

## VW F&E engineer – report - VW Car Development – Inside View

( Translation from Spanish ( usind internet translator ) – errors excepted !

I guess many of you are familiar with this old post, which was originally created in 2006 in the forum of Club Touran and was also taken up by Forocoques.

It is the first-hand testimony of a Volkswagen R&D employee who explains in great detail how the brand works inside. It's a great work, but I think it's so good that it's worth remembering and informing those of you who haven't had the chance to read it.

- [RSI BEETLE](#)
- [CUP MILLENNIUM BEETLE](#)

The report in the spanish forum (<https://www.clubvwtiguan.com>)

"Take a look: I have been browsing this forum for about two months (when the devil has nothing to do, he kills flies with his tail) and I am now a full member for how long? ... two weeks? And now I'm doing it again, and I also see that although you all have (or want to have, or are in the process of having) a VW, and although many of you have technical knowledge, some of you have a somewhat strange idea of how VW does things. That's probably why some threads about certain problems of the brand, the engineer who designed the part, and the mother who gave birth to it, may fall off a donkey when reading .

Well... I'm an R&D engineer at VW, for body shop, actually. I think if I explained to you a little bit about how things work in there, you would have a very different view of your car, of us and of VW as well. Look out! I'm not saying that your opinion wouldn't be better! But I'm sure it would be different.

That's why, at the risk that no one is interested (or that my boss might catch me), I decided to explain a few things to you. You can take it as if you suddenly know someone who knows your wife's family VERY well and can tell you a thousand and one things about her family.

Surely many of these things are well known to most people. I am sure there is a Seat worker in the Forum who will say: "This is not how we do it in Martorell Seat factory in Spain! Well, I speak from daily experience. In some areas I'm not very skilled (like marketing for example), but I have an idea of everything.

Well, and this is where I start, I will write about what happens when you go to the garage and sign the order for a new VW. The part that happens in the dealership, I'm sure there are people here who do that every day. What I can tell you is that your order for the plant starts when marketing releases the production order for sequencing. When you lift the carpet out of the trunk, or in the manuals of many cars, you will see a white label with a sequence of numbers and letters in groups of three letters each. VW calls this PR, and it is the DNA of your car. The PR defines the car down to the smallest detail. Colour, engine, tyres... Everything is defined by the PR. When the system has completed the PR (collecting your instructions, marketing instructions and production planning instructions), your car is "born".

Production planning compiles a sequence of PKN, of cars, updated every 15 days. It is made up of orders from customers, fleets, dealers and others. If capacity is still available, Marketing fills the sequence with the PRs that will statistically sell the most, so that they are available when needed. The goal is to have a stock for about three months. A medium-sized plant can produce about 400 cars per shift. The number of shifts per day and the number of days per week change frequently to regulate the stock. There are also times when no stock is available. In other cases, the stock exceeds six months and you must switch to a different employment regulation.

The sequence is uploaded into the SAP software system and distributed to the suppliers. Some time ago, in the technological Paleolithic period (twenty years ago), the factory stored all the components for all the possible versions of the car in question, and when the car passed the station where the wheels were inserted, for example, the foreman looked at the PR hanging in the window and shouted "Ninyo!!! Take out a 205/55R16 set and put it on Imola!!" That was before... now, as soon as your order is uploaded into the system, SAP distributes the orders to the suppliers according to the famous "Just-in-time" procedure.

VW now stores the deliveries for one or two hours production time on the same line. Vendors or logistics companies such as Exel bring the items to the plant at almost the same time and in the same order in which they are assembled. So if your car has beige leather seats, there is a queue of seats in all colours and upholstery at the station where the seats are being fitted, but Johnson Controls (the supplier of your seats) has already put them in order so that your seats are in the front row when your car passes by. When you see how this works, it feels like magic.

But just-in-time makes it difficult to change the order because so many companies are involved. So if someone cancels an order, it won't be the other orders that move up a position, but a new buyer will be found for exactly this car that is already in production. If you happened to visit the dealer a few days earlier and ordered the same model, you might be able to get the car much earlier. In any case, a few days after signing the order, your car will have a date, an hour and a minute of production.

When the big day comes, everything starts when the bottom of your car is put on the production line. The assembly of the car starts, which usually takes 30 hours. I will tell you about these 30 hours on another day..."

"At the beginning of the metal line, the floor of your car (which was previously produced) is put on the chain.

