



FIA RALLY SAFETY GUIDELINES 2024



6TH EDITION



FIA RALLY SAFETY GUIDELINES **2024**

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Foreword



Dear Friends,

We are glad to share with you the updated FIA Rally Safety Guidelines, which take account of the latest requirements and technical innovations at the start of this new season.

Launched in 2019, these guidelines are the result of an intensive period of analysis and consultation regarding the safe running of FIA rally events around the world. The FIA Safety and Rally departments have worked in close collaboration with members of the FIA Closed Road Commission and the FIA Rally Commission to capture best practices from the FIA World Rally Championship, in a format that is also relevant to FIA Regional and National level rallying.

As the WRC enters a new era marked by advances in technology and safety, in particular with the hybrid-powered Rally1 cars, it was also important to reflect those changes in this document.

As always, safety is a key priority for our community and the FIA is committed to doing everything possible to protect motor sport spectators, competitors, officials, marshals and media. Careful planning and correct implementation are crucial to the continued success of the sport we love – and which is, as you know, an important part of my life.

I invite all our member clubs, rally organisers, officials and volunteers to make use of these Guidelines and consider them as a valuable resource to assist you in the staging of rally events.

I wish you a safe and exciting 2024 Rally season.

A handwritten signature in black ink, written in a cursive style. The signature is fluid and appears to be the name 'Mohammed Ben Sulayem'.

Mohammed Ben Sulayem
FIA President

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Introduction

Rallying is one of the greatest tests of man and machine against terrain and time. A team sport consisting of not just the driver and co-driver but a full group of skilled technicians working day and night as they tackle the special stages around the host area. A sport that is accessible to the many enthusiastic spectators and general public as it passes through their towns and villages.

Rallying is a sport that is recognised as being well organised, under strong regulations with a strong safety record, but any deviation from that safety record could threaten the very future of the sport that we love.

It is vital for the future of our sport that organisers effectively manage the safety risks to everyone – competitors, volunteers, officials, marshals, media or spectators.

One of the greatest challenges for the sport of rallying is to ensure the safety of the public.

Remember, anybody other than a marshal on duty or a competitor, who is competing, should be considered as a spectator and therefore as a member of the general public.

All motor sport events need to be considered primarily as major public events and secondly as sporting competitions.

Unfortunately, too many spectators do not understand the potential dangers and do not comprehend the speed of the cars. Consequently, they place themselves in dangerous locations, placing far too much trust in the skill of the drivers and the reliability of the cars, and often displaying a lack of basic

understanding or knowledge of the safety rules.

It is the responsibility of everyone to ensure that all spectators are in an acceptable position and are aware of the dangers of a car becoming out of control. Safety must be at the heart of every rally event.

This is a living document and will be updated to reflect best practice. It will grow with the support received from event organisers and officials to enable our sport to consolidate our experiences and to share best practice and learnings.

This document should be read in conjunction with the FIA WRC / Regional Rally Sporting Regulations and the FIA International Sporting Code, Appendix H. Appendix H covers the safety requirements that each event has to have in place.

Sporting regulations:

<https://www.fia.com/regulation/category/117>

<https://www.fia.com/regulation/category/119>

ISC:

<https://www.fia.com/regulation/category/123>





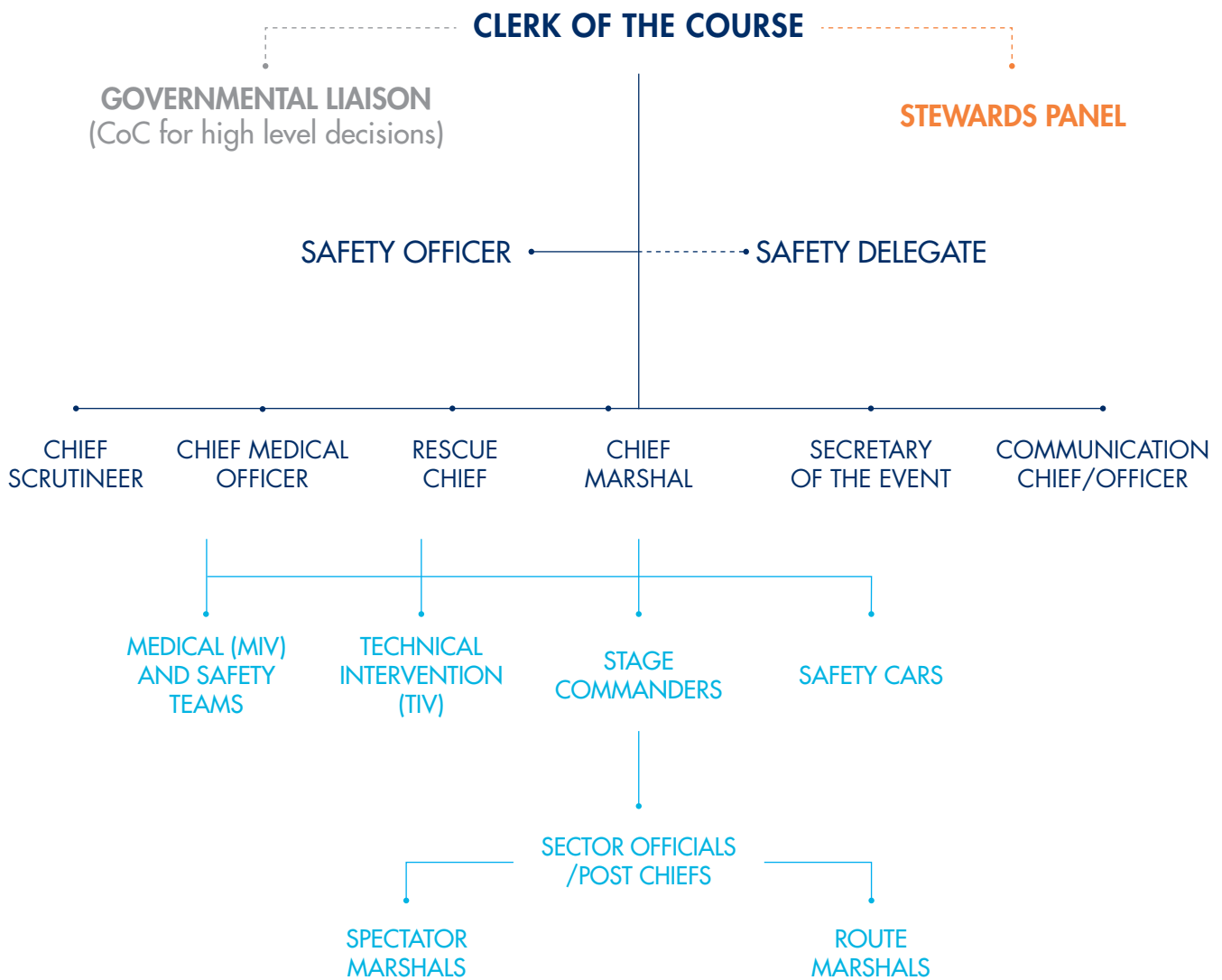
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1 / OFFICIALS' ROLES AND RESPONSIBILITIES

