

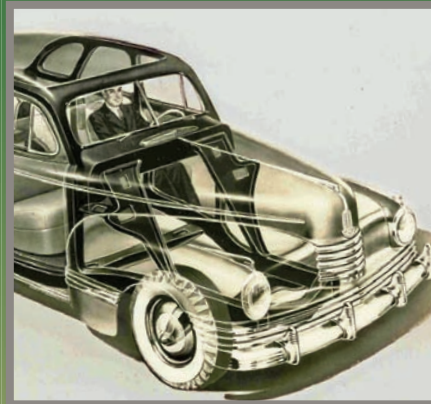
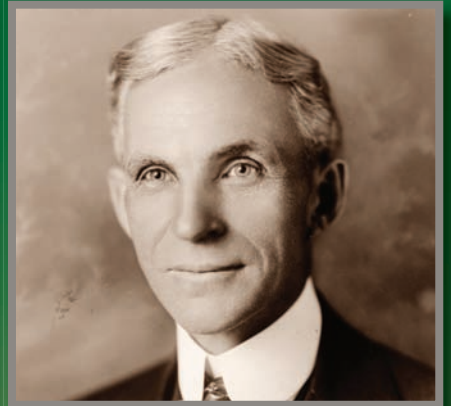
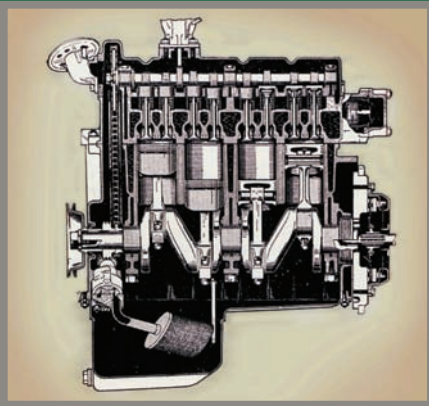
Hemmings Motor News

\$14⁹⁵

ILLUSTRATED

COLLECTOR-CAR ENCYCLOPEDIA

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AUTOMOBILE MANUFACTURERS

A concise history of dozens of the world's greatest automobile manufacturers, from 1885 to the present day.

AC 1908-PRESENT; UNITED KINGDOM

The company's first vehicle was the two-seat Sociable, based on the three-wheeled Autocarrier commercial vehicle and using its rear-mounted, single-cylinder engine. A four-wheeler appeared in 1913; with 1.5-liter Anzani power, it remained in production until 1927. A two-liter, OHC straight-six was introduced in 1919, and remained in production for a remarkable 41 years. A series of handsome sports cars emerged during the 1930s. A milestone was the Ace of 1954; initially powered by Bristol and British Ford six-cylinder engines, it became the Cobra with the addition of Ford's 289-cu.in. V-8. In the mid-Sixties, AC offered the 428, a Frua-designed convertible or hardtop with a 428-cu.in. Ford V-8. The ME3000, with a 3-liter Ford V-6, entered production in 1979. The AC MKVI, a new interpretation of the Ace with Corvette V-8 power, is in production in Germany.



1959 Aceca

ALFA ROMEO

1910-1933, 1950-PRESENT; ITALY

Founded in Milan as Anonima Lombardo Fabbrica Automobili, or A.L.F.A., the company's first production car was powered by a 24hp, 4.1-liter four-cylinder engine. Industrialist Nicola Romeo took over the factory in 1915, and added his name five years later. The arrival of engineer Vittorio Jano led to greatness; his legendary DOHC 8C2300 was victorious at Le Mans and in the Mille Miglia and Targa Florio.



1938 8C 2900B Berlinetta

Financial woes led to a government takeover in 1933. After World War II, the company began mass production with the unit-body 1900 of 1950, and found greater success with the 1,300cc Giulietta sedan, Sprint coupe and Spider convertible, all powered by DOHC inline-fours. A six-cylinder car, the 2600, was offered from 1962-'69; the V-8 powered Montreal, inspired by the 1967 Expo, appeared in 1970.

In 1972, a new factory was opened in Naples for the production of the Alfasud, the first front-drive Alfa Romeo. The Alfetta arrived in the same year, followed by the GTV6 in 1979 and the 75 in 1985, which was sold in the U.S. as the Milano. The 164, a four-door design shared with Saab, Lancia and Fiat, appeared in 1986. Fiat took over the company in 1986, uniting it with Lancia. Exports of cars to the U.S. stopped in 1995, though the 8C Competizione was sold in America in 2008.



