Mercedes Benz W198 300SL History

Mercedes-Benz 300SL

From Wikipedia, the free encyclopedia

Mercedes-Benz 300SL	
Manufacturer	Mercedes-Benz
Also called	Mercedes Benz 300 SLR 2-door coupe
Production	1952-1963
Predecessor	none
Successor	Mercedes-Benz 230SL
Body style	2 door coupé, roadster
Engine	Mercedes 2995cc, SOHC
Transmission	4-speed MANUAL
Wheelbase	94.5 in
Length	178 in
Width	70.5 in
Height	51.1 in
Curb weight	2351 lbs

The **Mercedes-Benz 300SL** is a two-seat, closed sports car with characteristic gull-wing doors, and later, offered as an open roadster.

Built by Daimler-Benz AG and internally numbered W198, the road version of 1952 was based (somewhat loosely) on the company's highly successful competition-only sports car of 1950, the Mercedes-Benz 300SL (W194) which had less power, as it still had carburetors.

This model was suggested by Max Hoffman. Because it was intended for customers whose preferences were reported to Hoffman by dealers he supplied in the booming, post-war American market, it was introduced at the 1954 New York Auto Show—unlike previous models introduced at either the Frankfurt or Geneva shows. The 300SL was best known for both its distinctive *gullwing* or *butterfly wing* doors and for being the first-ever gasoline-powered car equipped with fuel injection directly into the combustion chamber. The gullwing version was available from March 1955 to 1957. In Mercedes-Benz fashion, the "300" referred to the engine's cylinder displacement, in this case, three liters. The "SL", as applied to a roadster, stood for *"Sport Leicht"* or "Sport Light."

More widely produced (25,881 units) and starting in 1954 was the similar looking 190SL with a 105hp 4cyl engine, available only as roadster (or with an additional hardtop, as Coupe Roadster). The 190SL was equivalent to today's SLK in its market positioning when compared to the SL. Production for both the 190SL and 300SL ended in 1963 when the 230SL was introduced.

A race car for the street

1955 Mercedes-Benz 300SL Gullwing Coupe

The gullwing doors, hinged at the roof and so named because the open doors resembled a bird's outstretched wings, were implemented as such to accommodate for the car's tubular chassis, designed by DBAG's chief developing engineer, Rudolf Uhlenhaut. Part of the chassis passed through what would be the lower half of a standard door. This tubular chassis was a necessity, as the original car was designed solely for racing and needed to be as light as possible due to the rather underpowered original, carbureted, engine, while still providing a high level of strength. This required the driver and any passengers to do some gymnastics to get in or out of the car, usually by sitting on and sliding across the wide door sill. A steering wheel with a tilt-away column made the process considerably easier.

It was Max Hoffman, Daimler-Benz's official importer in the USA, who convinced DBAG management in Stuttgart that a street version of the 300SL would be a commercial success, especially in the US. Hoffman's prediction was correct since more than 80% of the vehicle's total production of approximately 1400 units were sold in the US, making the Gullwing the first Mercedes-Benz which sold in bulk outside its home market. The 300SL is credited for changing the company's image in America from a manufacturer of solid, but staid, automobiles to that of a producer of sporty cars.

Built completely with steel except for the aluminium bonnet (hood), doors and boot (trunk), the 300SL could have been ordered with an all-aluminium outer skin, saving 80 kg (176 lb), but at tremendous added cost.

First with fuel injection

1957 Mercedes-Benz 300SL Roadster.

The engine, canted at a fifty-degree angle to the left to allow for a lower hoodline, was the same 3.0 liter straight-6 as the regular four-door 300 but with a Bosch mechanical fuel injection system that more than doubled its power from 86 kW (115 hp) in its original carbureted trim to 180 kW (240 hp) at 6100 rpm. This new injection system, a first in any gasoline-powered car (apart from the rather small Gutbrodt where the Mercedes engineers had to work after the war), allowed a top speed of 260 km/h (161 mph) depending on gear ratio (several options), making the 300SL the fastest production car of its time. The maintenance requirements were high as, unlike the current electrically powered fuel injection systems, the mechanical fuel pump would continue to inject gasoline into the engine during the interval between shutting off the ignition and the engine's coming to a stop; this gasoline was of course not burned, and washed the oil from the cylinder walls and ended up diluting the engine's lubricating oil, particularly if the engine was not driven hard enough nor long enough to reach a temperature high enough to evaporate it out of the oil. Exacerbating the problem were the large oil cooler as well as the large volume of oil (10 liters), both oriented more to racing than to street driving, which virtually guaranteed that the oil would not reach a high enough temperature. In practice, many street drivers would block off airflow through the oil cooler, and the recommended oil change interval was 1,000 miles.

Aerodynamics played an important role in the car's speed. Mercedes-Benz engineers even went so far as to place horizontal "eyebrows" over the wheel openings. Given the car's overall styling, it has been suggested that the eyebrows were added to make the car more appealing to American buyers rather than to serve any functional purpose since American cars of the period were rather flamboyant by comparison to the 300SL. Unlike many cars of the 1950s, the steering was rather precise and the four-wheel independent suspension allowed for a reasonably comfortable ride and markedly better overall handling.

However, the rear swing axle, jointed only at the differential, not at the wheels themselves, could be treacherous at high speeds or on imperfect roads due to extreme changes in camber.

Racing history and the 300SL today

Mercedes-Benz 300SL Transaxle, the 1953 prototype.

In 1952, the 300SL racing history includes overall wins at Le Mans, Berne, Nürburgring, and Mexico's Carrera Panamericana. It also managed second and fourth places at its first outing, the Mille Miglia in 1952. These successes, especially those on the high speed open road races, were rather surprising as the engine was fitted with carburetors and produced only 175 hp, less than the competiting models of Ferrari and Jaguar, and less than the road car later on. But low weight and low aerodynamic drag made the 300SL fast enough to be a challenger. Superior reliability made it a winner.

The 1955 sports racing car, named Mercedes-Benz 300SLR, was not based on the road 300SL, but on the Formula 1 Mercedes-Benz W196 race car with 8 cylinders in line. The engine capacity was enlarged from 2500cc to 3000cc, and it was powered by standard gasoline rather than a fuel mix including methanol. It won the 1955 Mille Miglia (with Stirling Moss at the wheel) with an average speed of 157.65 km/h in 1,600 km (97.96 mph in 994 miles). The 300SLR scored additional victories in Germany, Sweden, Ireland and at the Targa Florio in Sicily, and won the world championship for sports cars in the constructors' ranking. The 300SLR was withdrawn from the 1955 Le Mans disaster while leading, after a horrific accident involving one of the team's cars killed 82 spectators. In 2005, a 300SL Gull Wing driven by 87 year old John Fitch, one of the SLR Factory drivers in the 1955 Le Mans race and the GT class winner in MM driving a factory prepaired 300 SL Gull Wing, attempted to set a new F/GT class record for land speed record at Bonneville Speedway, but was thwarted by a balky fuel pump that limited top speed to 150 mph. After the run, the team vowed to return for a second attempt the next year. Fitch noted that he had driven these cars faster than that at night, in the rain, on the road with 60 other cars. The attempt is documented in the film *Gullwing at Twilight: The Bonneville Ride of John Fitch*, which was aired on PBS.

Today, the 300SL with its unique doors and technological firsts is considered one of the most collectible Mercedes-Benz models of all time, with prices reaching well past the US$400,000 mark. In addition, Sports Car International magazine ranked the 300SL as the number 5 sports car of all time.

The Mercedes-Benz SLR McLaren is inspired by these 1950s automobiles.

History Narrative

A CHRONICLE OF THE 300SL GULL WING

Note: The chronicle is based on Gull Wing Group Tech-Tip #164 which is one of the many tech-tips available to members

Perhaps Henry Ford, the "father of automotive mass production," was responsible; perhaps it was the way in which the United States was developing in general. Whatever the reason, early on, the nature of the automobile business in England and Europe was quite different than it was in America, especially during the period between the two World wars which saw extensive development of the automobile on both sides of the Atlantic.

In Europe, most manufacturers tended to remain small. They depended heavily on factory race teams, driving specially developed cars, for advertising. In America, on the other hand, in order to make vehicles affordable for the masses, policies such as Ford's "you can have any color as long as it's black" were resulting in staggering numbers of look-alike vehicles produced by the U.S. auto industry.

The smaller, more flexible, European companies produced automobiles known only to the few Americans who had the time and money to travel in Europe. These automobiles were true sports cars and the " Gran Turisimo (GT)" name often defined as a vehicle designed to "*transport two people and their luggage between two points in comfort and in a minimum of time*." Some of these cars were imported to the United States to be used by their owner-drivers in competition as well as for street transportation. While the Stutz Bearcat and the Mercer Raceabout could be considered sports cars, and the Duesenberg and Auburn Speedster were Gran Turisimo type autos, none of these vehicles had a significant impact on the driving habits of the average American.

It is generally thought that the sports car explosion in the U.S. after World War II came as a result of G.I. Joe's having been able to drive the back roads of England in legions of MG's. While this may be partially true, the average G.I. was far too busy with the business of war to do much thrashing about on back roads. It is much more likely that millions of G.I.s came home aware for the first time that such cars existed. There suddenly was a tremendous surge of interest among Americans for small, personal cars which could be driven for fun as well as for transportation.

