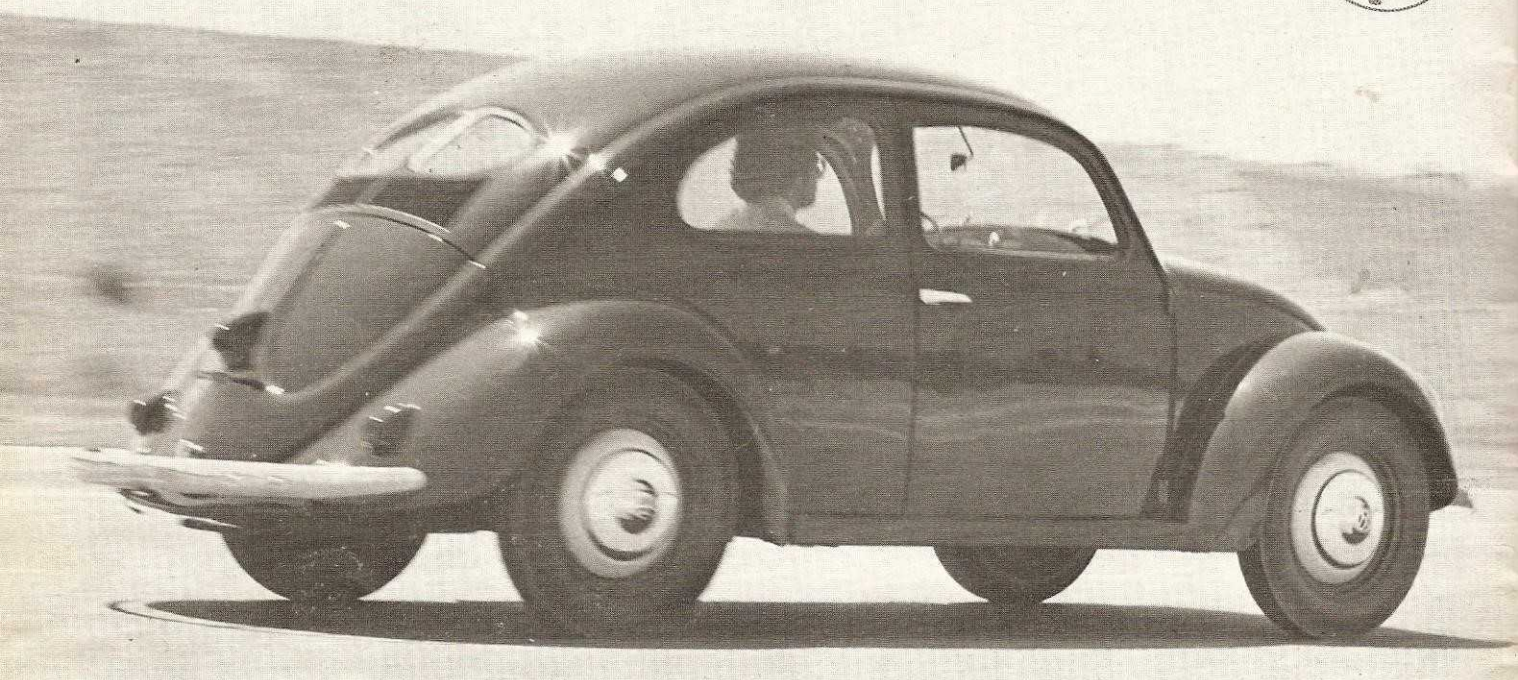
The VW exerted a tremendous influence on the American driving public and on Detroit. It put the small car in demand for the first time ever in this country. It showed that little cars don't have to be flimsy, that quality doesn't have to be expensive, that honesty in auto design* can *be the best policy.

drive report



by Dan R. Post

SPLIT-WINDOW VOLKS

LATE IN NOV. 1930, a small notice appeared in the *Stuttgarter Zeitung* announcing a new engineering development company: Dr.-Ing. h.c. Ferdinand Porsche, G.m.b.H., Konstruktionsburo fur Motoren-, Fahrzeug-, Luftfahrzeug- and Wasserfahrzeugbau.

The public took little notice, but in the next few months, Porsche and his staff would create the basic small car design that was ultimately to affect the life of every German *Burger* from that day to this one; also quite a few Americans.

Dr. Porsche had long yearned for his own independent firm and knew he'd have to put together a good staff. He'd held discussions in 1929 with his friend at Austro-Daimler, Karl Rabe, and Rabe agreed without hesitation to join Porsche as head designer. He and Porsche then brought in Adolf Rosenberger, an auto racing enthusiast and experienced businessman, to take care of the financial end of the venture.

Porsche's staff was soon complete—nine men in all, including Joseph Kales, an expert on aircooled engines who'd previously worked for Tatra and Skoda; Erwin Komenda, the body designer who eventually styled the postwar Porsche 356 sport car; Porsche's son Ferdinand (Ferry); Karl Frohlich, specialist for gearbox development; his personal driver, Goldinger; and a tightly knit trio of additional engineers and designers who followed him from Steyr and Austro-Daimler: Josef Mickle, Xaver Reimspiess, and Josef Zahradnik.

The Porsche engineering offices opened their doors officially at Kronenstrasse 14 in Stuttgart on Dec. 1, 1930. Dr. Porsche began numbering his projects with the numeral seven. The most important design to emerge from this early period was Project 12, which became—in time—the Volkswagen Beetle.

Porsche personally favored large cars, but he'd long been intrigued by the problems of small-car design. In the mid-1920s, he had seen and would be greatly influenced by the ideas of a young Bohemian engineer who was then studying in Vienna—Bela Barenyi. Barenyi's original layout of the mid-1920s anticipated the VW's engine, engine placement, chassis design, and body configuration.

In Europe in 1931, motorcars were still largely rich men's toys. Even in the best of pre-Depression years, the average European's income was lower than the average American's. Ford put the U.S. on wheels, but no one had yet done that for Europeans. So as Dr. Porsche pondered a car for the masses, he realized it would have to be light, simple, easy to produce in great numbers, roadable and durable enough to suit the roads on the Continent which, at that time, still reflected the horse and wagon. The famous German *Auto-*

About the author: Dan Post is a pioneer auto editor and book publisher. His *The Classic Cord, Model T Ford in Speed and Sport,* and *Rolls-Royce, the Living Legend* have become classics in their own rights. This article is based on his 1966 book, *Volkswagen, Nine Lives Later,* available for $25 from Post Era Books, 125 S. First Av., Arcadia, Calif. 91006.

bahnen were still a number of years away.

Porsche decided to go to a rear engine in order to avoid using a long driveshaft. He also did it to save weight, give passengers more interior spaciousness, and to allow easier mass production. But to fight tail-heavy weight distribution, the engine had to be light. Aluminum and magnesium castings gave him his light weight and also allowed air-cooling, which did away with the radiator and any worries of freezing in winter (most Europeans didn't have garages and weren't likely to get them). An Opposed 4, with its short crankshaft, seemed the logical answer. This type of engine, too, could be easily integrated with an aluminum-cased transaxle assembly.

The use of a conventional frame was out of the question: too high, heavy, and space-consuming. So he settled on a platform chassis with outriggers from a central backbone and an integral floor. Suspension would be by swing axles in the rear, with transverse torsion bars front and rear. The Beetle was beginning to take shape.

Porsche began trying to sell his ideas to various German automakers, and word soon spread through the industry that he had an interesting new design in Project 12. Due to the Depression, business everywhere was in a serious slump, but even so, Porsche picked up an important contract from the Wanderer Company in Chemnitz. Wanderer later became one of four firms to organize as Auto Union. Porsche sold Wanderer first on his Project 7, which Wanderer eventually put into production in 1.7- and 2-liter form.

At the same time, Porsche's organization also developed a larger, streamlined, very advanced 3.25-liter front-engined prototype for Wanderer—a fastback 2-door that Wanderer did not accept. This 3.25-liter, one-off prototype became Porsche's personal car, and he drove it for many years. Its body lines served as inspiration for his next project, which involved Zundapp.

Dr. Fritz Neumeyer, head of the Zundapp Motorcycle Co. in Nuremberg, felt the urge to diversify, so he directed Porsche to build three small-car prototypes. Instead of using an aircooled Flat 4, though, either Neumeyer or Porsche evolved the idea to try a radial, water-cooled 5 in the rear.

The Zundapp protos looked very much like sawed-off versions of Porsche's personal Wanderer 3.25. They were built after hours in total secrecy. Zundapp supplied most of the mechanical parts, while the Stuttgart coachbuilding firm, Reutter, put together the aluminum-over-wood bodies. The three Zundapp *Volksautos*, as they were called, were ready for testing in Apr. 1932.

