe) came with new fiberglass ground effects and mudflaps, painted in the color of the car, and a new and more pronounced lower deflection lip in the front. All Mark II S12's received a new reverse-cowl hood bulge design to accommodate clearance for the 3.0L V6. Optional rear mudflap accents were available.

Drivetrain

Engine

Special Editions

In Europe, a limited-run (~50 units) version of the S12 was produced and sold as the “Silvia Grand Prix” model. Based on a Mark I chassis, it was powered by the FJ20E



Nissan Silvia Grand Prix

(with a few known to be sold with the CA18ET), and featured molded-in fiberglass wide body fenders and quarter sections and special edition wheels.

The widebody exterior grabs design cues from popular European rally car platforms of the time (e.g. Audi Quattro, BMW M3 Sport Evolution, Renault 5 Turbo 2, etc.), although Nissan's choice of the FJ20E over the FJ20ET suggests this was more of a "rally inspired" car rather than a serious performance trim. The Silvia Grand Prix holds the distinction as the rarest incarnation of the S12, and is generally considered something of a collector's item. The Mark II revision of the S12 chassis marked the end of the Silvia Grand Prix.

Motorsports



Nissan Silvia 200SX 1988 Safari Rally runner-up car

The elimination of Group B from the World Rally Championship signified the end of Nissan's FJ24-powered 240RS. The FJ20ET-powered Silvia RS-X of 1986 would have been Nissan's first choice, however there was an insufficient number of that exact trim sold in Japan to meet the WRC's Homologation requirements (5,000 units or greater). Nissan had to quickly find a car to replace the 240RS.

The North American 1987 200SX SE V6 was chosen and competed in 1986-89 as a 200SX. Nissan's creation and choice of this car ensured they could sell 5000 cars required for WRC Homologation. The S12 "SE" trim's V6 held the only real appeal to the North American market, allowing Nissan to sell right at 5000 cars to a single

specification. The V6 was a very unusual choice as the WRC was dominated by 4-cylinder 2.0 L turbocharged engines, although it is interesting to note that for similar reasons Toyota entered WRC with the 6-cylinder Supra at the same time. The 200SX achieved a 1st place in the 1988 Ivory coast rally and 2nd place for two years running in the very challenging Safari Rally 1988 and Safari Rally 1989.

7.6.5 S13

The S13 Silvia, introduced in mid-1988 the 1989 model year, was immensely popular in Japan. At its introduction in 1988, it won the Car of the Year Japan Award. The Silvia was no longer exported, however; rebadged 180SX were instead sold in most markets. European versions of this car were still known as 200SX. In North America, the S13 (180SX front, all three different bodystyles) was known as the 240SX. In North America, the Nissan 200SX nameplate was on hiatus but would return on a 2 door coupe version of the B14 Nissan Sunny/Sentra (1995–99). The S13 was based on the first generation Nissan Cefiro, the A31. Following industry trends, the S13 Silvia switched to relampable fixed headlights. Projector optics were offered as an option.

In Japan, Nissan renamed the Gazelle as the Nissan 180SX, which was exported primarily under the name Nissan 240SX. The 180SX served as the junior companion to the Fairlady ZX at *Nissan Bluebird Store* Japanese dealerships. As before, the Silvia was exclusive to Japanese dealerships called *Nissan Prince Store* next to the Skyline.

The S13 Silvia coupe was made from 1988 to 1994, overlapping with the S14 Silvia introduced in 1993. The Nissan Silvia used fixed headlights; whereas, the 180SX, simply a hatchback version of the Silvia, introduced at the same time used pop-up headlights. The hatchback version, called the 180SX, replaced the Gazelle name in Japan, and remained in production until 1998. A Silvia convertible was briefly offered soon after the start of production, but it was never popular, perhaps due to high cost (3.25 million Yen in 1988), heavier curb weight, and chassis flex.

The S13 was one of the first uses of Nissan's multi-link rear suspension, the technology of which was previewed in concept cars in previous years, such as the Nissan MID4. It also offered a four-wheel steering system for the first time, known as HICAS-II. In 1990, HICAS-II was updated and renamed SuperHICAS. The S13 also saw the introduction of a viscous-type limited slip differential for some models.

S13 Silvias were initially powered by the CA18DE and CA18DET engines carried over from the end of S12 production, with an intercooler added to the CA18DET for a slight increase in stability and power. In mid-1990, (for the 1991 model year) the SR20DE and SR20DET en-

gines debuted, offering improvements across the board in power and torque due to increased displacement and a more efficient turbocharger than was offered on the previous cars. One of the other simple changes that was made between the CA generation and the SR generation was the switch to a single colour paint job, instead of the two-tone colour sets that were previously offered. On top of this, the SR motor later debuted another variant of the platform known simply as the “black top”. Identifiable by its black and silver rocker-cover (as opposed to the traditional red/silver cover), it featured a number of minor changes, resulting in little performance gain. It is vastly different from the more powerful “notch top” used in the S14 and S15 variants.



One of the rare Silvia Convertibles

In the U.S. the S13 was replaced after the 1994 model year by the new S14 design, but lived on until 1999 in Japan with a major face lift, the 180SX Aero (Type X). This was the “Kouki” generation, while the previous was “Chuki” gen. The Kouki featured newly designed tail lights and a redesigned aero body kit and was fitted with an airbag. In 1998, the S13 Silvia was resurrected, in part. A variant was produced by Kid’s Heart for Nissan called the Sileighty, which featured the 180SX body with the front end from the Silvia. The Sileighty style was originally created by Japanese enthusiasts for their own 180SX’s, and is still a common modification for the 180SX and 240SX fastback. The Sileighty also made an appearance in a Japanese anime and manga series known as *Initial D*. The series (based around the Japanese motor sports of Touge and drifting) featured the Sileighty in one of the last battles of the *First Stage* (or first season in the anime).

The creation of the Sileighty then followed by another version of the Silvia known as the Onevia. Based on the chassis of the S13, the front end of the Silvia would be removed and replaced with the front end of a 180SX. The Onevia was never retailed as a complete car in Japan (though it was in North America: the notchback version of the 240SX was essentially a left hand drive version of the Silvia with the 180SX/240SX nose).

There was also a retro-styled car (à la the Zimmer Golden

Spirit) which used the S13 Silvia’s centre portion, engine, and underpinnings. It is called the Mitsuoka Le-Seyde and was built in a very limited series in 1990.

Trim level designation

The S13 Silvia was the first S-series car to use the J’s, Q’s, and K’s designations for the different trim packages. These names are references to the face cards of English playing cards.

The J’s was the base model. The Q’s model offered a slightly more refined experience and received electric options and an available LSD. The K’s grade received the turbocharged CA18DET or SR20DET (depending on the year of manufacture) in addition to the options offered on the Q’s.

On top of the K’s and Q’s models, the Club and Diamond Selection packages came with specific options bundled together. For example, all K’s Club Selections came with projector headlamps, a rear spoiler, and 15” aluminum wheels while all Q’s models came out with automatic climate control.

The Silvia A’s “Almighty” was introduced in late 1992. Trim wise, the Almighty slotted between the J’s and Q’s, offering options not available on J’s, but not including all the standard features of the Q’s. The only available engine/transmission was the naturally aspirated SR20DE coupled with the four-speed automatic or a five-speed manual.

7.6.6 S14

This section is about this vehicle’s Japanese model. See Nissan 240SX for information on the North American model.

The S14 Silvia debuted in Japan towards the end of 1993. It was lower and wider than the S13. New rounded styling contributed to the illusion of a greater increase in size than actually occurred. Wheelbase and track were both increased, leading to slightly improved handling. Unlike export markets, where sales of the S14 chassis variants faltered, the Silvia remained popular in Japan. However, the width dimension exceeded 1700mm, which pushed this generation out of the compact class tax bracket, which also made Japanese buyers liable for higher road taxes. The fastback bodystyle was discontinued internationally, leaving the coupe and convertible in production.

Trim level designations were similar to the S13, however the Club Selection package was dropped. “Aero” variants of the Q’s and K’s were offered that featured large rear wings and mild ground effects.

The S14 Silvia K’s received a new version of the SR20DET, with a slight bump in power due to the im-

plementation of Nissan's variable cam timing system known as **N-VCT**, on the intake cam, and a larger T28 turbocharger.



Nissan Silvia K's in Japan

There was a mild styling update to the S14 during 1996, which added aggressive-looking projector headlamps and tinted taillights to all models. Fascias and other exterior trim pieces were also revised. The turbocharger now used a more efficient ball bearing center section. This updated version is also known as the *kouki* (後期, literally “later period”) S14, or by enthusiasts as the S14A. It was sold as the second generation **240SX** in North America from 1995 to 1998. The final model year of S14 production in all markets was 2000, called the Touring Model, which had a better engine block, pistons, and better acceleration in lower gears.

270R

The Nismo 270R was a limited edition vehicle developed by Nissan Motorsports. The vehicle was built on the S14 chassis but had many enhancements over the Silvia. Only fifty 270Rs were ever built and they were only produced in 1994. The '270' is in reference to the horsepower of the unique car as opposed to the displacement of the engine (as other vehicles, including the 240sx, were previously named upon). The 270R featured a vented hood with a front mounted intercooler, Nismo 'Edge' Aero kit, heavy duty clutch, 2-way limited slip differential, NISMO logo front and rear seats among other upgrades. All the 270s were painted black with 'Nismo 270R' badging above the rear wheels and a product numbered plaque in the glove compartment.

Autech Version K's MF-T

Tuning company **Autech**, has a tuned adaption of the CS14 King's variant. This includes Aero style **HUD** with white displays and gauges for oil pressure, boost, and voltage in the centre console, along with a **MOMO** steering

wheel and leather gear knob. The interior trim is also revised.

Handling improvements include multi-link suspension, firmer shocks and springs, front strut brace, and a rear sway bar. A large F40 style rear spoiler and aero bodykit with Autech indicators are also fitted. An “Autech Version K's MF-T” badge and sticker can be found on the boot.

An **IHI** ball bearing turbo (VN14) was fitted in favour of the **Garrett** T28 for slightly quicker response and flow. Larger 480 cc Injectors found in the later S15 Spec R's were also fitted as well as a thicker 80 mm intercooler also found in S15's. To help expel exhaust, a higher flowing Fujitsubo Giken (FGK) exhaust was fitted.

The engine is an Autech-tuned **SR20DET** that produces 182kW (245hp/250PS).

According to the Autech website, the vehicle is still available at a cost of ¥2.99 million yen (around US\$30,000).

7.6.7 S15

Japan saw a new version of the Silvia (S15) in 1999, now boasting 250 hp (184 kW) from its **SR20DET** engine, thanks to a ball-bearing turbocharger upgrade, as well as improved engine management. The SR20DE (non-turbo motor) featured 165 hp (121 kW).

The S15 Silvia included aggressive styling inside and out, updating the previous Silvia styling in-line with modern car design trends. The body dimensions were reduced from the previous generation so that it would comply with Japanese Government **compact class**, which had an effect on sales of the previous model.



Nissan Silvia spec-S in Japan

The S15 Silvia model lineup was initially simplified to just the **Spec-S** and **Spec-R**, both models offering an “Aero” variant with a large rear wing and side skirts/valances.

This generation of the Silvia was only sold in Japan, Australia and New Zealand but was available as a grey import in most other countries. In Australia and New Zealand

the car was sold as the Nissan 200SX.

Within the Australian domestic market (AUDM), the S15 sold in 2 trim levels as noted above; Spec-S and Spec-R - however both models featured the SR20DET motor, albeit slightly detuned from the JDM spec cars. Nissan S15s were never officially sold with the naturally aspirated SR20DE engine in Australia or New Zealand. These two models were available at Nissan showrooms until the Nissan 200SX GT was introduced in 2002, the last year of production for the S15. Main differences here were namely the wheels being finished in a silver shadow chrome, chrome interior door handles, chrome gear selector surround, "sports" metal pedal set and an updated larger rear wing.

- New Zealand S15 200SX
- Nissan Silvia Varietta

As of August 2002, Nissan stopped producing the **S platform** with the S15-series Nissan Silvia being the final variant. Production of the Silvia amidst Nissan's efforts to reduce its myriad of platforms. The S15 Silvia was therefore the last car to hold the Silvia badge. Nissan's worldwide sports car platform is now the **FM platform**, which underpins the current **Fairlady Z** (the 350/370Z outside Japan), as well as the 2001–present Nissan Skyline (the **Infiniti G35/37** in North America).

Variants

Spec-R The Spec-R differed from previous Silvia models by featuring a 6-speed manual transmission. The Spec-R also included extensive chassis and suspension strengthening via the use of larger anti-roll bars and strut bracing. The S15 featured the same 4-piston front brake calipers that were found in the Z32 300zx but included a larger brake booster.

One of the biggest changes to the S15 model of the Silvia fitted with the 6-speed manual transmission built by **Aisin AI** was the implementation of a helical limited slip differential. The result was a safer, more track suited drive; in some contrast to its drifting heritage and subsequent media attention. All other versions of the Silvia (S14, S15 Spec S JDM) came with the viscous limited slip differential.

As with many Nissans, HICAS (High Capacity Active Steering) four-wheel steering was available as an option.

The Nissan Silvia S15 Spec-R is featured as a starter car in **Real Racing 3**.

Spec-S The Spec-S featured a 5-speed manual transmission (in addition to a 4-speed automatic available on both the Spec-S and the Spec-R). It lacked the additional chassis support of the Spec-R; featured 4-piston front

brake caliper and a slightly smaller brake booster. The Spec-S came only with an open differential. Australian-delivered Spec-S models featured the same helical differential, chassis bracing and 6 speed manual transmission as the Australian market Spec-R models.*[10]

The S15 line was later expanded to include various luxury and upgrade option packages for both the Spec-S and Spec-R. **Autech**, a specialty car developer, also offered several tuned versions of the S15; one with body and interior trim modeled after the **Ferrari 456**, called the **style-A**, available in both Spec-S and Spec-R based trims; and a second tuned version was based on the Spec-S trim level with the engine output increased to 200 hp (150 kW) through the use of increased **compression**, more aggressive **camshafts**, and free-breathing intake and exhaust tracts, along with ECU tuning and upgrades to the chassis and suspension. This version also included the 6-speed transmission and other upgrades normally found only in the Spec-R.

Silvia Varietta Nissan offered in Japan a retractable hardtop variant of the Silvia, called the **Varietta**. The Varietta was built by Autech and was based on the Spec-S model, featuring the same naturally aspirated engine, with a choice of the 5-speed manual transmission or the 4-speed automatic transmission. This is a rare type of Nissan Silvia which is uncommon in most places.

7.6.8 Motorsports



S15 Silvia of 2004 D1GP champion Ryuji Miki

The S-series is a popular drift car, especially the S13 through S15 vehicles. The car has enjoyed success in the sport, having won 7 D1 Grand Prix championships with 5 different drivers driving the S15 (Nobuteru Taniguchi: 2001; Ryuji Miki:2004; Yasuyuki Kazama:2005; Masato Kawabata:2007; Youichi Imamura:2009,2010,2011)

Silvias have been raced successfully in the All-Japan Grand Touring Car Championship (now Super GT) and its predecessors. In the late Eighties, when **Group B** was

banned, S110 and S12 Silvias also saw limited success in rallying, mainly on endurance rallies. During the S13's production, there was a one-make series in Japan. The S13s were also successful in racing in the IMSA GTU class during the 1990s.

The Silvia S15 of Under Suzuki has dominated the Tsukuba circuit lap time record for some time. After it defeated the HKS CT230R LanEvo for the record in 2012, Under Suzuki's S15 has been resetting Tsukuba's lap time record. The latest lap record is currently timed at 51.127s, even faster than an official JGTC race car ARTA NSX.*[11]*[12]*[13]

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7.6.10 External links

- [S12Silvia.com](#) - Blog, Forum, and Tech for the International S12 Community
- [200SX.gr](#) Hellas 200sx Club

- [SXOC UK 200sx owners club](#)
- [Nissan Silvia S15](#)—Archive of Nissan's official site for the S15 Silvia. (Japanese)
- [Club-S12.org](#) - International Nissan Silvia/Gazelle/200SX S12 Site - International Nissan S12 Chassis specific site.
- [Nissan Silvia](#)—Australian Nissan Silvia Club.
- [SilviaWA](#) - Nissan Silvia Car Club of Western Australia
- [Zilia](#) - S chassis and Z chassis owners
- [History of the Silvia](#) Autospeed Magazine (note: some technical inaccuracies and minor nomenclature errors)
- [Paper scale model of the Nissan Silvia](#). To download, print and build yourself.

7.7 Scion tC

The **Scion tC** is a sport compact coupe manufactured by **Toyota** and sold under the **Scion** division in North America; introduced in the United States in June 2004 and 2010 in Canada. Despite many cosmetic differences among all model years, the tC only maintains two distinct generations. Beginning in 2011, the tC is sold as the **Toyota Zelas** in the Middle East, China and South America,*[1] a name derived from "*zelante*", Italian for "passionate" or "zealous." It is not sold in Japan or in any other right-hand drive market.

