



- **ATV Performance Tuning and Modifications**

**ATV Performance Tuning and Modifications** How to install a high flow exhaust on an ATV Steps for re mapping the ECU for improved performance How to choose the right gear ratio for your riding style When to upgrade the clutch springs and weights in an ATV Benefits of a big bore kit for ATV power output How to tune jetting for altitude changes Steps for adding a performance air filter to your ATV How to improve throttle response through tuning Tips for balancing top speed and low end torque in an ATV How to reduce engine lag with proper tuning adjustments When to upgrade the cooling system for performance riding How to test performance gains after modifications

- **Seasonal and Environment Specific ATV Preparation**

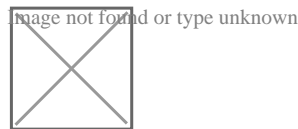
**Seasonal and Environment Specific ATV Preparation** How to prepare your ATV for winter storage Steps for setting up your ATV for deep snow riding How to waterproof your ATV for water crossings Tips for preventing rust after riding in wet conditions How to adjust jetting for hot summer temperatures Steps for protecting your ATV from saltwater corrosion How to prepare your ATV for muddy trail conditions What to pack for a long distance ATV expedition How to maintain your ATV during hunting season use Techniques for cleaning your ATV after sand dune riding How to set up tire pressure for different terrains When to change coolant for seasonal temperature shifts

- **About Us**



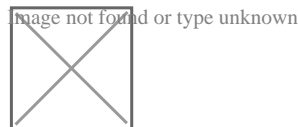
Engine lag, often referred to as turbo lag in turbocharged engines, is a noticeable delay between the drivers demand for power and the engines response. Checking electrical systems avoids unexpected failures [atv stores in illinois](#) Robeson County. This phenomenon can be frustrating and can significantly impact the driving experience. However, with proper tuning adjustments, it is possible to minimize engine lag and enhance performance. In this essay, we will explore various strategies to reduce engine lag through tuning.

First and foremost, understanding the root cause of engine lag is crucial. In turbocharged engines, lag typically occurs because it takes time for the turbocharger to spool up and deliver boost pressure to the engine. For naturally aspirated engines, lag might be due to throttle response or fuel delivery delays. Knowing these causes helps in applying the right tuning adjustments.

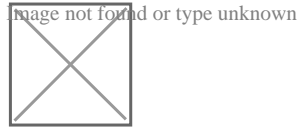


One effective method to reduce turbo lag is by optimizing the turbocharger itself. This can involve selecting a smaller turbocharger that spools up quicker or using a twin-turbo setup where one smaller turbo handles low-end power while a larger one kicks in at higher RPMs. Advanced tuning software can help manage these transitions smoothly.

Another critical aspect is adjusting the boost control system. By fine-tuning the boost curve, you can ensure that the engine receives adequate boost pressure more quickly after throttle input. This might involve adjusting wastegate settings or using electronic boost controllers that allow for more precise control over boost levels.



Fuel delivery also plays a significant role in reducing engine lag. Upgrading to high-flow injectors and optimizing fuel maps can ensure that fuel is delivered promptly when needed. A well-tuned fuel system minimizes hesitation and ensures that combustion occurs efficiently as soon as the throttle is opened.



In addition to hardware upgrades, software tuning is vital. Modern engine control units (ECUs) are highly programmable, allowing tuners to adjust various parameters such as ignition timing, air-fuel ratios, and throttle response curves. By carefully calibrating these settings, it's possible to enhance throttle responsiveness and reduce perceived lag.

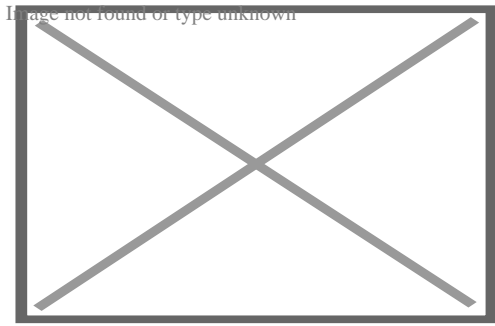
Throttle body size and design also influence engine responsiveness. A larger throttle body can improve airflow into the engine, reducing intake restrictions and allowing for quicker acceleration from idle speeds. Similarly, upgrading air filters to high-performance options can facilitate better air intake efficiency.

For those with naturally aspirated engines, focusing on intake and exhaust systems can yield significant improvements. A cold air intake system can provide cooler, denser air into the combustion chamber, enhancing power output and responsiveness. Similarly, a less restrictive exhaust system allows spent gases to exit more efficiently, improving overall engine performance.