RALLY OFFICIALS' CHAIN OF COMMAND



1.1 CHAIRMAN OF THE STEWARDS

The Chairman of the Stewards is the senior individual at the head of a panel of three. The stewards will not be in anyway responsible for the organisation of the event and shall not have any executive duties in connection with said event therefore, in the carrying out of their duties, they do not incur any responsibility except to the ASN and to the FIA under whose regulations they are acting.

The stewards have the power to penalise competitors, alter supplementary regulations, pronounce disqualifications and may postpone a competition in the event of force majeure or for serious safety reasons. They may even take the decision to stop temporarily or permanently any competition.

[International Sporting Code, Appendix V, Article 3.1.1 and Supplement Event Command and Control 1.1](#)

The Stewards are in charge of enforcing the regulations during a competition.

A / ROLE

— The stewards have supreme authority over the competition, as well as authority for the enforcement of the Code and national and Supplementary Regulations and Official Programmes. They may settle any matter that might arise during an event, subject to the right of appeal provided for in the Code.

B / RESPONSIBILITIES

— Please refer to the [International Sporting Code – Article 11.8 and 11.9.](#)

[FIA World Rally Championship Sporting Regulations](#)
[FIA Regional Championship Sporting Regulations](#)

11.1 Stewards

The panel of Stewards (the Stewards) shall always comprise three members. The Chairman and one member shall be appointed by the FIA.

The third member shall be appointed by the ASN of the country organising the rally. There must be a permanent communication link between the Stewards and the clerk of the course. During the running of the rally at least one of the Stewards must be in the vicinity of the rally HQ.

1.2 ASN/FIA SAFETY DELEGATE



The Safety Delegate will be an experienced person with good knowledge and experience of safety matters. He will support the organiser and provide advice to help in ensuring the safe running and management of the event.

The Safety Delegate's role will be:

- to assess the effectiveness of safety measures aimed at keeping the public, volunteers and competitors safe.
- to review and have input into the Safety Dossier and other related documents (media plan etc.), and to the event planning at an early stage;





- to travel around the special stages during the event in an appropriate safety car (See Chapter 2) to an agreed schedule, as close as possible to the running of the first competition car.
- He will work directly with the Chief Safety Officer and will be in radio contact with the safety cars and rally control.
- He will take part in the post-event debrief.
- He will write a Safety Delegate report that will be made available to the organiser after the event.

The Safety Delegate will also have the power in the case of force majeure, or safety reasons, to recommend to the Clerk of the Course to postpone the start of the stage by 30 minutes, or to recommend that a special stage should be cancelled.

On events where there is no Safety Delegate, the appointed Observer - who is often also the second Steward - is asked to evaluate safety in their reports.

A consistently poor report from the Safety Delegate or Observer would be expected to result in changes to the event or, potentially, to a permit not being approved for that event the following year.

The Safety Delegate and/or Observers report should be read in conjunction with the Chief Medical Officer report, the Stewards report and any report gathered from competitors.

For FIA events, these reports are to be compiled and sent to the FIA Safety and Rally departments for review.

The FIA Closed Road Commission will review any FIA Observer or Safety Delegate report where a safety concern has been highlighted and, if deemed necessary, will recommend to the relevant FIA Sporting Commission that a "Yellow Card" be issued to that event. Any serious safety breach will be reported directly to the World Motor Sport Council.

YELLOW CARD

A yellow card can be given by the Rally Commission to an event organiser/ASN if a serious lack of safety in rallies is observed and upon a proposal from the Closed Road Commission.

The Rally Commission may decide not to include an event that

has been given a yellow card on the following year's calendar.

BLUE CARD

A blue card can be given by the Rally Commission to an event organiser/ASN if a serious lack of compliance with the regulations and the commitments undertaken (itinerary, organisational structure, etc.) is observed.

To be included in the following year's calendar, the organiser/ASN must accept and implement the action list decided by the Rally Commission.

International Sporting Code, Appendix V, Article 3.4.2 and Supplement Event Command and Control 4.1

The Safety Delegate is designated to help the safety Officials of the competition to perform their duties, to ensure, within their fields of competence, that all the safety regulations governing the FIA Championship are respected, to make any comments they judge necessary, and to draw up any necessary reports concerning the event. In Rallies, he has the power to delay the start of a special stage by a maximum of 30 minutes.

A / ROLE

— The role of the Safety Delegate is to review and validate the Event Safety Plan prior to the event and its implementation during the event, and to supervise the work of the Chief Safety Officer throughout.