7.7.1 First generation



Scion tC

Toyota debuted the production tC at the January 2004 NAIAS with sales beginning in June 2004 as a 2005 model year. The Scion tC was designed to appeal to the

Millennial market.*[2] Toyota hoped to do so by making standard features numerous and optional features extremely easy to add as well as giving the car a sporty flair. The Scion tC shares its chassis with the Avensis*[3]*[4] and uses a MacPherson strut front and double wishbone rear suspension. Its low price (base MSRP of US\$17,670 for the 2009 model with manual transmission) is a major feature, as well as the pure “monospec” pricing marketing style that Toyota has adopted. This generation was not sold in Canada.

Standard equipment included power windows, cruise control, air conditioning, keyless entry, mirror-mounted turn signal lights, four-wheel anti-lock disc brakes, a 160-watt Pioneer sound system with CD player, 17-inch alloy wheels, and a panoramic moonroof.

The tC received a minor facelift in 2007 for the 2008 model year that included a revised grille and new head and taillights.

A bare-bones version of the Scion tC known as the Spec Package was offered without many of the standard accessories. The Scion tC Spec Package replaces the 17-inch (430 mm) alloy wheels with 16-inch (410 mm) steel wheels and seven spoke wheel covers. The glass roof is fixed in place and the steering wheel is made of urethane instead of wrapped leather and lacks stereo controls; cruise control is also not offered and many other minor interior and exterior changes. This model, which is meant to serve as a blank slate to the tuner market, was offered in only four colors: Super White, Flint Mica, Black Sand Pearl and Classic Silver Metallic. MSRP was \$1,400 less than the standard model. The Spec Package was discontinued for the 2009 model year.

The model was Scion's best seller, reaching over 79,125 units sold in 2006,*[5] but the car's sales quickly dwindled by 2010, only moving 15,204 units.*[6] A 2nd generation was released for the 2011 model year.

Car and Driver praised the 2005 tC for its list of accessories but criticized it for low headroom in the backseat and low cargo room.*[7]

Specifications

- Engine: 2.4 L Dual Overhead Cam (DOHC) 16-valve 4-cylinder with VVT-i, compression ratio of 9.6:1 for the 2005/06 models and 9.8:1 for 2007-2010.
- Displacement: 2362 cc
- Power: 161 hp (120 kW) @ 6000 rpm (2007MY+) / 160 hp (119 kW) @ 5700 rpm (2005-06MY)
- Torque: 162 lb·ft (220 N·m) @ 4000rpm (2007MY+) / 163 lb·ft (221 N·m) @ 4000 rpm (2005-06MY)
- 200 hp (149 kW) / 185 lb·ft (251 N·m) with TRD Supercharger

- Transmission: Standard 5-speed manual transmission or optional 4-speed electronically controlled automatic transmission (2008-2010 automatic transmissions are labeled as “4 speed sequential” transmission in the Scion brochure)
- Curb weight: 2,970 lb (1,350 kg) (automatic); 2,905 lb (1,318 kg) (manual)
- Fuel tank: 14.5 US gal (55 L; 12 imp gal)
- EPA ratings for manual transmission: 20 mpg-US (12 L/100 km; 24 mpg-imp) city / 27 mpg-US (8.7 L/100 km; 32 mpg-imp) hwy (2007MY+); 19 mpg-US (12 L/100 km; 23 mpg-imp) city / 27 mpg-US (8.7 L/100 km; 32 mpg-imp) hwy (2005/06)
- EPA ratings for automatic transmission: 21 mpg-US (11 L/100 km; 25 mpg-imp) city / 29 mpg-US (8.1 L/100 km; 35 mpg-imp) hwy (2007MY+); 20 mpg-US (12 L/100 km; 24 mpg-imp) city / 27 mpg-US (8.7 L/100 km; 32 mpg-imp) hwy (2005/06)
- Performance
- 0-60 mph 7.4sec.
- 1/4 mile (~400 m) 15.6 s @ 89.9 mph (144.7 km/h)*[8]
- 1/4 mile (~400 m) 14.2 (TRD Supercharger)

Safety

NHTSA crash test ratings (2006)*[9]

- Frontal Crash Test - Driver: ★★★★★
- Frontal Crash Test - Passenger: ★★★★★
- Side Impact Rating - ★★★★★
- Side Impact Rating - Rear: ★★★★★
- Rollover Rating: ★★★★★

The Insurance Institute for Highway Safety (IIHS) gave the Scion tC an “Acceptable” overall score in both the frontal offset and side impact crash tests.*[10]*[11]

All Scion tCs come standard with 4-wheel disc brakes with anti-lock brakes. For 2008 models, front seat-mounted side torso airbags, front and rear side curtain airbags, and a driver's knee airbag became standard. Front passenger classification was also added, allowing dual stage control of airbag release dependent upon the weight of the passenger.*[12] Vehicle Stability Control is not offered.

7.7.2 Second generation

2011–2013



Scion tC

The replacement model debuted at the April 2010 New York Auto Show, and appeared in U.S. dealerships in October 2010. It received a performance bump; with the new engine being carried over from the Toyota Camry being a 2.5 liter I4 2AR-FE engine producing 180 hp (130 kW) and 174 lb·ft (236 N·m).^{*[15]} Like the first generation, the chassis remained a variant of the Toyota Avensis, the model using the third generation chassis. Visually, the second generation is a toned-down variant of the Scion Fuse concept, featuring a similar rear quarter-panel window line to the concept but with xB-styled blacked-out A-pillars. The headlights, taillights and grille received a makeover to make the car seem more muscular and angular.^{*[16]} It continued to receive very high safety marks, an all-glass roof, roomy interior, and a hatchback design. Other changes included a wider track, standard 18-inch (460 mm) wheels, larger brake discs, faster engine, six speed transmission, and a performance-tuned electric power steering system.^{*[17]} The Scion tC now comes standard with Vehicle Stability Control. A special FiveAxis body kit was offered for the car originally; however the TRD Supercharger is no longer available. The tC remained popular in the tuner market, with many aftermarket performance upgrades still being available.^{*[18]} This model is available in the videogame Forza Motorsport 5 featuring the body kit.

Toyota Zelas At the 2010 Abu Dhabi Motor Show, the Scion tC was introduced for sale in the Middle East under the Toyota Zelas nameplate, with an aggressive body kit not featured on the Scion tC.^{*[19]}

2014–2016

Sales of the second generation tC did not reach as high as Scion were expecting and to coincide with the launch of the Scion FR-S, the tC received a facelift for the 2014 model year. Inspired by the design of the FR-S, the 2014 tC received updated headlamps, grille, LED taillights, 18-inch alloy rims, body kit, a sport-tuned suspension, re-worked faster shifting transmission, sport-tuned shocks,



The facelift model Scion tC

and a new touch screen audio system standard.^{*[20]} For the first model year, Scion offered a Series 10 anniversary edition of the ten-year anniversary of the brand, limited to 3500 units. It included a new silver color, silver seat belts, a solar-powered illuminated shift knob, an LED Scion locator badge that lights up when the car is unlocked and a sequentially numbered interior badge.^{*[21]} For the 2016 model year, the tC received some minor changes, such as a standard rear windshield wiper, new silver interior door handles, center console tray cover, and a leather-wrapped shift knob, the latter of which was formerly an optional upgrade.^{*[22]}

The tC will end production in August 2016 after a final release edition as part of the phasing out of Scion brand.^{*[13]} At 29, the tC sports coupe had the lowest-average age buyer in the industry according to Toyota.^{*[13]}

Specifications

Safety NHTSA crash test ratings (2011)^{*[27]}

- Frontal Impact - Driver: ★★★★★
- Frontal Impact - Passenger: ★★★★★
- Side Impact - Driver: ★★★★★
- Side Impact - Rear Passenger: ★★★★★
- Side Pole - Driver: ★★★★★
- Rollover Rating - ★★★★★

7.7.3 Toyota Racing Development (TRD)

Similar to many other models of Toyota/Lexus/Scion, there are many upgrades available through the in house

tuning shop Toyota Racing Development (TRD). Currently TRD produces performance parts such as lowering springs and racing struts, full coilover suspension systems, performance brake kits, rear sway bars, front strut tower bars, limited-slip differentials, upgraded clutches, axle-back exhausts and cold-air intakes for the Scion tC. Other cosmetic accessories such as TRD branded valve covers and oil caps are also offered.

TRD also offered a supercharger which is a rebadged Vortech supercharger that is capable of putting out 20 psi (1.4 bar), although when installed by a dealership and under warranty it is set at 6 psi (0.4 bar). Starting in 2008, Scion began making the supercharger with tamper-proof pulleys. As of mid-2009, TRD has discontinued production of superchargers for the Scion tC.*[30]

7.7.4 Release Series line



2005 Scion tC RS 1.0

Beginning in late spring 2004, Scion launched the Release Series (RS) line, limited quantities of their current vehicles pre-packaged with individual numbered badging, exclusive accessories, and other special features. Their exterior colors were bright hues (i.e. orange, yellow, red, blue, green).

2005

- **tC RS 1.0** only available in Absolutely Red with 2,500 units produced*[31]

2006

- **tC RS 2.0** only available in Blue Blitz Mica with 2,600 units produced*[32]

2007

- **tC RS 3.0** only available in Blizzard Pearl with 2,500 units produced*[33]

2008

- **tC RS 4.0** only available in Galactic Gray Mica with 2,300 units produced*[34]

2009

- **tC RS 5.0** only available in Gloss Black with 2,000 units produced*[35]

2010

- **tC RS 6.0** only available in Speedway Blue with 1,100 units produced*[36]

2012

- **tC RS 7.0** only available in High Voltage Yellow with 2,200 units produced*[37]

2013

- **tC RS 8.0** only available in Absolutely Red with 2,000 units produced*[38]

2015

- **tC RS 9.0** only available in Two Tone Magma Orange and Gloss Black with 2,000 units produced*[39]

2016

- **tC RS 10.0** only available in Barcelona Red with 1,200 units produced*[40]

7.7.5 Sales

In terms of sales, the Scion tC was once Scion's most popular model and from 2005 to 2007 accounted for almost half of all cars sold under Scion. Its best selling year was 2006.*[41]

7.7.6 Motorsports

- With the demise of the Toyota Celica, the Scion tC was used for the Toyota Pro/Celebrity Race held during the Long Beach Grand Prix from 2006 to 2012, when it was replaced with the FR-S.
- There are several tCs in drag racing. Kenny Tran Jotech Motorsports, Leslie Armendariz Horizon Motorsports, Christian Rado World Racing, and Gary White (formerly Brad Personett) Titan Motorsports. Kenny Tran has been competing in the NHRA Sport Compact drag racing series hotrod class where he garnered the 2007 championship. Kenny cut his fastest run with 7.91 ET @ 184 mph (296 km/h) during a NHRA race at Pomona Raceway. In 2007 and 2008, the Jotech Motorsports



Scion tC competition car

team won back-to-back Pro Import Class titles of the Battle Of The Imports drag series. Leslie Armendariz's All-Motor Scion tC pushed a record setting 9.34 @ 143 mph (230 km/h). Christian Rado claimed 2nd place in the Pro FWD class of the 2008 BOTI nationals, he also later claimed a victory with the first FWD car to pass the seven second mark in a quarter mile with a blistering time of 6.97 seconds. Gary White won second place in the Extreme 10.5" class of the ADRL Battle of the Belts World Finals.

- A 2011 tC was entered for the Formula Drift season in 2011 and is driven by Fredric Aasbo for Team Need For Speed. The 2AR-FE engine, being 2.5 liters was bumped up to 2.7 liters for over 500 hp.
- For the 2008 Formula Drift year, RS*R converted a Scion tC to rear wheel drive. This was done by taking a Toyota Avensis chassis (which the Scion tC is based on, originally an AWD platform) and converted it into RWD. The car was powered by a tuned BEAMS 3S-GE engine. Ken Gushi previously competed with this vehicle. After talks with team mate Christian Rado, Ken Gushi switched back to the factory 2AZ-FE engine, for the 2010 Formula Drift season.*[51] Ken Gushi stated "*Chris Rado, my Scion Team mate who runs his famous record tearing Scion tC uses the same base motor (of course for a different application) has proven this motor to withstand numbers up to 900hp, possibly even more.*" *[52] Ken Gushi's tC is now pushing 790 hp.
- For the 2009/10 Formula Drift seasons, Tanner Foust competed using a Rockstar, AEM and Toyo Tire sponsored Scion tC converted to RWD, built by Papadakis Racing. It was powered by a TRD (Toyota Racing Development) built V8 taken from a former TRD Busch Series NASCAR stocker.*[53]
- For the 2008 KONI Challenge season, Dan Gardner and Craig Stanton drove a Scion tC in the Street Tuner (ST) Class. This marked Scion's world-first

professional start in road racing, and the team led the race for a period of time in a 50+ car field.

- For 2009, a Supercharged tC driven by team owner Dan Gardner was entered in the SCCA World Challenge Touring Car 2 (TC2) class. Scott Webb drove the car to victory, bringing Scion home their first-ever professional win.
- For the 2010 SCCA World Challenge season, Dan Gardner and Robert Stout drove a pair of supercharged Scion tCs in the Touring Car (TC) class. Robert Stout would win at the 2010 Toyota Grand Prix of Long Beach, giving Scion its first-ever TC class win.*[54]
- In 2010 DG-Spec won the manufacturer's championship in World Challenge for Scion. This marked the first time any Toyota brand had ever won the prestigious championship. No Toyota marque has won since.
- In 2011 Dan Gardner Spec won the WERC endurance series for the second time, capping off the performance with an entry into the 25 Hours of Thunderhill. The team led the race by as much as a whopping 28 laps before an engine failure brought the car into the pits. The team accomplished the impossible, doing a full motor-swap in 2 hours, and putting the car back on track with 25 minutes to go in the race, claiming the final step on the podium.
- In June 2012, Christian Rado used a Team Need for Speed AWD Scion tC at the Palm Beach International Raceway for a lap record of 1:20.810 minutes.

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7.7.8 External links

- Toyota Zelas global site
- Official website for Canada, US

7.8 Subaru Impreza

The **Subaru Impreza** is a compact automobile that has been manufactured since 1992 by **Subaru**. Subaru introduced the Impreza as a replacement for the **Leone**, with the Leone's **EA** series engines replaced by the newer **EJ** series versions.

Now in its fourth generation, Subaru has offered four-door sedan and five-door hatchback body variants since 1992; the firm also offered a coupe from 1995 until 2000. Mainstream versions have received naturally aspirated “boxer” flat-four engines ranging from 1.5- to 2.5-liters, with the performance-oriented Impreza WRX and WRX STI models uprated with the addition of turbochargers. Since the third generation series, some markets have adopted the abbreviated **Subaru WRX** name for these high-performance variants. The first three generations of Impreza in North America were also available with an off-road appearance package titled **Subaru Outback Sport**. For the fourth generation, this appearance package became known as the **Subaru XV**, and is sold internationally.

Subaru has offered both front- and all-wheel drive versions of the Impreza. Since the late-1990s, some markets have restricted sales to the all-wheel drive model—therefore granting the Impreza a unique selling proposition in the global compact class characterized by front-wheel drive. However, Japanese models remain available in either configuration.

7.8.1 First generation (1992–2000; GC, GF, GM; “N”series)

Announced on 22 October 1992,^{*[3]} the Impreza was released in Japan in November and offered in either front-wheel drive (FWD) or all-wheel drive (AWD) versions and as a four-door sedan or five-door hatchback/wagon.^{*[4]} According to a *Motor Trend* article written March 1992 on page 26, the name of Subaru's new compact was, initially, to be called the **Loyale**, displaying an official photograph of the four-door sedan. In late 1995, a two-door coupe was introduced in Japan. Initial engine choices included 1.6 L, 1.8 L and 2.0 L naturally aspirated engines.

Subaru chose to continue their longstanding use of the boxer engine in the Impreza. According to Subaru, their configuration of the engine inline with the transmission minimizes body roll due to the lower center of gravity compared with offset engines in most other vehicles. The boxer design provides good vibration mitigation due to the principles of a balanced engine because the movement of each piston is largely countered by a piston in the opposing cylinder bank, eliminating the need for a counterweighted rotating crankshaft (harmonic balancer), but with some vibration from offsets. Torque steer is also reduced with this type of powertrain layout since the front drive shafts are of equal length and weight.