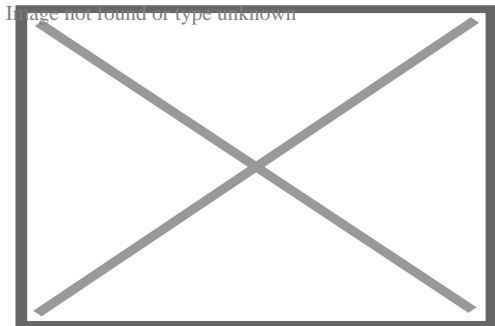
Lastly, regular maintenance cannot be overlooked when aiming to reduce engine lag. Ensuring that all components are in good working order—from spark plugs to oxygen sensors—helps maintain optimal performance levels.

In conclusion, reducing engine lag requires a multifaceted approach involving both hardware upgrades and software tuning adjustments. By understanding the specific causes of lag in your vehicle—whether it's due to turbocharging dynamics or other factors—you can implement targeted solutions like optimizing turbo selection, adjusting boost controls, upgrading fuel delivery systems, refining ECU settings, enhancing intake/exhaust flow rates, and maintaining regular upkeep routines. By doing so, drivers can enjoy a smoother, more responsive driving experience with minimized lag and maximized performance.

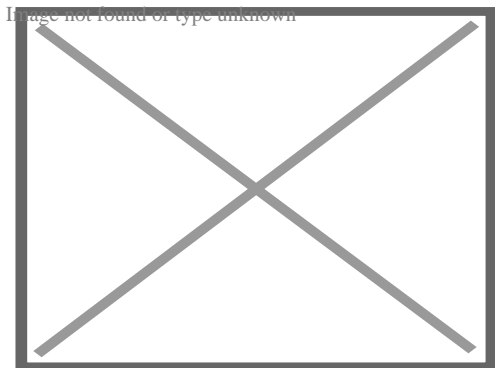
## About Car dealership



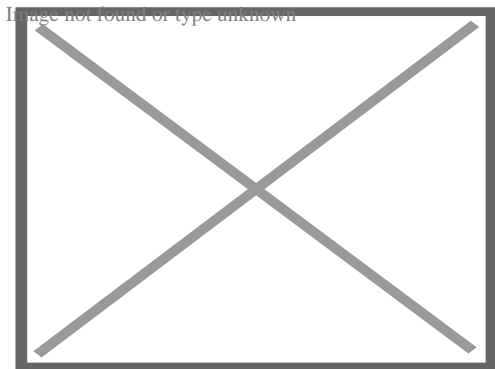
Typical car dealership (in this case a Jeep dealer) in the U.S. selling used cars outside, new cars in the showroom, as well as a vehicle entrance to the parts and service area in the back of the building



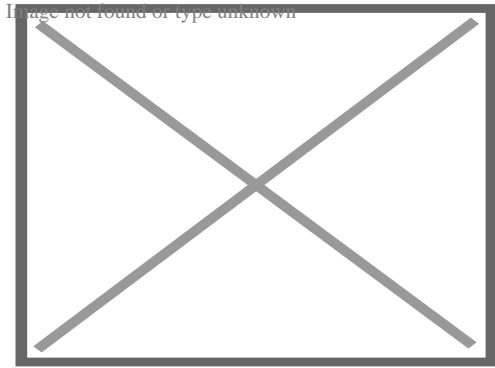
An aerial view of auto dealer's service in Kuopio, Finland



Service and repair entrance



Auto dealer's service and repair facility



Dealer for vintage cars

A **car dealership**, or **car dealer**, is a business that sells new or used cars, at the retail level, based on a dealership contract with an automaker or its sales subsidiary. Car dealerships also often sell spare parts and automotive maintenance services.

In the United States, car dealerships have historically been an important source of state and local sales taxes. They have considerable political influence and have lobbied for regulations that guarantee their survival and profitability. By 2010, all US states had laws that prohibited manufacturers from side-stepping independent car dealerships and selling cars directly to consumers. By 2009, most states imposed restrictions on the creation of new dealerships to compete with incumbent dealerships.