Initial trials showed up a number of major flaws. Transmissions and torsion bars broke on several occasions. The radial engines overheated and proved hard to work on. At that point, Zundapp's future looked rosier in motorcycles, so Neumeyer, in order to terminate his agreement with Porsche ahead of time, released all rights to the *Volksauto* to its creator. This meant that Porsche was free to go ahead with Project 12 for other clients.

AFTER LOSING Zundapp's backing, Porsche approached NSU, another German motorcycle firm. Porsche showed drawings and models to NSU's managing director, Fritz von Falkenhayn, but suggested replacing the Radial 5s with Flat 4s. Herr von Falkenhayn agreed to finance and test three more prototypes. Porsche revised his Type 12 design extensively, renaming it Type 32. Prototype construction got under way in Jan. 1934.

Meanwhile two very strange happenings befell Dr. Porsche. First, largely on the strength of Porsche's success in designing racing cars, the Russian government invited him on a personal, 3-week guided tour of the U.S.S.R.'s major factories and technical centers. The Russians wined and dined Porsche, rolled out every available red carpet, and treated him with the greatest courtesy. Porsche felt the tour might end with the Bolsheviks inviting his engineering firm to bid on some specific contract; perhaps a "people's car" or something to do with auto racing. Nothing, though, could have been further from the Russians' mind.

Instead, at the tour's end, the Russian government announced that it wanted Porsche to accept the title "State Designer and Engineer of the U.S.S.R.". He was to be in charge of all engineering and technical projects for the entire nation. He could name his own price and terms. Porsche politely declined and boarded the next train back to Germany.

The other strange event that befell Porsche took place in Berlin at an engineering confederation meeting in 1933. Adolf Hitler had just come to power and announced his plans to create the *Autobahnen*—the world's most modern network of public highways—and also a *Volkswagen*, or people's car, whose price would be within reach of the average German working man.

At the Berlin engineering meeting, one of Hitler's representatives asked the confederation to name an engineer who could develop a *Volkswagen**. According to the German auto historian, Erik Eckermann, "Somebody foolish got up and mentioned three names: Joseph Ganz, Edmund Rumpler, and Ferdinand Porsche. There followed an icy silence, because Ganz was a Jew, and so was Rumpler. That left Porsche."

In the autumn of 1933, one of Hitler's closest confidants, Jacob Werlin, who was then with Daimler-Benz, visited Porsche's office in Stuttgart. Through Werlin's influence, Hitler called Porsche to Berlin for a secret meeting. Hitler instructed Porsche at this meeting to prepare a memorandum for the government, describing his ideas of small-car design.

In that same meeting at the Kaiserhof Hotel in Berlin, Hitler expounded his own 5-point concepts of what the *Volkswagen* should be:

1) Speed—100 kph (62 mph) cruising.

2) Economy—approximately 33 mpg and good economy of repair.

3) Space—seating for 4-5 persons. "We cannot separate the children from their parents," said Hitler.

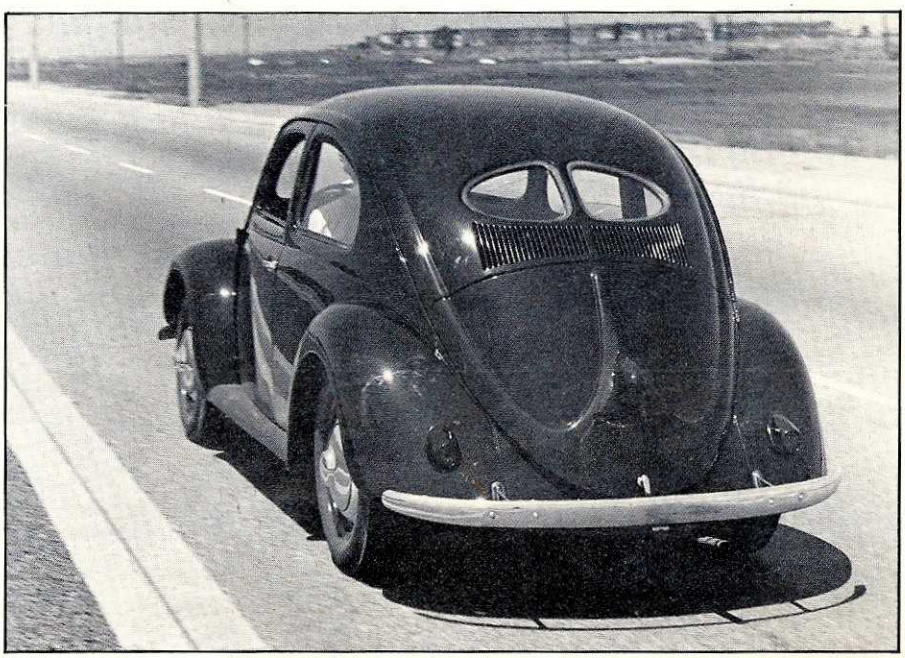
4) Aircooling—because of the lack of garages in Germany.

5) Price—less than RM 1000 ($250 U.S. currency).

HITLER MIGHT WELL be called an auto enthusiast of sorts. He rarely missed a Berlin motor show and sometimes attended the Paris and London shows as well. His preference for large, impressive Mercedes wasn't accidental.

Even so, he was a politician first and foremost, and instead of promising a Depression-dazed Germany a chicken in every pot, he promised them a car in

*The word *Volkswagen* means "people's car" in German and, despite being capitalized, is a generic term. It didn't become a trade name until just before WW-II.



Notch beneath 1946 Volkswagen's bumper guides crank. Both the front and rear handles lock. Early VW's nipple hubcaps, which were chromed, and 16-inch wheels are extremely rare today.

every family. He soon began to repeat his *Autobahn* and *Volkswagen* messages so often and in so many forms that he would eventually have to come through with some sort of hardware.

Another favorite promise of *der Fuehrer* was that Germany's prestige would be upheld in international auto competition. This became a further reason for calling Porsche to Berlin. From the same Kaiserhof Hotel meeting came Hitler's commitment to the Nazi-backed Auto Union racing cars, which Porsche had designed on his own initiative earlier in 1933.

Porsche's Auto Union GP car had a 45° V-16 of 6010cc, 520 bhp supercharged, giving a top speed of 182 mph at 4500 rpm. The engine stood at the rear, with suspension via torsion bars, similar to the *Volksauto*. After Porsche turned over the design, Auto Union built and raced the car. The international racing formula from 1932 to '37 allowed any engine of any size and design so long as the total car, dry and minus tires, didn't weigh more than 1650 pounds. Auto Union continuously improved Porsche's design during those four years and did exceedingly well in Grand Prix and hillclimbing competition on the Continent. Auto Union even brought the car to America for the 1937 Vanderbilt Cup race, which Bernd Rosemeyer won. After 1937, the international GP formula changed and this car was retired.

Porsche, meanwhile, stayed hard at work with his NSU *Volksauto* project. The three NSU prototypes were larger and roomier than those built for Zundapp, and instead of a platform chassis they used a more conventional box-member frame. With its aircooled Flat 4 in the rear, though, its alloy-cased transaxle, 4-wheel-independent trailing arm torsion-bar suspension, and rounded body, the NSU Type 32 prototypes began to take the shape of the now familiar Beetle.

Designer Erwin Komenda was reputedly responsible for the body styling. The first two NSU prototypes were bodied by Drauz of Heilbronn, using the Weymann technique: artificial leather over a wooden superstructure. The third car had an all-steel body by Reutter.

