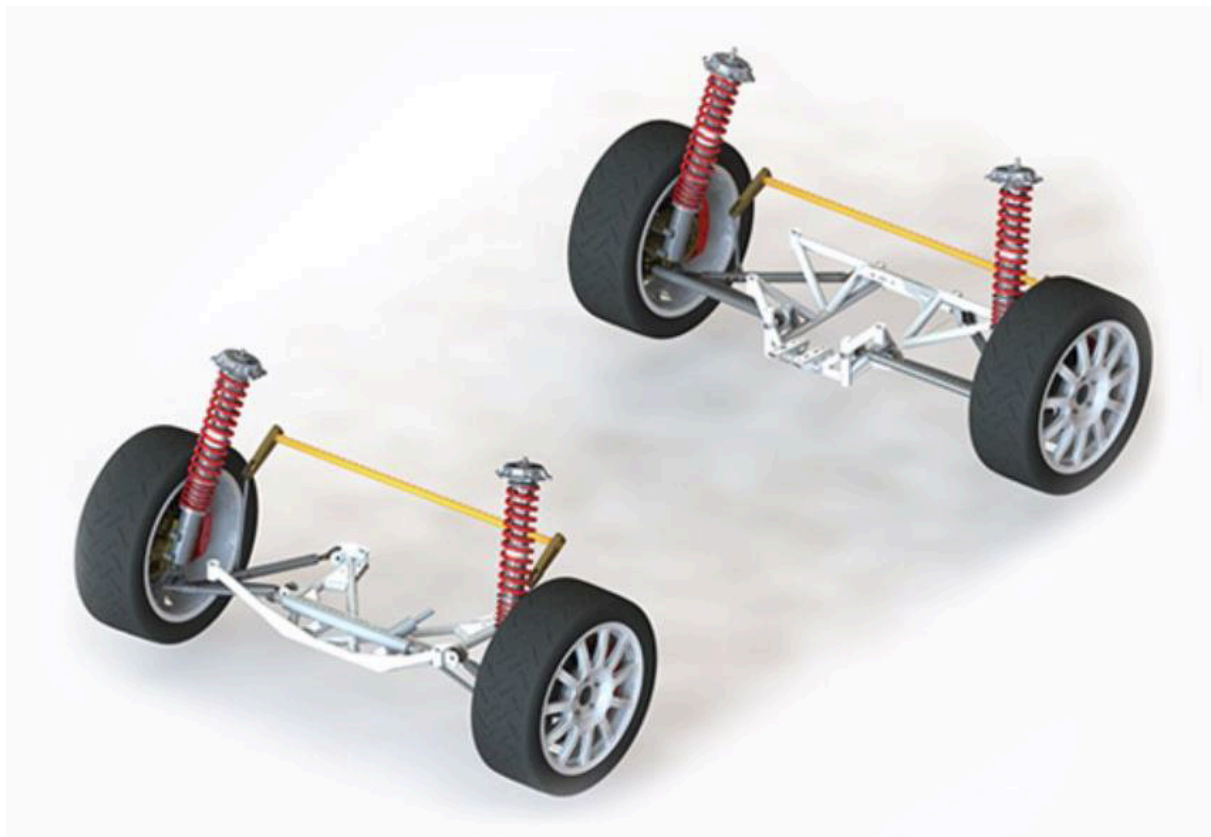
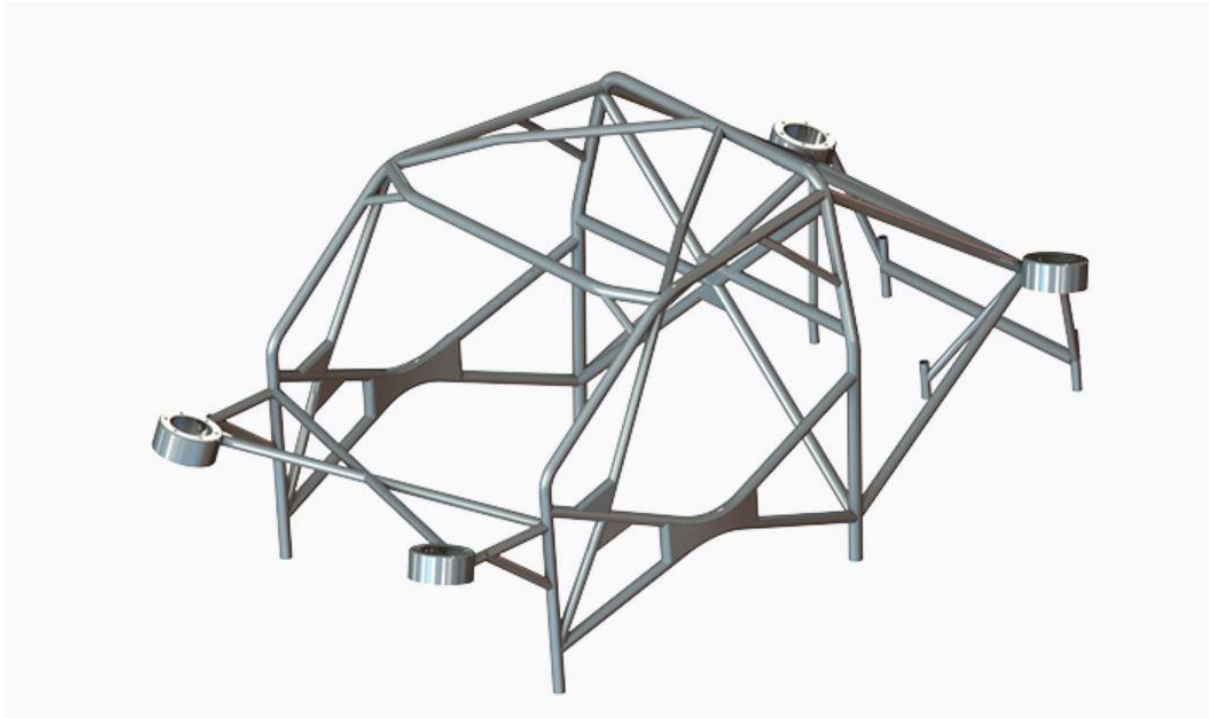