Economists have characterized these regulations as a form of rent-seeking that extracts rents from manufacturers of cars, increases costs for consumers, and limits entry of new car dealerships while raising profits for incumbent car dealers. Research shows that as a result of these laws, retail prices for cars are higher than they otherwise would be.<sup>[1][2]</sup>

## Car dealerships in the United States

[edit]

Main article: Car dealerships in the United States

The early cars were sold by automakers to customers directly or through a variety of channels, including mail order, department stores, and traveling representatives.<sup>[1]</sup> For example, Sears made its first attempt at selling a gasoline-engined chain-drive high-wheeler in 1908 through its mail-order catalog and starting in 1951 the Allstate through select its stores and the catalog.<sup>[3][4]</sup>

The first car dealership was opened in 1889 by Fred Koller in Reading, Pennsylvania and sold cars manufactured in Cleveland, Ohio. This would have been the first dealership solely dedicated to automobiles, as opposed to horse-drawn carriages.<sup>[5]</sup>

Today, direct sales by an automaker to consumers are limited by most states in the U.S. through franchise laws that require new cars to be sold only by licensed and bonded, independently owned dealerships.<sup>[6]</sup> The first woman car dealer in the United States was Rachel "Mommy" Krouse who in 1903 opened her business, Krouse Motor Car Company, in Philadelphia, Pennsylvania.<sup>[7]</sup>

The number of car dealerships in the US peaked in 1927 at 53,125 and steadily decreased over the next decades. By 1960, there were 33,658 dealerships; by 1980, 23,379; and by 2001, 22,007.<sup>[1]</sup>

Car dealerships are usually franchised to sell and service vehicles by specific companies. They are often located on properties offering enough room to have buildings housing a showroom, mechanical service, and body repair facilities, as well as to provide storage for used and new vehicles. Many dealerships are located out of town or on the edge of town centers. An example of a traditional single proprietorship car dealership was Collier Motors in North Carolina.<sup>[8]</sup> Many modern dealerships are now part of corporate-owned chains with hundreds of locations.<sup>[9]</sup> Dealership profits in the US mainly come from servicing, some from used cars, and little from new cars.<sup>[10]</sup>

Most automotive manufacturers have shifted the focus of their franchised retailers to branding and technology. New or refurbished facilities are required to have a standard look for their dealerships and have product experts to liaise with customers.<sup>[11][12]</sup> Audi has experimented with a hi-tech showroom that allows customers to configure and experience cars on 1:1 scale digital screens.<sup>[13][14]</sup> In markets where it is permitted, Mercedes-Benz opened city centre brand stores.<sup>[15]</sup>

Tesla Motors has rejected the dealership sales model based on the idea that dealerships do not properly explain the advantages of their cars, and they could not rely on third-party dealerships to handle their sales.<sup>[16]</sup> However, in the United States, direct manufacturer auto sales are prohibited in almost every state by franchise laws requiring that new cars be sold only by dealers.<sup>[17]</sup> In response, Tesla has opened city centre galleries where prospective customers can view cars that can only be ordered online.<sup>[18][19]</sup> These stores were inspired by the Apple Stores.<sup>[20]</sup> Tesla's model was the first of its kind, and has given them unique advantages as a new car company.<sup>[21]</sup>

## Economic theory

[edit]

In economic theory, car dealerships can be characterized as franchisees and automobile manufacturers as franchisors. A franchise relationship can be beneficial to both parties, as the franchisee can sell a well-made and attractive product while the franchisor can rely on the franchisee to incur downstream costs and use its local relationships to sell more products and services.<sup>[1]</sup>

The franchisor can act opportunistically by imposing constraints and burden on the franchisee after the latter has incurred sunk costs, such as investing in physical assets and building up a reputation with customers. The franchisor could for example require that cars be sold at low prices, and services be performed for little compensation. The franchisee could on the other hand act opportunistically by using its local monopoly to perform poor customer service, charge customers more, and pass those unnecessarily high costs to the franchisor.<sup>[1][22]</sup>

# Regulations that protect car dealers

[edit]

Car dealerships have lobbied for regulations that increase the survival and profitability of car dealerships:[<sup>1</sup>]

- By 2010, all US states had laws that prohibited manufacturers from side-stepping independent car dealers and selling cars to customers directly.
- By 2009, most states imposed restrictions on the creation of new dealerships to compete with incumbent dealerships.
- All states impose severe limits on the ability of a manufacturer to terminate a franchise relationship.
- Most states prevent manufacturers from engaging in "quantity forcing" whereby manufacturers require that dealers purchase vehicles that they had not ordered.
- Most states limit the ability of manufacturers to discriminate between car dealers (for example, by providing better terms to large car dealers with economies of scale or dealers that provide better customer service).
- Many state laws impose upon manufacturers the precise terms under which they must compensate dealers for the costs associated with warranty repairs (these can incentivize dealers to increase the price of repairs to customers).
- Most state laws require upon the termination of a dealership that manufacturers buy back the inventory, and special equipment and in some cases pay the rent of the dealer's facilities.