B / RESPONSIBILITIES

- To attend safety planning and evaluation meetings in relation to the event.
- To monitor the safety of the public and media areas.
- To coordinate between FIA and ASN any administrative items regarding safety.
- To evaluate and report on any safety-related incident at the event.

11.2.3 FIA Safety delegate

The FIA Safety delegate is specifically responsible for monitoring the safety of the public and media. He has the power to delay the start of a special stage by a maximum of 30 minutes if she/he considers that the safety conditions are not satisfactory.

1.3 CLERK OF THE COURSE

The Clerk of the Course leads the organising team and is the official responsible for conducting the event in accordance with the regulations as well as the safe running of the event. They control the event making effective decisions throughout the build-up and competition till results are declared final, using all the resources at their disposal through senior officials, marshals, national authorities and volunteers.

The Clerk of the Course is ultimately at the head of the chain of command and as such will make decisions regarding the stages in conjunction with the Stage Commanders. This decision-making process should always consider safety as the first priority and the event itinerary as a secondary aspect.

Whenever a disabled competitor (driver or co-driver) is participating in a rally, the Clerk of the Course must ensure all marshals are informed that, in case of accident, whenever they see the universal disabled symbol on competitor's car, they should consider that the non-ambulant occupant has conditions requiring special assistance and might have additional restraint system for his legs and torso, hindering the extrication. The Chief Medical Officer must also be informed to ensure rescue team are also made aware.

International Sporting Code, Appendix V, Article 3.1.3 and Supplement Event Command and Control 1.3

The Clerk of the Course is responsible for all aspects of safety on the special stages, producing a safety manual and ensuring that it is adhered to during the competition.

A / ROLE

— The Clerk of the Course is responsible for conducting the event in the accordance with the applicable regulations.

B / RESPONSIBILITIES

— Please refer to the International Sporting Code – Article 11.11.

1.4 FIA MEDICAL DELEGATE

The FIA Medical Delegate has to check the conformity of the medical safety plan with the regulations and ensure that it is performed accordingly.

- He will evaluate the medical safety plan with the help of a pre-event medical questionnaire filled in and sent two months before the rally by the Chief Medical Officer.
- For each new rally of the WRC, or for each rally that has not been part of this Championship for five consecutive years, he carries out an inspection of medical services and proposed hospitals before the competition concerned has been entered onto the WRC calendar.
- During the competition, he will check, that the medical services are set up and operating correctly by visiting every medical point on the stages, as well as service park, and assess that the staff is on site, properly deployed and trained, the vehicles and the equipment are suitable to the mission and the medical evacuation facilities are appropriate. This will be done by driving through every special stage 60 to 90 min before the first competitor, in close cooperation and good communication with the FIA Safety Delegate and the Clerk of the Course.
- He will perform the extrication exercise with all medical personnel, and, if necessary, contribute to their training.
- He must be informed by the Chief Medical Officer about any accident and/or medical incident and will check the drafted daily report before sent to the stewards.
- In joint responsibility with the Chief Medical Officer, he will determine where a driver can be authorised to race again after he has had an accident.
- He will perform the follow-up of a driver admitted to hospital, where appropriate.
- After the competition he will prepare a report on the medical services for the FIA, which will be forwarded to the ASN.

Reference: Appendix H Supplement 8 Article 2

1.5 CHIEF MEDICAL OFFICER

The Chief Medical Officer is responsible (CMO) for the medical part of the safety dossier and its implementation. He is not only responsible for the recruitment of doctors and paramedics for the event but also to ensure that the skill set each possess is relevant to the possible injuries that the teams may have to face.

The CMO will ensure that the maximum distance between medical facility points within a special stage is 10 minutes. This will be calculated in the preparation of the safety plan and itinerary by driving a vehicle at 50-55kph to choose the locations.

He will also contact the trauma centres and hospitals that may

1. OFFICIALS ROLES AND RESPONSIBILITIES

receive any patients from the rally, to ensure that they have the correct facilities to cope with any casualties and are aware that the event is taking place. This can include meeting the doctors on duty at these facilities on the day(s) of competition.

The CMO ensures that the medical intervention vehicles are of a standard that will work on the special stage terrain and are positioned on stage in a location that can react within the timescale highlighted in the regulations. The CMO will also liaise with any heli-med helicopter being used on the event. A procedure for landing stage side will need to be discussed with the crew of the helicopter in the case of deployment.

On the day of the event, he will ensure that all medical personnel are in position at their relevant locations. He will advise the Clerk of the Course of the seriousness of any reported incident or injury, working with the Clerk and Chief Safety Officer on how best to extract any patient from the stage and transport them to hospital, be that by ambulance or heli-med.

Whenever a disabled competitor (driver or co-driver) is participating in a rally, the CMO must ensure that all members of the rescue teams are informed that, in case of accident, whenever they see the universal disabled symbol on competitor's car, they should consider that the non-ambulant occupant has conditions requiring special assistance and might have an additional restraint system. His legs might be strapped down and/or his torso might be strapped to the seat, thus hindering the extrication. Modifications of the cockpit might also interfere with rescue. As far as possible, the rescue teams should meet disabled competitors and related modified cars ahead of the rally to get acquainted with their particularities.

International Sporting Code, Appendix V, Article 3.1.5 and Supplement Event Command and Control 1.5

A doctor of medicine, the Chief Medical Officer is responsible for the organisation of the medical service connected with all activities generated by a competition organised by the FIA or by an ASN. He is approved by his ASN. For the FIA world championships, he must also be approved by the FIA.

A / ROLE

— The Chief Medical Officer has overall control of the provision of medical services at motor sport events, liaising directly with the Race Director/Clerk of the Course.

B / RESPONSIBILITIES

— To manage the organisation and administration of the medical services at events, which includes the recruitment of appropriately trained and qualified medical personnel.