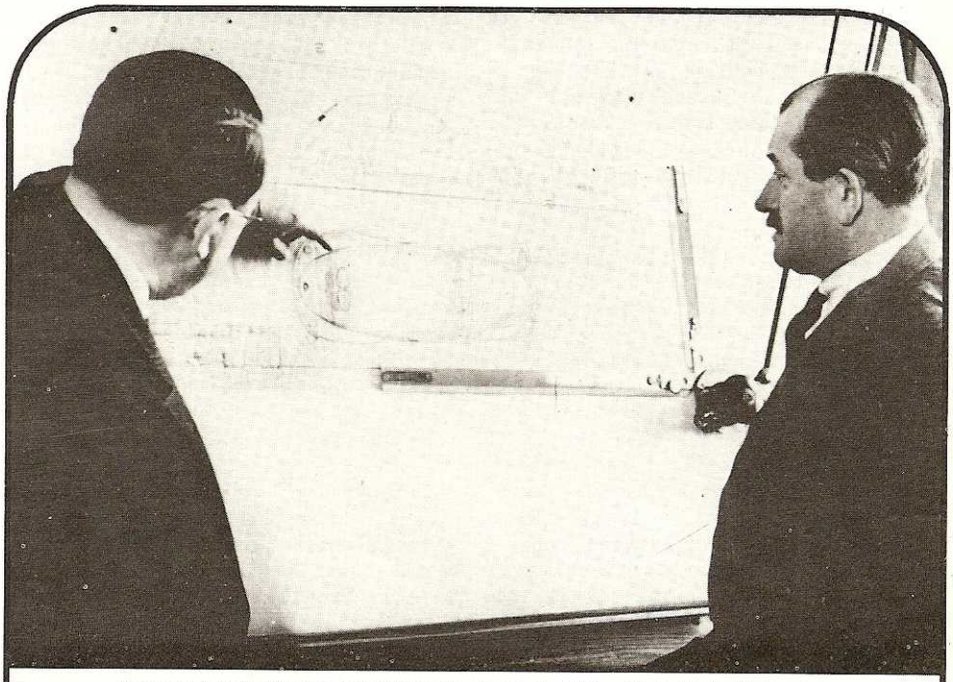
As an aside, the Reutter-bodied NSU prototype, after extensive manhandling through testing, was mothballed in 1940 in a remote and overgrown shed in the Hohenlohe area of southern Germany. It survived the war, and one day in 1945 an NSU employee unearthed the car, got legal ownership, replaced the broken headlights, battery, and tires, and began driving it, running the odometer up to over 200,000 miles. He eventually sold it to VW, which owns it to this day.

NSU and Porsche tested the three new protos in 1934 and found them quite successful. Excessive engine noise turned out to be the most severe complaint. "It sounds like a worn-out stone crusher," remarked NSU head von Falkenhayn. But it held the road well, was comfortable, and promised inexpensive quantity production.

But even after all that, Porsche's NSU deal came to naught. Reason: Fiat of Italy had entered an agreement with NSU in 1930. NSU agreed to turn its auto department over to Fiat and to build only motorcycles. In return, Fiat would construct a factory in Heilbronn and would make cars there under the name NSU-Fiat. Under this agreement, NSU had to give up its small-car idea and settle financially with Porsche.

AT THE NEXT Berlin Auto Show in Mar. 1934, Hitler made another of his by-now-ritual political speeches. This time he irrevocably committed himself and the German motor industry to an affordable automobile for the masses.

"It is a bitter feeling to know that millions of good, industrious, and able



Ferdinand Porsche (right) reviews VW sketches in the late 1930s with Karl Rabe, his top aide.

FERDINAND PORSCHE was born on Sept. 3, 1875, in the small Bohemian town of Maffersdorf, now a part of western Czechoslovakia. His father was a master metalsmith.

Young Porsche developed two strong interests: electricity and motorcars. At 17, he built an electric lighting plant in his father's shop, and he earned pocket money by building and installing electric doorbells and telephones in the homes of neighbors and friends.

He apprenticed in his father's shop and later attended the Technische Hochschule *(technical institute) in nearby Reichenberg. He designed two electric cars during this period but had no facilities to build them.*

In 1893, aged 18, he moved to Vienna, where he finished high school and began to attend classes at the university. He also held down a job with an electrical engineering firm.

Vienna at that time stood out as an important European center of technology, including the then new automotive technology. Porsche got his first chance to observe and study early cars there. He decided that autos were what he wanted to be involved in.

So in 1898, Porsche took a position with Ludwig Lohner, a Viennese coachbuilder who'd just established an automotive department. Porsche became Lohner's chief auto designer.

His first vehicle, the electric Lohner-Porsche chaise of 1900, became Austria's only exhibit in that year's Paris World Exposition, and it won great praise. Porsche later built a hybrid gasoline/electric version that could do 60 mph in 1901.

Porsche always showed great interest in racing, and in 1906 he became technical director of Austro-Daimler, where he remained for 17 years and developed a number of successful racing models. The Maja series did especially well and won 1-2-3 in the 7-day Prince Henry tour of 1910.

While with Austro-Daimler, Porsche also developed an aircooled Flat 4 for aircraft use. This engine perhaps was to influence his later thinking with the Volksauto's engine.

After WW-I, Austro-Daimler began to slide. In 1923 Porsche went to Daimler Motoren in Stuttgart, where he built a number of additional successful production and racing models. He received two honorary university degrees during this period.

In 1926, Benz merged with Daimler, and Porsche created the famous Mercedes S, SS, and SSK series. He also began work on a small-car project that eventually became controversial, causing Porsche to leave late in 1928. He joined the Steyr works the next year, engineering a number of 2.0- to 5.3-liter cars. When Steyr's fortunes also became shaky, Porsche resigned. His own engineering firm was then opened in Stuttgart.

Our driveReport tells the rest of the story. After WW-II, Dr. Porsche found himself in the French zone of occupation and was asked to advise on the Renault 4CV. He brought out the Porsche 356 sports car in Mar. 1949 and died on Jan. 30, 1951. □

people are excluded from the...transportation that could become for them a source of unknown joy, especially on Sundays and holidays. The problem is one that will be attacked with courage, boldness, and determination. What cannot be accomplished in one year will, perhaps, be taken for granted in 10 years," orated Hitler.

His words resounded among the working classes as the promise for a brighter future—a change in outlook from defeat and the Depression to hope and prosperity.

But to the *Reichsverband der deutschen Automobilindustrie* (Society of German Automakers), Hitler's words boded confusion. German vehicle manufacturers didn't see how a car could ever be produced inexpensively enough for the middle classes, much less for the great mass of German workers. The RdA regarded Hitler's promises as so much political propaganda, and no one seriously suspected the development of a *Volkswagen* would soon be included in the official Nazi government budget.

Porsche, too, was beginning to wonder whether *der Fuehrer* was simply blowing smoke. The Nazi minister of transport told Porsche after the 1934 Berlin auto show that there would be a delay in the small-car project. For one thing, Porsche had projected his Type 12 at a suggested price of RM 1500 ($375), which Hitler considered too high. The minister suggested to Porsche that he try to bring down the price.

Werlin re-established contact with Porsche in June 1934, about-facing once again and giving Porsche a definite go-ahead for development. Hitler, he said, would solve the cost problem in an "administrative" way.

Various German automakers were then called on to supply components for a car to be designed specifically by Porsche. Official sponsor of this project was to be the RdA itself—the Society of German Automakers.

Porsche's immediate task was to build another trio of prototypes. The RdA authorized a token budget of RM 200,000 ($50,000 U.S.), which was totally ridiculous, and to add insult to injury, they stipulated that the prototypes be finished within 10 months. Despite a hopeless outlook, Porsche determined to try; he set up a workshop in his garage in Stuttgart to begin work on "VW Series 3." Actually, what he intended to do was simply refine his design of the Zundapp and the NSU *Volksauto*.

By the time Hitler spoke at the 1935 Berlin auto show, his dream had taken some semblance of form. He talked mostly about Dr. Porsche's progress and gave out tidbits of the car's details—its rear engine, aircooling, etc. And while the usual cheers came from the Nazi party regulars, those inside the German auto industry became more antagonized and antagonistic. As he droned on and on about his favorite project, the word *Volkswagen* became more common. The German people picked up the name and eventually planted it on the car itself.

DR. PORSCHE and his small staff of engineers, including Rabe, Kales, and Ferry, concentrated only on the Volkswagen's technical aspects now, not concerning themselves with politics. Design and construction of the three original protos dragged on beyond the specified 10 months. Porsche, fully aware of the bad feeling his project was causing in the auto establishment, wanted to be sure his VW Series 3 "mules" would stand up when they were handed over to the RdA for testing.

Twenty-eight months after Porsche got the go-ahead, the three cars were presented to the RdA, on Oct. 12, 1936. The industry insiders immediately dubbed these cars "the ugly ducklings."