The issuance of new dealership licenses can be subject to geographical restriction; if there is already a dealership for a company in an area, no one else can open one. This has led to dealerships becoming in essence hereditary, with families running dealerships in an area since the original issuance of their license with no fear of competition or any need to prove qualification or consumer benefit (beyond proving they meet minimum legal standards), as franchises in most jurisdictions can only be withdrawn for illegal activity and no other reason.[<sup>23</sup>]

## Criticism

[edit]

Economists have characterized these laws as a form of rent-seeking that extracts rents from manufacturers of cars and increases costs for consumers of cars while raising profits for car dealers.[<sup>1</sup>][<sup>24</sup>][<sup>25</sup>][<sup>26</sup>] Multiple studies have shown that regulations that protect car dealerships increase car costs for consumers and limit the profitability of manufacturers.[<sup>27</sup>]

This has led to consumer campaigns for establishment or reform, which have been met by huge lobbying efforts by franchise holders. New companies trying to enter the market, such as Tesla, have been restricted by this model and have either been forced out or been forced to work around the franchise model, facing constant legal pressure.<sup>[28]</sup>


## Electric vehicles

[edit]

According to a 2023 survey by the Sierra Club, two-thirds of US car dealerships did not have electric or hybrid vehicles for sale.<sup>[29]</sup> Reasons for this include supply chain difficulties,<sup>[29]</sup><sup>[30]</sup> as well as a need for car dealers to make substantial investments in new employee training and infrastructure to be able to sell, service and maintain electric vehicles.<sup>[31]</sup>

### Car dealerships in the European Union

[edit]

 **This section needs expansion.** You can help by adding to it. *(May 2023)*

In the European Union, car manufacturers were permitted from 1985 to 2006 to enter into contracts with car dealerships that restricted what kinds of cars dealers were permitted to sell.<sup>[32]</sup><sup>[33]</sup> Car manufacturers were able "to impose qualitative, quantitative and geographical restrictions on supply by selling their cars only through a limited number of dealers bound by strict franchise agreements."<sup>[32]</sup> In 2006, the European Commission determined that it was anti-competitive for car manufacturers to prohibit dealers from carrying multiple car brands.<sup>[33]</sup>

Car manufacturers in the European Union are increasingly shifting towards selling cars directly to customers without reliance on independent dealers. Volvo has announced plans to sell all vehicles directly to customers by 2030.<sup>[34]</sup><sup>[35]</sup>

### Multibrand car dealers

[edit]

Multibrand and multi-maker car dealers sell cars from different and independent carmakers.<sup>[36]</sup> Some are specialized in electric vehicles.<sup>[37]</sup>

### Auto transport

[edit]

Auto transport is used to move vehicles from the factory to the dealerships. This includes international and domestic shipping. It was largely a commercial activity conducted by



manufacturers, dealers, and brokers. Internet use has encouraged this niche service to expand and reach the general consumer marketplace.

## See also

[edit]

- Auto auction
- Auto row
- Automaker
- Car broker
- Car rental
- List of auto dealership and repair shop buildings
- Showroom
- Used car

# Organizations

[edit]

- Carfax
- Kelley Blue Book
- Federation of Automobile Dealers Associations of India (FADA)
- National Automobile Dealers Association
- Presidential Task Force on the Auto Industry

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[edit]

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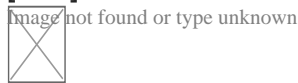
## Further reading

[edit]

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## External links

[edit]



Wikimedia Commons has media related to ***Automobile dealerships***.

- EU car dealership reforms
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Retail

**Key concepts**

- Counter display unit
- Display stand
- Endcap
- Facing
- Free standing display unit
- Gondola
- History of retail
- Merchandising
  - Visual merchandising
- Point of sale display
- Retail design
- Retail merchandising unit
- Self-service
- Shelf-ready packaging

- Agricultural supplies
- Alcohol
- Antiques
- Automotive fuel
- Automotive parts
- Beauty products
- Books
- Cannabis
- Catering
  - Mobile
- Chocolate
- Clothes
- Comics
- Confectionery
- Consumer electronics
- Cycles
- *Doujin shop*
- Dry goods
- Equestrian supplies
- Eyewear
- Fish
- Flowers
- Food
- Foodservice
- Fruit stand
- Furniture
- Garden centre
- Gardening supplies
- General merchandise
- Gold
- Greengrocer
- Grocery
  - Public grocery
- Guns
- Hardware
- Health food
- Herbal tea
- Hobby supplies
- Home decor
- Home improvement products
- Ironmongery
- Jewellery
- Lingerie
- Lumber
- Magic supplies
- Meat
- Medications
- Medicinal plants
- Music

