



THE ABC OF RALLYING

THIS GUIDE WILL HELP YOU UNDERSTAND THE JARGON OF RALLYING

WRC: WORLD RALLY CHAMPIONSHIP

RALLY: LONG DISTANCE RACE FOR MOTOR VEHICLES

THE BEGINNING

The first official event was the Monte Carlo Rally which took place in January 1911. 23 Cars started out from 11 different locations around Europe to meet in the mountains surrounding the principality of Monte Carlo at the bequest of Prince of Monaco Albert 1st. His goal was to promote the micro state as a holiday destination. Among the factors used to determine the winners were passenger comfort and the condition in which the car arrived.

The World Rally Championship was created in 1973. Competitors met in 13 countries with rallies on every surface from gravel strewn forest paths to icy mountain passes. It was primarily seen as a way for car manufacturers to test out new cars and new technologies. For this reason only the winning manufacturer was awarded a championship title by the FiA. (*FiA – Federation International Automobile is the governing body of international motorsport*).

Five years after its inception in 1978 the WRC established a Drivers Championship. By the mid 80's the WRC matched Formula 1 in popularity thanks to the infamous Group B era in which the cars boasted unlimited power. Today over 3.8 million spectators watch the rallies live stage side while almost 800

million tune in from home. Broadcast by 150 TV Markets around the world it even has its own video game series. The WRC is widely regarded as the most challenging motorsport championship on the planet.

Today rallying pits production based cars on closed road sections against the clock. Production based means the cars must be based on normal road going equivalents of which a defined minimum number must be made available at dealers around the globe. This is part of the **Homologation Process (Certification of Motorsports Regulatory Standards)**. In order to meet the WRC homologation requirements a car must be produced in a series of at least 25000 units per year. Closed road sections means that cars complete mostly on real public roads with real pot holes and real snow, real forests and dangerously real cliffs.

Instead of circuits a Rally is divided into sections from A to B these are called **Special Stages (section of closed road at a special stage rally event)**. These special stages are driven one after another in intervals against the clock. The previous championship winner starts first and it's all about finding the perfect

line pushing the car to the limit and beyond. A rally can be made up of over 30 special stages. The WRC currently takes in 13 rallies in 13 countries. To win the title a team has to be quick on every surface. No perfectly maintained tracks, no barriers to keep the cars from flying off, just two men against the road fighting for the title.

Two titles are up for grabs in the World Rally Championship, one for the drivers and one for the manufacturers. At the end of the season the driver with the most points lifts the trophy the same applies to the manufacturer title.

Points are allocated to the top ten drivers in each competition on a 25-18-15-12-10-8-6-4-2-1 basis. 25 points goes to first while tenth placed team or driver gets one point. For the manufacturers title the teams must designate drivers that can score points for them. Bonus points are awarded at each rally in the **Power Stage (final stage of a rally 5-4-3-2-1)**. As a general rule the teams are timed both on and off the stages. Stops for maintenance are strictly regulated and may not last longer than 45 minutes. If a team exceeds this limit it will be given a penalty which usually comes in the form of a time penalty.

THE TIME TABLE OF RALLYING

A typical rally usually lasts a week. The teams arrive on Sunday prior to the event start to prepare the **Service Park**.

THE SERVICE PARK

The rally cars visit the 'Service Park' at pre-determined times during each event. Besides checking the car and changing tyres, during this time a team of four technicians is allowed to perform mechanical work on each car. Service time available is strictly limited, with each stop being either 10, 30 or 45 minutes depending on the itinerary. Being able to work in this pressured environment means WRC mechanics are some of the best in the world, capable of extraordinary ingenuity, speed, and the odd miracle. In the heat of competition a suspension upright, hub and brake unit will be swapped in around five minutes, a gearbox in 10. Armed with hammers, welding torches and tank tape, WRC mechanics have the power to transform a sorry looking wreck into a rally winner. Away from the service park repairs or adjustments can still be made, but only by the driver and co-driver, and only

using tools and spare parts carried in the car. Time penalties are applied if visits to the service park exceed the period allowed. Time penalties are also given to competitors who arrive late at stage starts, or any of the other numerous check-points throughout the event.

Tuesday and Wednesday the drivers begin with their "recce" or "reconnaissance" (survey to gain information about the special stage and a location). The drivers use a non-rally car to complete the reconnaissance. Before the rally starts each team is allowed to drive the stages twice but only within the legal speed limit. On the first run the driver estimates how fast he can push his car while instructing his co-driver to note down the layout of the road ahead. On the second run the co-driver reads these *pace notes* (navigation details of a rally route)

back to the driver. Every team has their own way of making pace notes. The corners are usually assigned a number which corresponds with their radius. A 5 might be a fast curve while a 1 might be 90 degrees. Pace notes are usually read 1 or 2 corners in advance helping the driver to create a mental map of the road ahead. With the recce complete the team reviews the pace notes while watching the on board camera footage.