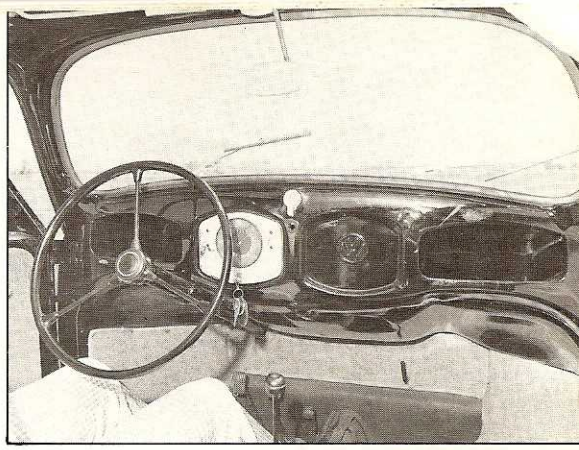
Testing started right away, with around-the-clock runs of 30,000 miles. Emil Vorwig, technical director of the RdA, interpreted the test results thusly: "On the whole, the test cars proved themselves on the 50,000-km trip. The structure proved itself suitable, the faults and shortcomings discovered are not of a basic nature and can presumably be corrected without great difficulty. Certain components, such as the front axle and brakes, require more testing for their further development. Gas and oil consumption falls within acceptable limits. The driving capabilities and characteristics of the car are good. The Volkswagen shows attributes which recommend further development."

One concern, though, was the car's weight. To conform to Hitler's requirement, inexpensive cast iron would have to give way to expensive alloys. It was hard to believe the People's Car could be sold for anything like RM 1000.

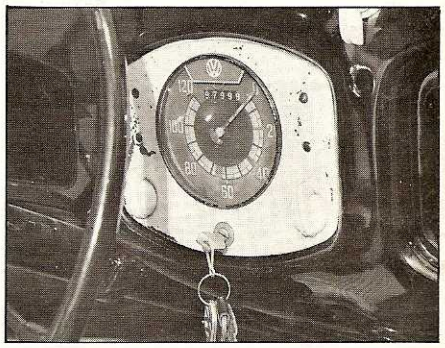
Quite reasonably, too, the German auto industry wanted no further part in the Volkswagen's development. The VW could presumably put a number of them into very uncompetitive circumstances, especially makers of economical small cars. Their reluctance became apparent even to Hitler.

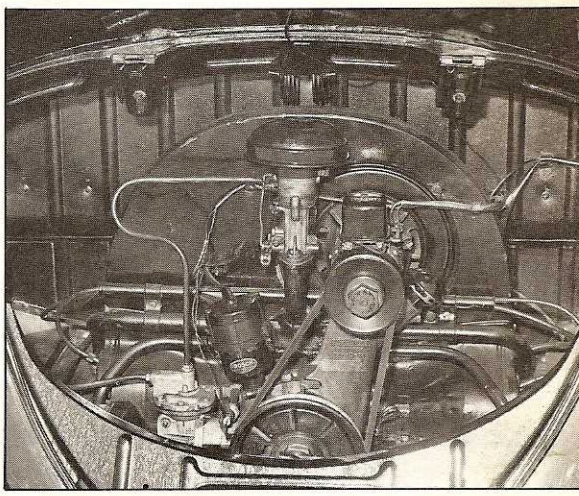
At the 1937 Berlin auto show, Hitler ogled the new models with his entourage of Nazi bigwigs. They stopped at the Opel exhibit and were warmly greeted by Herr von Opel himself, who directed Hitler's attention to Opel's latest projected econocar. A card on the car read RM 1400. Smiling good-naturedly, Herr von Opel said innocently, "*This* is our *Volkswagen*." Or was it innocently? *Der Fuehrer* couldn't be sure Opel wasn't baiting him. So a few days laters, the government passed some new laws restricting the distribution of iron and steel. Although no specific mention was made, every subsequent application by Opel for steel to build the small car was refused, and Opel's RM 1400 *"Volkswagen"* saw very curtailed production.

AT THIS POINT, Hitler realized he needed a separate state company to see the Porsche VW Type 3 into production. He and Robert Ley, head of the German labor ministry, discussed all the VW data. A government-owned company was chartered to perfect the VW design and to build factories. The project was financed

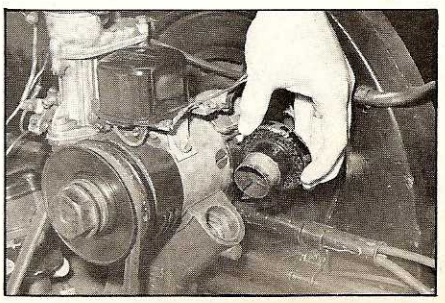


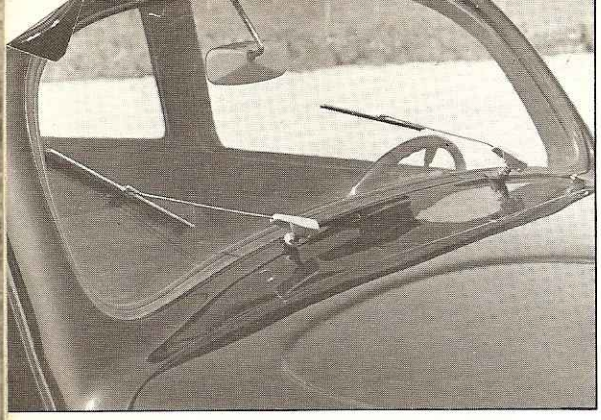
Above: *Twin, door-less gloveboxes flank dashboard. Mirror and visors are from 1949 VW. Lever on firewall lowers gas inlet inside the tank to give one more gallon's driving. VW shunned gas gauge until 1962. Instrument panel could be fitted into right-hand pod for British conversions (Wolfsburg was in Germany's British sector after the war).* ***Below:*** *Speedo dominates dash, with two idiot lights on either side plus switches for lights, wipers. Starter button lurks beneath center of dashboard.*



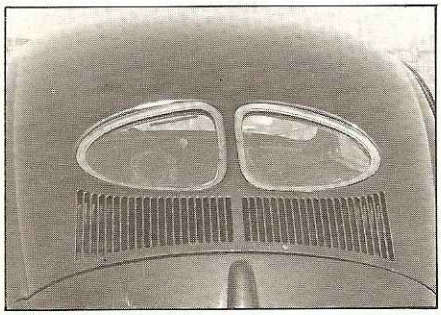


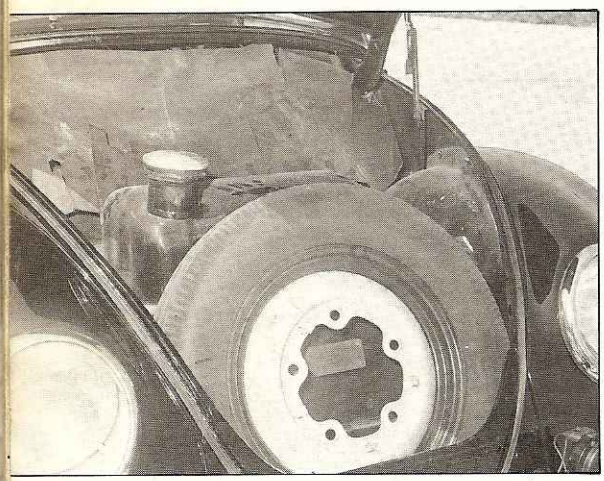
Above: *Uninsulated engine compartment and unitized body makes for plenty of noise inside car. This 1946 engine delivers 24 bhp. It was raised to 25 the next year, then 30 in 1948 and 36 in 1954.* ***Below:*** *Generator bracket doubles as the oil filler.*



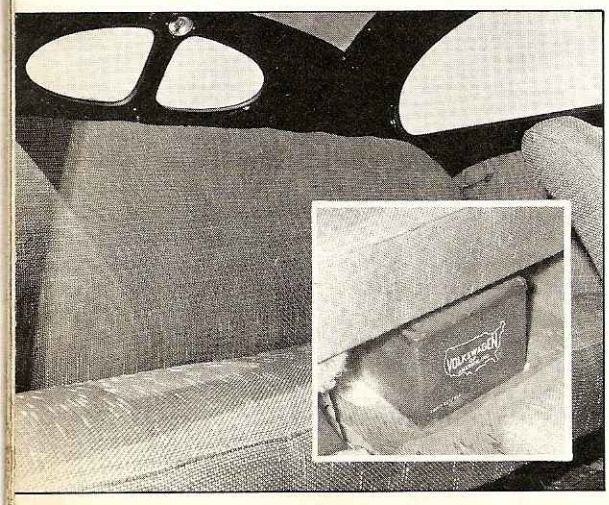


Above: *Thick windshield pillars cut front visibility.* ***Below:*** *Nor is it an easy task to see out the back. Huge blind spots were a hazard.*





Above: *Tall gas tank cuts into cargo space, and hood has to be raised to fill it. Headlights are from later VW.* ***Below:*** *Durable, ugly upholstery material has a certain grip to it, keeps riders from sliding around in turns.* ***Inset:*** *One of the VW's lesser pleasures is checking the battery. Seat bottom lifts for access.*



Split-Window Volks

continued

from the treasury of the *Deutsche Arbeitsfront*, the Nazi party labor organization.