To plan and coordinate the medical teams for events, supervise their on-event deployment and take responsibility for medical decision making at the highest level.

For further details see the FIA International Sporting Code, Appendix H, from Article 2.7.2.1 to 2.7.2.2 and Supplement 2.

International Sporting Code, Appendix L, Article 11.3 Practice of motor sport for holders of an International Licence for Drivers with Disabilities

Non-ambulant disabled drivers will only extract themselves from a stopped vehicle on a live circuit or stage in case of smoke or fire emergency. They will also extract themselves from their vehicle if it is in close proximity to a body of water and at risk of sinking. If the disabled driver of the stopped vehicle is unable to drive his car off the circuit or stage to safety, he will remain in the vehicle protected by his cage, harnesses and safety equipment and await to be rescued.



Marshals are to be informed that whenever they see the universal disabled symbol on competitor's car, they should consider that the non-ambulant occupant has been requested to stay in his car if it is immobilised following an accident with no immediate emergency (smoke, fire or underwater).

It is also important that they are aware that in some cases, the legs of the occupant may also be strapped down.

1.6 RESCUE CHIEF

To ensure the general safety of all responders and to facilitate safe access for medical and rescue personnel, operational oversight of any intervention following an accident on the rally stage, shall be the responsibility of the ASN Rescue Chief.

The ASN Rescue Chief is nominated by the ASN and is responsible for ensuring provision of all necessary non-medical intervention equipment and personal protective equipment and the safe intervention of medical and rescue teams on stages following an accident.

It is the responsibility of the ASN Rescue Chief to ensure all rescue team leaders are appropriately skilled in managing scene safety, directing all firefighting and technical rescue activities and for the management of personnel, resources, and equipment in respect of those activities.

In the event of an intervention on the stage, the Rescue Chief, or the leader of the rescue team, is responsible for overall scene safety, command and control, firefighting, and technical rescue operations.

The Rescue Chief and/or leaders of individual rescue teams must be experienced in incident management, command and control, technical rescue and should have experience in fire and rescue and/or significant experience in operational, on scene motorsports rescue operations.

A / ROLE

He must ensure the provision of all non-medical intervention equipment as required within supplement 3 Appendix H, namely:

- The provision of rescue equipment
- The provision of firefighting equipment
- The provision of e-Safety equipment

B / RESPONSIBILITIES

Additionally, he must ensure the provision of the correct level of personal protective equipment for all personnel involved

In the event of any incident, to ensure the general safety of all responders and to facilitate safe access for medical and rescue personnel, he (or nominated and appropriately skilled and experienced rescue team leaders) must:

- Arrive as soon as practicable on the first attending rescue vehicle
- Establish a safe system of work
- Oversee scene safety, firefighting, and technical rescue activities
- Liaise with local doctor to ensure effective extrication
- Where applicable, liaise with the FIA eSafety Delegate to ensure safe

He must act as signatory on the Medical and Rescue Services questionnaire to ensure adequate provision of appropriate equipment.

Where interventions occur, he must provide a report to the CMO to detail the nature of the incident, the methods and the equipment used.

Reference: Appendix H, Articles 2.8.2.4, 2.8.2.5, 5.3.2, Supplement 2 Part 6



1.7 CHIEF SAFETY OFFICER

The Chief Safety Officer has the responsibility for coordinating all safety matters on event and works with several others on the organising team. The person for this key role needs to have considerable experience of safety at rallies and the job is crucial to the safe running of an event.

They are responsible for producing the safety dossier and ensuring that all those involved in the running of the event are aware of the dossier and, where appropriate have received the appropriate training to ensure its implementation. The Chief Safety Officer should be involved in the planning, including route planning, the delivery of the event and postevent debriefs.

He will liaise with the Chief Medical Officer to ensure that the emergency services and local authorities are fully consulted about the event and are consulted throughout the planning process.

He will carry out general risk assessments for the event and to carry out stage specific risk assessments along with the Clerk of the Course for adding to the safety dossier and set-up plans. Throughout the event the Chief Safety Officer will continually assess the risk assessments to ensure that they are still valid as the event develops and use this learning for future recommendations.

He will ensure that a copy of the safety dossier, or the relevant sections of the safety plan is distributed to those who need it.

On-event, the Chief Safety Officer will remain in close contact with the Clerk of the Course and give advice on the practicality of any safety and rescue operations.

International Sporting Code, Appendix V, Article 3.1.4 and Supplement Event Command and Control 1.4

The Chief/Chief Safety Officer (Rallies) is responsible for all aspects of the safety on the special stages, producing a safety manual and ensuring that it is adhered to during the competition.

A / ROLE

The Chief Safety Officer ensures the development of the event safety plan prior to the event and also that the event is run in accordance with that plan. He will report directly to the Clerk of the Course and will work with the Chief Medical Officer, the Chief Marshal and the Chief Rescue Officer.

B / RESPONSIBILITIES

To maintain overall control of safety and communications at the event.

To liaise with all relevant public safety organisations.

To monitor for operation of the Event Safety Dossier throughout the event, in order to make future recommendations regarding its formulation.

To ensure sufficient viewing areas are available for the anticipated number of spectators.

To ensure that the relevant details from the Event Safety Plan are distributed to the appropriate personnel prior to event.

1.8 DEPUTY CHIEF SAFETY OFFICER

Another key role that demands that it should be carried out by someone with considerable experience of safety at rallies, the role of the Deputy Chief Safety Officer could also be carried out by the Chief Safety Officer or Deputy Clerk of the Course.

The Deputy Chief Safety Officer should flag up any spectator safety concerns over any sections of the proposed route that cannot be adequately controlled if utilised. They should contribute to the safety plan, particularly the sections on spectator safety and spectator access for each stage.