What are the Maxi Rally? Where do they come from and where do they go?

The Maxi Rallies were born from the need to replace Group-N cars (Subaru and Mitsubishi) and at the same time trying to reduce costs by using a large part of components nationals. In 2010 the Baratec company began the development of a VW Gol Trend, where they test the different components that would become part of the vehicle finally named Maxi Rally. The result of this development is a set of parts that form a kit / platform that allows you to create a 4x4 rally car from the hull of a B-segment vehicle. This kit consists of two suspension racks with their respective arms. Use the same type of ball joint on all wheels as well as the upper cups. The hammers are the same on each side, as with shock absorbers. The result of this kit allows you to create cars with the same suspension configuration and gauge width. The only significant difference is the distance between axles that depends on the original vehicle.



The chassis is completed with a safety structure designed and built under FIA regulations.

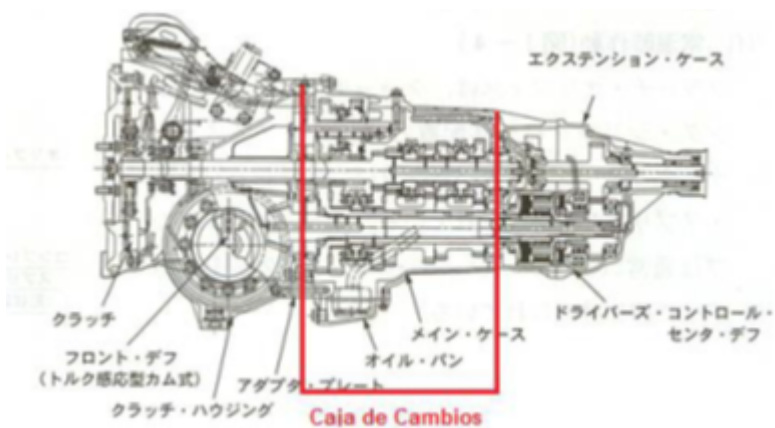


The shock absorbers were developed by Baratec with the participation of some teams, they allow a great suspension travel and have three ways of regulation (general hardness, compression and expansion). They use two springs allowing progressive damping.





The transmission is the same used in the Subaru WRX STI, with a 50-50 traction distribution between the two axles. The version used in the Maxi Rally uses a 6-gear straight tooth Modena gearbox and a sequential gearbox kit. Within the transmission assembly, there are the front differential and the center differential that has electrical coupling. The latter allows the rear wheel drive to be disengaged when the handbrake is applied. This transmission is completed with a Subaru rear differential which allows the same type of axle shaft to be used throughout the vehicle.