1967 Duetto 1600

ALLARD 1936-1962; UNITED KINGDOM

Sydney Allard's first cars were specials, built in small numbers for competition, and featuring flat-head Ford V-8 and, rarely, Lincoln V-12 engines. After World War II, production increased. Notable models include the K1, the L, the J1 and the J2, with V-8 power from Mercury, Cadillac, Chrysler and Oldsmobile. Fewer than 2,000 Allards of all kinds were produced.



1953 J2X

ALVIS 1920-1967; UNITED KINGDOM

Built to a high standard and in small numbers, Alvis motorcars appealed to upper-class buyers who wanted sporting performance. The company gained attention with a win in the Brooklands 200-mile race of 1923. A small six-cylinder car was introduced in 1928, followed by the Silver Eagle of 1929, one of the company's better-known cars. A front-wheel-drive Alvis was built from 1928 to 1929. The 4.3-liter Speed 25 was one of Britain's fastest sedans. After World War II, the company produced the four-cylinder TA 14 and the six-cylinder TA 21, TC 21 and TD 21 models. The last Alvis, the TE 21, appeared in 1964. Rover acquired the company in 1965, and automobile production halted two years later.



1938 Speed 25

AMERICAN BANTAM 1930-1932, 1937-1940; USA

Often referred to as the Bantam, the car's history actually begins in 1930 as the American Austin, a product of the American Austin Car Company, which was based in Butler, Pennsylvania. The 75-inch-wheelbase vehicle was essentially an Americanized Austin Seven (of Great Britain) with its 15hp, 45-cu.in. four-cylinder engine cloaked by roadster and coupe coachwork designed by Count Alexis de Sakhnoffsky and built by Detroit's Hayes Body Company. Boasting 40 MPG and a strong following among some Hollywood elite, it cost slightly more than Ford's Model T, which resulted in a sales figure of less than 10,000 units in two years, forcing the company into receivership. A Georgia car dealer named Roy Evans kept the company afloat for another two years by initially selling off the remaining 1932 models at a dramatic discount, but even this could not stave off bankruptcy.

Automobile production did not resume until 1937, when Evans renamed and relaunched both the car and the firm as the American Bantam and American Bantam Car Company, respectively; the reorganized company used the same Butler facility. Although the wheelbase did not change, the

body was restyled by Sakhnoffsky, and to avoid paying royalty fees to Austin, the engine's manifolds were redesigned by Harry A. Miller of racing fame—this also helped increase horsepower ratings, from 19 to 22, in subsequent years. A station wagon joined the lineup in 1939; however total yearly production fell from approximately 2,000 in 1938 to roughly 800 in 1940. This was the same year in which the company developed the first Jeep, designed by Karl Probst. Automobile production ceased before 1941, although the company survived until 1956 by producing two-wheeled trailers.



1941 Hollywood

AMERICAN MOTORS

1954-1987; USA

Formed by the merger of Nash and Hudson in 1954 and based in Detroit, American Motors, or AMC, soon found its niche in the market with its compact Rambler, which represented a stark contrast to the larger cars of the Big Three. The Rambler also provided the basic unibody platform for AMC's most daring vehicle, the original AMX, and in modified form would serve as the basis for later cars, including the Hornet, Gremlin and the four-wheel-drive Eagle. Though Rambler surpassed Pontiac for third place in American sales in the early 1960s, American Motors began to struggle as car shoppers gravitated toward larger cars in the later 1960s and 1970s.



1961 Rambler American

AMC responded by introducing larger cars of its own, but it was only by buying the highly profitable Jeep in 1970 that the company was able to continue operating. Without sufficient capital to develop new cars, AMC and its vice president of styling, Dick Teague, continued to revamp

old platforms until Renault took control of the company in the early 1980s; Chrysler bought the company in 1987, effectively ending its tenure as an independent automaker.



1969 AMX

AMILCAR

1921-1939; FRANCE

A producer of sporting cyclecars, Amilcar's best-known products were the CGS "Grand Sport" of 1924, with a 1,074cc four-cylinder engine and four-wheel brakes; and the sportier CGSS "Grand Sport Surbaissé," or "lowered." Often compared with the far more expensive and exotic Bugatti, Amilcar built race cars with roller-bearing engines, as well as family sedans. The company was taken over by Hotchkiss, and did not resume business after World War II.



1926 CGSS

AMPHICAR

1961-1965; GERMANY

The novel Amphicar 770 was an amphibious car powered by a Triumph four-cylinder engine displacing 1,147cc. Total production was around 2,800 cars, with most sold in the United States. Marine propulsion was provided by two small propellers mounted under the rear bumper.