-Starting to move pages, water tank (where the wiper motors go), hat rack (where the rear speakers go on a car like the Bora), wheel arches etc. until the bodywork is finished.

-The mudguards, doors and covers (engine and boot) are made with robots in a mounted in a separate shaft. All gaps between the sheets are filled with brass welds are closed and the entire body assembly is inspected, to see if anything was forgotten.

-The doors and lids are set up and the fenders are put on temporary supports and sent to the paint shop. The paint shop is the holiest place on the entire floor:

No one can enter it. During this work, everyone must wear an antistatic white Wearing overalls like the white men in Colon. The goal is to remove the fluff, the dust, the to keep impurities away. To be there, I have to ask permission and have a very convincing reason. And I'm not an ordinary employee.

-The body is mounted on a sled and immersed in the treatment tanks: degreasing, deoxidizing, neutralizing, electrophoresis, washing and priming. It is inspected, dried, rubber plugs are inserted into all drains that underbody coating and insulation is injected into the engine compartment and it is applied to the line, where paint and varnish are applied. At least eleven steps to get everything to seal & protect optimally. After painting, it goes to hardening & the paint is burnt in. Some foam blocks, which were burned during the construction of the body expand due to the heat (foam) and fill all hollow bodies, which have been (like the front struts) to keep noise, air and water out of the car.

-When the car leaves the furnace, it goes through a fluorescent lined tunnel, where a group of quality inspectors wearing gloves inspected the car from all possible angles and tries to find every possible mistake, hairs, scratches, an area of paint mist, etc. When this step is completed Wax is injected into all hollow bodies to reduce wind noise and corrosion (I have used wax in read this forum by people who complain that their car is new and leaking grease. That's what it's all about, and that's normal when it's new), and it's going through a tunnel into hall, where the final phase of assembly takes place, which takes about four hours.

The assembly line is the most famous part of the factories. All the mechanics who work here in such a monotonous fashion have to work their way towards it and ask to be replaced by someone (the joker), when they want to go to the bathroom. Well, it's true her work is boring, but she don't have to think about it much. A document with photos is clearly visible at each station and diagrams (The Detailed Assembly Procedure: PDM), which explains in detail what is done. The illustrations of the instructions for use and the ELSA are from here taken over. And the truth is, they don't think anything! I remember one nice anecdote when we built the SEAT Cordoba SX One of the things we did changed the housing and the wheel arch to fit some air deflectors to the brakes to be fitted. After some weeks this was already possible to order and I bought one of those models, following my tradition. After my inspection, I find that.., that it didn't have the air deflectors! So I went to the line that afternoon and see what happens there. It turns out that the

deflectors have been installed as planned & reach. The supplier brings his pallet on time and charges for this, but the previous pallet remains untouched and he must take it back. It turns out found out that they lost the MDP for the assembly of this part. They were instructed, how they should install it, but if there is no MTO, I don't install anything!

- On arrival, the doors are disassembled and taken to a separate assembly line.
- Harness, floor mat, seat rails and airbag sensor are mounted.
- The car is turned over and the fuel lines, brake lines, exhaust mounts and wheel arches are installed at the bottom of the floor.
- The entire dashboard is assembled in one operation.
- the interior trim, the seats, the rubber seals.
- The conveyor belt of the line is pulled up and under the car is complete rear suspension and brake assembly and the front assembly, consisting consisting of engine, transmission, front suspension, brakes, steering and subframe, in one process called "the wedding."
- The front end, radiator, fans, front crossmember and headlight support, is mounted.
- The front and rear windows are both bonded.
- The fluids are filled, including five liters of a special gasoline to facilitate starting in to facilitate storage and avoid smoke in the plant.
- steering wheel, mudguards, wheels and headlights are fitted.
- The car hits the doors coming off another assembly line. It is important to make sure that all metal parts have been painted together and are not interchangeable. The plastic parts (bumpers, mirrors, trim strips, handles...) are already painted by suppliers painted, so the colour is not really exactly the same.
- An inspector gets into the car with a com\*\*\*\*tor, and first reads the bar code on PR and programs all the electronics of the car including ECU, keys, airbags ...
- The car is then started (the first time!) and you activate according to another Checklist of all vehicle inspections and notes per test whether it was passed or rejected.
- The "TRIM " is installed: Logos, stickers, trim, ornaments...