In 1954 the Mercedes Benz 300SL Coupe burst into this fertile market. It was almost immediately dubbed the "Gull Wing" because of its unusual upward opening doors. It was a car that fired the imagination of anyone with the slightest bit of competitive spirit. Here was a car with charisma - it looked fast standing still. The novel doors, low, aerodynamic design, and high speed capability certainly didn't look like anything manufactured by the Big Three! Shortly thereafter GM introduced the first Corvette, and then came the little Ford Thunderbird. What is so special about this 1954 Teutonic wonder car that has caused it to be the most desirable post-war collectible around? Well, just about everything, that's all!

The 300SL Power Train

The M198 engine used in production of the 300SL develops 220 bhp at 5800 rpm. A racing camshaft was available as an option, which raised the output to 240 bhp at 6100 rpm. The compression ratio was nominally 8.55:1, although this varied from engine to engine. Depending on manufacturing tolerances, pistons and other factors, actual compression ratios ranged from 8.0:1 to 8.69:1. Except for the early 1954 cars, the compression ratio was stamped on the block of each engine adjacent to the serial number plate below the chain tensioner. Also stamped near this location, usually on the cylinder head, was the spark advance setting, which was determined for each engine prior to installation in the car.

Blocks were cast with open sides which were subsequently closed with sheet steel side plates. The open sides helped to reduce engine weight as well as to provide access to the water jacket for cleaning purposes which ultimately becomes necessary. The cast aluminum dry sump was especially designed to conform to the 50 degree cant of the engine.

The top of the block was faced off at twenty degrees to the horizontal with the combustion chamber formed by a section scooped-out of the block adjacent to the bore and by the wedge shape of the piston. The unique block face angle allowed a very efficient manifold design with a low hood height and large intake and exhaust valves for high airflow and horsepower.

The massive forged steel crankshaft with seven 60mm diameter main bearings and 52mm diameter connecting rod bearings was fitted with an equally massive vibration damper at its front end.

The 49mm diameter intake valves and 42mm exhaust valves with 9mm and 12mm stems run in bronze guides in the aluminum cylinder head. The exhaust valves were sodium filled to transfer heat and cool the valves and all valves have hardened valve seats. Four aluminum bearings support the single overhead camshaft, which is driven by a duplex roller chain of considerable length. Rocker arm stands are aluminum, and the very lightweight valve cover is magnesium. A few of the early production cars were fitted with a cast aluminum cover.

A huge cast aluminum intake manifold with individual ram pipes seventeen inches long, together with a polished aluminum heat shield, all but hides the stainless steel exhaust headers beneath. The intake manifold design takes advantage of the direction fuel injection system and is designed without compromise for dry air, no fuel, air flow. The exhaust headers, designed to handle the high power output of the 300SL engine, are a non-standard "SS" alloy which is not weldable/non-repairable by most shops. The headers are joined to an exhaust pipe, initially 60 mm on the early Gull Wings, and then changed to 66mm (2-5/8") in diameter, which leads to the transversely mounted muffler at the rear.

A cooling fan had to be fitted, of course, but this was made of magnesium to save more weight.

The M198 engine is equipped with a revolutionary direct fuel injection system. Bosch direct-injection fuel injection nozzles, the latest type being DC10A 30R6/4, are screwed into the block in the center of the scooped-out portion of the combustion chamber. A Bosch-built fuel injection pump and mixture controller meters and injects the fuel under high pressure directly into the cylinder during the intake stroke. The fifty (50) degree left cant to the engine puts the Bosch injection pump on the side of the engine nearly out of sight. Due to the complex mechanical design, the descendents of the 300SL direct fuel injection and its performance advantages would not reappear in production cars for another 45 years.

Several ignition distributor designs were used during the production run to continuously improve performance and reliability. The final design for the Gull Wing Coupe engine, a Bosch ZV/PB 6 RL TMK, uses a single coil with dual breakers. In all Gull Wings, the spark timing can retarded by a hand control from the dash panel which was quite handy in the 1950s if one encountered a batch of low octane fuel in his travels.

A dry sump engine oil system was fitted to ensure an adequate oil supply. The remote oil tank, holding up to 16 quarts of oil, is located along side the left front fender. The tank, coupled with a more than adequate oil cooler adjacent to the water radiator, allows a continuous engine speed of 6000 rpm at full power. The biggest problem that besets SL owners is not how to cool the oil, but how to keep it hot enough to boil off the gasoline dilution. Operation with ten to twelve quarts of oil rather than the maximum of sixteen, and blocking or bypassing the oil cooler, are common solutions. Early 300SLs have both the pressure and scavenge oil pumps located in the finned, cast aluminum dry sump. Early in 1956, at Engine Number 6500073, the design was changed to incorporate an externally mounted oil pressure pump.

Power is transmitted to the four-speed, all-synchro gearbox through a Fichtel and Sachs (F&S) Type H18 St9 single dry-plate brass-faced clutch/pressure plate with a high spring pressure of 765 kg. The gearbox has its own countershaft driven oil pump to lubricate the bearings and gears through passages drilled in the transmission upper shaft. Aluminum alloy is used for the clutch and gearbox oil pump housing while the gearbox itself is constructed of cast iron.

The transmission gear ratios for the first forty cars are shown in the "1st design" column in the table below. These ratios were lowered to 3.34, 1.97. 1.39 and 1.00 for subsequent production as shown in the column "2nd design."

Gear	1st Design Ratio	2nd Design Ratio
1st	3.14	3.34
2nd	1.85	1.97
3rd	1.31	1.39
4th	1.00	1.00

Early 1954 cars, up to Chassis Number 4500050, have a long bent shift lever emanating from the forward part of the transmission tunnel, which eliminates the option of a radio. A remote shift linkage with a short shift lever was subsequently incorporated and provides faultless operation if one doesn't neglect the miscellaneous nylon washers and grommets for too long a time. More than one SL owner has been confronted with the whole shift lever dropping into contact with the forward driveshaft universal - always, of course, at the most inopportune time! Many of the long shift lever cars have been converted to the short shift lever.

Final drive was through a double jointed open driveshaft to the rigidly mounted differential assembly. The differential housing is retained by rubber at three points and differ from other 300 series cars in two respects: The housings are cast in aluminum and a ZF limited slip unit is installed in place of the conventional spiders. Standard ratio for the U.S. is 3.64:1, but optional ratios of 4.11, 3.89, 3.42 and 3.25 to one were available on order. A different speedometer is required when changing the final drive gear ratios. The speedometer for the 3.25:1 and 3.42:1 gearset is unique in that it is calibrated to 180 mph, the others indicate only a mere 160 mph.

The 300SL Chassis

Suspension is by coil springs all around in conjunction with F&S tubular shock absorbers. Standard spring rates are 290 pounds-per-inch at the front and 256 at the rear. Competition springs were optional on the steel-bodied cars, standard on the aluminum ones, and provide rates of 330 and 369 pounds-per-inch at the front and rear, respectively. The competition springs do not exactly provide a boulevard ride, but do wonders for the handling. Part of the improvement no doubt stems from the lowered center of gravity since the competition springs drop the car approximately an inch all around. For those not familiar with spring rates, these can be compared to the 300SL Roadster whose rear springs at 142 pounds-per-inch provide a much softer ride. Competition shock absorbers were optionally available, as well as yet another shock specified for the aluminum-bodied cars.

The ultimate in drum brakes are fitted to the 300SL, in this age before the triumph of the disc brake. The aluminum brake drums with steel liners, known as "Alfin" drums, are 10-1/4 inches in diameter and have 3-1/2 inch wide shoes fitted; two leading shoes in front,

one leading, and one trailing at the rear. Brake linings of two different compounds were bonded to the cast aluminum shoes. Through Chassis Number 5500353 a Bendix Treadle-Vac booster unit is fitted, with a 5-1/4 inch vacuum cylinder (6 in inch in later Treadle-Vac Gull Wings) which is integral with the master cylinder, providing the startling experience of no brakes at all if the booster unit failed. This was rectified in the later design SL, which uses a separately mounted Alfred Teves ATE T50 booster unit, providing unassisted braking should the booster fail. This same unit is used in most of the 180, 190 and 220 series Mercedes cars of the late fifties. This booster provides a boost of approximately twice the pedal pressure. An ATE T50/12 unit was later introduced into Mercedes production on the 300SL Roadsters. It provides a boost of four times the pedal pressure and is used to modify some of the earlier cars when the owners feel like they had to push too hard to stop from high speeds.

The Gull Wing

The most striking aspect of the Gull Wing, at first glance anyway, is its appearance. The smooth flowing lines are difficult to fault and are timeless to the point that the cars are continually confused by the lay person with a new model something or other. (Usually the first question you hear is "what year is that car?") The doors, of course, are the outstanding feature, and with both of them open, the appellation "Gull Wing" becomes obvious. The shape is both elegant and functional. The few fittings, adornments, knobs and the like are done in typical Daimler-Benz fashion, both in design and execution. The bumps in the hood, the belt mouldings of anodized aluminum (along with the majority of the trim mouldings), the upward opening doors - they are all there for a reason, be it to clear the engine, cover a seam in the body panels, or provide access to a complicated chassis. In modern terminology, the Gull Wing is a fully integrated design - a claim that few cars could make at the time.