Porsche was installed at the helm of the new VW development company in Feb. 1937, with Werlin and Dr. Bodo Lafferentz as board members. Encouraged now for the first time by secure financial backing, Porsche set out to perfect the VW with new vigor.

Thirty ugly duckling prototypes stood ready later that year, thanks to help from the Daimler-Benz shops. This improved design was called the VW Series 30. A crew of 300 German storm troopers, chosen at random, carried out punishing trials of the 30 to uncover flaws as quickly as possible.

The test cars covered a total of 1.2 million miles, all told, under all driving conditions. They swarmed over the newly completed *Autobahnen* and raced around the Alps and Germany's back roads. There was no budget ceiling by this time, and expenditures ran into millions of *Reichsmarks*. The cars themselves, though, emerged from the ordeal in fine fettle. The Volkswagen came through as a producible, practical car.

PORSCHE HAD COME to the United States in 1936 to study production methods. He visited, among other places, the Briggs Mfg. Co. in Detroit and most likely talked with John Tjaarda, who'd long been an advocate of rear-engined cars. Porsche also went to Ford. On his next trip to Detroit in 1938-39, he talked with Henry and Edsel. Porsche also began recruiting engineers of German ancestry on this second visit to the U.S. to help set up his factory in Wolfsburg.

Another company Porsche visited was Doman & Marks in Syracuse, N.Y. Doman & Marks formerly were Franklin engineers who were developing aircooled engines independently and who were at that time working on the Airomobile's Flat 4 along with a similar design that later became the White Horse truck engine. Joseph Kales spent 10 days in Syracuse studying fans, shrouds, finning techniques, and head attachments. How much Briggs's body methods and Doman & Mark's aircooling affected Porsche isn't recorded.

The Wolfsburg factory came about in a way that only the Nazi party could perpetrate. Ley and Lafferentz studied maps for the best access by rail and water. Choosing lower Saxony as the general locale, they flew over the area in a light plane, finally pinpointing a 20-square-mile site taking up most of the estate of Count von Schulenburg (and surrounding the 14th-century Wolfsburg castle). This land was unceremoniously confiscated by the Nazis. Hitler attended the laying of the cornerstone on May 26, 1938.

The job of designing the huge plant first was assigned to the architectural department of the University of Braunschweig, but later, through the efforts of Werlin, the project got reassigned to Peter Koller, an obscure Augsburg city engineer. Consultant to Koller was his teacher and Hitler's favorite architect, inspector-general of building, Albert Speer.

The factory was to be built on a scale unheard of in all Europe. All the resources and energy of the Third Reich went into its construction. The first cars were to be produced by late 1939, with 100,000 slated for 1940 and twice that number for 1941, then soon reaching 450,000 annually "after the coming victory over the plutocrats," said Robert Ley.

Hitler approved Koller's plans early in 1938, and construction started as soon as materials hit the site. Koller, meanwhile, drew up plans for the city of Wolfsburg, which called for community housing for 15,000 families. By the beginning of WW-II, 2500 units had been completed. (The war prisoners who worked in the factory during hostilities, though, were housed in semi-permanent barracks.) Ironically, many of the large machine tools used to equip the Wolfsburg plant had been purchased in the U.S.

EVEN AS WOLFSBURG was being built, Porsche and his staff continued to improve the *Volkswagen*. The Series 30 gave way to the Series 38, which Hitler (and Porsche) finally approved for production.

Aircooling had proven Porsche's toughest obstacle. In the Series 30, Porsche changed the air intake from the sides to the rear, but the louvers were so large they took up the space of the rear window. Extensive testing and development finally brought about a blower that needed less intake surface. By rearranging the ducting and moving the gas tank up front, Porsche's staff once again put in a rear window.

The pronounced beetle-like styling, which had been developed somewhat around the high louvering at the rear, could now be softened and refined. Body changes at this time included front-hinged doors and larger rear side windows. From these changes in the Series 30 evolved Model 38, designated by the year of its development. This design was destined to remain virtually unchanged in its overall concept for more than a generation to come.

With the design frozen in 1938 and the factory well toward completion, the Nazis set up a pilot assembly line and handbuilt a few Model 38s. Most of these found their way into the hands of top-ranking Nazis.

At this time, too, the Nazis began advertising, propagandizing, and actually selling the VW. The car was publicized to the Germans as the *KdF*, the letters standing for *Kraft durch Freude* (strength through joy), which was a slogan of the Nazi labor front. Nameplates and hubcaps, advertising logos and signs were being prepared with the *KdF* insignia, but it soon became apparent that no one liked this designation for the car. The name *Volkswagen* had been associated with it for too long a time. It had a natural ring and lent itself nicely to abbreviation (VW is pronounced *fow-vay* in German). So the

Volkswagen became the Volkswagen at last.

The Nazis launched their first auto sales campaign with full party fanfare, even to the issuing of postage stamps. The stamps showed a typical German family rushing along an *Autobahn* in their new VW.

The Nazi purchase plan also involved stamps, but of another sort: savings stamps. The Nazi labor organization, directed by Robert Ley, established a savings plan the theoretically let the average German worker buy a new VW by buying a weekly minimum of RM 5-worth of stamps. VWs weren't for sale through normal dealers, nor could cars be bought for cash; only through the government's savings-stamp plan. And the money raised this way wasn't put into armaments nor into the Wolfsburg factory but rather, so the story went, was set aside in a special account and kept intact. No interest was paid to VW stamp holders, though.

People began buying stamps, but even before normal production could roll in Wolfsburg, the Nazi government siphoned off steel and raw materials for the war effort. Civilian auto assembly never really got going, yet more than RM 280-million—an average of RM 400 per cardholder—came into Nazi coffers through the VW stamp program. And while the national VW enthusiasm seemed to support the car, critics called it a Nazi con game, saying the cars would never be delivered. They weren't, of course, but the Germans could see thousands of military VWs emerging from the Wolfsburg plant during the war.

After the war, those stamp buyers who survived organized and pressed claims against the postwar Volkswagen organization. German courts tossed these claims back and forth for 12 years, generally summarizing that cardholders weren't entitled to either cars or money.

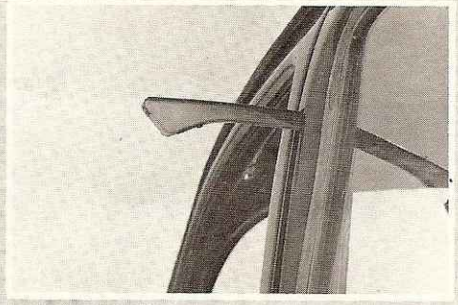
But even so, in 1961, the Volkswagen management took it upon themselves to honor the ancient stamps. Cardholders would receive a DM 600 credit toward a new VW or DM 100 in cash. This turned out to be quite generous, because the original RM 1000 exchanged to DM 100 at the going rate.

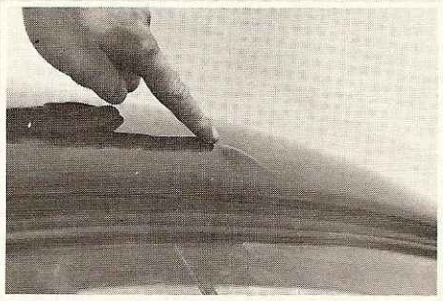
AFTER THE WAR, Wolfsburg ended up in the British zone of occupation. The factory had been badly bombed, but the British, needing cars for themselves in Germany, helped to rebuild the plant and eventually got it turning out cars. Production started in early 1946, and that year about 9000 VWs got built, most going to the British military.

Later the British occupants began putting some cars up for sale. They were quickly grabbed by British and American troops for their personal use, and a few were also exported to Holland. Payment had to be made in cash.

In 1947, the British began a search for a qualified leader who could bring VW into the world market. They found their man in Heinz Nordhoff, previously with Opel, who stayed with Volkswagen through the fantastic expansion it enjoyed through the 1950s and '60s.