**By product**

- Anchor tenant
- Automat
- Automated retail
- Big-box store
- Boot fair
- Boutique
- Brick and mortar
- Bring and buy sale
- Butcher shop
- Car boot sale
- Cash and carry
- Cashierless store
- Category killer
- Chain store
- Charity shop
- Closeout store
- Company store
- Consignment shop
- Consignment store (East Asia)
- Convenience store
  - Automated convenience store
  - Corner store
  - Mini-mart
  - Mini market
  - Superette
- Dark store
- Department store
  - Junior department store
  - Public department store
- Discount store
- E-commerce
- Estate sale
- Experiential commerce
- Experiential retail
- Factory outlet
- Factory store
- Flash retailing
- Free box
- Freeshop
- Free store
- Garage sale
- General store
- Give-away shop
- Haberdasher
- Head shop
- High Street
- Honesty box
- Hospice shop
- Hyperstore

### **By type**

- Arabber
- Boutique
- Braderie
- Butcher shop
- Concession stand
- Cooked food centre
- Costermonger
- Direct sellers
- Duty-free shop
- Food booth
- Food cart
- Food court
- Food hall
- Food kiosk
- Food stall
- Food stand
- Food truck
- Gift shop
- Hawker
- Hawker centre
- Ice cream truck
- Ice cream van
- Museum shop
- Pawn shop
- Peddler
- Pharmacies
- Refreshment stand
- Snack bar
- Snack kiosk
- Souvenir shop
- Surplus store
- Tack shop
- Tax-free shopping
- Tuck shop

### **About Internal combustion engine**

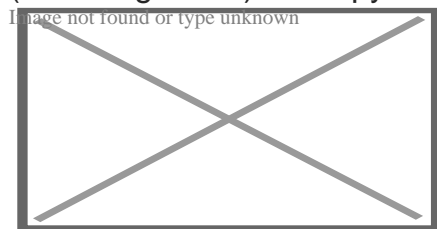
An interior combustion engine (ICE or IC engine) is a heat engine in which the burning of a gas accompanies an oxidizer (usually air) in a combustion chamber that is an important component of the working liquid circulation circuit. In an internal combustion engine, the development of the high-temperature and high-pressure gases generated by combustion applies direct force to some

component of the engine. The force is normally related to pistons (piston engine), turbine blades (gas generator), a blades (Wankel engine), or a nozzle (jet engine). This force moves the part over a distance. This procedure transforms chemical power into kinetic energy which is used to move, relocate or power whatever the engine is affixed to. The initial commercially successful interior burning engines were invented in the mid-19th century. The initial modern-day interior burning engine, the Otto engine, was made in 1876 by the German designer Nicolaus Otto. The term inner combustion engine generally describes an engine in which combustion is periodic, such as the much more acquainted two-stroke and four-stroke piston engines, together with variations, such as the six-stroke piston engine and the Wankel rotating engine. A second course of internal burning engines use continual burning: gas turbines, jet engines and the majority of rocket engines, each of which are inner burning engines on the same principle as previously defined. In contrast, in external burning engines, such as heavy steam or Stirling engines, energy is provided to a functioning fluid not including, blended with, or polluted by combustion products. Working fluids for external combustion engines consist of air, warm water, pressurized water and even boiler-heated fluid salt. While there are several stationary applications, the majority of ICEs are used in mobile applications and are the key power supply for automobiles such as vehicles, airplane and boats. ICEs are normally powered by hydrocarbon-based gas like natural gas, gas, gasoline, or ethanol. Eco-friendly fuels like biodiesel are made use of in compression ignition (CI) engines and bioethanol or ETBE (ethyl tert-butyl ether) generated from bioethanol in spark ignition (SI) engines. As early as 1900 the creator of the diesel motor, Rudolf Diesel, was using peanut oil to run his engines. Sustainable gas are commonly mixed with fossil fuels. Hydrogen, which is seldom made use of, can be obtained from either nonrenewable fuel sources or renewable resource.

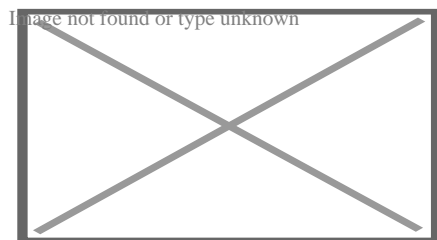
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## About Roadster (car)

This article is about a style of automobile. For other uses of the terms, see Roadster (disambiguation) and Spyder (disambiguation).



2016 Mazda MX-5



1931 Ford Model A roadster

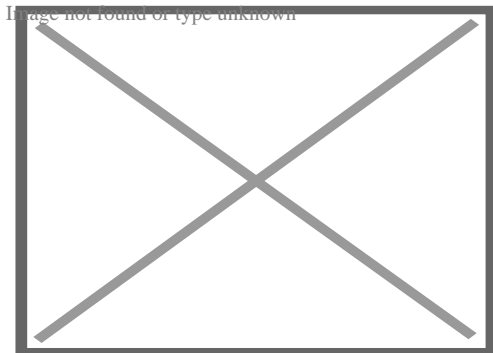


A **roadster** (also **spider**, **spyder**) is an open two-seat car with emphasis on sporting appearance or character.<sup>[1][2]</sup> Initially an American term for a two-seat car with no weather protection, its usage has spread internationally and has evolved to include two-seat convertibles.