The difference in weight between the aluminum and the steel bodied cars is not as great as would appear likely, for even the steel bodies had all removable panels made of aluminum. The hood, doors, deck lid, rocker panels, belly pans and interior panels are aluminum on both cars. Plexiglass is used on the aluminum bodied cars for all the windows but the windshield, thus saving a few more pounds, but this is probably offset by the Rudge center-lock wheels which weigh some twenty-five pounds more than the bolt-on variety, and which were always fitted to the lightweights. Actual weights are difficult to validate, but according to Daimler-Benz, the steel bodied car weighed 2557 pounds dry (without tools, fuel, water, oil, spare tire, and battery). Adding these brings the weight to 2855 pounds, which is still fairly reasonable by today's standards, and an indication of the performance potential when coupled to a power plant delivering in excess of 200 horsepower.

All over the world, sports car writers reached for their dictionaries, looking for superlatives to describe this new star on the horizon. Words like "beautiful", "the sports car of the future", "a dream car", "incredible" flowed from the pens of writers in "Road and Track", "Sports Cars Illustrated", "Autosport", "Automobile Connoisseur" and similar publications around the world. As late as 1968, "Road and Track" did a road test on a

Gull Wing and summarized their findings "After 13 years, still a terrific car - sparkling performance..."

In February of 1954, the average American driver was just barely aware of sports and GT cars. Suddenly, at the International Motor Sports Show in New York appeared the car that is the epitome of both types. Almost unheralded, the car was an instant success.

The 300SL Racing Successes

The cognoscenti, of course, had been following the car's 1952 successes in the European GT race circuits, where, under the masterful direction of Alfred Neubauer, the factory race team had been giving stiff competition to all comers. First outing was the Mille Miglia from Brescia to Rome and back. It was the only factory sponsored outing at which the silver Coupes failed to bring home a first. Kling came in four minutes and 32 seconds behind Giovanni Bracco in a new V-12 Ferrari, but Kling had lost six minutes in a pit stop because of a balky knockoff hub on the 300SL. Rudy Caracciola was fourth in a less powerful car. Two weeks later, the same cars were entered in a sports car race in Bern, Switzerland. It was Rudy Caracciola's last race; he crashed his dark red coupe into a tree when the rear brakes locked up. He survived, but never raced again. Kling, Lang and Riess, however, finished in that order.

The third outing in 1952 for the 300SL was LeMans. Lang and Riess brought home a first, with Kling and Klenk second. The next event was the Nurburgring. For this, two cars were modified to become roadsters, with an aluminum tonneau cover over the passenger's seat and rear deck. An entirely new roadster was built for Karl Kling with the wheelbase shortened to 86.7 inches, and a modified grille opening.

During the practice runs, a supercharged version was tried, using a Rootes blower to boost the power to 230 hp. Lap times, however, were almost identical with and without the blower. Rudy Uhlenhaut, Chief Engineer, reasoned that the normally aspirated engine produced just about the maximum power that the rear axle with its high roll center, could transmit to the ground. As a result, all four 300SL's entered in the Nurburgring were normally aspirated (no blower). Kling, in his special roadster, was leading until an oil leak forced him back to second place. Final results gave Hermann Lang first, Karl Kling second, and Riess and Helfrich third and fourth.

After the Nurburgring, Daimler-Benz management decreed an end to racing for the silver cars, doubtless feeling that the cars had done much better than should have been expected for a hastily assembled collage of parts from other cars. The Mexico distributor for Mercedes Benz, Prat, argued, however, that the silver cars should be entered in the third running of the Carrera Panamericana, a grueling 1,946 mile run from Tuxtla Guterrez on the border of Guatemala to Cuidad Juarez on the U.S. border. His arguments must have been effective because Daimler-Benz sent a team of 35 people, two trucks, four race cars and a rented DC-3 to this event.

Because there was no 3-liter displacement limit for this race, the four cars had had their engines bored out to 3.1 liters, deemed to be the maximum safe limit for that block design, giving an output of 177 bhp at 5200 rpm and a torque of 193 ft-lbs at 4200 rpm. Teams for the event consisted of Kling and Klenk in a coupe, and John Fitch (who had joined the factory team after LeMans) and Eugen Geiger in a roadster. Hermann Lang, with mechanic Erwin Grupp, drove a second coupe. The fourth car, a roadster, was driven from stage to stage by newsman Gunther Molter.

On the first leg, Lang struck a large dog, tearing a hole in the front end sheet metal. While the suspension of the car was not damaged, the hole was large enough to affect the high speed performance of the car.

In the same leg, Kling had his famous encounter with a buzzard, shattering the windshield and wounding Klenk from flying glass. They had to stop in order to bandage his wounds.

John Fitch's car had been plagued by front end alignment problems. At Farral, he felt the familiar steering sponginess as he started, and he returned to get the alignment corrected, not realizing that the rules stated that a car could not return after crossing the starting line. He was disqualified.

Final results of this race were: Kling and Klenk first, Lang and Grupp second, and Luigi Chinetti third in a Ferrari 4.1.

All in all, Mercedes Benz had not done at all badly in their postwar reentry into competition. Except for a press showing of the 300SL in March of 1952, the racing version had appeared without advance fanfare. Both the racing fraternity and the general motoring public were somewhat mystified by the sudden and spectacular debut of the 300SL. Where had it come from, this new and potent little car? To answer that question, one must go back to Germany in the period immediately following World War II.

Daimler-Benz Post War Recovery

Like all industrial complexes in Germany, Daimler-Benz had been bombed unmercifully. With typical Teutonic understatement, Dr. Ferry Porsche, in his autobiography "We at Porsche" tells what it must have been like in Germany in the closing months of the war. ...."By 1944, living in Stuttgart, let alone producing anything useful there had become such an uphill fight that the government let us have the alternative place at Zell um Zee as well as Gmund."....."By 1944, life anywhere in Germany could be pretty rough, because by that time we were subjected to almost continuous air attacks, even in daylight, by long range fighters. If they saw anything moving, it was shot up, usually with fatal results."

Saturation bombings of the various Daimler-Benz plants had been most effective - sixty years of that company's history lay in ruins. The main factory at Stuttgart-Unterturkheim was 70% destroyed, and the body works at nearby Sindelfingen had been 85% damaged. The truck facility at Gaggenau was 80% lost, and Berlin-Marienfeld was

totally destroyed. Only the original Benz and Cie works at Mannheim was relatively intact, with only 20% destruction.

In 1945, the Board of Directors was so depressed after assessing the remaining facilities, the following statement was issued: "Daimler-Benz has ceased to exist." One can only imagine the magnitude of the problems facing the remnants of the venerable firm. Inflation was rampant and money almost non-existent. Several plants were in zones administered by different occupation forces, who were all suspicious of one another (and thus, might or might not accept each other's passes and documentation). The rubble remaining at the various plants was constantly being sifted by looters who hoped to barter their findings in the flourishing black market.

Communications ranged from poor to non-existent, and travel ranged from difficult to impossible. For many organizations, these difficulties would have spelled the end. Bleak as it was, however, the pessimism of the Board was not completely justified because some of the team work spirit which had led to the supremacy of Mercedes Benz in the racing field in the 1930's had survived.

Management and worker alike sorted through the rubble to salvage what was left. Enough was found to establish a modest repair facility, and in 1946, limited production of the prewar 170V was resumed. Lack of funds, however, severely limited activities. (Less than 600 of the 170V's were built before the currency reform of 1948.) Also, in 1946, L3500 trucks were built under the supervision of the Allied occupation forces. The company had taken its first steps on the ladder to recovery.

In 1949, two new versions of the 170 were announced, the 170S and the 170D (diesel). Almost any automobile would have been salable in the post war market, but these two were particularly well suited to the poor and expensive gasoline, poor roads, and the need for automobile longevity found in postwar Europe. They sold well, and apparently provided the impetus that finally got the struggling company going again.

At about the same time, Chief Engineer Dr. Fritz Nallinger went to management seeking some of the limited company funds to develop a successor to the prestigious, pre war types 500K and 540K. One can imagine him arguing that improved versions of the utilitarian 170 series were necessary, but that the proper way to demonstrate to the world that Daimler-Benz was indeed back in business was to do so emphatically with a true luxury car that would prove without any doubt that great automobiles could still be made in Stuttgart. His arguments must have prevailed, because the Frankfurt Motor Show in 1951 saw two new models of Mercedes Benz automobiles. The 220, a 2.2 liter six cylinder was an apt replacement for the 170, and was destined to survive in one form or another well into the 1960's.

The other vehicle which shared the limelight at the Mercedes Benz stand that April, the 300 sedan, put Daimler-Benz squarely back into the luxury car business. Superbly finished and detailed, it immediately became the car of state for countries all over the world. Later convertible and sedan versions served as transportation for the likes of the Aga Khan, the King of Jordan, Lord Rosebury, Gary Cooper, Bing Crosby, and similar

notables. In its delightful and smaller 300S/Sc form, it was custom crafted for the "beautiful people of the 1950's."