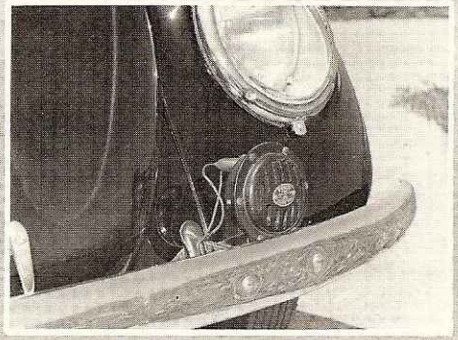
continued

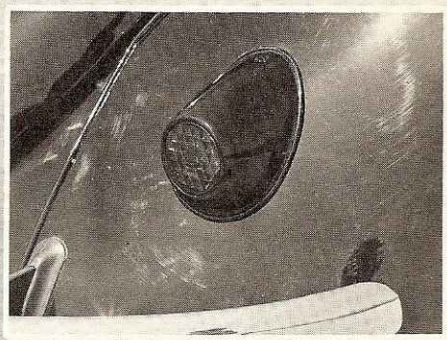




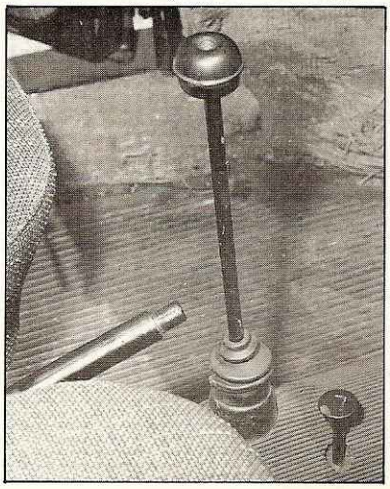
Left: *Turn-signal flippers carry bulbs inside, are activated by a switch on the center of the instrument panel.* ***Right:*** *When the car's equipped with a radio, here's where the antenna goes on the roof.*

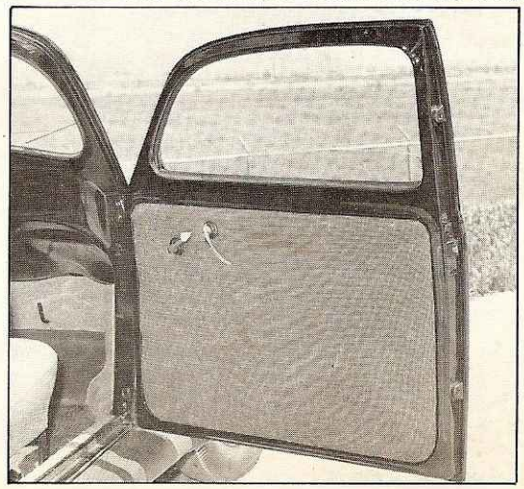
Veedub's acceleration has to be described as leisurely, and non-synchro trans takes some pampering. ***Below left:*** *Horn was later recessed behind its oval grille in fender.* ***Below right:*** *Tiny, hard-to-see tail lamps were enlarged, re-enlarged, and raised in subsequent models.*





Below left: *Gearshift knob has VW emblem surrounded by a cog: Nazi workers' symbol. Choke stands beside shift lever.* ***Below right:*** *Window crank takes 10.5 turns to roll from shut to open.*





Major Model-Year Changes Volkswagen, 1949-77

1949—Outside hood release replaced by under-dash pull cable; instrument panel redesigned and set into one gauge in front of driver; no more crank hole; Solex carb becomes standard; VW convertible and transporter bus introduced.

1950—Hydraulic brakes replace mechanicals; ashtrays added front and rear; heater made quieter; heat-riser added; sunroof added.

1951—Kick-panel vents added for 1951 only; chrome windshield molding and Wolfsburg hood crest added.

1952—Synchro added to 2-3-4; ventipanes added; twin combination brake/tail lights added (previously one fender lamp and stop light in deck); rotary heater knob replaces pull type; T decklid handle replaces loop type; dash bin gets d0or; window cranking reduced from 10 1/2 to 3 1/2 turns; turn signal switch moved from dash to steering wheel; 5.60x15 tires replace 5.00x15.

1953—Split rear window gives way to oval; ventipanes get lock button; brake fluid reservoir moves from master cylinder to spare tire well.

1954—Keyturn starter replaces pushbutton; engine displacement raised from 1131cc to 1192cc, power from 30 to 36 bhp; no more top window in tail lights; oilbath aircleaner replaces felt element type; 3-way domelight added; no more engine break-in.

1955—Fender-mounted directional flashers replace semaphores.

1956—Bumper overriders and twin tailpipes added; tail lights moved up two inches on rear fenders; new steering wheel; redesigned gas tank gives more underhood space; front seatbacks now adjustable; nylon sunroof fabric replaces cloth; heater knob moved forward. Karmann-Ghia introduced.

1957—Doors get adjustable strikers; tubeless tires; front heater outlets moved rearward.

1958—Windshield and back glass enlarged; front turn indicators atop fenders; radio grille now ahead of driver; flat gas pedal replaces roller; bigger brakes.

1959—Chassis reinforced; improved fanbelt and clutch.

1960—Pushbutton door handles replace pull type; padded visors; plastic headliner replaces mouse hair; dished steering wheel and steering damper added; contoured seatbacks.

1961—Synchro on low; power from 36 to 40; passenger sunvisor and grab handle added; automatic choke, transparent fluid reservoirs, pump-type windshield squirter, automatic choke, sidemarker lights, non-repeat starter switch added. VW Type 3 introduced at Frankfort Auto Show.

1962—Tail lights enlarged; gas gauge replaces fuel reserve tap; hood spring-loaded; 3-point seatbelt mounts, heater outlet sliders added.

1963—No more Wolfsburg crest; sunroof handle folds flush; leatherette headliner; foam-insulated floor.

1964—Perforated vinyl upholstery replaces leatherette; cranked steel sunroof instead of sliding fabric; horn half-ring replaced by thumb buttons; larger rear license light.

1965—Bigger side windows; no more locking decklid; thinner front seats; heater knob replaced by levers; more heat volume; pivoted sunvisors; flat-folding rear seat.

1966—Horsepower from 40 to 50; 1300 on decklid; wheels revised; flat hubcaps; half horn ring re-introduced; headlight dimmer on steering column; center-dash defroster outlet.

1967—Horsepower from 50 to 53; displacement from 1300 to 1500; glass headlight covers removed; parking lamps in turn signals; backup lights added; "Volkswagen" in script on decklid; locking door buttons; dual brake system; electrical system from 6 to 12 volts.

1968—Single-bar bumpers; bigger tail lights with integrated backup lamps; external gas filler; cowl air inlet; hood release moved outside; flatter door handles; sarcophagus seatbacks; collapsible steering column; automatic stick shift optional.

1969—Swing axles give way to true independent rear suspension; hood release moves inside glovebox; rear-window defogger/defroster added; inside gas-door release; lock on steering column; day/night rearview mirror standard; symbol dashboard identifiers.

1970—VW diagnosis and maintenance program introduced.

1971—Super Beetle introduced with coil-spring front suspension, larger trunk; VW Type 4s debut; computer-analysis plugs installed in final 6 months of 1971 production.

1972—Inertia-reel belts, energy-absorbing steering wheels added.

1973—Beetle breaks Model T Ford's production record. "The Thing" introduced; 5-mph bumpers debut.

1974—VW Dasher bows.

1975—VW Rabbit and Scirocco introduced; electronic fuel injection standard in Beetles and buses.

1976—Beetle gets sporty wheels, rear-window defogger.

1977—Only Beetle convertible available in U.S.

Split-Window Volks

continued

I've owned two VW Beetles in my time—a 1955 and a 1958 model—and I loved and hated them both. I bought the '55 in 1957—early enough so that when I drove it through the South, filling-station attendants still had to be told where to find the gas tank.

We Beetle owners used to wave to each other back then, a gesture I later decided had to be slightly paranoid. We were symbolically telling one another, "We're not crazy, everyone else is." But I remember with slight sadness when VWs became so common that drivers *stopped* waving.

And I've thought about the Detroit executives who must have been looking down on Grand Boulevard from the 14th floor of the GM Building, seeing the first of those initial few Beetles crawling around on the street below, wondering, "Why would anybody buy such an ugly little car?" No product planner in his right mind, no market researcher, no designer, no engineer, no general manager, no auditor, no advertising exec, and especially no rank-and-file autoworker would have given the car half a chance for success. How could a cramped, ugly, noisy little car with a lawnmower engine behind the back seat and a "trunk" under the hood—how could it possibly succeed?

THE RARE 1946 BEETLE you see here was purchased in Germany by a U.S. GI that year—one of a handful sold. He brought it to this country and, a couple of years later, sold it to an elderly couple in Pasadena, Calif. At that time, of course, VWs were still all but unknown in the U.S. and constituted, if anything, a joke.