The roadster was also a style of racing car driven in United States Auto Club (USAC) Championship Racing, including the Indianapolis 500, in the 1950s and 1960s. This type of racing car was superseded by rear-mid-engine cars.

## Etymology

[edit]



Early roadster competing for the Vanderbilt Cup

The term "roadster" originates in the United States, where it was used in the 19th century to describe a horse suitable for travelling.<sup>[3][4]</sup> By the end of the century, the definition had expanded to include bicycles and tricycles.<sup>[5]</sup> In 1916, the United States Society of Automobile Engineers defined a roadster as: "an open car seating two or three. It may have additional seats on running boards or in rear deck."<sup>[6]</sup> Since it has a single row of seats, the main seat for the driver and passenger was usually further back in the chassis than it would have been in a touring car.<sup>[4][7]</sup> Roadsters usually had a hooded dashboard.<sup>[7]</sup>

In the United Kingdom, historically, the preferred terms were "open two-seater" and "two-seat tourer".<sup>[8][9]</sup> Since the 1950s, the term "roadster" has also been increasingly used in the United Kingdom. It is noted that the optional 4-seat variant of the Morgan Roadster would not be technically considered a roadster.<sup>[citation needed]</sup>

The term "spider" or "spyder," sometimes used in names for convertible models, is said to come from before the automobile era. Some 19th-century lightweight horse-drawn phaetons had a small body and large wooden wheels with thin spokes; they were nicknamed "spiders" because of their appearance; the nickname was transferred to sports cars, although they did not look similar.<sup>[10]</sup>

In 1962, Chevrolet introduced the *Monza Spyder*, a turbocharged version of its Corvair compact, available as a convertible or coupe. Although not a true 2 passenger vehicle, it featured upgraded suspension and other equipment to classify it as a "sporty car."

## History

[edit]

Auto racing began with the first earnest contests in 1894 in Europe, and in 1895 in the United States. Some of the earliest race cars were purpose-built or stripped for the greatest speed, with minimal or no bodywork at all, leading to a body style aptly named 'speedster'. The cut-down speedster body-style really took form in the 1900s. After removing most of the body (and fenders), an empty platform on the ladder-frame chassis was mounted with one or two seats, a gas tank, and spare tyres.<sup>[11]</sup>

American manufacturers Mercer and Stutz started offering ready-made racing speedsters, intentionally built to be driven to race(-track), raced, and driven back by their owner – essentially the first track day cars.<sup>[11]</sup>

- 1890s to 1920s speedsters
- Ransom Olds' 1896/1897 "Pirate" racer was one of the first speedsters.

Image not found or type unknown

Ransom Olds'  
1896/1897 "Pirate" racer  
was one of the first  
speedsters.

- Barney Oldfield and Henry Ford with Oldfield's 999 speedster, 1902

Image not found or type unknown

Barney Oldfield and Henry  
Ford with Oldfield's 999  
speedster, 1902

- 1909 model T speedster – announced winner of the 1909 Ocean to Ocean race, disqualified

Image not found or type unknown

1909 model T  
speedster – announced  
winner of the 1909  
Ocean to Ocean race,  
disqualified because of

an engine change  
1910 Mercer 35R Raceabout (1912 specimen)

○

Image not found or type unknown

1910 Mercer 35R

Raceabout (1912 specimen)

The 1912 Stutz Bear Cat / Bearcat, (1914 shown), available doorless through 1916

○

Image not found or type unknown

The 1912 Stutz Bear

Cat / Bearcat, (1914

shown), available

doorless through 1916

The immediate predecessor to the roadster was the runabout, a body style with a single row of seats and no doors, windshield, or other weather protection. Another predecessor was the touring car, similar in body style to the modern roadster except for its multiple rows of seats. By the 1920s roadsters were appointed similarly to touring cars, with doors, windshields, simple folding tops, and side curtains.<sup>[4]</sup>

Roadster bodies were offered on automobiles of all sizes and classes, from mass-produced cars like the Ford Model T and the Austin 7 to extremely expensive cars like the Cadillac V-16, the Duesenberg Model J and Bugatti Royale.