The M186 engine that powered the 300 series is the item of particular interest here, because it is the seed from which the 300SL Gull Wing engine developed. The 3-liter (2996 cc) six cylinder engine was very much a "state of the art" design in April of 1951.

Meanwhile, the Board of Directors had decreed that the three-pointed star should again wear racing colors, and without delay. Three paths appeared to be open to Alfred Neubauer and his racing team, which had miraculously emerged from the war intact. The least expensive path for the still struggling company appeared to be revival of the W154 of 1939. When war was imminent, the racing department had secreted several of these cars at various locations in Dresden and Breslau. Unfortunately, all of these were now in the Russian Zone, thus completely unavailable to Neubauer.

Inventory at the factory turned up two M154 V-8 engines and two M163 V-12 engines, all essentially complete. Two W154 chassis were there also. Two more complete W154 cars with M163 engines were found on a used car lot in Berlin! A trade was negotiated for a brand new 170V. With this nucleus of race cars, Alfred Neubauer felt bold enough to try his team in the Argentine Grand Prix in February.

The team consisted of Hermann Lang, Karl Kling, and the new addition of Juan Manuel Fangio, the brilliant driver from Argentina. Rudy Caracciola refused to drive because he felt the cars were hopelessly outclassed. He proved to be right. All three cars were beaten twice by Jose Froilan Gonzales driving a supercharged 2-liter Ferrari. This demonstrated to both Neubauer and Dr. Nallinger that the W154 was not the proper vehicle to reestablish Mercedes Benz supremacy on the race track.

Gull Wing Genesis

The chain of circumstances which ultimately culminated in the Gull Wing Coupe probably started at a Daimler-Benz management meeting held on June 15, 1951. Both Rudy Uhlenhaut and Alfred Neubauer had been invited to the meeting to express their views on the Mercedes Benz race cars. The meeting resulted in the formation of an embryonic racing design group, under Uhlenhaut, with authorization to proceed with development of both a Formula car and a sports car. Neubauer had proposed building new models of the prewar W165 and had received authorization to proceed. The W165 project was dropped, however, after the German Grand Prix on July 29, because it was felt the car was inadequate against the new Ferraris and BRMs. Instead, a small group started on the design of an entirely new car which could be adapted to any of the new Formula rules, which were expected to be announced in October. This effort eventually produced the potent W196 of 1954/55.

Meanwhile, however, the W154 revival had been dropped, and the new formula car was not ready. Neubauer was left with only the sports car approach as an immediate racing reentry route. It was suggested that the V-12 M163 engine from the W154 project could become the power plant for a potent sports car. Dr. Nallinger ruled that out, however,

because he felt it would require too much development, both on a cost and time basis. Since the 1951 LeMans had been won impressively by a Jaguar using stock drivetrain and suspension components from the XK120 in a special lightweight body/chassis, Dr. Nallinger suggested that something like that could be done with components from their 300 series.

Rudy Uhlenhaut, then busy completing the 300 series car, was enthusiastic about this idea. Therefore, a delegation from the racing team was invited to pay a visit to the passenger car design engineering department in June of 1951. Dr. Franz Roller, with Ludwig Kraus and Manfred Lorscheidt, was given primary design responsibility for the race project, with overall responsibility for the entire project under the direction of Rudy Uhlenhaut since he was chief of passenger car design. Uhlenhaut took a very active interest in this project.

The doughty Alfred Neubauer and his drivers Lang and Kling were at this initial meeting also since they were an integral part of the racing team. They had attended LeMans where they had become very much aware of the state of the art as far as racing sports cars were concerned. They were, therefore, about to give the design team a very clear idea of what they wanted in such a vehicle. The engine design group was assigned the task of making a racing power plant out of a somewhat pedestrian 115 bhp M186 engine from the 300 series car.

The engine assembly from the 300 series with its cast iron block was quite heavy (585 pounds), as was the differential with its half shafts. Therefore, it was the task of the chassis and body design team to make these components as light as possible. For the chassis, Uhlenhaut dug out a sketch he had made while working for the British occupation forces after the war. This was a lattice structure of welded tubes designed so all of the stresses were longitudinal in the members. In order to distribute the front end loads, this frame rose to a peak just forward of the firewall. It was this design that became the basis for the space frame chassis of the Gull Wing.

The body designers at Sindelfingen were charged with the task of producing a body shell with minimal frontal area and a low aerodynamic drag coefficient. The first obstacle was the rather tall M186 engine. This was solved by canting the engine 50 degrees to the left.

The second problem related to the requirement for high torsional rigidity for the space frame chassis. This dictated deep truss sections on each side of the passenger compartment, resulting in very high door sills. Obviously, this precludes normal vertical hinges on the doors. The solution of the problem led to the most famous characteristic of the car; its gull wing doors. The doors were hinged along a horizontal line near the center of the roof. Alfred Neubauer, final arbiter on all details of the car observed "nowhere is it written that a door must open sideways."

First prototypes had only the window and a section of the roof hinged, forming an area of nearly the minimum cross section classed as a door under F.I.A. rules. Fortunately for the drivers, these cars also had removable steering wheels. One can only imagine the difficulty of extricating yourself from under the dash and rising to step over a sill

which had been approximately shoulder high when seated! Again, fortunately for the drivers' anatomies, only two or three of this version were made. In the later racers, the opening was extended down to its more familiar location - just below the top of the wheel well opening.

The public loved the novelty of the unusual doors, but Daimler-Benz management from Neubauer on up always regarded them as a poor solution to the problem. Certainly, when coupled with the sleek aerodynamic design of the body, the gull wing doors made the 300SL unique in appearance (and kept its owners agile).

Numerically, the little car did not appear to promise the racing successes it later won. The engine engineers managed to coax 171 bhp at 5200 rpm, and 188 ft-lbs of torque at 4200 rpm from this 3-liter in-line six cylinder engine. First prototypes used the wet sump of the 300 to save weight. It was impossible to assure adequate engine lubrication under racing conditions, however, so later prototypes used the dry sump. Besides, Rudy Uhlenhaut felt that the added weight of the scavenger pump and oil tank was compensated for by the lower drag on the crankshaft.

Targeted for a dry weight of 1760 pounds, the finished "Werkenummer" 194 actually weighed in at 1914 pounds. The extra power was coaxed out of the engine with three Solex downdraft carburetors, each fueling two cylinders through a short aluminum manifold. Air intake into the carburetors was through a common plenum chamber which was sealed against the hood. As the 1952 season went on, however, a separate cover was added despite the weight because of the delays occasioned when something was dropped into this plenum during a pit stop. The engine compression ratios also had been raised from 6.4:1 to 8:1, and a different camshaft was used.

Brake drum diameter was the same as the 300 at 260 mm, but widened to 90 mm, just over 3-1/2 inches, giving a total lining area of 258 square inches! Otherwise, drive train components were essentially the same as those of the 300 series. The four speed gearbox was used intact, except an oil pump was added.

In November of 1951, a completed chassis of the W194 was being test on the roads in and around Unterturkheim. Total time from the management decision of June 15 to a completed chassis had been five (5) months!

Shortly after these first tests, a heated discussion took place between Alfred Neubauer and Rudy Uhlenhaut. Neubauer felt that the car was underpowered against Jaguars, Ferrari Talbots and Cunninghams, all offering engines of more than 200 hp in cars of the same or lower dry weights than the 300SL. Neubauer wanted more than 200 hp, 16 inch wheels, and a 5-speed gearbox. Uhlenhaut replied that the car as it stood was the best that could be done with the 300 engine in the short time allotted. He felt the car's low drag coefficient (somewhere between 0.25 and 0.33), and the car's small frontal area (19.4 ft2) when coupled with its superior handling should more than compensate for the power difference in the hands of Neubauer's skilled drivers, especially on long road races, even predicting that the Jaguar XK120 could be beaten. Neubauer threatened to carry his case to top management, but Uhlenhaut cautioned that the factory was already overloaded. To insist on major changes in the W194 with top

management would probably result in cancellation of the entire racing program. Neubauer swallowed his doubts hoping that the losses he felt were inevitable would lead to the changes that he wanted rather than closure of the racing department. Fortunately his fears were unfounded. We already know about the impressive records the cars brought home in 1952. Some plans were made toward using the silver cars in the 1953 road racing season, but these were shelved in favor of the full formula car participation by the then maturing W196.

The Milestone Production Gull Wing Emerges

All over the world, Mercedes Benz dealers began to get inquiries: "Could the 300SL be ordered?"; "Was the factory planning serial production?", etc. In all probability, the answer would have been the same as that for the C111, fifteen years later - "No", except for one event.

Max Hoffman, a onetime sports car competitor and wealthy New York auto dealer, had been appointed the U.S. distributor for Mercedes Benz in 1952. Early in 1953, he was invited to attend a Daimler-Benz Board of Directors Meeting in Stuttgart. He told them that all of the current models were salable in the U.S. but was particularly interested in a production version of the 300SL. The engineering members of the Management Committee objected, saying that the car had been a hastily contrived vehicle put together as a compromise for the sole purpose of getting Mercedes Benz back into racing.

Other members of the team were more positive, however, and before he had left the meeting, Max Hoffman had placed firm orders for 500 each of the 300SL and the smaller counterpart to be derived from the 180/220 series, the 190SL. Engineering had agreed, on the basis that they could have some time to correct what they felt were some of the 300SL deficiencies.