Subaru Impreza Gravel Express (Japan)



2001 model year Subaru Outback Sport (US)

The Outback Sport was introduced to North America in 1994 for the 1995 model year as an updated Impreza “L”

Sport Wagon. It was the top trim level of the Impreza wagon model with no significant mechanical or performance changes from the lower trim levels aside from a slightly lifted suspension. Subaru found some sales success with the Outback Sport as a smaller companion with similar ride height changes, body colors and trim levels to the larger, more successful selling Legacy-based Outback. For the first time the 2.2 engine was used in the American Impreza. Later, the 2.5 engine was introduced. In Japan, the Impreza Sport Wagon was offered with a similar approach to the Outback Sport, calling it the "Impreza Gravel Express" with the WRX turbocharged engine. Subaru discontinued the Gravel Express when the second generation Impreza was introduced due to very limited sales. The hood-scoop found on the American Outback Sport was non-functional but was probably included because the American and Japanese versions were built at the same factory in Japan. The Outback Sport was offered with optional equipment, such as a gauge pack installed on top of the dashboard, that included a digital compass, outside temperature and barometer or altimeter readings.

Trim levels were LX, GL and Sport generation. LX models were front-wheel drive, and powered by a 1.6 L engine; these were four-door only. GL trim levels were either front-wheel drive (Subaru badged these 2WD) or all-wheel-drive (badged AWD); cars launched in 1993 had a choice of 1.6 and 1.8 flat-4 engines, the 1.6 being available with 2WD, the 1.8 an AWD version only. From 1996, the 1.6 and 1.8 versions were dropped (in the European market), and replaced by a 2.0 L engine. Sport versions had alloy wheels, and a 2.0 L engine only. These were "warm hatch" versions which were similar to the WRX, albeit less adorned.

During this generation, Subaru made a limited edition Impreza Sport Wagon called the CasaBlanca,*[5] which had a retro front and rear end treatment, which was inspired by the popular kei car Subaru Vivio Bistro styling package and Subaru Sambar Dias Classic. The Sport Wagon was also offered with the WRX turbocharged engine, and was called the Gravel Express.

The Impreza received an external facelift for the 1997 model year, followed by an interior redesign in 1998, using the new redesigned dashboard from the Forester.

Subaru of North America initially offered the Impreza with the 1.8-liter engine only, with either front- or all-wheel drive; a 2.2-liter engine became optional for 1995.*[6] For the 1995 model year, the 1.8/EJ18 was available with a 5-speed manual or a 4-speed automatic transmission on the 'base' model only.*[6] The 2.2/EJ22 was only available with an automatic transmission for the L, LX, and Outback Sport trims. The 1995 model year also introduced OBD-II (On-Board Diagnostics version 2) in the EJ22/Automatic transmission equipped models. The 1996 model line-up replaced the base version with the low-content Brighton trim, also used in the

Legacy model. A five-speed manual transmission became available with the 2.2 engine on all models, except the Brighton which was only available with the 1.8 and a 5-speed.

Subaru later decided to emphasize all-wheel drive in North America, making it standard on every Impreza (and Legacy) from 1997 onwards. North American markets never received the WRX version of the first generation Impreza. To test the waters for a full-fledged turbocharged model, Subaru showcased a turbocharged Impreza at various car shows around the country. The vehicle was named the 2.5RX and is now located in Subaru of America's Cherry Hill, New Jersey storage facility. Subsequently the 2.5RS performance model was introduced in 1998 (the same year the 1.8-liter engine was dropped). A naturally aspirated 2.5-liter engine and larger brakes were fitted into the coupé body with gold-colored 16-inch five-spoke alloy wheels. The 2.5RS also featured several external cues from its overseas brethren such as hood vents, a hood scoop, and a rally-inspired rear spoiler. The 2.5/EJ25D (DOHC) used in the 1998 RS suffered from a high-rate of head gasket failures.*[7] The 1999 model featured several changes: the newly designed "Phase II" SOHC version of the same 2.5 L engine featured a slightly higher peak torque by 5 N·m (3.7 lb·ft), the wheels turned to a standard silver, the interior got an update, and the exterior became visually similar to the Japanese model with an updated front bumper borrowed from the Japanese Version 5 Impreza WRX STI. 2.5RS models became available in sedan form for 2000.

WRX

There have been seven noted versions of the WRX dating back from Subaru's original World Rally Cross staging vehicles. Subaru adopted the name "WRX" to stand for "World Rally eXperimental" (in some places WRX stands for "World Rally Cross") as all WRX versions (1992 to present) feature rally inspired technology, including all wheel drive, stiffened suspensions and turbocharged four cylinder engines. The STI versions were marketed with consecutive numbers. Another way to determine the version of a WRX was to look at the chassis code. All WRX sold between 1992 and 2000 have the beginning chassis code of GC8 sedan or GF8 hatchback; this is followed by a letter from A to G. Coupe versions share the "GC" code with sedans, except in the US, where they have a separate chassis code of "GM" .

In 1994, Subaru introduced Subaru Tecnica International (STI) versions of the WRX in Japan. These models were upgraded from the standard WRX in many categories, including blueprinted performance-tuned engines, transmissions, and suspensions. The STI versions of the WRX were immensely successful in rallies and popular among street racers but were only sold in the Japanese market. Compared to the WRX, the STI had mostly mechanical modifications.

GC8A (11/1992-9/1993)

The WRX debuted in November 1992 with 240 PS (176.5 kW; 236.7 hp). The center differential was a viscous coupling type, the rear limited slip differential was a viscous type. The WRX Type RA is a stripped down version of the WRX that was available in the Japanese market for people to purchase for motorsports and tuning. Targeted for race and rally, the RA versions were generally lighter in weight; featuring reduced sound-proofing, manual windows, no air conditioning, no anti-lock brakes, and added racing features such as more robust engines, driver controlled center differentials, and shorter gearing. The WRX Type RA uses a closer ratio gearbox and a three-spoke leather steering wheel from Nardi.

In Europe, the WRX was introduced as the Impreza GT, and as the Impreza Turbo 2000 (UK). It came with 208 hp (155 kW; 211 PS). In the United Kingdom, Subaru offered six “WRX 1.8 GL” in 1993. The firm imported six Type RS's, the development car that led to the stripped-out Type RA. Three cars went to Prodrive; three were retained by Subaru UK and were subsequently sold. For UK car certification reasons they were registered as “1.8 GL” despite having the 2.0-liter turbocharged engine.

GC8B (10/1993-8/1994)

In October 1993, Subaru introduced the 1994 model year WRX which produced 240 PS (176.5 kW; 236.7 hp). The rear rotors were substituted from ventilated disk to solid disk. October 1993 was also the start of production of the hatchback version, with 220 PS (162 kW; 217 hp).

The first STI was known simply as “WRX STI”, with 100 per month were produced starting from February 1994. It had 250 PS (184 kW; 247 bhp). This version of the STI was the only version where the standard cars were taken at the end of the assembly line and replaced by STI parts. An STI version of the Type RA was also offered, again with many amenities deleted to reduce weight and cost. Producing 275 PS (202 kW; 271 bhp), this version of the WRX STI came with a Driver Controlled Center Differential (DCCD). This device was an electromechanical differential that could lock the differential.

GC8C (9/1994-9/1996)

In November 1994, the WRX had a power increase to 260 PS (191.2 kW; 256.4 hp). The wheel diameters were increased to 16 inches (410 mm) and brake rotors were both changed to ventilated disks. In Japan, the WRX engine was also offered with the hatchback body variant and was called the “Impreza Gravel Express” but was discontinued due to very limited sales.

To commemorate Colin McRae's success in the international rally scene, Subaru in the UK released 200 limited



1995 Subaru Impreza WRX (GC8C)

edition “Series McRae” WRXs in June 1995, prepared by Prodrive. These vehicles were finished in a very limited “Rally Blue” colour scheme, sported gold 16-inch alloy wheels, McRae decals, individual numbered badging from 1–201 (car 13 was never built since the number 13 is considered unlucky), and a factory-fitted electric tilt/slide sunroof. Recaro seats were fitted in the front, and the rear seats and side panels were retrimmed in the same Le Mans/Avus material.

The regular STI's engine output stood at 275 PS (202 kW; 271 bhp). The car weighed 1,240 kg (2,734 lb) and had gold wheels like those on the World Rally Championship Impreza. Now, the STI was built alongside the WRX on the production lines.



1995 Subaru Impreza WRX STI RA

The 1996 model year WRX debuted in January 1996. The WRX design received minimal mechanical changes, but a WRX V-Limited Edition was introduced to celebrate the success of the Impreza WRC car in the FIA WRC. It was mechanically the same to the WRX but had a curb weight nudge to 1,240 kg (2,734 lb). The V-limited cars are painted in World Rally Blue. A WRX STI V-limited edition was also produced. The interior is colored blue on the seat inserts and carpeting. The WRX Type RA STI received a radio and air-conditioning in the V-limited form. 1,000 WRX STI Version 2 V-limited were produced, with 555 WRX Type RA STI Version 2 V-limited models produced.

GC8D (9/1996-9/1997)

In September 1996, the WRX was updated with new styling. The WRX now has a power rating of 280 PS (206 kW; 276 hp) and now weighed 1,250 kg (2,756 lb). Although it actually developed about 300 PS, the output was under-reported at the then-established gentlemen's agreement power limit of 280 PS.

Subaru in the UK released the WRX “Catalunya” in March 1997, a limited production of 200 cars (again excluding car number 13) in black with red flecks riding on gold alloy wheels. The Catalunya was made to celebrate winning Subaru's second WRC manufacturer's title at the Rally of Spain (Catalunya).

With GC8D came the start of the coupé version of the WRX STI. It is called the WRX Type R STI. The coupé was chosen by Prodrive for use in the WRC because it was lighter and stiffer than the sedan, although it carried the same exterior dimensions. It was essentially a two-door version of the WRX Type RA STI meaning it had DCCD, minimal sound insulation, close-gear ratios and hardened gearbox. This car also has a water-spray nozzle to dampen the top of the intercooler. The water will then evaporate, taking heat away from the intercooler and cooling the intake charge. This car was produced on an order-only basis. Also, there was a WRX STI type RA (sedan) available, with a roof vent instead of map lights, and wind up windows, although electrics are an option from factory.

Also available was a WRX Type R V-limited. It has a WRX motor with no forged internals like the STI, and it misses out on the four-pot front brakes as they are to be installed by rally teams. It has a roof vent and is lightweight, making a good base for a rally car.

GC8E (September 1997 to August 1998)

In Europe, the Subaru Impreza WRX GT's (Turbo 2000 in UK) interior was updated to leather. For the STI, power remained at 280 PS. Forged pistons were also added. The interior and the cockpit were changed into a newer design along with the new white colored gauges.

For the UK, the WRZ “Turbo Terzo” was released in April 1998. 333 cars in blue with gold alloy wheels were produced to celebrate Subaru's WRC title.

In 1998, Subaru of Japan produced a widebody, coupe WRX STI called the “22B STI” produced between March and August 1998. The 22B was used to commemorate both Subaru's 40th anniversary as well as the third consecutive manufacturer's title for Subaru in the FIA World Rally Championship. On the release of the sales, all 400 Japanese units sold out in from 30 minutes to 48 hours, depending on the report.^{*[8]} Another 24 were produced for export markets—16 for the UK, along with another 5 for Australia, and 3 prototypes. The 16 cars imported to the UK were modified by Prodrive, with longer gear



Subaru Impreza 22B STI

ratios, and UK specification lights. Because 50 22Bs had already been imported privately into the UK, Subaru had to wait until 1999 to register the 16 officially imported cars under the VCA's Single Vehicle Approval scheme.

The 22B had the *EJ22* engine (note, the internal Subaru material states the closed-deck block comes from a version 3 *EJ20G*). This means the displacement was increased from 1994 cc to 2212 cc. Officially, it produced 280 PS (206 kW; 276 hp). This car was given a unique color of blue and had fender flared widebody taken from the Peter Stevens designed WRC car, thus widening the width by 80 mm (3.15 inches). The car has a unique hood, front and rear fenders, a WRC-inspired front bumper and a unique adjustable rear wing. During assembly, a WRX Type R chassis was taken off the line. The fenders were replaced with the 22B STI fenders. The suspension is provided by Bilstein, while the brakes were four-pot front/two-pot rear STI calipers, painted red. The wheels were increased in size from the standard WRX Type R STI from 16- to 17-inches and the clutch was upgraded to a sintered twin clutch with a ceramic disk. The origin of the name 22B has been debated. Most assume 22 referred to the 2.2-liter displacement and the B was for the Bilstein suspension. This would correlate with the idea that Subaru sells a Legacy Spec B, where the B represents the Bilstein suspension. The car's curb weight is 1,270 kilograms (2,800 lb).

GC8F (9/1998-9/1999)

Mechanically this was virtually the same as its predecessor. The torque was increased a little from 242 to 250 lb·ft (328 to 339 N·m) at 4000 rpm. The weight also continues to increase and is set at 1,300 kg (2,800 lb).

To celebrate the return of British driver Richard Burns to the rally team, a limited edition of 444 WRX “RB5” models in gray were created in 1999 for the UK. The basic model had little more than cosmetic differences, but most had the WR Sport Performance Pack, an option consisting of a new ECU and exhaust for 240 PS (177 kW; 237 hp) and 350 N·m (258 lb·ft) torque. There was also an optional Prodrive suspension pack.



Subaru Impreza (MY99) WRX STI Version 5 coupe (Australia)



1999–2000 Subaru Impreza WRX sedan (GC8G)



Subaru Impreza WRX RB5

The standard UK Impreza Turbo 2000 was also tuned and partly restyled by Prodrive in 1999 to create the WRX “Prodrive WR Sport”. It featured a unique interior, suspension upgrade, new bodykit and wheels, plus WR Sport decals and an optional ECU upgrade.

For the STI, the power stayed the same as the previous version but the engine layout and design was made cleaner and was dubbed as the “Boxer Phase 2” engine. The facelift the rest of the Impreza line had was also applied to the STI. The WRX STI weighed 1,270 kg (2,800 lb). There were 1000 WRX Type RA STI Version 5 Limited cars and each had a four-month waiting period. The interior was also changed slightly, including seats and steering. This model was also produced as a 555 limited edition.

GC8G (9/1999-9/2000)

The last version of the GC WRX was introduced on September 1999. There is no change in the mechanical specifications. Added features are newly designed alloy wheels, color-coded mirrors and door handles, remote central locking, intermittent wipers with a timer and map lights.

The European WRX turbo model received further upgrades in the form of more parts from the STI range. The front brakes became Subaru branded four-pot calipers with 294 mm (11.6 in) discs, the wheels having become 16-inch lightweight alloys. The STI 4 high-level wing was

fitted to the sedan, and STI-style front bucket seats and firmer suspension were also fitted. The “Phase 2” engine now fitted developed 160 kW (218 PS; 215 bhp), an increase of 5 kW (7 PS; 7 bhp) over the previous model.

To counter the grey imports of high-performance Japanese variants, Subaru UK commissioned Prodrive to produce a limited edition of 1,000 two-door cars in Sonic Blue, called the WRX “P1”. Released in March 2000, they were taken from the STI Type R lines and used for the P1. The car was the only coupé version of the WRX STI GC chassis to receive ABS. In order to allow for ABS, the DCCD was dropped. Engine output was boosted to 276 bhp (206 kW; 280 PS), and the suspension optimised for British roads. Options were available from Subaru consisting of four-piston front brake calipers, electric Recaro seats, 18-inch wheels and a P1 stamped backbox. The P1, or Prodrive One, is echoed in the name of the Prodrive P2 concept car.

Likewise, for the STI, most of the changes were cosmetic with the fender being sculpted to be more aggressive. There were 2,000 WRX STI Version 6 Limited model produced, plus 500 of the WRX STI Type R coupe Version 6 Limited, 2,000 of the WRX STI RA Version 6 Limited, and also 500 of the WRX STI Version 6 Limited hatchback models.

In 2000, STI released the WRX STI “S201”, of which 300 were produced. This series is a limited production series that sports an engine output of 224 kW (305 PS) as special variants were excluded from the gentlemen’s agreement. The car was decked with nearly every single part from the STI catalogue. The S201 was a sedan that sported the only body-kitted S-series WRX STI. Weighing in at 1,270 kg (2,800 lb), the S201 had a tri-planar wing and a massive front airsplitter. The entire suspension was composed of STI parts.

7.8.2 Second generation (2000–2007; GD, GG; “S”series)

Main article: [Subaru Impreza \(second generation\)](#)

Subaru introduced the “New Age” Impreza to Japan in August 2000. Larger in size compared to the previous iteration, the sedan increased its width by 40 millimetres (1.6 in), while the hatchback notably increased by just 5 millimetres (0.2 in)—placing the two variants in different Japanese classification categories. The coupe body style from the first generation did not reappear for the new series. However, the off-road appearance package that included contrasting-colored bumpers did carry over forward. Marketed as a separate model line, this North American-only variant was, as before, badged Subaru Outback Sport.