In 1954, just as Volkswagen was taking a toehold in the American car market, Johnny von Neumann, then the VW West Coast distributor, bought this 1946 Beetle from the Pasadena couple and reconditioned it, probably to sell it as a used car. Nobody, though, wanted it. Von Neumann was careful to replace worn and missing components with original parts, so while the car—as it stands today—isn't actually restored, it's very close to its 1946 self. The car's present owner, Volkswagen of America, took over from von Neumann several years ago.

To drive the ancient Beetle today shows how far and how quickly VW's under-the-skin improvements developed in those formative years. For example, the mechanical brakes, while they'll stop the car in a straight line, take a tremendous amount of leg muscle. You've really got to stand on the pedal. Brakes are the overriding concern—I drove with the knowledge that if something were to pop up in front of me, I'd be better off dodging than trying to stop.

The other thing I noticed immediately was that this Volks has no shock absorbers—just the torsion bars. That's how it came from the factory: shockless. So the suspension feels altogether different from any other car I've ever driven. The ride is unbelievable: rough, jouncy, un-

dulating, teeth-rattling. Going over a bump feels like passing through an earthquake at six on the Richter scale.

Steering is extremely quick, which is much of what makes all Beetles such great fun to drive. But cornering can be tricky, especially with the rear weight bias and the lack of shock control. The 1946 Beetle oversteers as expected, and I didn't put it through any dramatic maneuvers, for obvious reasons.

The crashbox takes some getting used to, too. There's no synchromesh, so any downshifting means double-clutching and sometimes double-double-clutching. Even then you can expect to grind going into second and low. Upshifting isn't bad—just a tick from low to second. Second to third and third to high are fine. The gearshift lever itself feels tight—no wobble. But you have to concentrate, that's for sure.

It's a noisy car. There's no insulation to speak of; nothing between the engine compartment and the back seat. Even the headliner ends short of the split rear window. Acceleration lets you know that the engine and trans are working. But when you're cruising along in high at 55, it's not too bad.

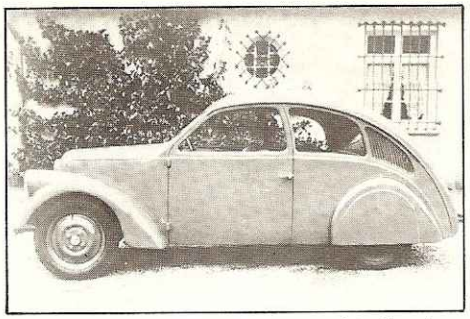
This Veedub has the 24-bhp engine. It's no neck snapper, but neither were my two 36-bhp cars. You have to learn to drive within the engine's capabilities, so I can't really fault this '46 on muscle.

Too, you have to remember that the odometer registers 198,000 kilometers (about 124,000 miles), so it's not a new vehicle despite its looks. Our test admittedly isn't altogether fair.

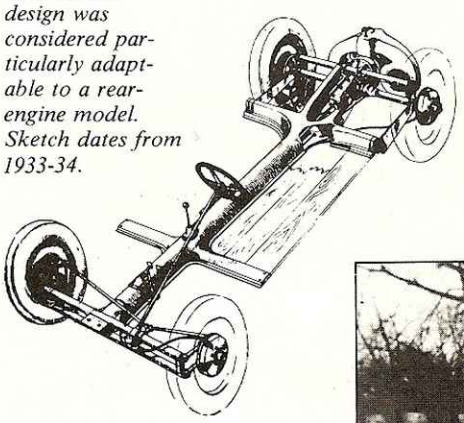
If anyone had walked up and told you in 1946 that the Volkswagen would soon become one of America's best-selling cars, second only to Chevrolet and Ford during some years, and that it would influence the entire American auto industry like no other car since the Model T—well, you'd have laughed. Anyone would have laughed. It just couldn't happen, especially judging by the performance and personality of this 1946 Beetle.

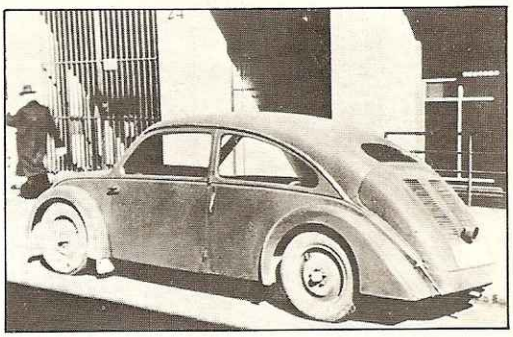
Yet it did happen, and the question becomes, Why? The answers aren't simple, but they boil down to five dominating reasons: 1) VWs were (are) great fun to drive, with a lot of sports-car feel and a crispness of handling that had never before been so affordable. 2) VWs were extremely well put together: workmanship and general quality remained flawless for perhaps a decade. 3) The car became an inverse status symbol, this at a time when many Americans—especially the young—were rebelling against Detroit's excesses. 4) The Beetle represented fair economy (although I well remember how expensive dealer service was even back in the 1950s). And 5) the car had marvelous resale value. At one time, demand for new VWs was so high that you had to wait 6-9 months to buy one. My 1955, bought in 1957, was a black-market car, with European specs and bulb headlights.

The Volkswagen arrived in America as a grass-roots phenomenon. Word-of-mouth was the car's only advertising in the beginning. It took hold initially as a young people's car; I bought my first two while still in college. In 1965, my dad, who'd

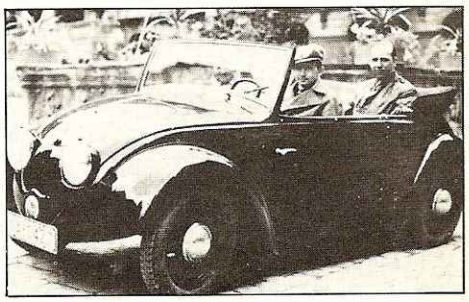


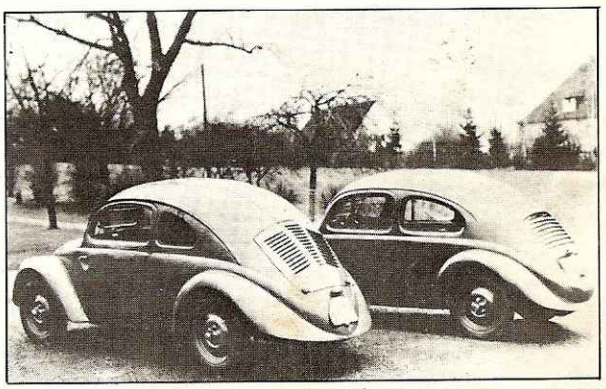
Above: *Early VW forerunner, this Zundapp Type 12 was designed by Dr. Porsche and got its first tests in Apr. 1932. Its 5-cylinder, rear-mounted engine put out 26 bhp. Reutter, the Stuttgart coachbuilder, made the body of wood and aluminum.*
Below: *Central tube chassis design was considered particularly adaptable to a rear-engine model. Sketch dates from 1933-34.*





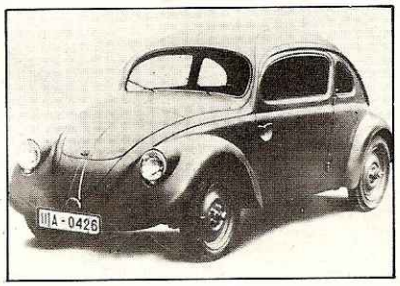
Above: *Working with NSU, Porsche created the Type 32 in 1933-34. It used an aircooled Flat 4 at the rear, had a Weymann fabric body by Drauz.*
Below: *Ferry Porsche drives 1935 Volksauto.*



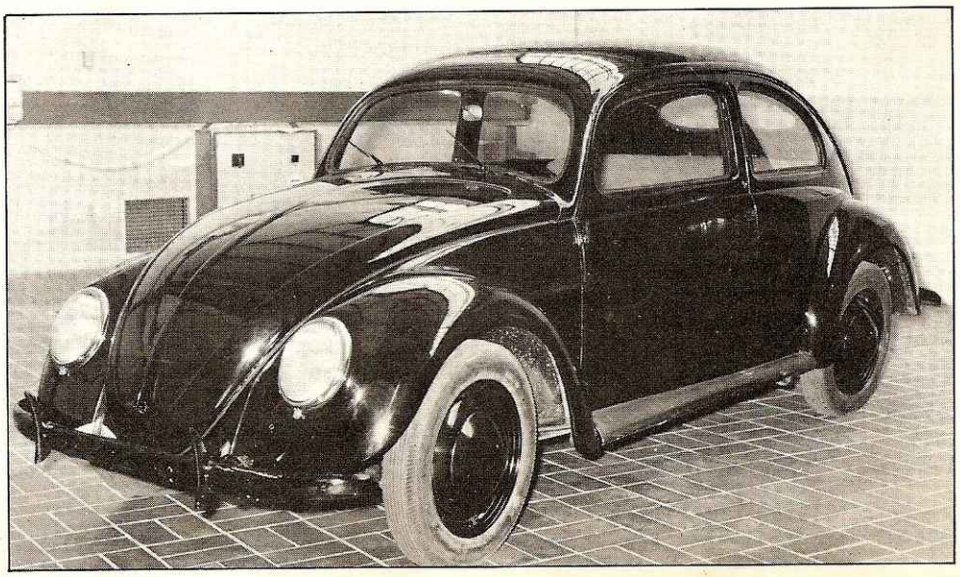


Right: *Dubbed "Ugly Ducklings," 1936-37 Series 3 prototypes had no rear windows, but driver got a weak peek through cooling louvers. Glass inside car (not visible) separated engine from back seat.*

PHOTOS COURTESY VOLKSWAGEN OF AMERICA, INC.