The Lang car with the damaged front end from the Carrera Panamericana was taken over by the Sindelfingen works in order to refine the body styling. Stuttgart meantime addressed themselves to the engine and drive train.

A major complaint about the 1952 cars had been the excessive heat and noise in the driving compartment. This was due to the fact that the air from the engine compartment was exhausted through the drive line enclosure under the car's floor. The first solution to this problem was to provide two narrow vertical vents just ahead of the doors, and two smaller ones in the rear fenders. Happily, this rather unattractive solution was soon replaced with the "egg crate" design familiar on the production cars.

Extensive but individually unobtrusive changes in body styling also were made, including reshaping of the fenders and wheel well openings and restyling of the grille

opening with the now familiar oval with the three-pointed star at its center, which became the "face" of all subsequent Mercedes Benz sporting vehicles.

Capacity of the gasoline tank was reduced from 45 to 34 gallons, and one spare removed, leaving the two wheel wells in the trunk as space to stow a tool kit, shoe bag or other small items. Fitted luggage was designed to fit the space behind the seats.

The most important change was the addition of direct cylinder fuel injection. Officially, the reason given was that the 171 bhp of the 1952 racers had been achieved, and maintained, only by careful tuning of the cars by factory trained mechanics. Since the production cars were 600 pounds heavier and less likely to receive expert tuning, some additional horsepower was necessary.

As early as 1934, Daimler-Benz in conjunction with the Robert Bosch Company and the Reich Air Ministry had begun experiments with gasoline fuel injected engines. One of the principal reasons was to solve the fuel starvation problems which plagued carbureted aircraft engines under combat conditions. During the 1930's plans had been made several times to use gasoline fuel injection on an automotive engine, but the plans had never been carried out. During World War II, Daimler-Benz had used the experience gained by their earlier research in the 1930's to produce fuel injected aircraft engines. Probably nowhere else in the world was there the volume of knowledge about gasoline fuel injection that was shared between the Daimler-Benz and Bosch engineers. A SAE paper published in 1957 by H. Scherenberg, one of the D-B engineers, documents the 10 percent increase in power achieved with the direct cylinder fuel injection compared to the carbureted version of the same engine.

In order to give Sindelfingen the low hood line they wanted, the 50 degree cant of the engine was retained. This also gave room for ram induction pipes 17" in length, which provided air to the engine. On the test car, these were fabricated from sheet aluminum, giving a stovepipe-like plenum chamber, with three oval induction pipes, each of which fed a pair of cylinders. Otherwise, this prototype was much like the final production version.

It had proved almost impossible to change the spark plugs in the 1952 race cars, because the 300 series M186 engine had the plugs fitted into the cast iron block on the left side. New cylinder heads were designed, relocating the spark plugs into the head, and the fuel injection nozzles were installed in the block openings. This permitted them to spray from the cool to the hot side of the chamber, and away from the spark plug, both conditions having been found to be desirable during the 1930's research.

The Robert Bosch design and production engineers showed considerable ingenuity and manufacturing skill in their production of a piston-type injection pump capable of injecting a precisely metered quantity of fuel to each cylinder. The quantity was adjusted not only to the engine's needs at that instant, but also to the temperature and density of the air. Injection pressure varied from 570 to 680 psi.

Larger valves were fitted. These, in combination with the fuel injection system, raised the output of the test car to 214 bhp at 5700 rpm and a torque of 206 ft-lbs at 4500 rpm.

The 1952 race cars had suffered from an awkward arrangement of the exhaust system. In order to clear the three Solex carburetors and manifolds, the exhaust pipes had been brought up and over the forward frame tube on the right hand side, then down to a muffler inside of the right rocker panel. Now, with the new ram induction pipes, the exhaust lines could be relocated under the intake manifold. A polished aluminum sheet was located between the two manifolds to reduce the heating of the intake air.

All of these changes were incorporated into the test car, and it was driven extensively in the fall of 1953. The wheel wells had been enlarged so the car could be tried with both 15 and 16 inch wheels.

Finally, an entirely new car was built for the International Motor Sports Show to be held in New York's Seventh Regiment Armory on February 6 to 14, 1954. A prototype of the 190SL also was prepared and shown there. The results of the showing more than justified Max Hoffman's multi-million dollar gamble of a year earlier. To say that the cars were a success would be a gross understatement. All over the United States, potential customers were checking their bank accounts to see if they could scrape together the estimated U.S. selling price of $6,800 for the 300SL. If that was not possible, they had the option of the lookalike 190SL at an estimated $4,000. Road and Track's first road test of the 300SL in April of 1955 indicated a list price of $7,463.00.

According to factory records, the first car, chassis Number 198.0404500003, was shipped to Briggs Cunningham in the United States in late August. Production cars began to come off the production line late in September of 1954. Engine Number 198.9804500035 was used to determine the "official" horsepower and torque figures on November 6, 1954. With a compression ratio of 8.7:1, it produced 219 bhp at 5800 rpm, and 207 ft-lbs of torque at 5000 rpm. This same engine produced 217 bhp continuously for one hour at 5750 rpm. Legend has it that every M198 engine produced was given a meticulous run in. The initial break-in consisted of 24 hours of operation on a dynamometer, with six of those hours at full load. The engine then was disassembled, checked for wear or damage, reassembled and run for another eight hours before being trucked to Sindelfingen for installation in a chassis.

Much has been said about the over steer characteristics of the 300SL coupe. The typical U.S. car was built with under steer, so the oversteer handling came as a surprise to most U.S. drivers. This characteristic, however, was never intended to be "vicious", "violent", or "dangerous" as it was so often described. All of the Mercedes Benz racing cars were designed with mild over steer because the racing department felt this made the vehicle easier to control compared to under steer.

During 1954, Daimler-Benz and Continental were busy developing a tire for the 300SL with a tread that would complement the over steer. These became the Continental 6.70 x 15 "Super Record" tires, which were factory standard for the 300SL, along with Dunlops and Engleberts, and were all all bias-ply tires with inner tubes. Unfortunately, different tires were often fitted by the owners, giving radically different break-away characteristics. In particular, steel-belted radials coupled with the high roll center of the 300SL rear axle did indeed give a vicious over steer to the coupe since this type of tire tends to have an almost instantaneous break-away characteristic.

Records vary as to the total number of Gull Wings produced. The factory has quoted three different totals: 1485, 1402 and 1400. The latter number had the following production distribution: 1954-146, 1955-867, 1956-311, and 1957-76. Records do agree, however, that 29 aluminum-bodied cars were built early in 1955. They were shipped as ordered in 1955 and 1956. There seems to have been a continual process of change throughout the production life of these cars - so much so in fact, that some mechanics swear that no two 300SL Gull Wings are exactly alike.

The 300SL Gull Wing Refined in the Roadster

It appears almost certain that Uhlenhaut was told to proceed with development of a 300SL roadster at about the same time that serial production of the coupe was authorized, for the coupe was discontinued and the roadster announced as a replacement in the summer of 1957. Daimler-Benz may have considered the Gull Wing to be a hasty compromise at best and wanted to replace it with what they felt was a proper car as soon as possible.

In many ways, there is no question the roadster is a better car. The suspension roll center had been lowered by fitting a low pivot rear axle with a helper spring to reduce roll stiffness. Clasped between two uprights, one from each half axle, the helper spring compresses on jounce but has little effect on roll, thus the hub springs are made lighter, reducing roll stiffness. This change makes the car more forgiving of tire type, and in fact, the Michelin X steel-belted radials were standard factory equipment. In their road test of the car, Road and Track magazine said ".....the car handles beautifully under all conditions."

The Roadster midsection truss frames are lowered by 50%, permitting standard doors to be used. The competition camshaft became standard, and a high compression ratio engine (9.5:1) was optional on special order, which boosts the engine output to 250 bhp. The belly pans were removed. The steering went from 2 to 3 turns lock to lock, but the car gained more than 200 pounds in the process, going from 2710 to 2920 pounds dry weight. Accordingly, the standard rear axle ratio was changed from 3.64 to 3.89 to 1.

The price went up too. The last of the Gull Wing coupes were sold at $8,905, while the initial price of the roadster was $10,970. A total of 1858 roadsters were produced before the 300SL model was discontinued in 1964.

Despite the many improvements in the roadster, somehow it lacked the charisma of its older sister - too bad all of those improvements weren't offered for the coupe. It would have been interesting to see what might have happened to the sales figures had both the coupe and roadster been offered simultaneously with the same performance improvements, especially the better handling.

The 300 SLR Racing Cars

The 300 SLR was another interesting derivative of the 300SL exercise. When the decision was made not to race the 300SL after 1952, a design team started on a new formula race car. The formula rules for 1954 limited supercharged engines to 750 cc, and normally aspirated engines to 2.5 liters. The racing team headed by Neubauer felt they needed 250 bhp or more, and this pretty well ruled out the supercharged engine. A normally aspirated engine offered more possibilities.

In order to achieve the desired output, it was decided to design an engine for a very high top speed. This resulted in a straight 8 with a redline at 9000 rpm. Two novel approaches were used to reach such a high speed. To minimize torsional stresses in the crankshaft, the power takeoff point was placed at the center of the crank, making the engine resemble two in-line 4's bolted together.