On event the Deputy Chief Safety Officer has a key role in the management of spectators and will travel round the stages to an agreed schedule prior to each special stage

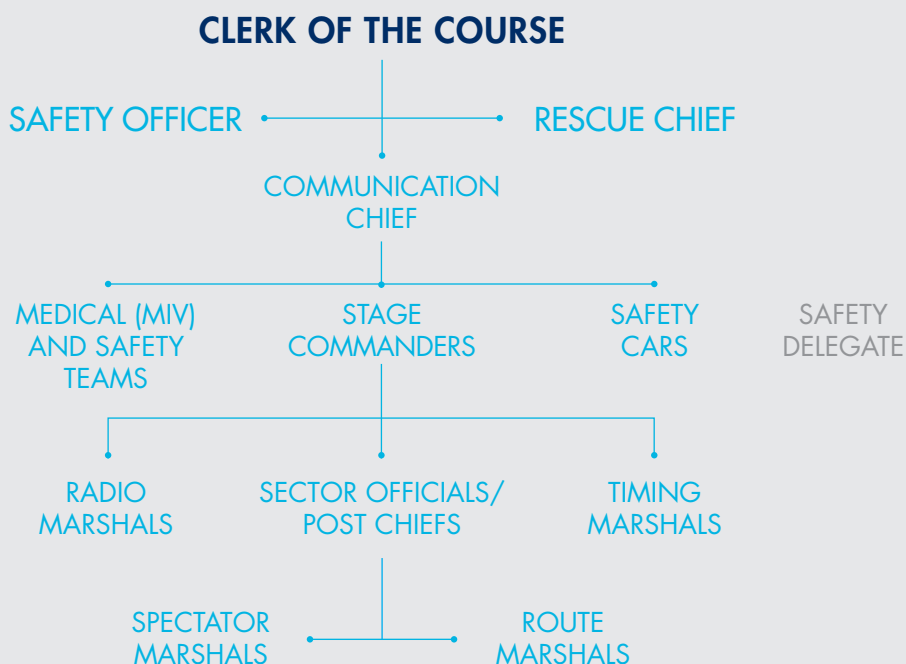
going 'live'. Their role is to spot and deal with any issues that may arise as they progress through the stage.

Following the event, the use of on-board footage from competitors or fan footage from the internet should be studied to see how the devised plans worked and what can be learned for the future.

1.9 SPECIAL STAGE COMMANDER

The Special Stage Commanders should have full knowledge of the special stage(s) assigned to them, at the earliest possible time before the event. They shall receive copies of the appropriate sections of the event safety dossier for their stage, including set-up diagrams, spectator parking and viewing areas. Early inclusion in 'draft' copies of the special stage safety plan keeps the stage commander informed of the event planning, and allows them to contribute to the final special stage. It is the Stage Commander's responsibility to ensure that their special stage is prepared to run in accordance with the set-up plans and that the spectator zones match these accurately.

RALLY STAGE STRUCTURE



1. OFFICIALS ROLES AND RESPONSIBILITIES

On the day it is their responsibility to ensure that all marshals are positioned as per the special stage safety plan and that the marshals have received a briefing on their duties from either the Stage Commander or the relevant sector official.

Each special stage has to be set-up and ready to run long before any spectators arrive. It is impossible to try and set an area up once spectators have chosen their viewing locations.

The Deputy Stage Commander needs to have the ability to step in and deputise for the stage commander in the event of an incident. The deputy may also be required to enter the stage if an incident has occurred or if there are issues that relate to spectator safety.

[International Sporting Code, Appendix V, Supplement Event Command and Control 2.2](#)

A / ROLE

— To manage the competition area (Stage Commander) or assigned sector (Sector Marshal) at all times, by ensuring the diligence, discipline, health, safety and well-being of Volunteer Officials, competitors and spectators.

B / RESPONSIBILITIES

— To provide effective briefings to all areas/sector personnel.

To manage all available equipment and human resources in the area/sector.

In event of an incident, to keep Event Control informed whilst observing and managing the safe coordination of Officials attending the incident, and thereafter to manage the return of the competition surface to a satisfactory condition after an incident as quickly as possible.

All Stage Commanders need to have received a briefing from the event in relation to any safety specific matters. This can be done by either the Clerk of the Course, the Event or Spectator Safety Officer and can be done through a meeting, via video presentation or on-line computer meeting or email or any other reasonable means of direct communication.

This session is an opportunity to ensure that all stage commanders have a full and consistent briefing about the event. At this session, you should ensure that the following are covered:

- All stage commanders have seen the safety plan and relevant operational plans;
- Key points from the safety plan should be covered including:
- Spectator numbers expected and access/spectator viewing arrangements;
- FIA/ASN Safety Delegate, Safety Car time schedule & Safety car arrangements;

- Incident management plan;
- Changes from previous years;
- Predicted marshalling numbers per stage, numbers achieved and actions required where numbers are not yet sufficient;
- Predicted numbers for spectator specific areas;
- Media arrangements;

Reminder of role in:

- Delivering briefing to marshals on stage;
- Arrangements for location/buddying/briefing of new or inexperienced marshals.
- Chain of Command for low level incidents and for major incidents.

It is good practice for the special stage commander to prepare a sign for showing to competitors on the start line to remind them that they need to ensure all their own safety equipment is in place before starting the stage. The reminder should include:

- Balaclava under the overall
- Tight the helmet strap
- Connect the FHR to the Helmet
- FHR under the shoulder straps
- Tight the belts
- Arm the plumbed-in fire extinguisher
- Remove the hand-held extinguisher safety locker

The sign can be a simple piece of corex fastened to the start line positioning pole or something the start line marshal carries and places in front of the competitors windscreen.



ALL IS OK



STOP I NEED
YOUR SUPPORT



1.10 SPECIAL STAGE DEPUTY STAGE COMMANDER

They should ensure that the special stage is set up in accordance with the safety plan and spectator areas diagrams in good time, ideally the day before the stage is used in competition.