Naturally aspirated flat-four (boxer) engines comprised the 1.5-liter *EJ15*, the 1.6-liter *EJ16*, the 2.0-liter *EJ20*, and the 2.5-liter *EJ25*. Turbocharged versions of the 2.0- and 2.5-liter engines were offered in the WRX and WRX STI models. STI models featured a more powerful 2.5-liter turbocharged engine. WRX models featured a 2.0-liter turbocharged boxer engine until 2005, after which they switched to the 2.5-liter turbocharged engine.

Although the headlamp styling of the “New Age” Impreza was considered polarizing, improvements to the car brought greater mainstream acceptance. Subaru updated the Impreza’s fascia in November 2002 with more rectangular headlamps. In June 2005, Subaru introduced a second facelift which introduced Subaru’s new corporate face—including the controversial “jet intake and wings” grille design.

An anomalous relative to the second generation Impreza is the Saab 9-2X. Manufactured by Subaru between 2004 and 2005, the Saab retailed only in the North American market for the 2005 and 2006 model years.^{*[9]} To better integrate with the Saab design language, the 9-2X received redesign of the front- and rear styling and various minor tweaks.

- First facelift sedan (2002)
- Second facelift sedan (2005)
- Pre-facelift sedan (2000)
- Second facelift wagon (2005)

WRX

As with the first generation, the turbocharged WRX and STI variants were available in numerous specifications with a myriad of limited edition variants sold. Subaru issued yearly updates to the WRX and STI, tweaking cosmetics and equipment levels, and also improving performance and handling.

- Pre-facelift WRX sedan (2000)
- First facelift WRX STI sedan (2002)

7.8.3 Third generation (2007–2011; GE, GH, GR, GV; “G3”series)

Subaru revealed the third generation Impreza at the New York Auto Show on 2 April 2007—both the standard naturally aspirated Impreza and turbocharged WRX versions were revealed.^{*[10]} The 3rd generation of the high performance WRX STI debuted in October 2007. Initially, the new Impreza was offered as a five-door hatchback (designated *GH*), with the four-door sedan (designated *GE*) introduced in 2008. The wide-body variants of the hatchback and sedan are labelled *GR* and *GV*, respectively. Dimensionally, this version is wider by 56 mm (2.2 in) and increases track by approximately 38 millimetres (1.5 in). Although first adopted by the STI, the wide-body platform was later utilized by the standard WRX range.



Subaru Impreza 2.0R hatchback (Australia)



Subaru Impreza RS sedan (Australia)

The third series of the Impreza is slightly longer, wider and offers a longer wheelbase. Two Subaru traditions were discontinued with the new model: the parking light switch atop the steering column is no longer present, and for the first time the windows have frames to improve noise, vibration, and harshness levels.^{*[11]} Subaru made an effort to control the weight of the new chassis. Despite the increase in size, stiffness, and safety equipment, the car’s weight is similar to the previous generation. The front suspension uses a MacPherson strut setup, while the rear features a new double wishbone suspension.

Flat-four gasoline engines in the naturally aspirated tune comprised a 1.5-liter *EL15* producing 80 kW (107 hp), the 2.0-liter *EJ20* with 110 kW (148 hp) and 196 N·m (145 lb·ft), and the 2.5-liter *EJ25* with 127 kW (170 hp). Turbocharged versions of the two latter engines were fitted to the WRX and WRX STI versions as discussed later. Subaru introduced a flat-four diesel engine, designated *EE20* at the 2008 Paris Motor Show. Sales began in several European countries from early 2009, with the 2.0-liter turbo diesel engine of 112 kW (150 hp). Two models are available as of July 2009, 2.0 TD and 2.0 TD Sport.

In the Japanese domestic market the range comprised the 1.5-liter 15S, plus the 2.0-liter 20S and turbocharged S-GT, both using the 2.0-liter engine. Japanese dealers retailed the hatchback initially, with the sedan body variant arriving in autumn 2008 as the Impreza Anesis. This generation represented the first time that the Impreza was no longer in compliance with Japanese government regulations concerning exterior dimensions. Japanese specification models are fitted with an engine start button.



Facelift Subaru Impreza RX hatchback (Australia)

Subaru Australia released the third generation hatchback in September 2007. Naturally aspirated 2.0-liter versions fell under the R, RX and RS trims, with the turbocharged 2.5-liter reserved for the WRX. The sedan body style came later in 2008, paralleling the hatchbacks's model range.

North America received only the 2.5-liter models. Released to the United States market for the 2008 model year, the model range consists of the 2.5i, the turbocharged WRX, and the Outback Sport that Subaru marketed as a separate model line. The naturally aspirated models are electronically limited from surpassing 190 km/h (120 mph). For 2009, a new 2.5i GT trim arrived to the market with the turbocharged 167 kW; 227 PS (224 hp) engine from the 2008 model WRX (this 2009 WRX received a boost in power). While automatic transmission was not available with the WRX, the 2.5i GT did gain an optional four-speed automatic. In the Canadian market, the base Impreza 2.5i received upgrades for the 2009 model year, including rear disc brakes, electronic stability control, and body-colored door handles—features previously only found on the 2.5i Sport and more expensive trims.

In Israel, the Impreza is denoted as the B3, and three styles are offered: the B3 1.5, with a 1.5-liter engine, the B3 2.0 and the B3 2.0 Sport, both with the 2.0-liter engine. Four-door and five-door models are available for each engine type, ranging from the basic R class, to the medium RX and top RXI class.

Indonesian-specification versions were initially only available as the hatchback style, with the sedan arriving in 2011. The 1.5R and 2.0R could be ordered with a dual-range five-speed manual, or four-speed automatic transmission. However, in Singapore and Thailand, the Impreza 1.5 R, 2.0 R, and 2.5 WRX are also offered as four-door sedan. The WRX STI trim in Singapore, Indonesia and Thailand can be ordered with the dual-range six-speed manual, or five-speed automatic if WRX STI A-Line is available.

Safety of the car has been increased with range wide inclusion of electronic stability control as standard in many markets. When the Insurance Institute for Highway Safety (IIHS) in the US crash-tested the five-door Impreza, the organization granted the Impreza the highest ranking available.*[12] ANCAP in Australia tested the Impreza where it scored 34.66 out of 37 points, or the full five-star rating in the occupant safety crash test; the Impreza also scored a four-star pedestrian safety test.

The Impreza range received a facelift in late 2009 for the 2010 model year, gaining a new grille insert.



Subaru Impreza XV hatchback



Subaru Outback Sport hatchback (US)



Interior

WRX

Subaru debuted the turbocharged WRX performance variant of the third generation series alongside the main-



Pre-facelift Subaru Impreza WRX hatchback (US)



Facelift Subaru Impreza WRX sedan (Canada)

stream naturally aspirated models on 2 April 2007. For this generation, most markets adopted the abbreviated name “Subaru WRX”, although the Japanese and North American markets retained the full “Subaru Impreza WRX” title. The 2.5-liter *EJ255* engine is largely unchanged internally. Changes in the engine compartment consist primarily of a fourth generation Legacy GT style intake manifold and intercooler. The TD04 turbo remains from the previous generation, however it has been adjusted to fit the new intake design. Power output consists of 169 kW (227 hp) and 320 N·m (236 lb·ft) from its 2.5-liter engine. It was offered in either a five-speed manual, or 4 speed automatic. The five-speed manual transmission was changed to the same found in the fourth-generation Legacy GT. The rear limited slip differential has been discarded in exchange for the new VDC (Vehicle Dynamics Control) system. The weight of the car also has been reduced and gives the WRX a 0 to 100 km/h (0 to 62 mph) time of 5.8 seconds. In contrast, curb weight of the standard Impreza model is around 27.2 kg (60 lb) heavier. For the US market, the WRX was offered in “base”, Premium, and Limited trim levels. In Australia, the WRX is available as a sedan or hatchback. An optional premium package adds the satellite navigation with DVD player and 7-inch screen, leather upholstery and a sunroof.

In response to criticism that the third generation WRX suspension is too soft, and needing to keep on par with rival car companies new releases, Subaru issued several

changes in 2008 for the 2009 model year. The *EJ255* engine received an output boost to 198 kW (265 hp) and 331 N·m (244 lb·ft) of torque by swapping the previous *TD04* turbocharger to an **IHI VF52**. This lent to the car now achieving a 0–60 time of just 4.7 seconds, as tested by Car and Driver.* [13] In addition, the updated model received altered springs/struts, sway bars, and Dunlop summer tires to improve handling. Exterior cosmetic changes included the 2008 WRX Premium aero package, STI spoiler (Hatchback only), updated grill with WRX badge, and darker Gunmetal colored wheels as standard equipment. Interior changes consisted of aluminum pedals, silver trim around the shifter, red stitching on the shift boot and seats, and a red WRX logo embroidered on the driver and passenger seat.

Further changes in 2010 for year model 2011 saw the WRX gain the wide-body shell from the STI, as well as the addition of quad muffler tips with diffuser. The new model gains 15 kilograms (33 lb). Firmer rear sub-frame bushings and wider 17-inch wheels contribute to improved traction.

WRX STI



Pre-facelift Subaru Impreza WRX STI (Japan)

Debuting at the Tokyo Auto Show in October 2007, WRX STI versions build further on the standard WRX cars. The STI available in Japan is fitted with the 2.0-liter *EJ207* engine with twin scroll turbocharger generating 227 kW (308 PS) and 422 N·m (311 lb·ft) of torque. Export markets receive the higher-displacement 2.5-liter *EJ257* unit with the single-scroll *VF48* turbocharger rated at 221 kW (300 PS) and 407 N·m (300 lb·ft) of torque. The turbocharger directs air through a larger top-mount intercooler which has lost the red “STI” that was on previous generations. The STI (3,395 lbs) is heavier than the WRX (3,174–3,240 lbs depending on trim) due to a more robust transmission, rear differential and other chassis reinforcements.

Like the standard WRX, the third generation model was shortened to “Subaru WRX STI”, with the Japanese markets notably abstaining from this convention. To differentiate the STI from the regular WRX, Subaru opted to manufacture the STI with a wider body and there-

fore track—as noted by the flared wheel arches. Furthermore, Subaru utilized aluminum suspension components for the STI. Electronic modifications include a multi-mode electronic stability control with “normal”, “traction”, and “off” modes; Subaru Intelligent-Drive (SI-Drive) with three modes: “intelligent”, “sport”, and “sport sharp”; and multi-mode driver controlled center differential (DCCD). The DCCD is a combined mechanical and solenoid operated limited-slip differential which enables the driver to switch between manual and automated centre differential locking. The locking strength can vary from fully open to fully locked *[14] with a 35/65 front/rear open torque bias.



Pre-facelift Subaru Impreza WRX STI (Europe)

The STI hatchback was released in the United States in March 2008.

Subaru Impreza WRX STI Group R4 entered 2012 FIA Asia Pacific Rally.*[15]



Facelift Subaru WRX STI (Europe)

In 2010 for the 2011 model year, the WRX STI became available as a four-door. The most noticeable feature on the STI sedan is a large rear spoiler. Australia also received the 2011 model year STI as a sedan to complement the hatchback released in 2008. Australian STIs were offered in standard form, plus the STI spec.R. An electric sunroof, leather upholstery, satellite navigation, and BBS wheels are standard on the spec.R, while Recaro seats are optional.

A facelift of the STI arrived in 2010 for the 2011 model

year, distinguished by a new front bumper. Tweaks to the suspension—stiffer springs, larger anti-roll bars, new pillow ball bushings on the front lower arms, as well as wider standard tires—had the effect of improved handling.*[16]

Subaru WRX STI Takumi (2008)

It is a concept vehicle based on the Impreza WRX STI hatchback with upgraded springs and shocks, revised suspension bits, lightweight 12-spoke wheels, undisclosed engine tweaks and a slightly reworked exterior.

The vehicle was unveiled in Motorsport Japan 2008.*[17]

20th Anniversary Edition WRX STI (2008)

It is a limited (300 units) version of the Impreza WRX STI hatchback for the Japanese market, with a new set of coilovers with retuned springs and shocks, thicker front and rear anti-roll bars, 18-inch aluminum wheels, white body colour, black lip spoiler, Recaros leather seat with red stitching, a commemorative plaque on the center console, new set of door sills.*[18]

WRX STI spec C (2009)

It is a limited (900 units) version of the Impreza WRX STI for the Japanese market. It included engine, suspension, and body parts improvement over the regular model. The ball bearing on the turbine axle was modified to reduce friction, the ECU retuned for better response, and an intercooler water spray fitted. The cross member, suspension and power steering were also improved for better handling and body rigidity. An aluminum hood, laminar window glass, and a lighter battery helped to reduce weight.

WRX STI A-Line (2009)

It is a version of the WRX STI with a five-speed semi-automatic, steering wheel-mounted paddle shifter. The vehicle went on sale initially in Japan and Singapore,*[19] and later also in Hong Kong, and later in Thailand, Indonesia, and Australia in 2011.*[20]

WRX STI 330S / WRX STI Type UK, WRX STI 380S

They are versions of the Impreza WRX STI for the UK market, with specific tuning by Prodrive. The WRX STI 330S includes increased engine power to 330 PS (243 kW; 325 hp). The WRX STI 380S includes increased engine power to 380 PS (279 kW; 375 hp), new wheels, an upgraded body kit. The vehicles were unveiled at the British Auto Show.

Subaru announced, on 10 September 2008, that the 380S variation would not be produced, due to homologation



Facelift Subaru Impreza WRX STI (US)

and specification difficulties. However, the regular 330S model did enter production as the “WRX STI Type UK”

WRX STI R205

The R205 was a complete car from STI; the “R” signifying the “road”. Based on the Impreza WRX STI, the model utilised technology developed through STI’s participation in the Nürburgring 24-hour Race to the full. As the name implies, focus was given to the car’s performance on public roads in its development in order to create the best road-going car possible. As for the engine, maximum output was increased to 320PS and the maximum torque to 44.0 kg-m by the introduction of such components as a special ball bearing twin scroll turbo. In addition, Brembo 18-inch discs and callipers were installed on the front and rear brakes. With regard to the exterior, aerodynamic devices including STI front and rear under spoilers were fitted. In order to further enhance the “flexible yet elegant driving feel” that STI aims for, a newly developed Flexible Draw Stiffener was installed along with STI dampers/springs and Flexible Tower Bar. As a result, the car could achieve exceptional vehicle manoeuvrability, which made the car react smoothly to the driver’s intention.*[21]

WRX STI Special Edition (MY 2010)

It is a version of the Impreza WRX STI for the North American market, similar to the Japanese STI Spec C. It included stiffer suspension and a thicker stabilizer bar for better handling, seven twin-spokes gray 18-inch alloy wheels, downgraded manual air conditioning, a four-speaker stereo instead of climate control and 10-speaker premium audio on the regular WRX STI.

WRX STI tS, WRX STI A-Line tS (2010)

It is a limited (400 units) version of the Impreza WRX STI sedan for the Japanese market.*[22]

Cosworth WRX STI CS400

It is a limited (75 units) version of the Impreza WRX STI for the UK market. It included a Cosworth-tuned version of the standard STI engine rated 400 PS (294 kW; 395 hp),* [23] upper mesh grille with piano black finish on the top frame, modified front bumper with “Cosworth” emblem on the lower mesh grille, 18-inch alloy wheels, lip front spoiler, rear waist spoiler, Bilstein struts, Eibach springs, AP Racing’s larger diameter ventilated front brakes with six-piston calipers, Recaro leather seats with “Cosworth” label, piano black center console panel, “Cosworth”-badged floor mats.