- 1920s to 1950s roadsters
- 1926 Ford Model T roadster

Image not found or type unknown

1926 Ford Model T

roadster

1932 Duesenberg J Murphy-bodied roadster

○

Image not found or type unknown

1932 Duesenberg J  
Murphy-bodied roadster  
1937 Delahaye 135MS roadster

○

Image not found or type unknown

1937 Delahaye 135MS  
roadster

- 1949 MG TC open two-seater marketed in USA as a roadster

Image not found or type unknown

1949 MG TC open two-  
seater marketed in  
USA as a roadster

By the 1970s "roadster" could be applied to any two-seater car of sporting appearance or character.<sup>[12]</sup> In response to market demand they were manufactured as well-equipped as convertibles<sup>[13]</sup> with side windows that retracted into the doors. Popular models through the 1960s and 1970s were the Alfa Romeo Spider, MGB and Triumph TR4.

- 1950s to 1980s roadsters  
1973 MGB

○

Image not found or type unknown

1973 MGB

- Alfa Romeo Spider

Image not found or type unknown

Alfa Romeo Spider

- 1983 Mercedes-Benz 380SL

Image not found or type unknown

1983 Mercedes-Benz 380SL

1987 Cadillac AllantÃ©

○

Image not found or type unknown

1987 Cadillac AllantÃ©

The highest selling roadster is the Mazda MX-5, which was introduced in 1989.<sup>[14][15][16]</sup> The early style of roadster with minimal weather protection is still in production by several low-volume manufacturers and fabricators, including the windowless Morgan Roadster, the doorless Caterham 7 and the bodyless Ariel Atom.

- 1990s to present day roadsters  
BMW Z3

○

Image not found or type unknown

BMW Z3

- Pontiac Solstice

Image not found or type unknown

Pontiac Solstice

Mazda MX-5

○

Image not found or type unknown

Mazda MX-5

## Porsche Boxster

○

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## Porsche Boxster

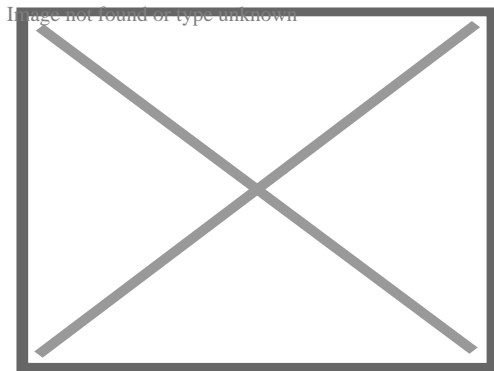
- MG Cyberster

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## MG Cyberster

## IndyCar roadster layout

[edit]



1957 Kurtis Indy roadster

The term *roadster* was used to describe a style of racing cars competing in the AAA/USAC Championship Cars series (the IndyCar equivalents of the time) from 1952 to 1969. The roadster engine and drive shaft are offset from the centerline of the car. This allows the driver to sit lower in the chassis and facilitates a weight offset which is beneficial on oval tracks.<sup>[17]</sup>

One story of why this type of racing car is referred to as a "roadster" is that a team was preparing a new car for the Indianapolis 500. They had it covered in a corner of their shop. If they were asked about their car they would try and obscure its importance by saying that it was just their (hot rod) "roadster". After the Indianapolis racer was made public, the "roadster" name was still attached to it.<sup>[citation needed]</sup>

Frank Kurtis built the first roadster to race and entered it in the 1952 Indianapolis 500. It was driven by Bill Vukovich who led for most of the race until a steering failure eliminated him. The Howard Keck owned team with Vukovich driving went on to win the 1953 and 1954 contests with the same car. Bob Sweikert won the 1955 500 in a Kurtis after Vukovich was killed while leading. A. J. Watson,<sup>[18]</sup> George Salih and Quinn Epperly were other notable roadster constructors.

Watson-built roadsters won in 1956, 1959 – 1964 though the 1961 and 1963 winners were actually close copies built from Watson designs. The 1957 and 1958 winner was the same car built by Salih with help by Epperly built with a unique placement of the engine in a 'lay down' mounting so the cylinders were nearly horizontal instead of vertical as traditional design dictated.<sup>[19]</sup> This gave a slightly lower center of mass and a lower profile.