The most revolutionary aspect of the engine, however, is its desmodromic valve action. This was developed by engineer Hans Gassman, literally on the back of an envelope as he was riding the trolley to work. The desmodromic system has a camshaft with two cams per valve. One is directly above the valve and causes it to open; the other closes it via the rocker arm. Elimination of the valve springs eliminated the problem of valve "float", which almost certainly would have prevented operation of the engine at the high rotational speeds proposed.

Three W196 cars were entered in the French Grand Prix on July 4, 1954. Two of them came in first and second in as close a sequence as Fangio and Kling could devise. Behind them was a field of vanquished and in some cases broken French and Italian machinery. If Hans Hermann had not been forced out early by a piston failure, the win would probably have been the Mercedes "trademark" 1, 2, 3 placing.

The 300 SLR was a direct descendent of the W196. Officially dubbed the W196S, the racing department used the experience gained from both the W196 and the 300SL to produce a nearly invincible race car for the 1955 season. The M196.1 engine block is cast aluminum, unlike the welded sheet steel of the M196. The M196.1 engine was enlarged to 2982 cc by increasing the bore and stroke 2 mm each. The bores were chrome-plated. It was mounted in a tubular space frame similar to that of the 300SL. The only road race in 1955 in which the 300 SLR did not bring home a win was the tragic LeMans. Mercedes had entered three 300 SLR's in that race. One was driven by Juan Fangio and Stirling Moss, the second by Karl Kling and Andre Simon, and the third by John Fitch and a Frenchman named Pierre Bouillon, who raced under the name "Pierre Levegh." At about 6:30 p.m. on the first day of the race, Levegh came through a cloud of dust just before the pits, only to see a gaggle of stopped or slow moving cars all over the track. Due to some confusion about a pit stop, several cars had had near misses and were just getting straightened out when Levegh burst upon the scene at approximately 150 mph.

Levegh struck an Austin Healy driven by Lance Macklin, and the remains of Levegh's car hurtled into a knot of spectators near the pits. He was killed along with 80

spectators. At 1:20 the following morning, Mercedes withdrew from the race out of respect for the dead. This tragic event probably was behind the decision, announced on October 22, 1955 by Daimler-Benz management, that Mercedes Benz was withdrawing indefinitely from both sports car and formula racing.

As for the other races in which the 300 SLR was entered in 1955, the results were outstanding:

Mille Miglia	1st	Stirling Moss/Dennis Jenkinson
	2nd	Juan Fangio
Eiffrennen	1st	Juan Fangio
	2nd	Stirling Moss
	4th	Karl Kling
Swedish G.P.	1st	Juan Fangio
	2nd	Stirling Moss
Tourist Trophy	1st	Stirling Moss/John Fitch
	2nd	Juan Fangio/Karl Kling
	3rd	Wolfgang von Trips/A. Simon
Targa Florio	1st	Stirling Moss/Peter Collins
	2nd	Juan Fangio/Karl Kling
	4th	John Fitch/Desmond Titterington

A total of nine 300 SLR's were built, of which eight survive. Three are no longer at the Daimler-Benz facilities; one is in the Ford Museum in Dearborn, another is in the Deutsches Museum in Munich, and a third is in the Schlumpf Museum in Malmerspach. The other five have all been retained by Daimler-Benz, including the two lovely coupes (with gull wing doors) which had been built for the Carrera Panamericana of 1955, but never raced. (Supposedly one of those was given to Rudy Uhlenhaut when he retired, which eventually made its way to his boat on the Mediterranean sea.)

300SL Enthusiasts form the Gull Wing Group

Inevitably, a car with the public appeal of the 300SL must have an enthusiasts' club. The Gull Wing Group (GWG) was formed in 1961 by a group of sixteen coupe owners in the San Francisco Bay Area, led by Ernie Spitzer. The original purpose of the club was more social than anything else, with membership requiring ownership of a 300SL coupe, payment of dues, and not much more. Because many features of the car are unique or at least novel (direct cylinder fuel injection, dry sump lubrication, etc.), members of the GWG with mechanical and/or technical skills were asked to share their knowledge with the less fortunate members. Thus grew a great volume of technical information about the cars.

Known as the "Gull Wing Group Technical Tips", this information has been complied and published in loose leaf form by the Group. The compilation includes everything about the cars, from a tongue in cheek review of graceful modes of ingress and egress to highly technical papers on engine tuning and authentic restoration.

For many years, roadster owners were treated as "poor relatives" and allowed only non-voting Associate Memberships. As time went on, however, the purpose of the Group gradually changed. The cars became older, and parts more scarce and expensive, so the emphasis of the GWG activities shifted more and more toward repair and restoration assistance. Because of this shift in purpose, any differentiation between the coupe and the roadster became pointless. Consequently, in 1972, when Lynn Yakel was Club President, the members voted to give full membership status to any owner of a 300SL automobile. The name "Gull Wing Group" was retained, however, as being symbolic of both cars, since it was the public clamor for the coupe with the funny doors which resulted in both models.

A Gull Wing Group Convention is held annually (starting in 1969), at which at least one day is devoted to detailed "how to do it" sessions covering specific topics of repair and maintenance techniques for the cars. Many of these presentations have been recorded as audio-visual presentations, which are available from Group Headquarters.

The real stars of the annual events are, of course, the cars themselves. The sight of 30 to 40 beautifully maintained 300SL's, often inside of a posh convention facility, is to say the least unusual.

The Group enjoys an excellent relationship with Daimler-Benz. As a service to members of the GWG, Daimler-Benz searches parts inventories all over the world for these scarce parts, and quotes the Group on the cost of remanufacturing unobtainable parts on original tooling. In addition, many members have undertaken the task of remanufacturing certain parts themselves.

Through their two Registers (Coupes and Roadsters), the Group has the ambitious plan of documenting every surviving car. Recordkeeping on the Coupes was started shortly

after the Group was formed. Serial number information supplied by current member-owners was/is checked against original factory records to provide original color, first purchaser, date of build and delivery, etc. In 1977, when Roberta Yakel was President of the Group, it was decided that sufficient data existed to warrant publication of this Register for the Coupe. A total of 1400 Gull Wings are listed in this volume (first published in 1978).

A similar volume was first published for the Roadsters in 1987. Both volumes currently are updated annually, having switched to a loose-leaf format to facilitate these updates as new information is obtained. These volumes provide invaluable data and history to members planning to buy, sell, or trade cars and they also help in the positive identification of stolen vehicles.

Such is the history of a remarkable motor car. It has inspired reams of prose, thousands of pictures, many miles of enjoyable driving, and the dedicated Gull Wing Group.

Bibliography

Ackerson, Robert C.	"Never Beaten, Never Quit" was claimed of M-B 300 SLR, Old Cars, March 22, 1977
Fitch, John	"Two Decades Later, Flying Low in the 300 SL", Automobile Quarterly, Vol. 18, No. 2.
Jenkinson, Denis	"The 300 SLR Mercedes Benz", Profile Publications Ltd.
Ludvigsen, Karl	"The Mercedes Benz Racing Cars", Bond- Parkhurst Books, 1971
May, Dennis	"300SL" Automobile Connoisseur 4, Speed & Sport Publications Ltd.
Nitske, W. Robert	"Mercedes Benz 300SL", Motorbooks International, 1974
Nitske, W. Robert	"The Complete Mercedes Story", Autobooks 1955, 1956 and 1965
Porsche, Dr. Ferry	"We at Porsche", Doubleday & Co., 1976
Scherenberg, H.	"Mercedes-Benz Racing Cars-Design and Experience", SAE Special Publications, #75, SAE Meeting, Detroit, March 1957
Steinweidel, Louis William	"The Mercedes Benz Story", Chilton Book Co., 1969
Read, Simon	"Stuttgart's Immortal 300SL", Automobile Quarterly, Vol. 18, No. 2.
Yakel, Lynn	"Gull Wing: The Legend and the Love Affair", The Milestone Car, 1972

Original: Dave Shisler

Lynn Yakel

300 SL Production History

The 300 SL Gull Wing and 300 SL Roadster were built in Sindelfingen, Germany between 1954 and 1963. The Gull Wing and Roadster share many of the same parts, the same race bred engineering and the outstanding craftsmanship of the people of Mercedes Benz. Both models were continuously improved throughout their production

cycle. As late as 1961, major improvements were introduced that exemplified the Mercedes Benz philosophy of delivering the best motor cars to their customers.

The 300 SL marked the end of era at Mercedes Benz and was the last design to use a separate body and frame. The direct fuel injection system of the 300 SLs was replaced by simpler manifold port systems and would not reappear in production cars until the late 2000s.

The 300 SL set the look for all the Mercedes Benz sports cars that followed. The iconic grille, with its large center star and elongated grille opening, would be repeated on every generation of SL. The twin bulges on the hood and side vents, functional and efficient on the Gull Wing, would reappear as styling cues on other sports cars that followed the legendary 300 SLs. The large tachometer and speedometer, centered in the driver's view, would become a symbol of the sports car instrument panel.