The “Cosworth WRX STI CS400” was announced in late May 2010.*[24]

WRX STI S206, WRX STI S206 NBR CHALLENGE PACKAGE (2011)

It is a limited (300 units) version of the Impreza WRX STI sedan for the Japanese market.*[25]*[26]

WRX STI A-Line type S (2011)

It is a version of the Impreza WRX STI A-Line 4-door sedan and 5-door hatchback for the Japanese market.*[27]

Impreza G4 STI (concept; 2012)

It is a version of the Japanese model of the Subaru Impreza (4th Gen) G4 2.0i-S with: STI Front Under Spoiler, STI Sport Muffler (Prototype), STI Side Under Spoiler (Prototype), STI Flexible Tower Bar, STI Rear Trunk Spoiler (Prototype), STI Low Down Spring (Prototype), STI Skirt Lip, STI 18-inch Aluminum Wheel, (Prototype), STI Shift Knob – CVT (Prototype), STI Stainless Steel Mesh Brake Hose (Prototype). The vehicle was unveiled at the Tokyo Auto Salon 2012.*[28]

Impreza WRX STI Group R4 (2012)

It is a race car version of the Subaru Impreza WRX STI sedan for the Intercontinental Rally Challenge. The vehicle was unveiled at the Tokyo Auto Salon 2012,*[28] followed by the Tokyo Auto Salon 2013*[29]*[30]

WRX STI, WRX STI spec C, STI A-Line type S Package (2012)

Change to Japanese models of the Impreza WRX STI sedan and 5-door hatchback included:

- New design 18-inch alloy wheels from the WRX STI, WRX STI A-Line

- available A-line equipment options including premium package (premium tan interior, BBS 18-inch forged alloy wheels) for 6-speed manual transmission models
- trunk garnish in body colour (4-door sedan)

Change to Japanese models of the Impreza WRX STI spec C included:

- 4-door sedan model available
- option deletions including rear wiper, fog lamp, large rear spoiler on 17-inch cars (4-door sedan)
- 17-inch cars include full auto air conditioning manufacturer option
- 17-inch cars include head rest and 3-point seat belt option at rear centre seat

Change to Japanese models of the Impreza WRX STI A-Line type S Package included:

- Large rear spoiler (4-door sedan)
- exclusive bucket type front seat in alcantara/leather, red stitching
- floor console lid and door arm rest in alcantara
- BBS 18-inch forged alloy wheels
- RECARO bucket type front seat manufacturer option
- brembo 17-inch front brake disc with 4-piston caliper, 2-piston rear caliper manufacturer option

The vehicles went on sale on 3 July 2012.*[31]

WRX STI tS Type RA, WRX STI tS Type RA NBR CHALLENGE PACKAGE (2013)

It is a limited (300 units) version of the Impreza WRX STI sedan for the Japanese market.*[32]*[33]

7.8.4 Fourth generation (2011–2016; GJ, GP; "G4"series)

Four-door and five-door models were unveiled in 2011 at the New York International Auto Show.*[34] Not until the 2012 model year would the generation IV Impreza debut, with Subaru's new FB engine.

US models went on sale as a 2012 model year vehicle. Early models include a choice of four-door sedan or five-door hatchback body, 2.0-liter DOHC (148 hp) engine,



Subaru Impreza hatchback (Australia)



Subaru Impreza sedan (Australia)

five-speed manual or *Lineartronic* CVT with paddle shifting six-speed manual mode. Trim package included base 2.0i, 2.0i Premium, and 2.0i Limited.*[35]*[36]*[37]

Japan models went on sale on 20 December 2011 at Subaru dealerships. Early models include a choice of four-door sedan (as Impreza G4) or five-door hatchback body (as Impreza Sport), 1.6-liter DOHC FB16 (1.6i, 1.6i-L) or 2.0-liter DOHC FB20 (2.0i, 2.0i EyeSight, 2.0i-S, 2.0i-S EyeSight), five-speed manual or *Lineartronic* continuously variable transmission (CVT).*[38]*[39] There is also a bigger station wagon with different bodywork, called the **Subaru Levorg**. The Levorg is going on sale in April 2014 and was first shown at the 2013 **Tokyo Motor Show**. The smaller 1.6-liter engine is offered in Japan so as to reduce the annual Japanese road tax obligation.

Remaining nearly the same size as the previous series, the new model is lighter and more fuel efficient, plus is claimed to be better packaged. The 2012 Impreza received longer wheelbase that provides more interior room for passengers. The Impreza hatchback rear head-and-legroom is impressive; two adults can ride in the back of the Impreza with comfort. Whereas, in the hatchback, the rear 65/35 split seatbacks fold down, offering 52.4 cu. ft. of cargo space.*[40]*[41]

Higher quality materials are fitted throughout the interior, and due to its larger exterior dimensions as defined by Japanese government regulations, the Impreza is an upmarket product in Japan. It is now almost exactly the

same dimensions as the first and second Subaru Legacy (1990–1999).

The third generation high-performance WRX variants will continue on in production until new versions will be released in early 2014. As of 2014, Subaru has decided to move away from marketing the WRX and WRX STI under the Impreza name, but the WRX and WRX STI are simply performance trims of the Impreza with higher output engines, firmer suspension, larger brakes, slightly resculpted body panels, lowered ride height and larger intakes. Subaru had promised to completely move the WRX and STi off the Impreza chassis and body to create a standalone model, but they instead chose to simply alter the Impreza's body, and chassis and remove the Impreza name. Subaru decided to not produce a WRX or WRX STi wagon as had been previously offered. The wagon made up approximately 50 percent of US WRX and WRX STI sales.*[42]

In addition to the regular models, Subaru also offered the **Impreza Sport** Hatchback in the Premium and Limited trim levels. The so-called American Impreza Sport (not to be confused with the JDM regular hatchback with the same name) has the rugged style with side spoilers, roof rack, different style alloys, and availability of two-tone colors. However it also has the normal ground clearance, unlike the new XV. For the Premium model grade, buyers can choose 5 speed manual or Lineartronic CVT, while the Limited is only available with CVT.

EyeSight consists of two cameras with one on each side of the interior rear view mirror, that use human like stereoscopic vision to judge distances and generally keep tabs on the driver. The system can help maintain a safe distance on the highway, a lane departure warning system, a wake up call when traffic lights change, and even keeps an eye out for pedestrians. Autonomous cruise control system has been integrated into the EyeSight feature as a driver safety aid. This feature is initially available only in Japan, but was expanded to US models of other vehicles, beginning with 2013 Legacy and Outback models.*[43]

XV



Subaru XV 2.0i-L (Australia)



Subaru XV 2.0i-L (Australia)



Interior

Subaru demonstrated the Subaru XV concept vehicle in 2011. Based on a raised suspension version of the Subaru Impreza 5-door hatchback, the XV concept offered aluminum alloy wheels with silver spokes, black wheels and clear blue center caps; yellow-green body colour, silvery white leather interior upholstery at seats, mesh in selected interior areas with yellow/green piping, multifunction display with navigation, car audio, and vehicle information in the center panel; EyeSight driving assist with LCD monitor between the two combination meters and stereo cameras, 2.0-liter four cylinder Horizontally-Opposed DOHC engine, Lineartronic CVT, 245/45 ZR19 tires. The vehicle was unveiled at Auto Shanghai 2011.*[44]*[45]

The production version of the XV was unveiled at the 2011 Frankfurt Motor Show, and later at the 20th Indonesia International Motor Show.*[46]*[47] Production of the Subaru XV began at Tan Chong Motor Assemblies Sdn. Bhd (TCMA) in Malaysia in January 2013, with annual production of 5000 units.*[46]*[47]*[48] Production began on 20 December 2012.*[49]*[50]

Badged Impreza XV in Japan, this model went on sale in Japan on 5 October 2012. Early models include a 2.0-liter boxer engine, Lineartronic Continuously Variable Transmission (CVT).*[51]

Early European models include a choice of 1.6-litre

petrol, 2.0-liter petrol, 2.0-liter diesel engines; five-speed manual (1.6 petrol), six-speed manual (2.0 petrol, 2.0 diesel), Lineartronic CVT (1.6 petrol, 2.0 petrol) transmission; idle engine start stop (standard in petrol engine models, optional in diesel engine models).^{*[52]}^{*[53]}

The Subaru XV Sport Concept (2013) is a version of the Subaru XV with Front Bumper (Prototype), Bilstein Suspension (Prototype), LED Driving Lights (Prototype), STI Flexible Tower Bar (Prototype), Side Under Spoiler (Prototype), STI Sport Muffler (Prototype), Fender Arch Protector (Prototype), Enkei Designed 17-inch Aluminum Wheels (Prototype), Recaro Front Seat (Prototype), Brembo Brake & Drilled Rotor (Prototype). The vehicle was unveiled at the Tokyo Auto Salon 2013.^{*[30]}

The Subaru XV Crosstrek Hybrid (2013) is a version of the Subaru XV Crosstrek with permanent magnet AC synchronous motor rated 15 PS (11 kW; 15 hp) and 65 N·m (48 lb·ft), Lineartronic CVT transmission, Nickel hydride batteries, 225/55 R17 tires. The vehicle was unveiled at the 2013 New York International Auto Show.^{*[54]}^{*[55]}

In North America, the XV is sold as the Subaru XV Crosstrek and was unveiled at the 2012 New York International Auto Show. The US model went on sale in 2012 as a 2013 model year vehicle. Early models include a 148-horsepower 2.0-liter boxer engine, five-speed manual or available second-generation Lineartronic Continuously Variable Transmission (CVT).^{*[56]}^{*[57]} In the United States starting with the model year 2016, Subaru has dropped the XV from its name and will just be called Crosstrek.

WRX (VA)



Subaru WRX (VA; Australia)

For the VA series WRX released in 2014 for the 2015 model year, Subaru took a different approach with the model when compared to past generations. This time, the Impreza name is dropped in all markets in which the new model is named simply as the WRX—as had been the case in North America with the previous model while



Subaru WRX (VA; Australia)



Subaru WRX interior (Japan)

in Japan, it is sold as the WRX S4. The body design also took a stronger departure from the Impreza donor model than in the past. The general WRX profile/silhouette is carried over from the Impreza, as are the front doors, trunk lid, and interior. However, the entire front end bodywork plus the rear quarter panels are unique to the WRX. The rear doors have received a subtle reskin with an upwards kink and revised character line but retain an otherwise identical shape.

This model is the first of the WRX line to deviate from the EJ-series engine. It uses the new 2.0-liter FA20F engine, which has direct injection and a twin-scroll turbocharger. On all previous WRXs the turbocharger was located near the right-hand side of the firewall, close to the third cylinder. With the new FA20F, Subaru fitted the turbocharger at the front of the car, close to the serpentine accessory belts. There is a robust aluminum skid plate that protects the underside of the turbocharger. Mounting the turbo lower in the engine bay helps reduce the car's center of gravity to 19.5 inches (500 mm).^{*[58]}

Behind the wheel, the most noticeable difference between the EJ and FA engines is the latter's broader torque curve. The 2.5L EJ produced a maximum of 240 lb·ft at 4,000 rpm, while the new 2.0L FA peaks twice as soon (258 lb·ft at 2,000 rpm).^{*[58]} Less obvious is a 3-hp increase over the old engine; the FA is rated at 268 hp at 5,600

rpm.* [58]

From 2009 through 2014 the WRX's engine was mated exclusively to a five-speed manual. That changes for 2015. In base trim, the sole transmission is a six-speed manual, the first ever available in a non-STI WRX while the Limited and Premium trim levels add the option of a continuously variable transmission (CVT) with paddle shifters for the first time.

When left in Intelligent mode (the most frugal of its three settings) the CVT returns better fuel economy than the manual. In Sport and Sport# modes it shifts more aggressively, mimicking a six and eight-speed gearbox, respectively, but its acceleration still lags that of the manual transmission.

The new powertrain gives the 2015 WRX a different character than the car it replaces, but its acceleration times are virtually unchanged. The biggest performance gains come from the 2015 redesigned chassis. Structural stiffness and spring rates are up 40 to 60 percent, raising roadholding numbers by about 0.08 G.

The 2015 WRX has been met with mixed reviews by automotive journalists. It placed second to the 2015 Volkswagen GTI in separate comparison tests in the September 2014 issues of *Car and Driver* and *Motor Trend*. In general, it bests its sub-\$30,000 competition in nearly every performance metric, but suffers from a cheaper interior and a less comfortable ride. Its sharp styling is usually listed as polarizing, too, although the bulk of criticism in that area is based on the lack of a hatchback model.

Performance numbers vary from publication to publication. Testing from *Car and Driver*, *Road & Track* and *Motor Trend* has produced 0–60 mph times as fast as 4.8 seconds and as slow as 5.5 seconds. It runs the quarter-mile anywhere from 13.6 sec @ 102 mph to 14.0 sec @ 98 mph. (CVT-equipped WRXs are about a half-second slower to 60 mph and through the quarter-mile.) On the skidpad, roadholding numbers range from 0.92 G to 0.96 G. Braking from 70 mph results in stops as short as 156–166 feet.

In base trim, the car starts at \$27,090 (including destination) and weighs 3,267 lbs. Limited and Premium trim levels add more comfort and convenience, such as heated seats and LED headlights, but not more performance. Starting in 2016 the Premium and Limited trim levels also come with 18" wheels, similar to the last generation STI Enkei wheels.

WRX STI

This model retains the same engine as the previous generation STI, which is a 2.5-liter EJ257 with dual AVCS however with modifications to the ECU which have increased fuel economy slightly, and has given a 6 kW boost in power to 227 kW (310 HP). Torque however has dropped from 407Nm to 394Nm. There are also re-



Subaru WRX STI Type S (VAB, Japan)



Subaru WRX STI (Australia)



Interior

ports that along with the ECU changes, the rev limit was raised to 7100 rpm to support the power increase at the upper rev range to support a stronger top end. It also retains a hydraulic power steering system as opposed to the WRX's new electric-assisted rack. The steering rack was changed to a quicker 13:1 ratio, as used in the Japan delivered vehicles, as opposed to the 15:1 ratio of the previous models. Also, the 2.0-liter EJ207 that is standard for Japanese STI's has been retained specifically for the Japanese market in the new 2015 WRX STI.

A sound tube device, also seen on the BRZ, has also been fitted to the air intake system to channel certain induction and turbo frequencies into the cabin, reports show this is

only fitted to vehicles in some markets. In Europe and Australia, the STI is available with and without the wing. Starting in 2016 the US version of the limited STI was also made available with or without the wing.

In 2015 Subaru released the WRX STI Launch Edition that came in World Rally Blue Pearl exterior paint combined with gold-painted, 18-inch, BBS alloy wheels. Only 1000 Launch Editions were released in North America.

In 2015 Subaru released the WRX STI S207, limited to 400 units sold only for the Japanese market. Power output tuned to 328 PS (323.5 hp, 241 kW) and 318 lb.-ft. of torque (431 Nm). Upgrades also include a quicker-ratio 11-to-1 steering rack (compared to 13-to-1 for the stock unit), STI-spec Recaro front bucket seats, Bilstein's adjustable DampMatic II front suspension, and drilled rotors clamped by Brembo monoblock six-piston front callipers and four-pot rear callipers. Up to 200 of the units could be equipped with the NBR Challenge Package, which features a carbon-fibre wing and a badge commemorating Subaru's class victory at the 2015 Nürburgring 24 Hours.

In 2016 Subaru released the WRX STI Hyper Blue special edition series, with production limited to 700 units for the United States. The new color covers the outside, and it is also offset with gloss black 18-inch BBS wheels, badges and mirror caps. Blue stitching brings the color into the interior, and Subaru's seven-inch navigation system with a nine-speaker stereo is standard for this version. In Australia, Subaru announced the WRX Premium Hyper Blue special edition with the CVT automatic will be limited to 200 units, and WRX STI Premium with the six-speed gearbox will be limited to just 50 units.

7.8.5 Fifth generation (2016–present)

Subaru unveiled the fifth generation 2017 model year Impreza sedan and hatchback at the [New York International Auto Show](#) in March 2016.^{*[59]} The fifth generation is the first model to be underpinned by *Subaru Global Platform*.^{*[59]}

7.8.6 Motorsports

The Impreza chassis has been more successful in rallying than Subaru's previous contenders. Prior to the introduction of the Impreza into World Rally Championship racing in 1993, the Subaru World Rally Team had fielded its larger mid-size Legacy. However, with the rest of the rally competition increasingly shifting towards smaller and lighter chassis, Subaru introduced the smaller Impreza, immediately achieving a podium on its debut on the 1993 [1000 Lakes Rally](#). To jumpstart its early rally efforts, and to develop the Impreza into a competitive rally car, Subaru teamed up with preparatory firm and British motorsports company [Prodrive](#), in 1989.



Stéphane Sarrazin driving a Subaru Impreza WRC on the Monte Carlo Rally

Immediately following the first overall WRC event win for both the fledgling Subaru team and its young driver, the late Colin McRae aboard a [Group A Legacy](#) on the [1993 Rally New Zealand](#), the Scotsman's team-mate and childhood idol, [1981 World Rally Champion](#), Ari Vatanen of Finland, went on to finish second in the debut rally of the first ever factory Impreza. New recruit for the following season, [1990 and 1992 World Champion](#), Carlos Sainz brought the Impreza its inaugural victory on the [1994 Acropolis Rally](#).

The Impreza brought Subaru three consecutive WRC constructors' titles (1995–1997, the latter season the first for the newly introduced [World Rally Car](#) class) and a driver's championship for McRae in 1995, the late Richard Burns in 2001, and the Norwegian, Petter Solberg in 2003.

Another evolution of the Impreza WRC made its debut in the [2007 Corona Rally Mexico](#). Unfortunately, the team had several major problems with reliability as the car experienced mechanical difficulties in almost every rally from its first.