Left: *Headlights migrated to fenders for Series 30 of 1937. Ironically, these early prototypes had no running-boards, while production Beetles all did.* ***Below:*** *Handbuilt Type 38 Beetle now rests in Wolfsburg museum. Although exterior changed very little for 40 years, no part of today's VW (the convertible is still being made) is the same as when production began in late 1938.*



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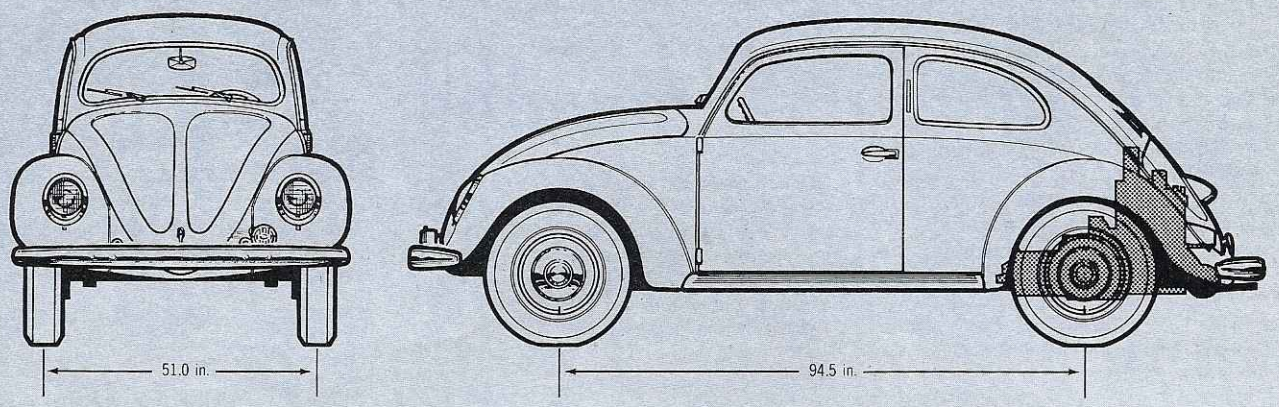
Illustrations by Russ von Sauers, The Graphic Automobile Studio



1946 Volkswagen Type 11 2-door sedan

Price when new ..... $1643 f.o.b. Wolfsburg (1946).

ENGINE
- Type ..... Ohv opposed 4, aircooled, 3 mains, magnesium crankcase, cast-iron cylinder barrels, full pressure lubrication.
- Bore & stroke ..... 2.95 x 2.50 in.
- Displacement ..... 69.0 cid (1131 cm³).
- Max. bhp @ rpm ..... 24 @ 3000.
- Max. torque @ rpm ..... N.a.
- Compression ratio ..... 5.8:1.
- Induction system ..... 1-bbl. downdraft carburetor, mechanical fuel pump.
- Exhaust system ..... Pipe manifolds, single muffler.
- Electrical system ..... 6-volt battery/coil.

CLUTCH
- Type ..... Single dry plate, asbestos lining.
- Diameter ..... N.a.
- Actuation ..... Mechanical cable, foot pedal.

TRANSMISSION
- Type ..... 4-speed non-synchro, floor lever.
- Ratios: 1st ..... 3.60:1.
- 2nd ..... 2.07:1.
- 3rd ..... 1.25:1.
- 4th ..... 0.80:1.
- Reverse 6.60:1

DIFFERENTIAL
- Type ..... Transaxle.
- Ratio ..... 4.43:1.
- Drive axles ..... Swing halfshafts.

STEERING
- Type ..... Worm & cap nut.
- Turns lock to lock ..... 2.5.
- Ratio ..... N.a.
- Turn circle ..... 32 ft.

BRAKES
- Type ..... 4-wheel mechanical drums, cable operated internal-expanding shoes.
- Drum diameter ..... 9.062 in.
- Total lining area ..... N.a.

CHASSIS & BODY
- Frame ..... Stamped steel floorpan with bolted-on body.
- Body construction ..... All steel, rear engine placement.
- Body style ..... 2-door, 5-pass. sedan.

SUSPENSION
- Front ..... Independent, transverse torsion bars, upper & lower trailing arms, kingpins.
- Rear ..... Trailing arms, swing axles, torsion bar.
- Tires ..... 5.00 x 16 tube type.
- Wheels ..... Pressed steel discs, drop-center rims, lug-bolted to brake drums.

WEIGHTS & MEASURES
- Wheelbase ..... 94.5 in.
- Overall length ..... 160.0 in.
- Overall height ..... 61.0 in.
- Overal width ..... 60.5 in.
- Front tread ..... 51.0 in.
- Rear tread ..... 49.2 in.
- Ground clearance ..... 8.35 in.
- Curb weight ..... 1600 lb. approx.

CAPACITIES
- Crankcase ..... 3.3 qt.
- Cooling system ..... None.
- Fuel tank ..... 8.8 gal.

FUEL CONSUMPTION
- Best ..... 30-33 mpg.
- Average ..... 22-28 mpg.

PERFORMANCE (from **Mechanix Illustrated**, Apr. 1953):
- 0-30 mph ..... 7.9 sec.
- 0-40 mph ..... 15.3 sec.
- 0-60 mph ..... 42.1 sec.
- Top speed (av.) ..... 66.0 mph.

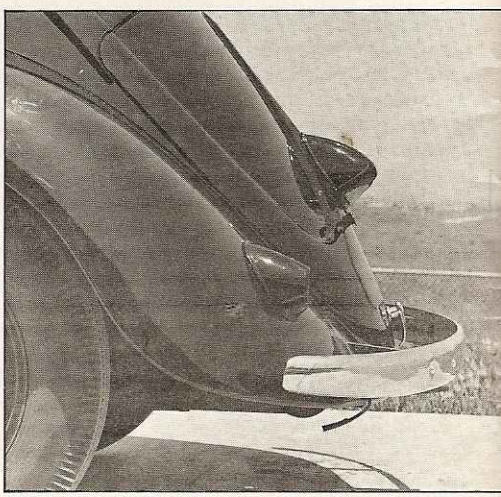
Split-Window Volks

continued

driven and liked both of mine, finally succumbed and bought a new one for himself. It took about that long for his generation to accept the VW; in fact to accept small cars.

The VW exerted a tremendous influence on the American driving public and on Detroit. It put the small car in demand for the first time ever in this country. It showed that little cars don't have to be flimsy, that quality doesn't have to be expensive, that honesty in auto design *can* be the best policy. And it did all that with every possible strike against it: its political and cultural background, no ad budget, flaunting styling and engineering tradition, and making grave concessions to what we Americans regard as basic driving comfort. Yet it's heartening to realize that here's one instance, finally, in a world where it's become increasingly rare, of virtue's triumph; at least *mechanical* virtue's triumph. □

Our thanks to Ferdinand (Ferry) Porsche, Ludwigsburg, West Germany; Dan R. Post, Post Era Books, Arcadia, Calif. 91006; Herb Williamson and Andy Schupack of Volkswagen of America, Englewood Cliffs, N.J.; Erik Eckermann, Munich, Germany; Hans O. Neubauer, Hamburg, Germany; and Karl Ludvigsen, Pelham Manor, N.Y. Most of the information in this article is based on Volkswagen: Nine Lives Later, *by Dan R. Post, 1966.*



License light repeats sculpturing of hood and decklid. Thin, fragile bumper on early VW is all but useless, especially without overriders.