Remember that the line does not stop, the car moves slowly and the operators assemble things, always with the car moving, walking beside it or riding on it. If someone hasn't had time to assemble something (rarely), the car has a defect (not so rarely), or they haven't assembled something because they didn't have the part, or the part was defective, such as a stained seat (much more often), a warning is hung on the windscreen, but the process doesn't hold.

At the end of the line, a driver takes the car out of the belt that transports it, puts it on the test rollers to test performance and brakes, and off goes the final test: The number eight counting point. There, next to the exit door of the hall, is a group of inspectors dressed in a green robe with a white embroidered Q and sheets of red round stickers.

These people (the nightmare of the shift leader of the line) look at the car from the inside and outside and stick the stickers on the car, indicating the points that need to be repaired or "reworked". In my good times in Mexico with the New Beetle, each of the cars wore an average of **200 red stickers** after passing Count Point Number Eight.

In the next description, you will see that the cars that need to be reworked are made, and that they have to travel the more or less six kilometres between the tests and transport until they reach the warehouse".

"When the car passes count point number eight, there are two possible routes: Either it goes directly to the tracks for the rolling tests, or it goes to the rework room where all the red dots must be removed. That the front cover (the hood) is not centered? It is put in place with some "persuasion" and some H.st.z.s with a rubber mallet. That the roof has a hole from the time when the antenna was installed? Then the car is covered with a huge roll of plastic; a piece is cut out of the plastic to expose the area to be reworked, the paint is removed with a wire rotaflex (and the cataphoresis, and the pressure, and the zinc coating... and the rest of the protection, hahaha), it is repainted with a pistol and a portable infrared lamp is applied. A little wax, and in an hour it's ready to try your luck again with the PQ-8 inspectors. But quickly! So that the rework room isn't full of cars and people like a highway ring the evacuation of Katrina, and that there's room for the after-flow of cars that arrive rejected!

Let's say your car got lucky. Only minor and frequent details like the distance (the space between two parts) of an interior part that is not constant, or the flush (alignment) of the trunk lid with the side are not perfect, your car will be ready to go in ten minutes. The inspector releases the car and the driver brings it (including tyre squeal) to the test track. A round trip (not a circuit) where the car is driven over grooves, through pot holes, uneven road, asymmetrically... where the driver pays attention to all noises in the car, vibrations of the steering wheel, etc. as if he were using an antenna. Then it's off to the water ingress test, which sounds very glamorous but is a washing tunnel without soap, where a lot of water rains on the car. Sensors in the carpet warn if moisture gets into the car. VW is making great efforts to ensure this particular point. If everything fits, the car goes back to the inspectors and they attach a sticker to the windscreen, green with a white Q. This is your passport for packing. An army of packers will come to the car and cover it with white self-adhesive plastic. The car can spend six months in storage, but when you buy it, you want to see it as new, so they strategically cover the front fairing, roof, etc. They put protectors on the tires, foam blocks on the doors and the driver then drives like lightning to the parking lot and then back to the line by bus to get into another car. Sporadically some cars have to take a test drive through the factory. Usually it is about ten to twenty kilometres. You will never know if one of these drivers has taken a ride with your car, because when he comes back, the odometer is reset to zero (this is possible without any problems - and many dealers do it - if it is less than a hundred kilometres). Then it stays there in stock and waits for a "godmother" (transport car) to take it away.

Let me get something clear from someone in the car dealerships:

Your car is already in stock. The dealer has to buy the car first to get it out of stock. Usually they have an agreement with a bank: the bank buys the car but keeps the documents. A logistics company then has seven days to deliver the car to your city, whether it is 100 or a thousand kilometres away. When it arrives, the bank keeps it under its control. The dealer must then pay! Otherwise, the dealer cannot register the car, move it or anything else! The paperwork is in the bank, and they charge you interest for every day they are there. That is why they are so nice to you today. They want everything done as quickly as possible.

Not all cars that are produced go to the customers. Of the part that marketing uses to fill in the sequence (the models that have a greater demand, although they don't have a buyer at the moment), some of them have attached a label when entering the assembly line that identifies them as test cars. These unfortunates have an intense and short life ahead of them, in many cases when they are sent directly from the line to the Technical Centre, where we wait impatiently for them. If you want to know how strong something is, you have to force it until it breaks, right? But if something is good, it can take a long time before it breaks! Well, I have already done it with a few (more than fifty). The next day I will talk about things like durable cars, the hydropulse and other methods we use to really see how long it takes to break a VW. "

"Well: And then they send us some cars for our torture Olympics. Those of you who live in Barcelona, Zaragoza or Valladolid, where there is a car factory, may have stopped at a traffic light and see a guy next to you driving a strange car. On the seats, strapped in with their seat belts, he is carrying some water bottles shaped like the upper part of a person's body, without "legs", and instead of the head he has the plug. It is a car of duration, loaded with the "dolls". Each contains 75 litres of water.