The kit is completed with a hydraulic steering box, four-wheel full diameter disc brakes with 2- and 4-piston calipers, and an FIA homologated FT3 fuel tank.

The original engine was developed by Berta based on the Honda CR-V 2.4-liter naturally aspirated 4-cylinder. The engine power was about 270-280 HP, a maximum torque of 300 NM, and it reached a maximum of 7200 RPM.



In 2010 Claudio Menzi began to race in the Argentine Rally with Baratec's VW Gol Trend as a test and development, achieving promising partials. As of 2011, Maxi Rallies are allowed to actively participate in the championship, from then until now the following makes and models have emerged.

VW Gol Trend
VW Polo
Ford Fiesta Kinetic
Ford Fiesta
Chevrolet agile
Chevrolet onix
Fiat palio
Kia Rio
Citroen DS3
Audi A1
Peugeot 207
Peugeot 208
Renault clio
Toyota Etios
Toyota yaris



Changes, improvements and new costs

Trying to achieve an improvement and to be in line with rally cars internationally, the development of the 1.6-liter PSA turbo engine begins. By the end of the year 2015, the tests with the new engine begin and it enters the competition as a test in 2016. The new engine from the beginning delivers about 280 HP with a top of 6500 RPM, and through a 34 mm flange the turbo generates a maximum pressure of 2.5 bars (1.5 bars above atmospheric pressure). Although the biggest change thanks to the turbo was not the power, but the increase in torque that reaches a lower speed and reaches 420 NM. The introduction of the turbo engine implies other changes and it begins to depend more on the electronics (ECU) that controls the engine and other aspects. Multifunction color displays also began to be used.

From a handling standpoint, the new engine provides more flexibility and the extra torque allows for a different kind of ride. The accelerator becomes electronic, since the pedal commands a potentiometer instead of moving a cable. The lower speed of the turbo engine meant that the original gear ratios intended for the aspirated engine were short, and it was decided to replace the 4th, 5th and 6th gears with others that would allow the same final speed as with the aspirated engine. Another race began between the different teams and preparers, that of achieving more power working on the engine maps and other components, reaching in 2020 easily exceeding 300 HP. The chassis also needed some changes to accommodate the new engine. New grips, place for the intercooler and other small details.



At the beginning of the era of the aspirated engine, Baratec was the sole supplier of shock absorbers, then VRS (Federico Villagra) joined, and on the other hand KS Rally (Martín “Kiko” Villalba) who carried out independent developments on Baratec shock absorbers. Everything was kept within the national industry, but over time international brands began to appear. First a timid test with TEIN by Marcos Ligato thanks to his relationship with the brand. Then there was an invasion by Reiger which is currently the most used brand with a few using Ohlins. Baratec continues to be a supplier, although the latest developments remain exclusively for the cars of its team. At the beginning of the era of the aspirated engine, Baratec was the only supplier of shock absorbers, then VRS (Federico Villagra) joined, and on the other hand KS Rally (Martín “Kiko” Villalba) who made independent developments on Baratec shock absorbers. Everything was kept within the national industry, but over time international brands began to appear. First a timid test with TEIN by Marcos Ligato thanks to his relationship with the brand. Then there was an invasion by Reiger which is currently the most used brand with a few using Ohlins. Baratec continues to be a supplier, although the latest developments remain exclusive to his team's cars.

Along with the new shock absorbers, improvements were also incorporated, such as new brake calipers, the original Baratec brake pads were left aside by brands such as Endless. Some teams called on the services of European engineers to work on the engine and tuning the chassis. All this dangerously increased costs while at the same time the Maxi Rallies achieved more participation in the Mar y Sierras, Cordobes and Federal regional championships. With the arrival of the R5 cars to the Argentine championship, in 2021 the Maxi Rallies were momentarily benefited with a 36 mm flange, taking power above 330 HP,

although the result was not as expected since the increase of power made the handling less certain due to the lack of good traction.