1964 770

ARMSTRONG SIDDELEY

1919-1960; UNITED KINGDOM

Created by the buyout of the Siddeley-Deasy company by the Armstrong Whitworth Development Company, Armstrong Siddeley continued an auto manufacturing tradition dating back to the turn of

the century. The company offered a line of relatively staid, yet reliable cars of increasing displacement through the Twenties and Thirties, but also offered optional innovations such as the Wilson preselector gearbox in 1929; it later became standard. 1933's Siddeley Special was equipped with a 5-liter aluminum alloy engine. Various post-war models included the Sapphire and the automatic-transmission Star Sapphire of 1958. Conservative styling doomed the marque's sales, and it was absorbed by Bristol in 1960. See also Siddeley.



1955 Star Sapphire

ARNOLT

1953-1963; USA

The S.H. Arnolt Co. of Chicago contracted with Italian coachbuilder Bertone to build convertibles on chassis by MG, Bristol, Aston Martin and Bentley. The Arnolt-Bristols were the best known, and achieved some racing successes.



1954 Arnolt-Bristol Bolide

ASTON MARTIN

1922-PRESENT; UNITED KINGDOM

Lionel Martin and Robert Bamford's first car, built in 1914, was named for the Aston Clinton hillclimb in which it had successfully competed. The production Aston Martin, with a 1.5-liter engine, appeared eight years later. The company ran into financial difficulties, and changed hands in 1925. An 11.2-liter, four-cylinder model was successful in racing, and helped establish the company's sporting pedigree. Finances were still strained, and the company was sold again in 1933.

After World War II, a few two-liter Astons were built before the troubled company was rescued by tractor magnate David Brown. This led to the famous DB cars, with six-cylinder, DOHC engines. The DB4 began an association with coachbuilder Touring, and its *Superleggera* construction. Especially prized are the 20 DB4 GTs with bodies by Italian coachbuilder Zagato. The David Brown era ended with the DBS, which introduced the company's first production V-8.

A series of short-term ownerships ended in 1987 when Ford acquired a controlling interest. The V-8 cars were followed by a more affordable model, the

BODY CONSTRUCTION

Body construction emerged from the horse-drawn carriage trade, incorporating new designs, materials and production methods as design and technology advanced.

A-PILLAR The vertical or slanted support at each side of the windshield. On cars with a fixed roof, the A-pillars provide structural support for the roof.



AIR DAM An aerodynamic device, or spoiler, mounted under the front bumper of a car to prevent the flow of turbulent air under the car in order to enhance stability and road holding.



ASH FRAME An automobile frame made from ash, an abundant hardwood found in both the United States and Europe. Very common in early production automobiles, as it had been a popular construction material for horse-drawn carriages.

B-PILLAR The second set of vertical posts that offer central roof support behind the front door, following the A-pillar at the windshield in a sedan or coupe.



BEADED EDGE Tight, rounded edges of sheetmetal body panels, which look as if they were wrapped around a wire. Often used in areas such as the lip of a fender, where the sharp edge of a piece of steel could potentially cut a tire.

BELTLINE The line formed on the side of the car beginning at the bottom of the windshield and following the bottom edge of the side window glass to the back of the car. The area where the glassed-in upper body meets the lower body structure of the car.



BODY BUCK A wooden frame structure cut and formed to the shape of the outer body of a car. Craftsmen create finished body panels by bending and hammering metal to the shape of the wood buck.



BODY ON FRAME A type of vehicle where the body components are separate from an underlying frame that runs the length of the vehicle and supports the suspension, engine, transmission and other driveline components.



C-PILLAR On fixed-roof sedans and coupes, the structural roof support at the rear of the car. On pillarless hardtops (those cars without a B-pillar in the center of the car), this rear roof support is still known as the C-pillar.



CHASSIS Refers to the mechanical components attached to the body of a car, including the driveline, suspension, steering and other components to which the body is attached. On unibody cars, describes everything but the outer body of the car.



COWL Also "Scuttle" in British usage. The section of the vehicle between the dashboard and firewall that sits in front of the passenger compartment. Includes the outer bodywork and windshield supports (A-pillars).



CYCLE FENDER An automobile fender that is separate from the body of the car and is just large enough to cover the wheel, much like a motorcycle fender.



D-PILLAR The vertical or slanted roof support on fixed-roof cars with additional windows beyond the traditional C-pillar of a sedan, such as a station wagon or sport-utility vehicle.



DASHBOARD In early cars, an upright panel located at the front of the interior containing the gauges and switchgear a driver needs to control the car. Now used synonymously with "Instrument Panel," which can take on many shapes, and typically contains significantly more controls than those early cars.