Oh, the hard life of drivers! This chicken sitting at the bar with his friends says (because it is true) that he is a test driver. His job is to spend eight hours a day in an Ibiza without air conditioning and to cover kilometres in his car. kilometres in the city. Another time you see them passing in a caravan, five or ten, all together, with antennas on the roof. Every day, Barcelona-Zaragoza and back or something like that. Kilometres of motorways, cars for endurance tests. We have dozens of them in the plant! Of all models, with all types. With a yellow sticker with a D on the windshield. We also have company cars without license plates, which are not allowed to leave the factory and with which we go to the line, to the cafeteria, to the toilet, until they fall apart.

We have functional cars that make organized trips (the return to Spain, hahaha), in which we install equipment that we want to test. You have some new mirrors? That you want to switch to a new fender and see if it makes noise or if it makes the car dirtier when it rains? That you want to see if this window switch is more comfortable than the old one? You want to see where a working car is! You fill out the paperwork, grab a mechanic and give him the key.

One of your engineers climbs in with a laptop connected to the on-board power supply (they do many tests at once on every trip), and swallow miles. And no sightseeing, eh? I want you back quickly too, but you still have a lot to do! So you see how cars get old, and what works and what doesn't. And when they come back, they have to fill out a report detailing everything.

But that takes time! You can't do 300,000 km in one week, it's about learning the lessons before the model retires. VW solves this with the Hydropulse, among other things. You take a car out of counting point 8, put it on a platform with a hydraulic cylinder under each wheel. Following a computer program, the Hydropulse randomly hits the wheels of the car and simulates something like driving a goat path at 80 km per hour. It is really impressive to watch this! You take a New Beetle convertible with leather seats, CD changer, heated steering wheel... it jumps like crazy in all directions. The noise is indescribable, and every 25 hours you stop to see how the test goes.

After three days the bodywork begins to crack. But you don't want to finish so fast, so you put a welding spot in the crack so it won't spread any further. And you restart the damn machine. The seats get looser and looser (let's see if the change to the back seats is approved with a lever instead of this obnoxious wheel), the windscreen breaks (these Karmann people think it's a good idea to use the front glass as part of the frame. Let's hope that the owners of this model drive slowly and on the highway), the mirrors fall off (we have to make them even smaller????), and you keep giving him Canya. After 180 or 200 hours the car finally breaks in the middle. Well... It was nice while it lasted! A forklift truck takes the car out and brings it as it is, with CD and everything, to the compressor and turns it into a metal shovel that melts to make rebar. Or into something else ?

Absolutely every plastic part that is installed in a car, apart from the specific requirements for its function, must pass a climatic test in which it is exposed to one year of dry heat (Kalahari Desert) and another year of humid heat (Florida) and can still be installed in a new car without deformation or colour change. All plastic parts in the passenger compartment must also pass an anti-fogging test, which shows that the amount of plasticiser released is minimal. Do the cotton test!!!! Rub the inside of your windshield with a Kleenex The Kleenex stays black: it is the plasticizer vapour that the dashboard releases under the sun and which is deposited on the windscreen. Now try a Picachu: Ha-ha-ha! You need a scouring sponge! All those cancerous m..rd. go into your lungs and you don't even notice it.

What do we do with all these lessons we learn? What does the brand do when a problem occurs that affects multiple users? Well, this whole process (the change requests, the Aekos, etc.) is a different story".

"VW takes the issue of quality very seriously. These are not just empty words used to convince the customer in the shop and "sell him the bike". When I talk about quality, I don't mean the word that is normally used instead of "price" (the quality of this car is higher than most of these cars) or to justify a price increase. For one thing I mean (as I said on my office wall) to get things right the first time. On the other hand, to do things right without increasing the price. I've been to other car manufacturers (and maybe later, when they pay well, hahahahaha!), and when you come to VW, the first thing you learn is what not to do.