The Deputy Stage Commander shall ensure that each competitor is recorded as entering the special stage and will use the radio network to monitor the progress of each car to the stop line.

This can be achieved by each radio post noting the car numbers passing, and using the radio network to inform if any cars do not pass their post in number sequence of entering the special stage.

This manual monitoring of competitors over radio should still be carried out even if a tracking system is in operation.

1.11 SPECIAL STAGE SAFETY OFFICER

Each special stage should have a Stage Safety Officer (SSO) as well as a Deputy Stage Commander.

The Special Stage Safety Officer should have a complete understanding of the safety plan as it relates to their special stage.

They should also have complete knowledge of the personnel and equipment available on their stage.

They will travel from the start of the special stage with one of the first official cars to give a final check on the stage set-up. The Special Stage Safety Officer will take up the senior role at the end of the special stage after carrying out this full stage check.

Marshals

All marshals need to have received a briefing from the event in relation to any safety specific matters. This can be done by either the Clerk of the Course, the Event or Spectator Safety Officer or the Stage Commander and can be done through a meeting, via video presentation or on-line computer meeting or email or any other reasonable means of direct communication.

A briefing from the stage commander or their nominated representative must take place as marshals arrive on stage (and may have to be done more than once depending on when people arrive on stage). In certain situations, this could be done prior to the event by telephone with known and experienced team leaders but it must take place.

This briefing should include:

- Personal Safety information;
- Location specific risk assessment information ; marshals are to always be located in a safe/spectator location. They are NOT to stand in a restricted area when the special stage is live.
Marshals can walk on the road on to deal with issues but must always consider their own safety when doing so.
- Chain of command and communication process for their location;
- Nearest red flag location if relevant and nearest radio marshal;
- A diagram showing Spectator Viewing Areas (Go) and No Go (prohibited) areas;
- Stage signage if appropriate;
- A schedule for the pre and post event safety cars as well as the due time of the first car;
- Mobile number for the Stage Safety Officer or nominated deputy/person in charge/stage Chief Marshal;
- Confirmation that all marshals will take the same approach in dealing with spectators and media in relation to prohibited

areas and for example in asking spectators to move with advice given about delaying the start of the stage due to uncooperative spectators.

- A reminder about the importance of using a whistle to advise marshals and spectators on an approaching safety or rally car
- Instruction on what the different warning lights mean on a hybrid or electric rally car. Marshals need to know this before approaching any of these vehicles
- Marshals should not sit down whilst working. This reinforces the message to spectators not to sit down whilst watching the rally cars.
- Marshals are to be reminded of the recognised hand signals for the safety cars as they proceed through the special stage.
- Never leave your belongings, safety equipment, red flag, fire extinguisher etc leaning on, or close to a guard rail, or the edge of the special stage. If a car, or object strikes these materials, they could be violently propelled, perhaps in your direction. Place equipment well back, close to where you can easily access it.

The Stage Commander must be confident in the knowledge and abilities of their team.

1.12 STAGE MARSHAL REQUIREMENTS

At the planning stage, rally organisers must consider the number of marshals that they will require to manage the safe running of each stage on their event.

The knowledge of the local terrain and previous event experience regarding spectators will allow you to estimate the numbers you are likely to need.

Remember the actual circumstances on the day may change for many reasons and it is best to be prepared with more marshals than originally planned.

1.13 TABARDS

All stage personnel should wear identifying tabards. The recommended colours are:



Marshals
Orange



Stage safety officer
Orange with white stripe & text



Post chief
Blue with white stripe & text



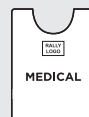
Media
Green



Stage commander
Red & text



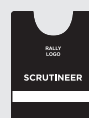
Competitor relations officer
Red jacket or red tabard & text



Medical
White



Radio
Yellow with a blue radio mark



Scrutineer
Black



2/ SAFETY CARS AND THEIR DUTIES

- 2.1 Rally Time Line
- 2.2 Safety Car Golden Rules
- 2.3 Spectator Safety Car Or S1
- 2.4 Safety Cars 000/00
- 2.5 Zero Car (0)
- 2.6 Safety Patrol Crew
- 2.7 Sweeper Car
- 2.8 Interim Safety Cars
- 2.9 Additional Safety Cars
- 2.10 Safety Car Timing
- 2.11 VIP Cars
- 2.11 Additional Vehicles (Official Cars)



2/ SAFETY CARS AND THEIR DUTIES

SAFETY CARS

They are (in order):