On Thursday it's time for the "Shakedown" (test run of the rally car). The drivers are allowed to tackle the shakedown stage at full speed in their rally car to make any final technical checks to the car before the rally starts. The teams then have a service before heading off for the Opening Ceremony.

MEET THE TEAM

A successful rally team is made up of a variety of skilled individuals, while managers, engineers, drivers and co-drivers are obvious. Some teams have a physiotherapist, Chef, PR, Media manager and meteorologists. After all correctly picking the weather can make or break a drivers rally.



OPENING CEREMONY

Every WRC event has an Opening Ceremony on the Thursday afternoon/evening. It gives the fans a chance to get up close and personal with the drivers and their cars. The drivers get to meet their fans and sign autographs. Traditionally the cars drive onto a stage and each car is waved off the stage to signal the beginning of the Rally. After the ceremony the cars are driven to the Service Park where they go into **Parc Ferme (an area at the Service Park where the cars are parked and not allowed to be touched until the rally begins the next day)**. The Rally cars go into Parc Ferme, Thursday, Friday and Saturday after the final service of the day.

Friday the Rally starts. The drivers are fully focused on the stages that lie ahead so to ensure the spectators are safe the **Zero Cars** are deployed (**Safety Car to carry out security for a rally**). The triple Zero car comes first it is not a rally car but a normal production car to ensure all spectators are not standing on the road and are in safe spectator areas. This car is followed by the double Zero car which is also a series car and double checks there are no obstructions on the road. Finally the Zero car does the final check of the road. This is a rally car with a co-driver, this car drives much faster to

warn spectators that a "faster" car is coming.

In traffic rally drivers have to respect the rules of the road just like the rest of us. Rally cars spend most of their time on **Liaison Sections (public road sections from one special stage to the next)**. For this reason every car must have a horn, a licence plate and an insurance policy. If a car arrives late to the next stage a time penalty will be waiting. At the end of the first day there is another 45 minute window for maintenance called "end of day service". After this service the cars then enter Parc Ferme.

Saturday the Rally starts again. The stages vary in length from 80km to 1.8km's and every day there are different stages. Some rallies have **Super Special Stages (circuit stage where two drivers complete in front of an audience)**. The Super Special Stages are often held on stadium circuits in front of a big crowd and more often than not two drivers compete directly, head to head against one another. After 3 days of Rallying an awards ceremony is held on Sunday to congratulate the winners.

Based on the experiences from the Group B era the FIA introduced new

regulations to make the sport safer. Stronger roll cages were introduced and cars were given a minimum weight. The engines output were restricted. All of these regulations are now inspected meticulously by the **scrutineers (official to inspect the implementation of regulations)**. The scrutineer's role is to check each of the cars before the event, during the event and after the event to ensure they comply with the regulations of WRC. Safety is the top priority. Tyres are barcoded before they leave service as they are not allowed to change the type of tyres (soft or hard) they have chosen to use on that specific stage. Tyres will be checked at the end of the stage and again when they return back to the service park. They will carry one or two spare tyres depending on the length of the stage but these tyres will need to have been bar coded by the scrutineer before they leave the service park. Selecting the right type of tyre for that specific surface is always very difficult.

Another crucial component is the **Dampers (component to absorb heavy energy on the car)**. Rocks and jumps can easily damage a car and upset the balance. Rally cars use dampers that are twice as big, twice as strong and twice as heavy as normal shock absorbers to

deal with all the impacts they get on the stages. They have different types of springs to deal with different types of road conditions. They have remote canisters where the damper oil is stored which keeps the oil cooler and working as efficiently as possible.

Another vital ingredient to keep the cars in contact with the ground is pressure. To improve the airflow around the car and increase downward pressure, spoilers are mounted on the body to create "**aerodynamics (manipulation of air around a moving object)**". The rear wing doesn't work well at low speed but when you get up over speeds of 80km's it makes a massive difference. You don't want to lose your rear wing. The front wings create a nice flat profile trying to generate a bit more down force on the front wheels. The most important part is the front splitter. You can't believe the difference in the handling of the car if you loose this piece. The air starts to get underneath the car and you start to loose feeling in the steering and over the jumps the front will start to lift. It is a massive challenge in rallying as the terrain is not like circuit racing, rallying in forest stages cutting corners and flying over jumps you hope that the rear wing and front splitter stay put.