-For example, it is not allowed to fix the Imperial (the inner lining of the roof) in an obvious way. All clips must be invisible.

-For example, all screws must be hidden, but you cannot use caps to hide them!

-For example, the use of PVC or urethane inside the car

limited. VW uses polypropylene mixed with talcum for most interiors, to make them gas-free and odourless and insensitive to sunlight, and to provide them with to give a slippery feeling. That's why you will never find these "fluffy"

Dashboards and valances or those cold hard plastic interiors.

-For example, the welding seams of the car body should be covered if possible.

Look at your car's B-pillar (the metal pillar that runs between the doors):

There are no welds there. That's because we've welded the side of the car in one piece punching, which is much more expensive, so that we do not have to weld on the visible part. They don't see that with the competition.

-There are hundreds of details that go unnoticed, and yet they were designed with quality in mind. And I can assure you, because it's part of my job, that everything is tested and proven to make sure it works.

But nothing is perfect! Once a new model is launched and the system is in full production, our R&D work has two main aspects: Maintenance, research and troubleshooting. A car model can no longer remain on the market without changing (and, if possible, improving!), so we work on the basis of what we call "model year". For example, we are currently working on the Touran MY'07 (2007 model year), which will be launched after the summer (after the summer marketing has launched an advertising version - called "Touran Carnival" - to get rid of the MY'05 parts stock. Selling cars by refurbishing leftovers is called "action model", but I'll talk about that another time), and we're preparing some surprises and putting into practice the lessons learned. This is maybe 60% of the workload we have.

The other part, investigation and troubleshooting, begins when we receive a bug report from a dealer. If the fault is corrected under warranty and the customer does not make a claim (on the brand! If he makes a claim to the dealer, we don't even know about it), it goes into the statistics, and if VW loses money because of the warranty for this part, this supplier will probably go into a "B" or "C" rating and lose a lot of money in the near future.

If the customer complains, the customer service supports the dealer in finding a solution. If After Sales sees that the failures are repeated, they make an error report for us. As soon as we confirm the error, we MUST find a solution. If I don't submit an amendment proposal (we call it "Aeko", for the German abbreviation) within a reasonable period of time, my boss starts deducting points from my department's budget for next year and will most likely find a replacement for me!

If the defect affects a safety relevant system (such as the chassis or ABS..) or can cause permanent damage to the vehicle or injury to the occupants (fire, etc..), the solution is immediately implemented in all vehicles. In the checks (so you don't even know) or by calling all cars for the mandatory check. This is costly and damages the image of the brand, whatever they say, so it is only done when it is essential. I have been involved in two recalls and I can assure you that this is an earthquake that is shaking the entire brand. One of them, for example, is for an epidemic of over fifty fires in the New Beetle, caused by a kink in the metal casing of the battery. It had already been modified twice because it had cut the positive cable. We had already made two suggestions to change it to plastic, but it did not pass the crash test (the battery flew out). To avoid an alarm ( hysteria ), they said it was the air conditioning... Hahahahaha. Things of life.

If it doesn't affect safety, but VW loses money, we have to work against the clock to find a solution so that the service department can change the parts. Like I said, you don't even know yourself.

If VW doesn't lose money (let's say it's an error that repeats itself with low frequency), it will be modified in the next MY. If you have the car and it does not break down, fine. If you have a defect and you have a warranty, they will exchange your part for the new one. If you have the defect and you don't have a warranty, J.D.S.

If your car rarely breaks down or is even new, they will repair it under warranty, but they won't tell us a word. Unless we discover the fault ourselves in our test or endurance cars (or in my own car!).

After the sale, we receive from time to time statistics about all actions that the dealers claim under warranty. It is part of my job to analyse and select this information, which we will investigate in detail. For example, if the TDi's wear out the wheels in an irregular way... Well, it does not affect safety. And VW doesn't lose money. And although it's in the top 100, it's far from common. But it is very obvious and it is talked about a lot, so it is on my list as investigated and solved. Your dealer should have fixed it. For example, if the lid on the dashboard makes a noise... It's very common. In our latest generation of cars, drivers are always complaining. Some put a folded piece of paper in the latch to close it. But our customers don't complain! So we ask the dealer to do something, but we don't investigate. There are hundreds of subjects to investigate. The last one: the rear door seals are rubbing off the paint on the door frame below.