**000 or Triple Zero Car
(or equivalent)**
30-40 minutes before FCD*



00 or Double Zero Car
10-20 minutes before FCD*

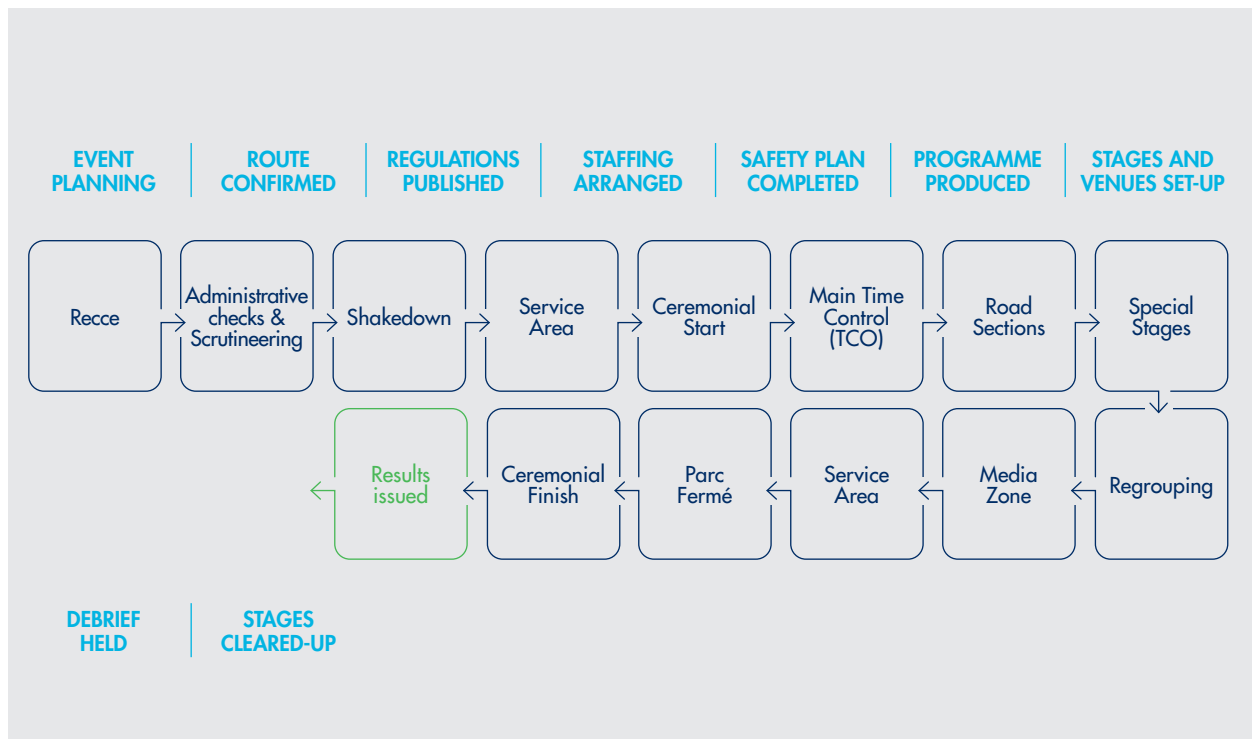


Safety Delegate
20-40 minutes before FCD *

0 / Zero Car
5-10 minutes before FCD*

FCD: First Car Due

2.1 RALLY TIME LINE



All Safety Cars whether Spectator Safety, Intermediate Safety, 000,00 or Sweeper Cars will be referred to as Safety Cars. The only car referred to as the Zero car will be the one with a single 0 on the side. Other vehicles will be referred to as Official Cars.

The primary function of the safety cars on an event is to check the route to ensure compliance with the safety plan and provide this information to Rally Control. It is advisable for all safety cars to be able to film each stage and for these videos to be given to the event for future use.

2.2 SAFETY CAR GOLDEN RULES

Each event attended is different in the way the stages are presented with the safety dossier and the documentation prepared by different event teams. Always ensure you have received all your paperwork in sufficient time to prepare fully. As part of your preparation you should consider the following:

Pre-event preparation for exemple

- Clip Board
- Staple Gun and Staples
- Maps
- Personal preparation including food and drink
- Personal First Aid Kit
- Pens/Pencils
- Video camera, charger and fixing mount (ensure it does not obstruct the airbag)
- PA/Sirens/Lights
- Event Paperwork
- Suitable clothing
- Mobile phone and charger
- Radio - fitted and working

2. SAFETY CARS AND THEIR DUTIES

When installing dash cams, tablets, trip meters, mobile phones etc., please ensure they are not covering the airbag or obstructing the vision of the driver.

If a tracking system being used the Safety Cars should also use this tracking system.

The crews of the Safety Cars and Zero Car shall receive a briefing before the start of the competitive part of the event on their duties and behaviour

Without exception, the following Golden Rules should be applied to every Safety Car/Crew including the Zero car;

1. All Safety Cars should be clearly identified and all Safety Car crew members should also be clearly identifiable as event officials when they are out of their vehicles.
2. Where realistic all official Safety Cars & Sweeper Cars should complete the full route according to the road book and maintain a completed time card.
3. Each crew should have a means of communication with the other Safety Cars and with Rally Control/Clerk of the Course, ideally radios with a dedicated channel. A dedicated radio channel enables the safety car crews to have an uncluttered channel as they work together to get the special stages up and running. Rally Control and the Stage Commanders need to have access to this dedicated channel so that overall event management and stage specific decisions can be made.
4. All Safety Cars should proceed through special stages at a speed suitable to the vehicle being driven and to the prevailing stage condition. At no time should a Safety Car be driven in a manner that puts the occupants, stage officials or members of the public at risk.

5. Safety Cars should not be used to entertain sponsors or to give "stars" a free run in order to boost event publicity, they have a vital role to play and as such their occupants are there to work.
6. Safety Car crew members should remember that marshals are volunteers and as such, be courteous to them at all times. It may be the case that marshals require reassurance and brief training on their duties.
7. Safety Cars should always keep to their pre-determined time schedule and ensure that they adapt this to compensate for any delays in the running of the event. The closer an event is kept to schedule, the safer it becomes.
8. The Safety Cars must be driven at an appropriate speed that allows issues to be identified and they must be prepared to stop and sort issues if required. It is essential that all crews have a "see it sort it" attitude for anything they see pertaining to the rally.
9. All Safety Cars (excluding the Zero Car) should have roof lights, sirens and a PA system. The Zero Car may have these or warning lights if the vehicle is suitable however sirens are strongly recommended.
10. Safety Cars should normally only use road books and other printed information supplied by the event organisers.
11. Each Safety Car should have a windscreen sun-strip showing the particular role of that car: FIA Safety Delegate, 000, Spectator Safety etc. The writing should be in black lettering on a bright yellow background.

Post-event, all Safety Cars and the Zero Car should provide a report to the Event Safety Officer or Clerk of the Course for use in the event debrief.