Roadsters continued to race until the late 1960s, although they became increasingly uncompetitive against the new rear-engined racing cars. The last roadster to complete the full race distance was in 1965, when Gordon Johncock finished fifth in the Wienberger Homes Watson car. The last roadster to make the race was built and driven by Jim Hurtubise in the 1968 race and dropped out early.<sup>[20]</sup>

Some pavement midget roadsters were built and raced into the early 1970s but never were dominant.<sup>[21]</sup>

## See also

[edit]

- Barchetta, a related two-seater body style designed primarily for racing
- Convertible, the general term to describe vehicles with retractable roofs and retractable side windows
- Roadster utility
- Tonneau cover, a protective cover for the seats in an open car

## References

[edit]

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13. ^ Culshaw & Horrobin 2013, p. 482.
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## External links

[edit]

-  Media related to Roadsters at Wikimedia Commons

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- e

Car design



<b>Classification</b>	<b>By size</b>	<ul style="list-style-type: none"> <li>○ Micro</li> <li>○ Kei</li> <li>○ Subcompact</li> <li>○ Supermini</li> <li>○ Family</li> <li>○ Compact</li> <li>○ Mid-size</li> <li>○ Full-size</li> </ul>
	<b>Custom</b>	<ul style="list-style-type: none"> <li>○ Baja Bug</li> <li>○ Hot rod</li> <li>○ Lead sled</li> <li>○ Lowrider</li> <li>○ Sandrail</li> <li>○ T-bucket</li> </ul>
	<b>Luxury</b>	<ul style="list-style-type: none"> <li>○ Compact executive</li> <li>○ Executive</li> <li>○ Personal</li> </ul>
	<b>Minivan / MPV</b>	<ul style="list-style-type: none"> <li>○ Compact</li> <li>○ Leisure</li> <li>○ Mini</li> </ul>
	<b>SUV</b>	<ul style="list-style-type: none"> <li>○ Compact</li> <li>○ Crossover (CUV)</li> <li>○ Mini</li> <li>○ Coupe SUV</li> </ul>
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	<b>Other</b>	<ul style="list-style-type: none"> <li>○ Antique</li> <li>○ Classic</li> <li>○ Economy</li> <li>○ Ute</li> <li>○ Van</li> <li>○ Vintage car</li> </ul>

## **Body styles**

- 2+2
- Baquet
- Barchetta
- Berlinetta
- Brougham
- Cabrio coach
- Cab over
- Cabriolet / Convertible / Drophead coupe
- Coupe
- Coupé de Ville / Sedan de Ville
- Coupé utility
- Fastback
- Hardtop
- Hatchback
- Kammback
- Landaulet
- Liftback
- Limousine
- Microvan
- Minibus
- Multi-stop truck
- Notchback
- Panel van
- Phaeton
- Pickup truck
- Quad coupé
- Retractable hardtop
- Roadster / Spider / Spyder
- Runabout
- Saloon / Sedan
- Sedan delivery/Panel van
- Shooting brake
- Station wagon
- Targa top
- Torpedo
- Touring
- Town (Coupé de Ville)
- T-top
- Vis-à-vis

## **Specialized vehicles**

- All-terrain vehicle
- Amphibious
- Connected
- Driverless (autonomous)
- Dune buggy
- Go-kart
- Gyrocar
- Pedal car
- Personal rapid transit
- Police car
- Flying car
- Taxicab
- Tow truck
- Voiturette

## **Propulsion**

- Alternative fuel
- Autogas
- Biodiesel
- Biofuel
- Biogasoline
- Biogas
- Compressed natural gas
- Diesel
- Electric (battery
- NEV)
- Ethanol (E85)
- Fossil fuel
- Fuel cell
- Fuel gas
- Natural gas
- Gasoline / petrol (direct injection)
- Homogeneous charge compression ignition
- Hybrid (plug-in)
- Hydrogen
- Internal combustion
- Liquid nitrogen
- Liquified petroleum gas
- Steam

**Drive wheels**

- Front-wheel
- Rear-wheel
- Two-wheel
- Four-wheel
- Six-wheel
- Eight-wheel
- Ten-wheel
- Twelve-wheel

**Engine position**

- Front
- Mid
- Rear

**Layout  
(engine / drive)**

- Front-front
- Front mid-front
- Rear-front
- Front-rear
- Rear mid-rear
- Rear-rear
- Front-four-wheel
- Mid-four-wheel
- Rear-four-wheel
- Dual motor-four-wheel
- Individual wheel drive

**Engine configuration  
(internal combustion)**

- Boxer
- Flat
- Four-stroke
- H-block
- Reciprocating
- Single-cylinder
- Straight
- Two-stroke
- V (Vee)
- W engine
- Wankel

- **Portal**
- **Category**
- **Template:EC car classification**

## About Shorewood Home & Auto (Formerly Circle Tractor)

## Driving Directions in Will County

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auto atv

41.594748226806, -87.999739790257

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Shorewood Home & Auto (Formerly Circle Tractor), 13639 W 159th St, Homer Glen, IL 60491, USA

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Shorewood Home & Auto

Phone : +17083010222

Email : +17083010222

City : Shorewood

State : IL

Zip : 60404

Address : 1002 W Jefferson St

## Google Business Profile

Company Website : <https://www.shorewoodhomeandauto.com/>

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