Petter Solberg's Subaru Impreza WRC 2008

Subaru debuted an Impreza WRC in hatchback form for the first time from the [2008 Acropolis Rally](#) onwards, on which event Solberg scored a second-place finish. On 16 December 2008 Subaru announced that it would withdraw from the [World Rally Championship](#) due to eco-

nomic problems.*[60]

However, the Subaru Rally Team USA is still competing in the Rally America National Championship. Also, there are still several teams using Subaru models in the Intercontinental Rally Challenge. Starting in 2006, Subaru of America (SOA), as the official distributor of Subaru vehicles in the United States, participates in the Subaru Road Racing Team (SRRT) with a Subaru Legacy 2.5 GT Spec-B in the Grand-Am Street Tuner class. In 2010, SRRT campaigns a Subaru Impreza WRX STI in the Grand Sport class. In 2011, SRRT switched from the hatchback to a 2011 Subaru Impreza WRX STI sedan.

From 2005–2008, the Cusco team entered into the Super GT championship using an Impreza, being the only team to do so using a 4WD car.

Compass 360 Racing used an Impreza in the Canadian Touring Car Championship in 2010, with other teams entering the GTS category of the 2014 Pirelli World Challenge season.

In April 2010, a modified third generation WRX STI driven by Tommi Mäkinen set a lap time of 7:55 on the Nürburgring Nordschleife, which is a record for a 4-door car.*[61] The Subaru Road Racing Team debuted the Impreza WRX STI hatchback and switched to Impreza WRX STI sedan in 2011 participated to the GRAND-AM Continental Tire Sports Car Challenge series.

The 2014 Alcan Winter Rally was won by a Subaru Impreza winning first in its class and taking first place in the overall race, continuing the winning tradition begun with the Legacy in 1990.*[62]

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7.9 Toyota AE86

The **AE86** generation of the **Toyota Corolla Levin** and **Toyota Sprinter Trueno** is a small, lightweight coupe or hatchback introduced by Toyota in 1983 as part of the fifth generation Toyota Corolla lineup. For the purpose of brevity, the insider-chassis code of "AE86" depicts the 1600 cc RWD model from the range. In classic Toyota code, the "A" represents the engine that came in the car (4A series), "E" represents the Corolla, "8" represents the fifth generation (E80 series) and "6" represents the variation within this generation.

The Levin has fixed-headlights, and the Trueno has retractable headlights, both could be hatchback or coupe. The export model name Corolla covers both variations. The AE86 (along with the lower spec 1,452 cubic centimetres (1.452 L) AE85 and 1587 cc SR5 versions) was rear wheel drive (unlike the front wheel drive CE80, EE80 and AE82 models), and is among the last rear-drive cars of its type, at a time when most passenger cars were being switched to front-drive. In 1987, there was a limited edition model of the AE86 called "Black Limited" that served as a send-off model before the AE86 chassis was replaced later that year by the front wheel drive AE92 Corolla/Sprinter range.

In Japan, the AE86 was also known as the Hachi-Roku (ハチロク), Japanese for "eight-six". In Japan, the Sprinter Trueno was exclusive to Toyota Japan dealerships called *Toyota Vista Store*, while the Corolla Levin was exclusive to *Toyota Corolla Store*. The word "trueno" is Spanish for thunder, and "levin" is Middle English for "lightning". AE86 is not the only car that was named like that, for example, AE85 was commonly named as "hachi-go".

The AE86 later inspired the Toyota 86 (also badged as the GT86, FT86, Scion FR-S and Subaru BRZ).^{*[2]}

7.9.1 Engine/technical

The AE86 was available with a fuel-injected 4-cylinder twin-cam 1587 cc 4A-GE engine in Japan and Europe which was also used in the first-generation Toyota MR2 (AW11) and the facelift Toyota Celica GT-R and GT Cariña (Japan only). This engine had a maximum gross power output of 130 PS (128 bhp; 96 kW) and 110 lb-ft (150 N·m) of torque in standard form, though it was later down-rated to 120 PS (118 bhp; 88 kW) and 105 lb-ft (142 N·m) in net output.* [3]* [4] The AE86 came with a 5-speed manual gearbox, and later came with the option of an automatic. The 4A-GE engines used in the AE86 and AW11 were equipped with T-VIS (Toyota Variable Intake System). The AE86 had an optional LSD.* [3]

In North America, a modified 4A-GEC engine was used to comply with California emissions regulations. Power was rated at 112 bhp (84 kW), and 96 lb-ft (136 Nm) of torque.* [3]

The AE86 used ventilated disc brakes. The car was equipped with a MacPherson strut style independent suspension at the front and a four-link live axle with coil springs for the rear. Stabilizer bars were present at both ends.* [3]

Higher-spec AE86 models known as the GTS featured the DOHC 4AGE, 4 wheel disc brakes, color matched bumpers, front lower bumper surround had a much more sporty and pronounced lip, door panels were moulded, tachometer redline is around 7,500, wrapped steering wheel, seats had leather wrapped tops (front seats are completely different from SR5), optional LSD, and aluminium wheels, chassis code in the VIN is AE88 (for North American market cars).

Lower-spec American AE86 SR5 models used the 1587 cc 4A-C SOHC unit, The SR5 rear end was a non LSD with drum brakes. The SR5 model also had a softer suspension, and small styling and interior changes such as seats, gauge cluster, door panels, un-painted front and rear bumpers, and the lower part of the front bumper surround is shorter and flat, and its chassis code in the vin differs as well being AE86 for the SR5 model (for North American market cars)

Models equipped with the 4A-GE engine received a 6.7" rear differential, while 4A-U, and 4A-C models received a smaller, weaker, 6.38" rear differential.

The AE86 SR5 (4A-C equipped) had an optional automatic transmission, though the GT-S model (with the 4A-GE DOHC engine) only came with a standard 5-speed manual gearbox.

One of the staff who was behind the car's engineering work was Nobuaki Katayama, who would later head the company's motorsport department and who would become chief engineer of the Altezza project a decade later. An article in Car Magazine in April 1999, stated he has a photo of an AE86 hung in his office.

7.9.2 Body styles



Variety of AE86s at 2004 Hachirosku.com.au Annual AE86 Meet-Up in Melbourne, Australia.



Variety of AE86s at 2004 Hachirosku.com.au Annual AE86 Meet-Up in Melbourne, Australia.

Both the Levin and Trueno variants were offered with either a 2-door coupe or 3-door liftback (sometimes called hatchback) body style. The Levin and Trueno were generally identical, apart from fixed, rectangular headlights on the Levin and pop-up headlights on the Trueno. Minor bodywork changes were made in 1986 which resulted in different tail lights, front and rear bumpers, corner and headlight trim lights, and grilles, are the main differences for both Levin and Trueno models, along with the coupe and hatchback styles. The models sold between 1983–1985 are sometimes referred to as "zenki" (前期, lit. early period), and the models sold from 1986–1987 are referred to as "kouki" (後期, lit. latter period).* [5]* [3]

7.9.3 Models/specifications

In Japan, the DOHC 4A-GEU AE86 was offered in GT, GT-APEX and GTV trims as the Corolla Levin or Sprinter Trueno. In North America, the top-spec DOHC 4A-GEC was sold as the Corolla GT-S (with AE86 on the build plate in the engine bay but AE88 in the VIN), with the SOHC 4A-C being sold as the Corolla SR5 (with AE86 on the build plate and in the VIN). Both versions were sold with pop-up headlights only. Euro spec models were sold as the Corolla GT with DOHC engines and fixed Levin-style headlights. The Middle East received the same basic model as the North American market, with pop-up headlights and the regulated 5 mph (8 km/h) bumpers.

The lightest AE86 is the Japanese 2 door GT model which weighs 910 kg (2,006 lb). It has the same exterior as the GTV trim, but with the interior of the AE85 with the exception of the gauges, and is equipped with rear drum brakes.



A Corolla GTS, with Sprinter Trueno trim modification

North American AE86 specifications

There are three types of Corolla Sport RWD for the US market: DX, SR5, and GT-S, though the DX was generally an internal Toyota designation, as brochures, and advertising do not include the DX designation;*[3] it consisted of a lower trim level, lighter duty suspension parts and the like.

- Model Years of production: 1983 to 1987
- Versions: DX, SR5 and GT-S (**85+ Only**)
- Drag Coefficient: 0.39

Note that the VIN and the chassis code do not match for all models.

DX & SR5 specifications

- First 7 characters of VIN: JT2AE85 (DX) or JT2AE86 (SR5)
- Chassis code: AE86 (which may differ from the VIN)
- Horsepower: 87 hp (64 kW) @ 4800 rpm* Torque: 85 lb·ft (115 N·m) @ 2800 rpm*
- Weight: approximately 2200 lb (998 kg) to 2400 lb (1089 kg)
- Engine: 4A-C, 1587 cc
- Engine type: SOHC 8-valve Inline-4 carbureted
- M/T transmission: T50, 6-bolt flywheel
- A/T transmission: A42DL, 4-speed overdrive w/lockup torque converter, mechanically controlled, with electronically engaged overdrive
- Compression: 9.0:1

- Differential: 6.38" Open with 4.10:1 Ratio, 2-pinon (Automatic) (**S292**) or 3.91:1 ratio, 4-pinon (5-speed) (**S314**)
- Wheels/tires: 13x5" +33 mm offset rims with 185/70R13 tires

GT-S specifications

- First 7 characters of VIN: JT2AE88
- Chassis code: AE86 (which differs from the VIN)
- Horsepower: 112 hp (84 kW) @ 6600 rpm* Torque: 97 lb·ft (132 N·m) @ 4800 rpm*
- Weight: approximately 2200 lb (998 kg) to 2400 lb (1089 kg)
- Engine: 4A-GE, 1587 cc
- Engine type: DOHC 16-valve Inline-4 AFM Multi-port Fuel Injection w/T-VIS
- Transmission: T50, 8-bolt flywheel
- Injector size: approx. 180 cc, low impedance
- Compression: 9.4:1
- Differential: 6.7" Open (**T282**) or optional LSD (**USA Only**) (**T283**) with 4.30:1 Ratio, 2-pinon
- Wheels/tires: 14x5.5" +27 mm Offset Rims with 185/60R14 82H Tires (195/60R14 85H for 86+ models)

7.9.4 The AE86 in motorsports



Shoji Nakazawa, drifting his 13B-powered AE86

During its production life, the AE86 was a popular choice for showroom stock, **Group A**, and **Group N** racing, especially in rallying and circuit races. Even after production of the car was discontinued, many privateer teams still

raced the AE86, and it is still a popular choice for rallying and club races today. Part of the continued appeal of the AE86 for motorsports is its rear-drive configuration, a feature not available in most newer lightweight coupes. In Group A world rally cars (1600 cc class) the 4A-GZE engine was popular. In Group A touring car races, the car either dominated the lower category where eligible or fought it out with Honda Civics or the later AE92s and AE101s whilst maintaining its competitiveness. In Ireland, where rallying is considered one of the most popular forms of motorsport, as organizing regulations are more relaxed compared to that of other countries, the AE86 was popular when new, and is still so popular that teams will purchase cars from the UK due to local shortages. The AE86 is also popular for rally use in Finland, where the cars can be competitive in the F-Cup competition for naturally aspirated 2WD cars.

An AE86 was entered in the European Touring Car Championship in 1986 with a 150 hp (112 kW) 4A-GEU engine. It beat the bigger BMW M6, BMW 325i (E30), Rover Vitesse, Volvo 240 Turbo, Merkur XR4Ti, Mazda 929, Holden Commodore (VK), Alfa Romeo 75 (turbo V6), and Mercedes 190E 2.3-16 to win the Manufacturers Championship With 267 points, beating the 1986 Drivers Championship Schnitzer Motorsport BMW M6.*[6]

The semi-factory supported Kraft team entered a space-frame Trueno at the JGTC with a 3S-GTE engine that came from a SW20 MR-2 Turbo producing about 300 hp (224 kW) for the JGTC GT300 regulations in 1998. Despite being popular with the racefans, the car had minor success and was abandoned from use halfway through the 2001 season in favor of a newly delivered MR-S.

The rear wheel drive configuration, combined with the AE86's light weight (approximately 2300 lb (950–970 kg) curb weight), balance and relatively powerful (and easy to tune) 4A-GEU engine made it popular among the Japanese *hashiriya* (street racers in Japanese), many of whom raced in *touge* (mountain passes in Japanese) where the corners suited the AE86 best, especially on the down-hill.*[3] Among those who utilized this car was Japanese racing legend Keiichi Tsuchiya also known as the *Drift King* ("Dori-Kin" in Japanese). Keiichi Tsuchiya helped popularize the sport of *drifting*, which involves taking a car on a set of controlled slides through corners.*[3] The AE86's FR configuration made it well suited to this kind of cornering, and currently the car is a mainstay of drift shows and competitions. Japanese drifters like Katsuhiko Ueo, Toshiki Yoshioka, Yoichi Imamura, Koichi Yamashita, Hiroshi Takahashi, Tetsuya Hibino, and Wataru Hayashi were also involved in making the AE86 famous in the drift scene.



Initial D AE86 replica in Melbourne, Australia

7.9.5 In popular culture

The main character of the anime and manga *Initial D*, Takumi Fujiwara, uses his father's AE86 Trueno apex hatchback for racing and making his tofu deliveries. Also in *Initial D*, Itsuki Takeuchi drives an AE85 Levin, mistaken for an AE86 and Wataru Akiyama drives a turbocharged (later converted to supercharged) AE86 Corolla Levin. Later on in the series, Shinji Inui drives the Notchback coupe version of the AE86 Trueno, but not before the Fake Takumi drives his own AE86 Trueno. A Corolla Levin AE86 also made a brief cameo in *The Fast and the Furious: Tokyo Drift* and *Fast and Furious 4*.

The popularity of the manga is cited as the main cause of the car's high resale price.*[7]

The Sprinter Trueno and Corolla Levin are featured in the racing video games series *Gran Turismo* and *Forza Motorsport* (excluding Corolla Levin), *Tokyo Xtreme Racer* for the Sega Dreamcast (which was later made to PS1 & PS2 for other TXR titles), *Grand Theft Auto IV* and *Grand Theft Auto V* as the Karin Futo (modelled based on the Corolla Levin). A modified AE86 Trueno similar to the one depicted in *Initial D* (starting with *Gran Turismo 3: A-Spec*) appears only in *Gran Turismo*. The American market AE86 GT-S is featured as oldest and least powerful of the lot, nonetheless equally competitive and a car of choice, in *Need for Speed: Underground 2*. The Toyota AE86 also appears in *Need for Speed: The Run* and can be used in challenges and multiplayer events. It also appears in *Need for Speed: World*, *Need for Speed: Pro Street*, and *Need for Speed (2015)*. It also appears in the Taito Battle Gear arcade and console racing game franchise. In Battle Gear 3, it appears in tuned and stock forms--the S-Class Trueno appears as a mechanically-tuned machine, while the S-Class Levins appear in both turbocharged and supercharged versions, both looking similar to their Initial D counterparts.

The AE86 also appears in the anime and manga *Wangan Midnight*. In the *Wangan Midnight Maximum Tune 4* video game based on the manga, an AE86 similar to Takumi Fujiwara's AE86 was in a Level 51 of the story mode, driven by one of the Feeling Team members. It is

also one of the selectable cars in the Toyota section. The AE86 also appears in Maximum Tune 5.

7.9.6 Notes

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- AEU86 Technical Reference - Additional technical references on the AE86
- AE86 History, Build Grades, Model Differences & Racing History
- Hachiroku.com.au - Blog, Forum & Marketplace for AE86 Owners (Australian Based) Also known as 'HR'
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- “S-86.com” —S-86 - has many AE86 relevant technical articles
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- Toyota Corolla History - Toyota Corolla History (see fifth generation)
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- - Initial-D characters, cars & teams
- Toyota Corolla AE86 3d model

7.10 Toyota Soarer

The **Toyota Soarer** was a personal luxury GT coupé sold by Toyota in Japan from 1981 to 2005. In Japan, it was available at both Toyota Japan dealerships called **Toyota Store** and **Toyopet Store**, and it debuted with the Z10 series, replacing the **Toyopet Store** exclusive **Mark II Coupe**, and the **Toyota Store** exclusive **Crown Coupe**.

In 1986, the Z20 series was launched, based on the then new A70 Supra platform. In 1991, the third generation (Z30 series) Toyota Soarer premiered in Japan, while its Lexus equivalent, the **SC 300/400** debuted in the US market.

While externally identical to the Lexus SC, the Z30 series Soarer lineup offered different powertrain specifications and multiple unique vehicle configurations. In 2001, Toyota introduced a convertible-only successor which appeared in Japan as the fourth generation (Z40 series) Toyota Soarer, and elsewhere as the **Lexus SC 430**. In contrast to previous series, the fourth generation Soarer and Lexus SC were based on a single model and were largely equivalent. In 2005, following the introduction of Lexus in Japan, the Soarer name and emblem were discontinued and the Z40 became the Lexus SC 430 in common with worldwide markets.

In its home market the Soarer was a competitor to the **Nissan Leopard**, and **Mazda Cosmo** coupes, and served as Toyota's "halo car", introducing new technologies before they were installed on other Toyota products. All versions of the Soarer featured a unique winged lion emblem (often mistakenly called a **Griffin**) as the logo throughout the vehicle.