Maxi Rally For Export

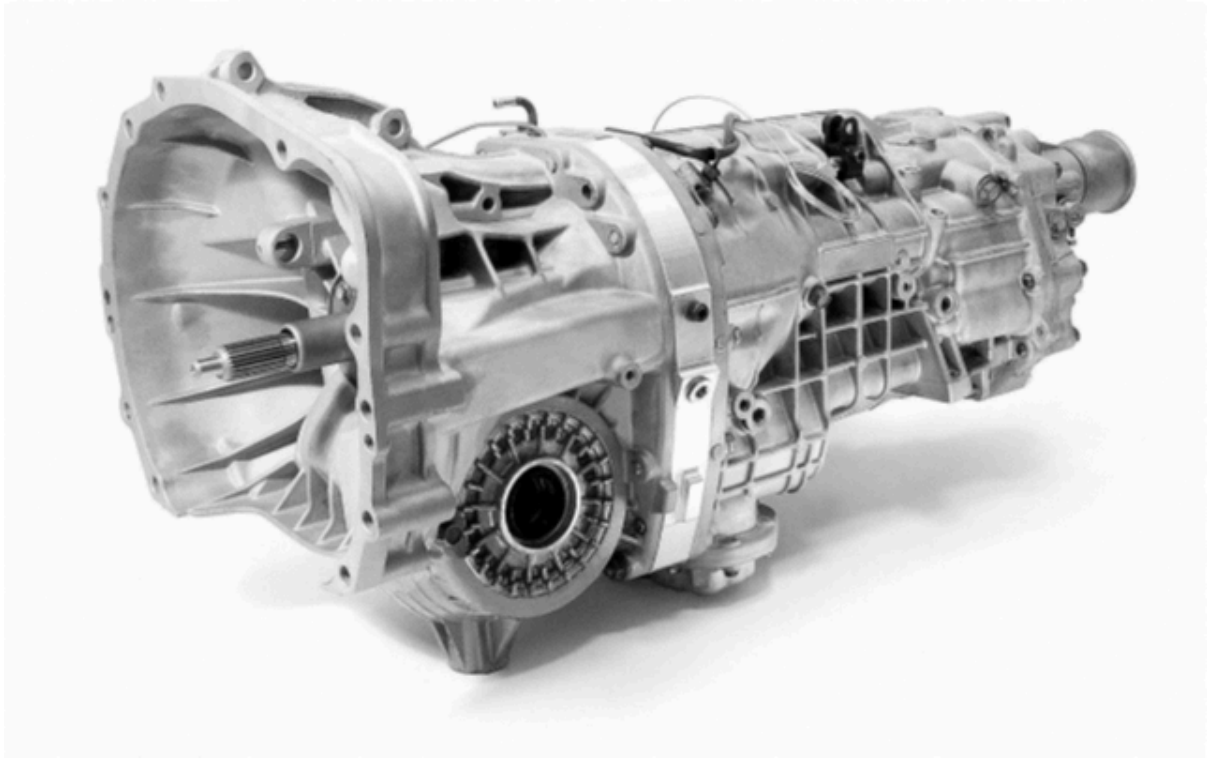
Since its inception, the Maxi Rally concept generated comments around the world, and were a source of inspiration (although with differences) of the AP4s in Australia, eventually exporting a Peugeot 208 with a poorly developed version of the 1.6 PSA turbo engine. From Spain, Amador Vidal (ARV Racing) and Roberto Méndez (RMC) came to Baratec separately to obtain a representation or license of the product. From this agreement the N5s were born.

In the case of RMC, they received a Baratec Peugeot 208 turbo in 2016 which they debuted a few months later with a gravel rally victory in the hands of Xavi Pons. Then they began the construction of several models under the name N5, keeping the chassis almost unchanged, although with some improvements in the mechanics, finishes and some functionalities. I do not know the technical details, but apparently the work on the cylinder head and the exhaust manifold that feeds the turbo are different from those used in the Maxi Rally.



There are two changes that stand out. At first, the N5s were made to compete directly against the first-generation R5s in gravel competitions with good results, but then this idea was abandoned and the N5s stopped fighting for the general classification and started to play cups or tournaments. organized by RMC exclusively for N5 cars. This put aside the competition between teams and allowed RMC to use an ECU with a common engine map setting for all participants ensuring reliability and a good power close to 300 HP.

The other significant change was the use of a Samsonas gearbox instead of the Modena gearbox. This box has a better designed sequential shift drive and uses other gear ratios that make better use of the motor, leaving behind the old ratios of the original aspirated motor.