Best of all, the 300 SL represented the people of Mercedes Benz. Faced with the limited resources of post war recovery, the racing department and its leaders displayed resourceful ingenuity and built winning race cars with legendary track records. The pride of the factory workers is evident in their faces in the 300 SL production line factory photos. No outside shop or specialty contractor shared the accomplishments…the stunning success of the 300 SLs and their racing counterparts represented the determination and skill of the people that are Mercedes Benz.

Gull Wing Production History

Derived from the all-conquering racing cars of 1952, the production model of the 300 SL was introduced to the public on February 6, 1954 at the New York International Automobile Show. A total of 1400 Gull Wing coupes were built during the period 1954 to 1957, 29 of which featured all aluminum bodies.

The factory type designations for the Gull Wing were:

198.040XXYYYYY for the 300 SL Gull Wing with steel body shell

198.043XXYYYYY for the 300 SL Gull Wing with aluminum body shell

198.980XXYYYYY for the 300 SL engine

The "XXYYYYY" portion represents the serial number used to identify individual cars and engines.

The "XX" digits represent the year of manufacture in reversed order. For example, "45" indicates a production year of 1954. The "YYYYY" digits represent sequential serial numbers assigned during the model year. Rarely, if ever, do the engine and chassis serial numbers coincide as the factory made no effort to correlate same.

The standard Gull Wing, as identified by the factory type designation 190.040, was built with a welded steel body shell. The hood, doors, trunk lid, rocker panels, firewall, floor pans, and belly pans were aluminum.

Designed as type "198.043," Mercedes-Benz built 29 all aluminum Gull Wings. All of the body panels including the welded body shell were aluminum. With the exception of the windshield, lightweight plastic material was used in the windows. Taken together, these changes resulted in an overall weight reduction of some 187 pounds. In addition, these 29 vehicles also sported a revised camshaft and other modifications that increased the horsepower of their engines.

The standard Gull Wing Coupe was Silver Gray Metallic in color and used a combination of vinyl and plaid fabric for the interior. Other exterior colors and leather interiors were available by special order. A radio and special luggage were also available by special order. The instrument panel was always painted the same color as the exterior of the car.

Five different rear axle gear ratios were available: 3.25:1, 3.42:1, 3.64:1, 3.89:1, and 4.11:1, with 3.64:1 becoming standard. When the 3.25:1 and the 3.42:1 ratios were ordered the usual speedometer that read to 160mph was replaced with one that read to 180mph.

Rudge wheels, available as a factory installed option, used knock-off hubs for the front and rear wheels instead of the more usual bolt-on arrangement.

1954 Production

Between August and December of 1954, 167 Gull Wing coupes were produced by the Mercedes-Benz Aktiengesellschaft Sindelfingen plant at Unterturkheim, Stuttgart, Germany. The first Gull Wing delivered, serial number 198040.4500003, was shipped to New York, USA on August 23, 1954. During this year many running changes were made including relocation of the gearshift lever, a new design for the clutch lever assembly and a switch to a DB recirculating ball steering system. The transmission gear ratios were adjusted and the rear axle ratio was standardized to 3.64:1 with other ratios as options.

1955 Production

During the period January to December 1955, the most prolific year, 855 Gull Wing coupes were produced, 26 of which were equipped with all aluminum body shells for competition. Running changes during this year included substitution of the ATE T-50 brake booster for the older Treadle-Vac unit and elimination of the welting between the eyebrows and the fenders on the steel bodied cars. The concave star and barrel on the front grille was replaced with a two piece flat star.

1956 Production

During 1956, 308 Gull Wing coupes were produced; three of these cars were built with all aluminum bodies. Running changes included replacement of the engine's internal duplex oil pump with an external pressure pump and a single function suction pump in the oil pan. The introduction of a dual point/single coil ignition system was introduced and replaced the single point/single coil ignition system.

1957 Production

During 1957, 70 Gull Wing coupes were produced between January and May. Chassis numbers 7500037, 7500038, and 7500062 were used for the first 300 SL Roadsters built in 1957. Production of 1957 Gull Wings was intermixed with the conversion to the new 300 SL Roadster.

Roadster Production History

Although bearing a strong outward resemblance to its predecessor and continuing the previous numbering system, the 300 SL Roadster was much more than a Gull Wing with a soft top. Even though the radiator, motor, transmission, front suspension and numerous small parts were interchangeable, substantial chassis changes allowed for installation of a lower roll center single pivot trailing arm rear axle to replace the prior dual pivot system. With this rear axle change the Roadster's corning performance was much more neutral and the tendency to oversteer was reduced significantly. Wheel width was increased to 5.5" and the standard axle ratio was changed to 3.89:1 for cars designated for USA delivery with the previous ratios remaining available upon special order.

A major revision of the space frame design accommodated conventional doors also allowed for roll-down windows. A removable hard top was available as an extra cost option. Instrumentation was revamped along with revised heating/ventilation controls.

Fuel tank capacity was decreased to make room for the spare tire and to provide a modicum of trunk space. Headlight and taillight designs were altered to provide a more contemporary appearance.

The total number of Roadsters produced between 1957 and 1963 was 1858.

1957 Production

During 1957, 554 Roadsters were produced.

1958 Production

324 Roadsters were produced and an electromagnetic valve in the mixture controller to was introduced to prevent overrun. The interior was changed with the elimination of the separately hinged cover for the armrests.

1959 Production

211 Roadsters were produced in 1959.

1960 Production

249 Roadsters were produced in 1959. Plastic parts were introduced in the form of a revised brake fluid container and a new lining for the fuel tank. This year also saw the change to dual floating shoe front brakes. This was the final Mercedes-Benz engineering change for drum brakes.

1961 Production

250 Roadsters were produced, and it was a year of significant change in that Dunlop disc brakes on all four wheels were introduced beginning with Chassis No. 002780.

1962 Production

244 Roadsters were produced. 1962 was another year of significant engineering change for the Roadster with the introduction of the aluminum engine block at Chassis No. 003049.

1963 Production

During 1963 a mere 26 Roadsters were produced with no notable changes from 1962. The 1963 production represented the final development of the 300 SL chassis and engine with the addition of the disc brakes and the aluminum alloy engine.

Racing Summary

The following table shows the Gullwing and Roadster Sports Car Club of America (SCCA) racing record.

The "Class" abbreviations are:

"C" and "D" are classes based on engine displacement

"P" indicated production

"M" indicates modified

DATE	RACE	Car/#	Drive	Finish	Class	Over
02/27/1955	SCCA Nationals, FL - Shamrock Village Trophy Race Production Cars	300 SL #4	Black Duncan	2nd	DP	16th
05/15/1955	SCCA Nationals Cumberland, MD - 3rd Race Prod & Mod Class D	300 SL #134	Hugus J. Edward	3rd		3rd
05/15/1955	SCCA Nationals Cumberland, MD - 3rd Race Prod Sr Drivers	300 SL #148	O'Shea Paul	1st	DP	
05/15/1955	SCCA Nationals Cumberland, MD - 3rd Race Prod Sr Drivers	300 SL #59	Simmons Art	4th	DP	
07/04/1955	SCCA Nationals, Beverly, Mass - 2nd Race Production Cars	300 SL #22	Simmons Art	2nd	DP	
09/04/1955	SCCA Thompson Nationals - Race 3 D Production	300 SL #70	Simmons Art	1st	DP	
09/04/1955	SCCA Thompson Nationals - Race 3 D Production	300 SL #46	Arents G	2nd	DP	
09/04/1955	SCCA Thompson Nationals - Race 3 D Production	300 SL #92	Roudahush B	3rd	DP	
09/10/1955	SCCA Nationals, Road America - Race 2Prtoduction Cars	300 SL #143	O'Shea Paul	1sty	DP	
09/10/1955	SCCA Nationals, Road America - Race 2Prtoduction Cars	300 SL #92	Seaverns, IV G. A.	2nd	DP	
09/10/1955	SCCA Nationals, Road America - Race 2Prtoduction Cars	300 SL #92	Van Antwerpen Paul	3rd	DP	