At VW we are, as they say, in a process of continuous improvement. Anyone (the director, the secretary, the cleaning lady) can make suggestions for improving the cars, the process for manufacturing the cars or for saving money. And so that it doesn't fall apart, there is a metal reward for every suggestion that is presented. The trick is that they only give you money for making suggestions when the issue is not within your competence. Otherwise I would make more money with the rewards than with my salary! So the 17500 employees of this plant drown us with proposals every week and we have to evaluate each one of them. Some of them (very few, hehehe... We have to do the most important ones first) are just great. Like one that cost \$16,500 to suggest that the cars should be made with only three bolts on each wheel. When the car arrives in the US, he said, the importer would put an anti-theft screw in each wheel. The screw he removes is pulled. Each screw costs \$0.3. We sell half a million cars a year there.  $500,000 \times 0.3 \times 4 = 600,000$  dollars a year, which we save without doing anything!

Well, now I'm gonna tell you about one or two mistakes I had to work on:

- When they took me to Mexico to launch the New Beetle line, I found a big pile of garbage. The quality of the production was so bad that the cars had a deviation of about four millimeters from one to the other. This caused us big problems with the wheel arch. For example, the headlights were loose from the fenders or the rear bumper cover and the trunk lid were not aligned. When they tried to align the bumper cover with the lid and sides, the door would not close! So we increased the adjustment range of the anti-lock braking system (the bolt that goes into the crossbar) and fixed it. At least we thought so.
- After a few weeks, we received a report of breakdowns in about dozens of cars in the warehouse which, when they had to be taken to the transport trucks, had no charge in the battery. The electricians had already gone crazy trying in vain to find the leakage current until, talking to a camp guard, he noticed that he had left the high beam on the line on. Wait a moment! The trunk light cannot be switched on or off! What happens is that the lid doesn't close properly and you don't hit the switch and the lights don't go out... What can we do?
- In three days we have tried different switches, we have put supplements in the lid to turn off the light, but nothing ... The margin/measurement was very big, and although in some cars the space was too big, in others it was too small! In the end the chief electrician came up with the solution: we will produce the cars without the bulb and keep it in the glove box! When the car arrives at the dealer's, we will install it in the trunk during the preliminary inspection. The owners of a New Beetle will not let it park unused for weeks like we do in the warehouse. The probability of a complete discharge of the battery is therefore low. Said and done, that's how it was. And no more dead batteries in the warehouse.
- Today, all this is settled. In two years we have brought the quality of the bodywork to the same level as the other models of the brand, and there is a circuit that disconnects the light from the trunk if the battery drops below 11 volts. But I don't know what the car owners said. Maybe they never noticed that their trunk lights never went out, hahahaha.
- Another mystery that drove me crazy for almost three months started with a shower of complaints (which come from customers like you, so you know complaints from customers who complained that the drivers & driving windows of their cars didn't go off at the same speed. I went to the camp and... checked them out himself. It's true: on some cars the right window was about 25%... slower. I called the supplier, Meritor, and he swore on his daughters, that the parts on both doors are exactly the same, on the same line and from made by the same people. If there's a problem with the quality, he said it should both doors by chance.

No: It only affects the right doors. What the hell is going on?

We've tried everything! And if you replaced the door, the components worked fine! Then it's the door. We measured dozens of doors before we put them together, and they were all the same. And we tested them later in storage.

And the problem was still there - so one day I sat down at the station where the door modules are assembled. Remember that the doors are assembled without being mounted on the car. They hang on a beam from two in two, one with its back to the other, turned so that the inner part faces outwards. Two assemblers, one on each side, place the motor, insert the glass and test the function by plugging in a connector carrying an ammeter. If the motor consumes too much

current, it is because the glass guides are too tight. Then, to open them a little, take a rubber mallet (the universal lending tool), tap the glass like this and then try again. This usually solves the problem, and if you don't already have a vacuum cleaner with you that will pick up the glass if the hammer slips out of your hand. You only hit the glass if it is too hard. But I have noticed that the fitter of the affected doors never hits the glass. Ehhhhh??????

So I ask him: Hello! Why don't you ever use the hammer? Are all your doors in order or what? And the guy says: -No!! Some of them are really bad, but it's been months since anyone lost the hammer, and we're waiting for the warden to get us a new one! This time there was only a fine. But I remember that in 1999, six executives and nine employees had their contracts terminated because a Golf IV arrived on the assembly line with one door on one side and two on the other. The first person to notice this was the interior panel installer..."