7.10.1 Z10 series (1981–1985)

The Soarer made its first appearance at the 1980 Osaka International Motor Show with the name “EX-8”, and the Z10 series Toyota Soarer was produced from February 1981 to December 1985, with 2.0L, 2.8L or 3.0L DOHC I-6 variants.

At its introduction in 1981, it won the **Car of the Year Japan Award**.

The first generation Soarer debuted with a rear-wheel drive configuration^{*[1]} based on the **A60 Supra**. It boasted numerous technological items, such as touchscreen computer controlled air conditioning climate control (**Electro Multi Vision Display**, on all models excepting base models which featured standard fan/heater controls), digital speed and tachometer display using LED (that were differentiated between models), among other electronic features. Due to the compliance of Japanese external dimension and engine displacement regulations, the first generation models were classified as “compacts” which gave Japanese buyers tax saving advantages.

The suspension utilized **MacPherson struts** for the front,

with trailing arm type IRS (independent rear suspension), labelled with Toyota's branding PEGASUS (Precision Engineered Geometrically Advanced SUSpension). The vehicle also came with self-diagnosis maintenance reminders.

There were a number of different engines available.

- GZ10=1G-EU, 1G-GEU
- MZ10=M-TEU
- MZ11=5M-GEU
- MZ12=6M-GEU

Early M-TEU powered MZ10s were different in some regards to later MZ10s. Some of the difference are listed below.

- Later MZ10s had a water to air intercooler
- Later MZ10s had an oil-and-water-cooled turbo (as opposed to the oil-cooled-only turbo in the early MZ10s)

The MZ12 was equipped with the following features:

- ABS
- Cruise Control
- 7 way adjustable (driver only) leather seats
- First Toyota with Toyota Electronic Modulated Suspension (TEMS) (1983)*[2]
- Digital Automatic climate control
- Audible Warning messages
- Electro Multi Vision Display (CRT display),*[3] GT LTD Only

7.10.2 Z20 series (1986–1991)

The Z20 series Toyota Soarer was produced from January 1986 to April 1991, and was available in several variants. The styling of the second generation Soarer is similar of that of the X80 series Cressida, Mark II, Chaser and Cresta.*[1] The Soarer shared its platform with the newly introduced A70 series Supra.

The Z20 Soarer introduced a vehicle information display system with Electro Multi Vision and visual information cassettes.*[4]

In 1988, TOM'S released a limited model package named the C5. The 7M-GTE in the Tom's C5 Soarer saw the power upgrades similar to those seen in the Turbo-A Supra of the same year.



Toyota Soarer AeroCabin

In April 1989 a limited 500 unit production of the Aerocabin version was also available. This came with only 2 seats and an electric folding roof. The Aerocabin came with the same specs as the GT-Limited and were only available with the 7M-GTE engine, 4sp automatic transmission, tan leather interior and pearl paint.

In 1988 Soarer Z20 got restyling -grill and rear tail-lights changed and minor interior changes (climate control, dash). Other than that engines were improved:

- 1G-GTEU 180 -> 157 kW (213 PS; 211 hp)
- 7M-GTEU 230 -> 179 kW (243 PS; 240 hp)

Unlike the A70, the Z20 did not pick up the 2.5L twin turbo 1JZ-GTE. However all models built from May 1989 including the Aerocabin did have a revised crossmember.

In 1986, Toyota Soarer introduced a world first electronically controlled (Toyota Electronic Modulated Suspension), semi-active full air suspension (spring constant, variable attenuation force).*[2]

7.10.3 Z30 series (1991–2000)

Further information: Lexus SC 300 / SC 400

In 1987, following the design freeze of Lexus division's flagship UCF10 LS 400 (Celsior) sedan, due in 1989, Toyota commissioned its California design studio Calty to develop a new luxury coupe. In mid 1991, this vehicle debuted in the U.S. as the Lexus SC 300/400. That same year, Toyota debuted the third generation Z30 series Soarer in Japan, replacing the Z20 series. The Z30 series Soarer shared the body and key components with the Lexus SC, with different interior features, powertrain configurations, and enhanced performance.

The new Soarer continued some of the pioneering features of earlier models, such as digital dashboard instrumentation and integrated car systems control via the in-dash EMV touchscreen. It was also one of the first cars in the world to feature factory GPS automotive navigation system via CD-ROM. This generation Soarer was considered an expensive and extravagant luxury car in Japan. It was longer and wider than a Crown, while comfortably accommodating two passengers, with only modest space

available for rear seat passengers. It did not comply with Japanese Government dimension regulations which made buyers liable for yearly taxes due to its size. The larger engines also obliged Japanese buyers to pay more annual road tax.

From launch in 1991 until 2000 all models were available with a 4-speed automatic transmission. In addition, the sportier JZZ30 Soarer could be had with a 5-speed manual transmission. All models were available with a Torsen torque-sensing differential. Unlike their US Lexus equivalents, the Z30-series Soarer lineup never received a 5-speed automatic, and only the six-cylinder versions received variable valve timing (VVTi) engines, in 1996.

Styling-wise, the Soarer received only minor changes during its 9-year production run, mostly external. External changes were shared with the U.S Lexus models. Changes were:

- Series 1, May 1991 - December 1993: original body and style.
- Series 2, January 1994 - August 1996: tinted glass, new front bumper with one-piece lower grille, fog lights replace cornering lights, new tail lights.
- Series 3, August 1996 - December 2000: new front bumper with upper grille, oval fog lights, new tail lights, longer rear bumper, standard side skirts, elevated rear spoiler, body stripe, 16" wheels.

Starting in 1997, the Soarer was used as a high speed patrol car in multiple Japanese prefectures, using the 2.5GT trim with a 5-speed manual transmission.

Z30 series Soarer models

JZZ30 Soarer

The JZZ30 was the only model sold continuously from the introduction of the 30 series in 1991 until production ceased in 2000. As the sportiest model in the range it was also the only one available with a R154 manual transmission. Like other models in the range there were two different equipment grades available, the base GT-T and the better-equipped GT-TL which added electric seats, wood trim, cruise control and Toyota's TEMS electronic damper adjustment to the list of standard features.

The JZZ30 was powered by the 2.5-litre 1JZ-GTE turbocharged engine. Initially featuring two identical small turbos running together (unlike the sequential twin turbo systems of the Supra and Mazda RX-7, for example), it officially produced 208 kW (283 PS; 279 hp) and 363 N·m (268 lb·ft) of torque at 4800 rpm. This was in keeping with the Japanese Manufacturers' advertised power limit agreement, however real-world power outputs were somewhat higher. In August 1996 the engine received

Toyota's variable valve timing system (VVTi) and in conjunction with a single, more efficient turbocharger, produced much better high and mid-range torque (in fact, 378 N·m (279 lb·ft) at just 2400 rpm - see The Toyota JZ Engine Guide below) while still producing the "official" 206 kW (280 PS; 276 hp) of power and better fuel economy.

JZZ31 Soarer

While the Lexus SC300 was available from the start of the new series' US introduction in 1991, the equivalent Japan-market Soarer model —the JZZ31—was not introduced until 1994, where it was marketed as the "new base model" Soarer. 1994 also saw the introduction of the new black interior colour scheme which replaced the grey colour scheme used in blue, red, and black external colour cars until the end of 1993. The JZZ31 was the only one of the two JZZ models to feature manually adjustable black leather seats. The black interior scheme became the prominent interior scheme for all Japanese Soarers by the end of production.

The JZZ31 was powered by the 3-litre 2JZ-GE engine, which initially produced 165 kW (224 PS; 221 hp) at 5800 rpm and 285 N·m (210 lb·ft) of torque at 4800 rpm. Like the JZZ30 the engine also received Toyota's VVTi system in 1997 which increased output to 169 kW (230 PS; 227 hp) at 6000 rpm and 304 N·m (224 lb·ft) at 4000 rpm while simultaneously improving fuel economy. While the SC300 in the US market became a popular Lexus for performance upgrades due to its shared engine with the MKIV (JZA80) Supra, the JZZ31 Soarer was somewhat overlooked since unlike the SC300 it was never offered in manual gearbox form and had neither the performance appeal of the turbocharged JZZ30 nor the luxury and equipment of the UZZ31/32 models.

However, while the increasing cost and slowing sales of the V8 models in the mid-late '90s led to their discontinuation, the 6 cylinder JZZ31 and JZZ30 would remain in production until the Z30 series was replaced by the Z40 series in 2001.

UZZ30 Soarer

The UZZ30 was introduced in Japan as the 'base' model of the V8 powered 30 series lineup. Fitted with the same 4.0-litre quad cam V8 as the UZZ31/32, it benefited in the performance stakes due to its considerably lighter weight. The UZZ30 used a standard Tokico coilover suspension setup, basic stereo system, manual steering column, and very few electronic aids. While the UZZ31 and UZZ32 models had electrically adjusted heated leather seats with memory, those in the UZZ30 were upholstered in velour and had no heating or memory. The UZZ30 also came without sunroof or rear wiper. As the car was substantially lighter due to the exclusion of all the luxury

'fruit', it was a considered a driver's car, with good power, handling and braking.

The UZZ30 series Soarer was used as the base vehicle for the Lexus SC400 (model code UZZ30) exported to the United States, although to satisfy U.S. tastes, a comprehensive range of luxury options was offered, including some features of the UZZ31, such as seat memory position, traction control, sunroof, sun visors with courtesy light and electronic steering position adjustment. Local Japanese Soarers had an electronic dashboard which used an integral mirror to display the instruments holographically. Although beautiful, this design was never offered on a USA spec model. Those cars came with a standard dash layout of round dials and lit needles similar to the LS400 Lexus sedan. Whereas the left hand drive version of UZZ30 was made throughout the entire 9 year production run, the right hand drive version was made from 1991 to 1993 only.

UZZ31 Soarer "Limited"

The UZZ31 and UZZ32 Soarers were the luxury GT versions of the range, with more features and equipment than the UZZ30 and the 6-cylinder models, and even the U.S market Lexus SC300/400. The **EMV** (**E**lectro **M**ulti **V**sion) **touchscreen** system which was pioneered in the Z10 and Z20 Soarers was again available and provided a screen with television, GPS navigation, diagnostics, car **computer**, reversing camera and touch control of all functions of the climate control and audio system. The latter was highly sophisticated, with balanced-signal digital signal processing, 12-disc CD stacker and 7-speakers with subwoofer.

All three V8 models were powered by Toyota's acclaimed **1UZ-FE** quad-cam all-alloy 4-litre V8. While producing marginally less power and torque than the turbocharged JZZ30 (191 kW (260 PS; 256 hp) at 5400 rpm, 353 N·m (260 lb·ft) at 4600 rpm) the V8, called the 4.0GT-L was renowned for its smoothness and refinement. Although receiving a minor update in 1995 which improved responsiveness and bumped outputs to 195 kW (265 PS; 261 hp) / 363 N·m (268 lb·ft), production of the V8-equipped Soarers ended before the powerplant received VVTi which substantially increased outputs in the Lexus SC400 and other models. However, supercharged and turbocharged modifications have become increasingly common given the strength and durability of the engine, and power outputs up to double the factory levels are being seen on internally standard engines.

The UZZ31 featured a driver-adjustable air suspension system that had two settings for both ride height and damper stiffness. The high pressure air was provided by an electric pump mounted at the front of the car. Also featured on the UZZ31 series were a host of electronic features including automatic headlights (shared also with the UZZ30), speed-sensitive wipers, electric controlled

2 position memory seats with heated feature as an additional factory option, electronically adjustable steering column with memory, optional reversing camera, cabin air purifying system (also shared with the JZZ31 from 1994), touch screen TV with 12 stack CD player, touch screen **SatNav**, and a full **on board computer diagnostic** system which would output to the TV display unit. Like the higher-spec JZZ30 the UZZ31 came with optional sunroof and rear wiper.

Additionally, the UZZ31 could be "special ordered" from Toyota Japan without the EMV, instead being fitted with the radio/CD unit of the UZZ30 with separate climate control. Additionally, electric velour seats from the UZZ30 and JZZ30 models could be special ordered in place of the standard UZZ31 / UZZ32 leather electric seats.*[5] These special order cars would take only a week to produce from the time of the order to completed product. It is not known how many non-EMV UZZ31s were made, although they were offered from the very start of production in 1991. These non-EMV UZZ31 Soarers are uncommon, with only the UZZ32 more rare.

UZZ32 Soarer "Limited"

The UZZ32 was the top of the line 30 series, featuring all of the options available on the UZZ31 and the addition of four-wheel steering and a complex, computer-controlled **hydraulic Toyota Active Control Suspension**. This did away with conventional springs and anti-roll (stabiliser) bars in favour of hydraulic struts controlled by an array of sensors (such as yaw velocity sensors, vertical G sensors, height sensors, wheel speed sensors, longitudinal and lateral G sensors) that detected cornering, acceleration and braking forces.

The system worked well and gave an unusually controlled yet smooth ride with no body roll.*[6] However, the additional 110 kg (243 lb) weight of hydraulic componentry and power requirements of the system dulled straight-line performance, and significant reduced fuel economy compared to the standard UZZ30 and UZZ31 models.

The car was costly to produce and at close to ¥8,000,000 in 1995,*[7] expensive to buy. As a result, only 873 UZZ32s were made (reportedly No.873 was never finished) and are typically the most sought-after model in right-hand drive markets such as the Japan, UK, Australia and New Zealand. The UZZ32 Soarer has the second shortest production run of any Toyota model, beaten only by the 2000GT of the late 60's.

Colours

Japanese Soarers were available in many colours, some offered continuously throughout the run, and some as limited runs or one-offs. These colour runs did not always match the equivalent U.S market offerings on the Lexus SC.*[8]

From 1991 until 1993, Soarers with external paint codes 8J5 and 202 came with a grey interior colour scheme. Those in 6M2 were available with both grey and “spruce” (blue-grey) interior schemes. Models in 3k3 could have grey or tan interiors. Models with paint codes 4k9, 051 (1991-1998) and 057 (1998-2000) came with tan interiors exclusively. Similarly, those with paint code 176 and 6M3 came with spruce interior colour exclusively.

From 1994 a black interior scheme replaced grey (becoming the predominant interior colour from 1998-2000). From 1994-2000 cars with external paint code 202 came exclusively with the black interior. Models in 3L2 were available with either black or tan interiors.

In 1996 exterior colour 6P2 replaced exterior colour 6M2, and 8L5 replaced 8J5. The spruce interior was discontinued in 1998. Thereafter models in 1A0 and 1C0 which had come with spruce interiors, changed to black interiors; and 6P2 cars were available with black or tan interior schemes.*[9]

Gallery

7.10.4 Z40 series (2001–2005)

Further information: Lexus SC 430

The 40 series Soarer model was largely identical to its Lexus equivalent, sold outside Japan as the Lexus SC 430 since 2001. The Z40 series Soarer 430SCV featured a hardtop which could fold into the boot of the car, in the fashion of the contemporary Mercedes-Benz SL. The coupe was equipped with the 3UZ-FE VVTi (variable valve timing) 4.3-litre V8 motor, as was available in the Lexus LS 430 luxury sedan. It produced 208 kW (283 PS; 279 hp) and 430 N·m (320 lb·ft) of torque. This enabled the coupe to accelerate from a standstill to 62 mph (100 km/h) in 6 seconds. The shared body style of the Z40 series Soarer/SC 430 was developed by Toyota designers at design studios in France and Japan. Compared with the Z30 series, some observers generally considered the fourth generation a retreat in visual style due to its more compact and top heavy appearance. As a result, it had lost the long sleek look previously seen and admired greatly in the Z30 series models.

With the Z40 series Soarer, design and production synergies culminated in the development of a single shared design configuration for both the Soarer and Lexus models, unlike the previous generations. The rise of Lexus as Toyota's premium worldwide marque also contributed to the design focus on the Lexus model configuration rather than a separate Toyota-branded series of Soarer coupes. On July 26, 2005, Lexus was introduced in Japan with the 2006 SC 430 TSOOH in its lineup. The debut of Lexus and the SC 430 coincided with the conclusion of Toyota Soarer sales.