DUTCHMAN'S PANEL Body component between the trailing edge of the rear window and the leading edge of the trunklid.



FABRIC BODY Early car body that used a treated textile outer skin over a wood frame or an expanded metal mesh form in place of stamped or hand-worked metal. Purported to be lighter in weight, easier to work than steel and simpler to paint or finish. Subsequent manufacturing and finishing advances made durable metal bodies much more efficient to manufacture.



FENDER Also "Wing" in British usage. The body panel that forms the wheel well and prevents water, mud and other road grime from splashing up from the tires while driving.



FENDER SKIRTS A removable panel, usually made of the same material as the body, used to cover the fender opening and extend the wheel arch over much of the tire. Can be removed to service the tire and wheel and related suspension components. *See also Accessories, Hot Rodding.*



FINISH PANELS Decorative panel mounted to the body, such as a chrome accent or other design embellishment used to dress up the bodywork behind it.



FIREWALL The vertical bulkhead running the width of a vehicle that separates the passenger compartment from the engine compartment in order to protect the people in the car from the heat, fluids and moving components under the hood.



FLOORPAN In a unibody car, the bottom portion of the car that forms both a structural element and the floor of the car. Subframe, suspension and driveline components are all mounted to the floor pan.



FUEL SYSTEMS

Examining the components associated with the various means used to provide the internal combustion engine with the essential air/fuel mixture.

A-N FITTINGS A system of hose couplings to be used with high-pressure braided hose, developed by the U.S. military (A-N stands for Army-Navy) as a means of handling high-pressure fluid delivery with in-field serviceability. Hose and fitting sizes are expressed with a dash and a number (-6); placing the number into a fraction with 16 as the denominator reveals standard size (example: -6 = 6/16, which is reduced to 3/8, for 3/8-inch).



CARBURETOR ACCELERATOR PUMP



Automobile engines require fuel enrichment during throttle-opening transitions, usually provided by the accelerator pump, which sprays an additional fuel charge into the venturi as the throttle is depressed. The amount of "pump shot" is metered, and often adjustable to yield seamless engine operation.

CARBURETOR, PROGRESSIVE LINKAGE

Progressive linkage allows only certain venturi to open upon initial throttle input, activating the others as the throttle is further depressed to a pre-determined point. This can occur through mechanical linkage or via vacuum-operated controls.

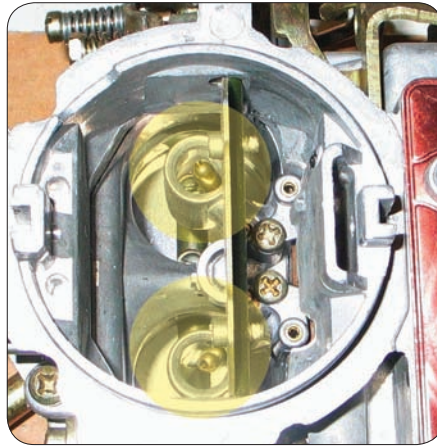


AIR CLEANER A device used to remove impurities from the air being drawn into an internal combustion engine. These are typically mounted on the air inlet prior to the throttle, and may consist of pleated paper, foam, or an oil-bath arrangement, pulling air over a pool of oil and through a screen.

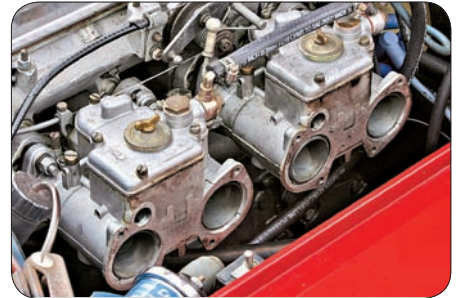


Most air filters require some form of periodic maintenance.

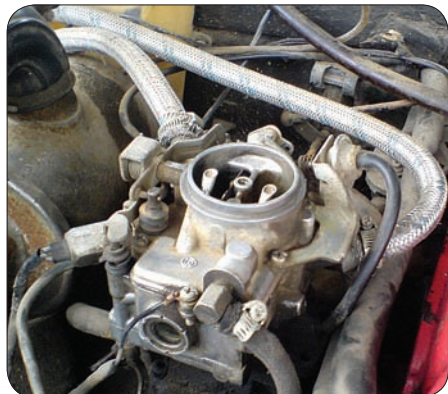
CARBURETOR BARREL Term that refers to each one of a carburetor's major airways, also referred to as a venturi or throat. The most basic carburetors have only a single barrel, but multi-barreled carburetors were common in automotive applications, most often in two-barrel and four-barrel configurations, sometimes with progressive linkage.