"When the time comes, the contract to replace the Touran will be awarded. The design of new models is a long process. Not so much because of the time it takes to design or validate, but because the bosses need months to decide what they want. A new model involves a risk of three hundred and fifty billion pesetas (which, at the exchange rate, must be a chorrón of euros) and about four years of work, and nobody wants to take the blame. VW designs basically in Germany, in Simi Valley - California, in Barcelona and in Puebla - Mexico, and with each new project these centres compete with each other. First they present renderings (drawings made with markers), then illustrations created with Photoshop.

When the bosses like what they see, they ask for clay models (a kind of synthetic mud) on a scale of 1:4. Normally, each center presents four or more variations of the same concept. When they select three finalists, they ask you to make the model in its original size. The clay modelers are artists, really great in their profession, and with their hands and some pieces of metal strips they shape the car according to a sketch and some real size 2D cuts. Then they take counter moulds out of the clay to make the parts of the fibreglass bodywork. The clay process is repeated with the interior. All parts are mounted on an adjustable frame (which has a steering but no suspension or engine) and are presented at a trade show. This is known as a "concept car". Of course, they don't present what they like, but something similar, to see what people say in forums like this. If all goes well, a model is approved, and then it goes to another group of people who do what is called "feasibility". You have to make a real car, not a show car, and it takes very experienced people (without false modesty, so to speak...) to identify the parts of the design that can be mass-produced at a reasonable cost and those that can't. Another group involved in the early stages of design is the ergonomics department. I'm sure you've all seen these black and white drawings that show the silhouette of a person inside the car, with dimensions at all points in the passenger compartment. This drawing is called the "package" of the car. In this drawing we indicate the position in which we will position everything in relation to a fixed point, namely the driver's hip joint. There is a tradition among car brands that we exchange the whole bundle as if they were cards to study each other. The consequence of this is that if you have a VW and get into a Ford (I know, I know..., even jokingly it sounds ugly...), you don't have to check where the lever is every time you change gears. The thing about things being where you expect them to be is called predictive ergonomics, and that's what I did at Nissan for several years. I can write more about it if you want, but it will probably be way too much, hahaha).

The clay model is scanned, and the Strak department (using a program called ICEM-Surf) generates the final shape of the car in a Com\*\*\*\*dora, which is defined down to the smallest corner and remains unchanged until the production car. Well, then we build metal models. We work side by side with the suppliers to develop the car's equipment and finish the prototypes. These are sent to Germany, and the same managers from the VW consortium drive and test them and give their comments with instructions on what they like and what they don't like.

That's how it was on a day like this: I don't like the dashboard of this new Polo model... I really like this car, but not the dashboard. I want you to drive this one in Ibiza. Of the two drivers who drive the Ibiza (one hard and one soft), I want the soft one, which is made by a supplier called Lignotock in Valencia. Um... The dashboard is almost 30 mm wider... It doesn't fit between the A-pillars (the metal pillars on the side of the windshield)... We have to start again... Whatever you say, Mr Piech! Of course, Mr. Piech! Your wish is my command, Mr. Piech! (@#\$%^&\*!!) Once they approve the final model, the production plants will submit their bids to build the car.

This is where the money is, because each plant is like a subcontractor that builds the car and sells it to VW (who in turn sells it to you) for the cost plus about 14% profit. There is a lot of money there, and the works scratch their eyes out and sleep with everyone they need to take the project home. It's similar to the name of the Olympic venue: you present a plan, with hostesses and balloons. There is a countdown. They open an envelope.

And the winner is... Puebla, Mexico!!! and then everybody starts crying. Those who lose because they lose. And those who win because they exaggerated when they made their offer, and now they will go j.d.r., but well, if they don't fulfill what they promised, then a mini plant will be built (the pilot plant) and a hundred cars will be produced. And from these the best ones will be selected and sent to the bosses. These are the KAF cars, the sample cars for the top bosses of the consortium. They use them to go to work, get bread, lend them to their wives, their grandchildren, their loved ones... And then they come and give you a pat on the back for all the things you've done wrong, for the things they don't like and for the things they want you to change. And then they give you the green light to go into production. From that day on there is a countdown to the SOP, the day the plant has to start producing cars.