09/10/1955	SCCA Nationals, Road America - Race 2Prtoduction Cars	300 SL #92	Simmons Art	4th	DP	
09/17/1955	Watkins Glenn Grand Prix - Senica Cup Race	300SL #41	Boylan Dan	1st	DP	2nd
09/17/1955	Watkins Glenn Grand Prix - Third Race Production Cars	300 SL #18	O'She Paul	1st	DP	1st
09/17/1955	Watkins Glenn Grand Prix - Third Race Production Cars	300 SL #65	Hugus Edward	2nd	DP	2nd
09/17/1955	Watkins Glenn Grand Prix - Third Race Production Cars	300 SL #248	Flynn Chet	3rd	DP	8th
10/16/1955	SCCA Nationals Hagerstown, MD -4th Race	300 SL #33	O'She Paul	1st	DP	2nd
10/16/1955	SCCA Nationals Hagerstown, MD -4th	300 SL #77	Bentley John	2nd	DP	4th
10/16/1955	SCCA Nationals Hagerstown, MD -4th	300 SL #13	Hugus Edward	3rd	DP	5th
10/16/1955	SCCA Nationals Hagerstown, MD -4th	300 SL #225	Rutherford Ned	4th	DP	13th
10/16/1955	SCCA Nationals Hagerstown, MD -4th	300 SL #188	Markelson Allen	5th	DP	14th
10/16/1955	SCCA Nationals Hagerstown, MD -4th Race Production Cars C & D	300 SL #37	Simmons Art	6th	DP	21st
10/16/1955	SCCA Nationals Hagerstown, MD -6th Race The Governor McKeldin	300 SL #33	O'She Paul	1st	DP	1st
10/16/1955	SCCA Nationals Hagerstown, MD -6th Race The Governor McKeldin	300 SL #13	Hugus Edward	2nd	DP	4th
10/16/1955	SCCA Nationals Hagerstown, MD -6th Race The Governor McKeldin	300 SL #77	Bentley John	3rd	DP	5th
10/29-30/1955	SCCA Nationals Sacramento, CA - Race 3 Class DP	300 SL #3	O'She Paul	1st	DP	1st
10/29-30/1955	SCCA Nationals Sacramento, CA - Race 5 Modified	300 SL #3	O'She Paul	3rd		5th
03/10/1956	SCCA Nationals Walterboro, SC	300 SL #0	Wallace Charles	1st	DP	1st
03/10/1956	SCCA Nationals Walterboro, SC	300 SL #43	Dungan R. C.	2nd	DP	2nd
04/21/1956	SCCA National Bebble Beach, CA - 2ndRace	300 SL #136	Settember Tony	1st	DP	1st

05/19/1956	SCCA Nartionals Cumberland, MD Novice Race	300 SL #53	Haguer A	1st	DP	1st
05/19/1956	SCCA Nartionals Cumberland, MD Novice Race	300 SL #332	Junker A. E.	3rd	DP	3rd
05/20/1956	SCCA Nartionals Cumberland, MD - 7th Race Loins Club Trophy	300 SL #233	O'She Paul	1st	DP	1st
05/20/1956	SCCA Nartionals Cumberland, MD - 7th Race Loins Club Trophy	300 SL #160	Dungan R. C.	2nd	DP	2nd
05/20/1956	SCCA Nartionals Cumberland, MD - 7th Race Loins Club Trophy	300 SL #1	Wallace Charles	3rd	DP	3rd
05/20/1956	SCCA Nartionals Cumberland, MD - 7th Race Loins Club Trophy	300 SL #53	Smidt A. C.	4th	DP	11th
05/20/1956	SCCA Nartionals Cumberland, MD - 7th Race Loins Club Trophy	300 SL #251	Baxter J. W.	5th	DP	20th
06/03/1956	SCCA National Fort Worth, TX - 3rd Race	300 SL #35	O'She Paul	1st	DP	1st
06/03/1956	SCCA National Fort Worth, TX - 3rd Race	300 SL #0	Wallace Charles	2nd		3rd
06/17/1956	Mt Equinox National Championship Hill Climb	300 SL #71	Flemming Bill	1st	DP	
06/17/1956	MT Washington National Hill Climb Class C (pluss D Prod)	300 SL #2	O'She Paul	2nd	C/DP	
06/23-24/1956	SCCA Nationals Road America - 2nd Race	300 SL #1	Wallace Charles	1st	DP	
06/23-24/1956	SCCA Nationals Road America - 2nd Race	300 SL #161	Van Antwerpen Paul	2nd	DP	
06/23-24/1956	SCCA Nationals Road America - 2nd Race	300 SL #193	Steverns Bud	3rd	DP	
07/07/1956	SCCA Nationals Beverly, MA - 5th Race	300 SL #0	Wallace Charles	1st	DP	
07/07/1956	SCCA Nationals Beverly, MA - 5th Race	300 SL #83	O'She Paul	2nd	DP	
07/07/1956	SCCA Nationals Beverly, MA - 5th Race	300 SL #71	Flemming Bill	3rd	DP	
07/20/1956	Giants Despair National Championship Hill Climb	300 SL #12	O'She Paul	1st	DP	
07/20/1956	Giants Despair National Championship Hill Climb	300 SL #85	Sharples Phil	2nd	DP	

08/12/1956	SCCA Nationals Bremerton, WA - 2nd Race	300 SL #33	O'She Paul	1st	DP	2nd
08/12/1956	SCCA Nationals Bremerton, WA - 2nd Race	300 SL #18	Clapp Jim	2nd	DP	3rd
09/2-3/1956	SCCA Thompson Nationals - 6th Race DProduction	300 SL #111	O'She Paul	1st	DP	1st
09/2-3/1956	SCCA Thompson Nationals - 6th Race DProduction	300 SL #25	Simmons Art	2nd	DP	2nd
09/2-3/1956	SCCA Thompson Nationals - 2nd Race Monday 1 hour C , D & E Production	300 SL #111	O'She Paul	1st	DP	1st
09/8-9/1956	SCCA Nationals Road America - 6 hour Race	300 SL #33	O'She Paul	1st	DP	8th
09/8-9/1956	SCCA Nationals Road America - 6 hour Race	300 SL #62	Van Antwerpen Paul	2nd	DP	11 th
09/8-9/1956	SCCA Nationals Road America - 6 hour Race	300 SL #248	Flynn Chet	3rd	DP	13th
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #35	Bates Jack	1st	DP	2nd
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #12	Clye Rudy	2nd	DP	3rd
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #166	Dickson Bob	3rd	DP	4th
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #94	Robbins Irving	4th	DP	9th
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #78	O'She Paul		DNF	
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #183	Paterson Jim		DNF	
11/04/1956	SCCA Palm Springs, CA - 6th Race	300 SL #10	Von Kaesborg Lek		DNF	
03/23/1957	SEBRING 12 Hour Grand Prix of Endurance	300 SL #18	Windridge F, Reed G,Gilbert R	25th		
03/23/1957	SEBRING 12 Hour Grand Prix of Endurance	300 SL #17	Flyn C, Huges E	33rd		
05/19/1957	SCCA Nationals Cumberland, MD - 7thRace B & C Prod (300 SL moved to CP)	300 SL #235	Butscher L	1st	CP	4th
05/19/1957	SCCA Nationals Cumberland, MD - 7thRace B & C Prod (300 SL moved to CP)	300 SL #53	Hagner A	2nd	CP	5th
05/19/1957	SCCA Nationals Cumberland, MD - 7thRace B & C Prod (300 SL moved to CP)	300 SL #248	LaPalme J	3rd	CP	6th

05/19/1957	SCCA Nationals Cumberland, MD - 7thRace B & C Prod (300 SL moved to CP)	300 SL #184	Baxter J	7th	CP	
05/19/1957	SCCA Nationals Cumberland, MD - 7thRace B & C Prod (300 SL moved to CP)	300 SL #211	Roberts S	10th	CP	
05/19/1957	SCCA Nationals Cumberland, MD - 8th Race 1 Hour Race for Sports cars	300 SL RO #30	O'Shea Paul	2nd	DS	4th
06/23/1957	SCCA Nationals Road America 4th Race	300 SL RO #30	O'Shea Paul	4th	DM	25th
07/14/1957	SCCA Nationals Marlboro, 11 th Race vender Hill MOB Trophy Race	300 SL RO #30	O'Shea Paul	1st	DS	3rd
08/17-18/1957	SCCA Nationals Montgomery, NY - 4thRace B & C Production	300 SL # 180	Carter Harry E.	1st	CP	7th
08/17-18/1957	SCCA Nationals Montgomery, NY - 7th Race Sports Cars	300 SL RO #214	O'She Paul	2nd	DS	4th
09/1-2/1957	SCCA Thompson Nationals - Race 3 B & C Production	300 SL #80	Carter Harry	1st	CP	4th
09/1-2/1957	SCCA Thompson Nationals - Race 5 Sports Cars	300 SL RO #214	O'She Paul	1st	DS	2nd
09/20-21/1957	SCCA Nationals Watkins Glen, NY Glen Trophy Race for B & C Production	300 SL # 80	Carter Harry E.	1st	CP	4th
09/20-21 /1957	SCCA Nationals Watkins Glen, NY Grand Prix Race for Sports Cars	300 SL RO #30	O'She Paul	1st	DS	3rd
09/28-29/1957	SCCA Nationals Bridgehampton, NY 3rd Race B & C Production	300 SL # 80	Carter Harry E.	1st	CP	
09/28-29/1957	3rdSCCA Nationals Bridgehampton, NY 3rd Race B & C Production	300 SL #109	Aaskov Floyd	2nd	CP	5th
09/28-29/1957	SCCA Nationals Bridgehampton, NY 7th Race for Sports Cars	300 SL RO #30	O'Shea Paul	2nd	DS	7th
10/27/57	SCCA Nationals VIR, VA 3th Race b & CProduction	300 SL # 80	Carter Harry E.	1st	CP	3rd
10/27/57	SCCA Nationals VIR, VA 3th Race b & C Production	300 SL #72	Aaskov Floyd	DNF		

11/03/1957	SCCA Nationals Palm Springs, CA- 4th Race B, C & D Production	300 SL #112	Atkins Bill	DNF		
11/03/1957	SCCA Nationals Palm Springs, CA- 4th Race B, C & D Production	300 SL #213	McQuilkens Donnald	DNF		

Key

DNF Did Not Finish

CP SCCA C Class Production

DP SCCA D Class Production