ARV Racing was more focused on the asphalt competitions so popular in Spain. From this premise they make other modifications on the original Maxi Rally going a little further than RMC. They develop a different exhaust manifold, with the turbo in another position, abandon the MOTEC electronics and replace it with products from the LIFE company. They change the box for a KAPS brand, also replacing the original gear ratios of the Maxi Rally. But the most significant change is the use of a front roll bar. Although the front bar appears in the Maxi Rally manuals, no car in Argentina has it.

ARV Racing had the support of Suzuki and therefore the company's first N5 was the Swift model.



The use of the front bar gave good results on asphalt where it is essential, but also on gravel it is a device that helps the vehicle's dynamics.

During the first two years in Spain there was a great dispute about the participation of the N5 in different events, but by 2019 the conflict had already ended. Although ARV Racing managed to obtain more benefits in the N5 than RMC, the latter's business model aimed at organizing championships where these cars participate, providing technical assistance, coaching and being a supplier of the spare parts line seems to have been a success. Currently with the unification of the Spanish gravel and asphalt championships into a single super championship, the N5s are highly sought after by 'gentleman drivers' who want to enjoy the experience of driving a high-performance 4x4 car, or young drivers who do not have access to cars. R5. There is also a Michelin program for young drivers.

After the success of RMC in Spain, from 2021 the N5s arrive in Italy from the hand of DeDo (Alfredo De Dominicis), who associated with RMC has the representation to manufacture new N5s in Italy, make repairs and provide technical assistance. He also offers a personalized coaching and driving school service and is the promoter of two new Italian championships or cups.

In March 2021 Story Auto Racing was made official as RMC's representative in Portugal. Interest is also shown from France. It should be noted that there are N5 cars in Finland, Belgium and even Peru. Obviously the N5 happened to occupy a place where there was a need, away from direct competition with the R5, and more oriented to enjoyment or learning, where those interested are offered the complete package consisting of car, advice, spare parts and others. facilities at an affordable cost.

Maxi Rally T.E.?

With the arrival of the R5 to the Argentine Rally championship, it became clear that the Maxi Rally could no longer compete for victory in the general classification. Beyond the attempts to increase power, the design of the chassis and some components prevented translating that extra power into movement. So much so, that some Pirelli Cup cars that used the 34mm flange performed the same or better than those of the higher class with the 36mm flange.

With the R5 reigning and an economy that does not accompany, the current scenario raises two different needs and perhaps two different paths to follow. On the one hand, there are pilots who, without being able to access an R5, would like to be able to compete for the general classification assuming extra costs, and others who seek to maintain current benefits, but maintaining or even reducing costs. Apart from this, the Maxi Rally should provide better handling, more precise and that serves as a school to write road maps with the detail that is needed in an R5. Somehow in Argentina we have the two scenarios that the N5 faced in Spain, performance on the one hand and economy and reliability on the other.

At this point is where I think of the Maxi Rally "TE" which can mean two very different things, Turbo Evoluzione or Turbo Economy. Starting from the premise of maintaining the chassis with minimal modifications in either of the two roads, the supposed Evoluzione could incorporate improvements and as seen in the N5. A faster and lighter more modern box for the Subaru WRX STI transmission (Samsonas, KAPS, PPG, X-Shift, Kotouc), better gear ratios, better differentials, a new turbo and exhaust manifold accompanied by a cylinder head with another development, all this for flatter power and torque curves instead of just raw power. Include the front anti roll bar, in order to free the front shock absorbers from this function and to be able to use them with greater freedom as suspension without limiting the height, obtaining with all this a better driving.

On the other hand, the Economy version could well incorporate some of these improvements without increasing costs and even reducing some, with the objective of maintaining or even increasing the number of cars in the Pirelli Cup, or the regional championships.

Including the front bar shouldn't be a big expense, but it could bring big benefits. Keeping the current cash register, the cash relations could be updated through local suppliers, going to have cash relations commensurate with the operation of the engine. The turbo and exhaust manifold could also be modified as in the first case, but keeping the power below 290 HP, which was the original power for which the Maxi Rally was designed. Other points to reduce costs depend on the agreement between drivers, teams and organizers. For example, exclusively use national shock absorbers and brake pads, and an ECU with the same engine maps for all, aimed at maintaining reliability rather than obtaining performance.

None of these changes prevent some components from being exchanged to race in the national or regional championship by keeping the chassis unaltered.

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Written by Damián Baldi in March 2021 after a lonely year of confinement.