At this point, the "spy photos" that the VW itself leaked to "heat up the oven" and arouse interest are published, even though the car is masked (covered with matt black plastic) and you can't even see the potato. Three months before they start making cars for practice. It is the 00 series, five or ten a day. Then, one month before the SOP, the 0-series starts, and production reaches about 40 pieces per day. The press cars are produced, and then you see them in the magazines: "We have tried the new Golf". Needless to say, these press cars are finished by hand and reworked for a week until they are perfect. And the big day is coming: No one is ready, and they can't be. No one: neither the editors nor the suppliers, no one can do their job properly until a little filming has been done. The quality inspectors don't have the hands to put so many red dots on the cars, and additional employees are hired for the rework hall, which works in three shifts. Every day, litres of Super-Glue are used to hide defects and pass inspection, and mechanics are given arms like the Schwarzenegger, from the many working with a hammer.

I can't advise you to buy a new VW model when it has just been released on the market, but I can definitely advise you NEVER, HOW ALWAYS DO YOU HEAR ME? NEVER buy a car (nor from the competition, of course!) when it has just been released on the market. I don't know if I can explain it..."

"I do not know if you have heard of the VW New Beetle RSi?"

The thing is, I can tell you one or two things first hand about how this model was made.

You see, they had just launched the NB (the New Beetle) and the marketing department felt they needed something spectacular to support sales in Europe. They certainly needed that! Not because they were losing money, but because the factory made the car for \$14,000 and VW sold it in the US for 25,000 and the buyers took it from them. But in Europe they sold worse than a Yola Berrocal record with the adjusted prices.

We had already finished a "cheap" version (which means in Spanish that less than the essentials were used - and we removed everything to lower the price, like sunglasses holder, seat or steering wheel heating, active inside mirror, computer ... Even the one-touch window regulator! - and it still didn't look good.

So the idea was to launch a limited series of the New Beetle ( NB ) to create a Clio Cup style advertising trophy with a sporty and macho look and a powerful engine.

Oops, we rubbed our hands: You can't do something like that very often!

Later you can see that they changed their mind and decided that it should not only be a sporty car, but that it should be a real luxury car, because they wanted to give it to personalities and celebrities, including our king. So the Limited Series was changed to Numbered Series. No matter what it cost, they said.

This is our thing, we said! We will use the most powerful engine that can be built into the Golf (because the NB is a Golf in disguise, according to some people), and we will use the 4Motion, and the people will go crazy! Hahahahaha... We couldn't start to design a new floor, so the only option was to use the Golf Syncro floor. But the Golf Syncro floor is higher, and this car should be lower!

Oh... The new floor was wider too... What started as a modification project became a complete redesign of a car that we had to produce within a year! To make it wider, we changed the front and rear windows, the roof. In the end, all that remained were the doors and some other parts from the standard NL.

Widened fenders to cover the wheels. XXL side skirts to cover the height of the floor and new bumper covers to the floor. But with the dynamic intakes (the air intakes in the fenders) the designers insisted on using a grill that was as open as possible, and when you bent down, the whole cake naturally revealed that the car was hollow from below. Solution? To put a cover behind it, so that when you look through the grills, you see everything black, black. An epidemic of aluminum parts inside and that was it!

And the car comes out. And we are on TV. And we party a lot. It's a project that I love very much, because for four months I gave my life for it, fourteen hours a day, six days a week, slaving away, but I still enjoyed the work. There are not many projects of this kind.



TOP

And then they give one to the Emir of Dubai. And this guy who says he wants many more. But that the car is too uncomfortable and too powerful. And if one of my kids is just getting the milk, and if one of my wives loses her baby because of the shaking of the car?

No: I want them to look just like the RSI, but with a more sensible engine and a more comfortable suspension. And not a 4x4, because Dubai is just asphalt.

Let's say with the 1.8T engine and they will love it! I will give one to each of my children / relatives on my birthday, so I need **EIGHTY** of them. Don't spare any expense!

When we heard the news in the Technical Center, we thought we are dreaming. But when the Director of Research and Development called us, we learned that he was serious.

Come on - let's get the fenders, side skirts and more on the standard - New Beetle.

A nightmare, because now the floor of the standard NL was too LOW! So we had to raise the suspension and make other brackets. All necessary parts were reworked piece by piece and the pilot plant of the NL was put back into operation. We made the eighty cars, put them into containers and brought them to the United Arab Emirates. And for **six million dollars** the 80 children / relatives of the Emir of Dubai ( I will have to be an Emir one day ) got a real VW model in a small series.

Ende



TOP