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Chapter 8

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- **Autopolis** *Source:* <https://en.wikipedia.org/wiki/Autopolis?oldid=729234911> *Contributors:* Edward, Kusunose, Yuriybrisk, RoninOtakuKnight, Wknight94, Willirennen, JCCyC, Betacommand, Cs-wolves, Bluebot, GVnayR, Badbilltucker, AlexJ, Morio, Fubaz, Hvn0413, Iridescent, Will Pittenger, Bobo12345, After Midnight, PKT, Cheetah, NSX-Racer, 0x845FED, Neiltipton, Magioladitis, Jllm06, Waacstats, Nono64, Jevansen, Typ932, AMbot, ImageRemovalBot, Zer0431, Rollof1, Autopolis, Officially Mr X, Addbot, Lightbot, Lucien-BOT, Prisonermonkeys, Villoresi, ともだち, Δ, FRibeiro66, ZappaOMati, Poppo154, TorontoGuy79, Twirlypen, Racinginjapan, FactualCollector7d1 and Anonymous: 8
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B., Htra0497, Trekphiler, Jahiegel, Shalom Yechiel, Attakmint, OrphanBot, Onorem, Nixeagle, Folksong, Rrburke, Stepho-wrs, Canthinkofausername, Zvar, Addshore, Kcordina, Jonrev, BWCKNY, Stangbat, Chadon-enwiki, Tame1, Flyguy649, Permanent marker-enwiki, Evil Merlin, Islington80, FiveRings, Nakon, RJN, MichaelBillington, EVula, FrankWilliams, Bubby the Tour G, Mtmelendez, Dreadstar, Deliri, Only, Iridescence, BryanG, Davemarshall, WoodyWerm, Salamurai, Daniel.Cardenas, Ligulembot, Jóna Pórunn, Richard0612, Kukini, Ohconfucius, Will Beback, Deepred6502, Rockvee, Wegner8, Chiasest, Severisth, ArglebargleIV, Coast-to-coast, Rklawton, Xandi, Valfontis, T-dot, Kuru, Ponysarepreety, Riddlefox, General Ization, Dog Eat Dog World, Heimstern, Roguegeek, LWF, Gobonobo, Mr.Clown, Shadowlynk, AstroChemist, JorisvS, Tomservo3000, Goodnightmush, Scetoaux, IronGargoyle, Ckatz, A. Parrot, Webmaster77, Special-T, Ehheh, Jon186, Xiaphias, BMan1113VR, Dhp1080, Big Smooth, CJ DUB, BigT2006, Cylan, Hu12, Marshall Stax, Sdbradley86, BranStark, Iridescent, 293.xx.xxx.xx, WestchesterGuy, TwistOfCain, Wsswfrench, YukataNinja, Uncle-Doggie, Marysunshine, Courcelles, Tawkerbot2, Zamoore024, Brethholomew21, Randoide, Bearingbreaker92, Carroy-enwiki, JForget, RWhite, Terrible Juan, Importmyvehicle, Deon, Sable232, KyraVixen, RedRollerskate, Mystylplx, Drinibot, DeLarge, Tomcha, NaBUru38, NickW557, WHATAintNOcountryIeverHEARDofDOtheySPEAKenglishINwhat, Aguleserian, FlyingOrca, CelticRick, Bill Wrigley, Jac16888, Cydebot, Taco8412, Steel, Gogo Dodo, JPage, Riddleyo, Bkwallen, Feedloadr, Olyeller01, Daniel J. Leivick, Carl-roller, Tawkerbot4, BlackDiamond, Christian75, DumbBOT, Chainsaw2411, Sisman2000, Supernova 6969, Daven200520, Iss246, Daniel Olsen, Instaurate, Bok269, Gimmetrow, Thijs!bot, Blackstang2, Epbr123, Aaronforjesus, Wikid77, Pstanton, Bradhamill, GSequoia, -Edwin-, Impreziv, Stang456, Josh Gentry, Mojo Hand, Anupam, Marek69, A3RO, BamaStangGuy, RickinBaltimore, Mlc1958, Mefanch,

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StartX, Smokizzy, Tgeairn, J.delaney, Pharaoh of the Wizards, Trusilver, Darrel UofA, Borsi112, Writegeist, Metroshica, Extransit, Geekler, Dellowert, OfficeGirl, Darth Mike, Blueck, Bazketballr, FLJuJitsu, Solumeiras, MustangChris429, Bairndc, Dispenser, Dark-chris, Pyrospirit, AntiSpamBot, (jarbarf), Mrceleb2007, Reldridge78, Wiki righter, Stlockeyguy02, Cesario (JPN), NewEnglandYankee, Enginehead, Bmramon, Rebelacl, Minami Kotaro, Hondasaregood, Smbrannon, KylieTastic, Juliancolton, Cometstyles, WJBscribe, Corvetteman53, EXCEPTION NOT HANDLED, Potaatatos, DorganBot, Tighelander, Gtg204y, Pdcook, Ja 62, S (usurped also), Useight, Ronbo76, Mosesatm, Pangalactic, Carfreak69, Specter01010, CardinalDan, Timahames, TNTfan101, Wikieditor06, Ajerman, Malik Shabazz, Deor, King Lopez, 28bytes, VolkovBot, Thomas.W, ABF, Laxgoalie35, Abcxyzqzx, Flyingidiot, Hersfold, Jeff G., Crosscountry89, VasilievVV, Ajharris78, Bsrroiadn, Cannonskiier180, Ironxstevo, Philip Trueman, Oshawah, Zidonuke, GimmeBot, 99DBSIMLR, Green Monsters, Cyb3rAssassin, RangerJ, Rbrtchica, Trashbag, Icedtrueno, Oconnor663, GDONATO, Atlatp, Mosmof, Qxz, Lrdrama, Vintageologist, NathanielPoe, LeaveSleaves, Optigan13, LongGoneVista, Killpack7, Heat fan1, P924 CarreraGTS, Madhero88, SiliconSlick.JShmoove, Ed281685, Interstellar07, Cayman.s, GTHO, Purple Is Pretty, Feudonym, MisterCMK, Falcon8765, Enviroboy, Britbabi8, Burntsauce, Typ932, JadeEJF, Vchimpzee, Jdmdreamz94, Mabsjenbu123, Giddee2, Skarz, Sealman, Winsoc, Geekgal, P3n15, GroverTheGnome, Theoneintraining, Wes shaw, EJF, MatthewTStone, SieBot, DremTheSilent, Moebiusuibeom-en, Coffee, Covehome98, Raynardo, Jgrommes, Scarian, WereSpielChequers, Weelijimmy, Bachcell, Hertz1888, Kido.yoshiyuki, Paul 1953, Livewire1, JWGLawler, Caltas, Matthew Yeager, RJaguar3, Yintan, Vanished User 8a9b4725f8376, DragoonRaven, Keilana, Bentogoa, Flyer22 Reborn, Radon210, Editore99, Oda Mari, Mockingbus, AlexWaelde, The juggresurrection, Peter.shaman, Oxymoron83, Antonio Lopez, Faradayplank, AngelOfSadness, The number 3, Lightmouse, Tombomp, LightSpeed2, Techman224, KathrynLybarger, Hobartimus, COBot, JJJR512, Kudret abi, Gyrferret, Syngori, Redroller, Svtsnake03, Mygerardromance, John Galt 76, 12max12, Superbeecat, Iheart2drift, Red.66mustang, Zeeman09, Bribud, Denisarona, Regushee, Kdryan, JonKoros, Epa316, Troy 07, TheCatalyst31, M gold95, Faithlessthewonderboy, Atif.i2, Racingformusic, MBKO04, Ellassint, ClueBot, Yamanbahia, Strider-No.9, Wiggl3sLincolns, Admiral Norton, Jodystefani, AndrewJSteele, GorillaWarfare, Rustydustyraja, Snigbrook, Bendro, Fyyer, Andrewtbroadshaw, The Thing That Should Not Be, Eric Wester, Rockodude, Rjd0060, Vorb11, EoGuy, Lawrence Cohen, Zach4636, Arakunem, Drmies, Mild Bill Hiccup, Pbatacan, Lantay77, SuperHamster, Skäpperöd, CounterVandalismBot, Ric17, Niceguyedc, AbbyBaker, Nickersonl, Blanchardb, Hellrasingdoom, Ahalverson, Phenylalanine, Plato1981, Arunsingh16, Spunj, PMDDrive1061, Ajaxspray, Elpenetrator, 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MrOllie, Download, MrVanBot, Jond39, Morning277, PranksterTurtle, Glane23, Tgm8, Favanian, Nicknw909, FstrthnU, Elen of the Roads, Bleach156, ChadBornholdt, Corvettezo7sp, 16dan44, Tide rolls, Krano, رژش ک, Quantumobserver, Jambreaker, Vizu, The Bushranger, 99rumblestanggt, Legobot, Luckas-bot, ZX81, TheSuave, Yobot, Jhonnny 1812~enwiki, Willydick, VengeancePrime, Reelcheeper, KRANE2004, Oilpanhands, Legobot II, Nickphilboy2009, Pineapple fez, Gobbleswoggler, A Stop at Willoughby, SwisterTwister, Ford4v460, Eric-Wester, Surftron, Arjococently, N1RK4UDSK714, Daylightcafe, MN12Fan, Avoltura991, AmonieBOT, Vogz, Jim1138, IRP, Piano non troppo, AdjustShift, Aditya, ShockwaveNN, Blueraspberry, Materiascientist, YMS, Citation bot, Kasaalan, OllieFury, Stanislao Avogadro, Sscwilliams, AndyHellums 424, Frankenpuppy, Bagumba, Willfulone, Quebec99, LilHelpa, Kwflinn, Kubelwagen, Intelati, Cureden, The sock that should not be, Capicorn42, A.garner11, Gigemag76, Austin+mariah, Renaissancee, Boaboluto, MustangETR, Grim23, Anna Frodesiak, The Evil IP address, Mr.choppers, F-1 Ford Racer, Hdizzlemyshizzle, Shutzero, Holeshotz8436, GrouchoBot, Sebastianmalowitz, MR.Texan281, Jef624, Shirik, RibotBOT, NamionTovar, Skurant, Shadowjams, Lomauro, E0steven, YKF LY, Team Khaos, Sesu Prime, Abhishekwickionline, Haplodavey, Griffinofwales, Bassetman4, IMPORT TUNER SMARTIE, Pepp102, Barnstarbob, George2001hi, FrescoBot, LucienBOT, Crystabyrd, Mike3488, Recognition, Charles Edwin Shipp, Ionutzmovie, Alxeedo, Свифт, Alex2258, DivineAlpha, HamburgerRadio, Citation bot 1, Biker Biker, I dream of horses, Edderso, Pebskelly514, Jivee Blau, Jonesey95, Dinzdee32, Calmer Waters, BigDwiki, Heyhey068, Unityedd, Hoo man, BRUTE, Empty Feeling, Moneychanger, Fumitol, Plasticspork, Full-date unlinking bot, Hessamnia, Peggert, Merlion444, JoBaMo, IJBall, MacManzo, Mercennarius, Maryland Pride, Mehrunes Dagon, Jaycub912, Sinaloa760, AJDeBurgh, RG09, Ben 28920, Venango, Vrenator, Bluefist, Sparkyson, Antipastor, Reaper Eternal, Mz2000, Mustang Kyle, Pete543, Dianna, Weedwhacker128, Mtcmbs, Fastilysock, Warrick12, Adi4094, Lot2010, Jimmhendrix 001, Tbhotch, Minimac, ArthurBob, Jamesthebard, MegaSloth, Pabhomie, Erik.cervantes, DARTH SIDIOUS 2, Cobra Esq, IBraden ftw, Slashfan7964, Doug234, Camaroz28nitro, Capybarajj, NerdyScienceDude, Don't look back in anger, Ryanandlenny, WildBot, Salvio giuliano, Kandres4, John of Reading, Orphan Wiki, Keomike, Radiochris, Scott David Fraser, T3dkjn89q00vl02Cxp1kqs3x7, AmericanLeMans, ArchConservative93, Heracles31, Katherine, Ibbn, BS24, Racerx11, Seattle Sounders FC, GoingBatty, RA0808, 3000gt freak, Mattmattweee, Solarra, Slightsmile, Tommy2010, Challisrussia, Winner 42, Wikipelli, Dcirovic, K6ka, RobGT, Sitesitk, Thecheesykid, Circleburner, Savh, Mz7, Skavenger904, Nihon06, Illegitimate Barrister, Fæ, Ilovecamaros, NJM2010, Supsam86, Longjasomm, Shisock, Icardezign, Camaroboy12, Alvinrusty, Ls12690, Jaques, Ksu6500, Souless194, Geno the Great, Poop69500, Jianjames, Skyler brown, Charlieisabeaver, Christina Silverman, Zap Rowsdower, Ngcvbavaavd, Speedphi, Wayne Slam, Ocaasi, Nparziale, Joel44w, Superbird81, TyA, MustangJET, Mrmag1, Gilesy998, L Kensington, Donner60, BBrad31, RabiaEx, Edwinthen, Dukenukemagain, Crunchy, Autoerrant, Orange Suede Sofa, Rangoon11, HIRNER88, Jumpman89, Gameshowguy, ChrisQuattro, Disneyfun1, Mws3080, YoDu22, TomLegend, ClueBot NG, 79firebyrd, Gareth Griffith-Jones, CaridExp, Jabartlett7, Gilderien, Satellizer, Bulldog73, Bped1985, Zonda321, VanishedUser sdu8asdasd, Frijets, Johnwall212, Cheeseman5423, O.Koslowski, Rezabot, Duncanshepard, Widr, Antiqueight, Elofton, ARadioheadSong, Crazymonkey1123, 84mustang gt, Purpleeyespurple, Helpful Pixie Bot, Zmustang, Calidum, WNYY98, AndriyruSSU, Qbgeekjtw, BG19bot, Neptune's Trident, Vmikkola, Klschepler, Walrus068, Globberstop1, Northamerica1000, Registrerunu, JL1Row, Hallows AG, Wiki13, MusikAnimal, Tycemang, J991, Mark Arsten, Earth'sbuddy, Op47, Weciii, Ballonlevi69, YodaRULZ, DPL bot, Whothe3llisthis, Fugginwhat!, Asteve27, Ramrampage, Fordmustange, Motorwerks, B.Andersohn, Iisj13, BattyBot, SimmeD, Chambowalla, Tutelary, Ethraen, Pratyya Ghosh, Joshuaw711, Lebanonliver, Mdann52, Trout-

man02, Cyberbot II, ChrisGaultieri, CarlaliasPacha, YFdyh-bot, Khazar2, Marbs88, Coldbolt, Jimbob1217, Midsolo, Hmainsbot1, Babconbutteh, Atiyatiy, KaseylKelley, Billy the kid 14, Sandeepkumar69, Leksanski, Amfuni, Lugia2453, Graphium, Redalert2fan, Cacool3, Cudak888, Zziccardi, Mwcapps, VeronicaSczb, Eb59214, Eleanor60, GSenkow, Matt.Leone, Benjamin.Henckel, Bluehatguy, Epicgenius, Awesomefunman, Magnolia677, Mamta Jagdish Dhody, Melonkelon, Bradfordwilliamwyant, Alf32, The80ccmaster, Fireman434, DavidLeighEllis, Bahooka, Nobody2468, Gogogogogog, Amnue1, Tuner tom, Tthunder123, Mkartono, Jianhui67, MustangLife7, Kind Tennis Fan, Musclecarart, Richardlamborghini, UnbiasedVictory, Becker413, Yzeast, JaconaFrere, Pats.man215, Bad Dryer, Antrocent, Qmrk, Fox9350, Directsteering, Rob Sprack, Youngred0821, Matto933, 12416abc, EurovisionNim, Jason love, Nobodyspecial69, Cpumatt, MadPutin69, Brechindunc, Bjarninus, Poohhalong, Repdad3!, MartinTheAwesome, Clear your cookies, BMW AG, Tyrannosaurus rex, DissidentAggressor, Evanpiel12, HMSLavender, Iknowyourgognablockme, Don't buy a Ford, they're junk!, Driftking11, Mrbattmann, CtrlXctrlV, Firecrocker21, King Lyo, Dylanjo98, Jamisonjon, Jaxonac, Agoodeknow, Gladamas, Gallivanjr19, Oleaster, Hushed Hoagie, Max55stang, Blade Solomon, Infinite0694, Optrimes, Bobbyjohnsonlight, Cheerleading45y, LoopholeHacker, Truckfan1990, Bigred97, 16bell1, Mr. Grymm, Bigbigred15, Boisewired, Photos123, CaeserSalad1758, JDC-Shan, Mr Potto, Loganf1221, Fevi.john.sunny, Truth98, Merules24, Awesome7767, Iamrhinoceros, Tanjeem Shadab, Saudeep101, Bako nose best, ModedCB2, Spacecowboy420, Isaacdroebeck01, Sanket Edits Wiki, CLCStudent, Nate43218, VERITAS.DIA, Tyler.huck, Muscle Car Driver, Valvalva98, GSS-1987, Merules221154, Stanger99, Watchdevil, KingzTheMLGPro, Nelatti, Marianna251, GreenC bot, Editshiiit, ThePlatypusofDoom, Thiswebsiteiswrong, Asdfghjklkjhgfdsaasdfghjklkjhgfdsaasdfghjkl, Georgyit123, Malchick743, Asantan97, Yoboyat, Brisebois1, KitKannabis and Anonymous: 2596

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