CARBURETOR, SIDEDRAFT Sidedraft carburetors flow air through horizontally oriented venturi. This design was common on high-performance automotive inline engines and on motorcycle engines.



CARBURETOR Mechanical device for mixing fuel and air in a specifically metered ratio, and atomizing that mixture as it is fed into an engine's inlet tract. Most carburetors use a venturi-type airway with a butterfly-style valve, which serves as the engine's throttle. The venturi creates a siphon effect that draws fuel from the carburetor's bowl into the airstream; a series of internal circuits are used to meter and maintain proper operating air/fuel ratio. A single carburetor may have one or more venturis.



CARBURETOR, DOWNDRAFT The direction of airflow through a carburetor is often expressed in terms of "draft," referring to the carburetor's configuration. Most commonly, carburetors are of the downdraft type, flowing air in the top and out the bottom.



CARBURETOR, UPDRAFT Many early engines featured updraft carburetors, flowing air in the bottom and out of the top.



CHOKE Device used to close off intake airflow to the carburetor venturi during cold starts, to yield the extra-rich fuel mixture required to quickly initiate combustion in the absence of combustion heat.

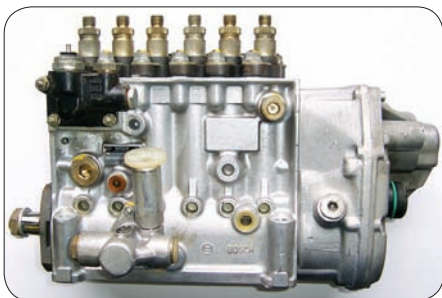


The choke most often consists of an additional butterfly valve located in the carburetor's air horn; these can be manually or automatically operated.

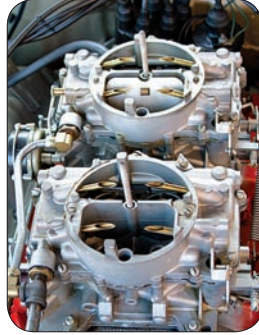
CROSS RAM Term used to refer to a dual four-barrel induction system placing the carburetors in an offset, opposed arrangement. The purpose of this arrangement is usually to gain additional intake runner length without resorting to an exceptionally tall manifold. Chrysler used a cross-ram-type induction system on Max Wedge engines and Chevrolet offered its own version, intended for the '69 Camaro Z/28, as a dealer-available setup.



DIESEL INJECTION PUMP Mechanical apparatus that feeds specifically metered fuel charges into the individual air intake ports of each cylinder of a diesel engine. These pumps typically contain one internal cylinder and piston for each cylinder of the engine and must be precisely synchronized with engine timing for the engine to function properly. Drive systems can include cogged belts, chain-and-sprocket, gears or some form of shaft drive; in any case, accurate pump timing must be maintained. The injection pump also controls the throttling of a diesel engine.



DUAL-QUAD Slang term used in hot rodding parlance to refer to an induction system consisting of twin four-barrel carburetors.



ETHANOL Form of alcohol used as an engine fuel or as a component of engine fuel. Ethanol is most commonly used in commercial pump gasoline generally in a mixture of less than 10 percent, though "E85" fuel is 85 percent ethanol. This is seen as a means of shifting energy dependency toward renewable fuels (the ethanol is derived from plant life, primarily corn). There are also purported environmental benefits in the form of reduced exhaust emissions.



FLOAT A buoyant device mounted in the carburetor's fuel bowl that maintains the level of fuel in the bowl by opening and closing the needle-and-seat valve to control fuel flow. These are usually either soldered brass or Nitrophenyl foam.



FLOAT BOWL A chamber within a carburetor that fills with fuel to a specific point, determined by the float setting; proper fuel level in the bowl is required so that the venturi will siphon fuel from the bowl, through the jets.



FUEL CELL Type of fuel tank designed primarily for racing vehicles to provide an added measure of safety. Most fuel cells incorporate a heavy-gauge steel case that contains an internal fuel bladder or a foam core. The intent is to prevent a rupture in the case of a crash, and to limit fuel dispersal in the event of a case rupture.



FUEL FILTER A device that strains impurities from the vehicle's fuel feed, usually employing a fine screen or folded-paper element. Filters may be located inside the carburetor inlet, positioned in the fuel line in the engine bay, underneath the vehicle or inside the fuel tank. Most fuel filters are replaceable, while others require periodic cleaning.



FUEL INJECTION An induction system using pressurized fuel and some form of injector nozzle to administer the fuel charge. For gasoline engines, this system replaces carburetion, though there are numerous possible configurations of fuel-injection systems.