Unnecessary official cars should not be run; if other senior officials are required to travel through the stages their vehicle should be called an "Official" Car and NOT a Safety Car.

For consistency, events should use the following safety car descriptors on door panels: Spectator Safety, 000, 00, 0, Sweeper and FIA/ASN Safety Delegate. If you wish to use other safety vehicles, they should have a clear description of their function on the door plate.

The Safety Delegate will usually run before 00 to enable the crew of the 00 vehicle to undertake any additional actions required. The crews of the safety cars should keep in close contact with Rally Control via radio so that they are aware of any delays to the due time of the first car. They should always monitor this so that they can adjust their schedule to ensure they do not run too far ahead, nor do they fall back and delay the event by entering stages too late.

FIA WRC Sporting Regulations Appendix III – 5.4.4(d) and 5.4.6(f) & Appendix H

c) Zero cars should not be driven by any FIA priority driver or by a driver who has retired from the rally.

d) The drivers and co-drivers of the zero cars must have considerable rally experience, enabling them to drive in complete safety at moderate speeds, and should be able to give the Clerk of the Course full information and comments concerning the conditions along the route. Zero cars should also check time clocks and the marshals' familiarity with time card procedures.

It is advisable that any people involved in the safety caravan should follow the Chief Safety Officer e-learning module available on elearning.fia.com.

2.3 SPECTATOR SAFETY CAR OR S1

The Spectator Safety Car should always have suitable identification as well as a PA system and warning lights. It should be driven by a competent person who should have an in-depth knowledge of the route. The Spectator Safety Officer will travel in this vehicle.

Pre-event – where possible they should familiarise themselves with the route and spectator areas by visiting the stages prior to the event or watching previous in-car footage.

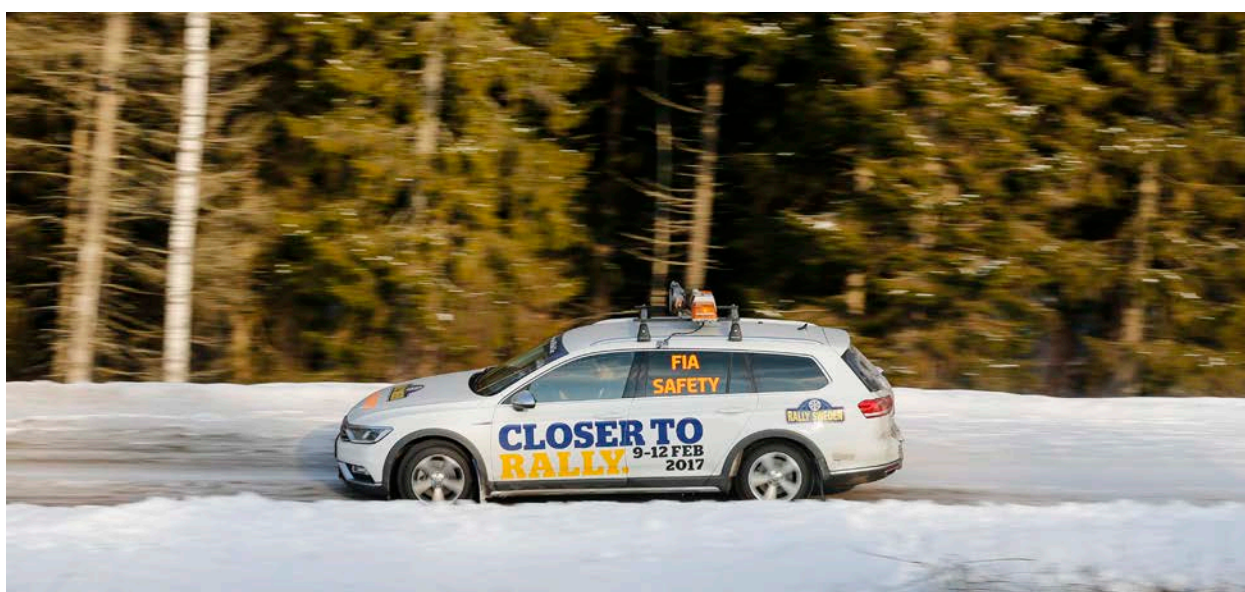
The Spectator Safety Car should visit every stage and should have their time card completed at these time controls, if possible they should also cover the entire route especially the service areas and any other spectator areas.

They should have means of communication with all other Safety Cars and Rally Control.

On arrival at each stage start the Spectator Safety Car should liaise with the stage commander and find out if there are any spectator safety issues within the stage including any amendments to the marshal numbers.

They should contact Rally Control and confirm their due time into each stage (Rally Control may require the Spectator Safety Car to wait at stage starts if there has been a delay in any other section of the route).

When given clearance the Spectator Safety Car will proceed through the stage making sure that all spectators, marshals and officials are in a suitable position in accordance with the stage setup plans. He/she will advise them of suitable locations as alternatives if needed and report these situations to the following safety cars, check the stage is following the





special stage safety plan in terms of signage, taping etc. (carrying spare equipment to distribute should it be necessary), and the stage marshals have any spectator issues in hand.

They should confirm that the correct number of marshals are in place at each of the spectator areas or work with the stage commander to rectify the situation prior to the stage going live.

The Spectator Safety Car should be prepared to stop at any spectator problem area and adopt a “see it, sort it” policy using all resources at their disposal.

The Spectator Safety Car should make Rally Control/Stage Commander aware of any such problem and its potential to delay the first competitive car start time and if appropriate, request assistance.

Wherever possible the Spectator Safety Car will use the PA system to announce when the due time of the first car is expected and provide any results available.

The Spectator Safety Car will work closely with the 000, 00 and Safety Delegate to ensure that a consistent message is given to all spectators ensuring they remain in acceptable locations.

When they reach the end of each stage they must liaise with the Stage Commander (or Deputy Stage Commander where appropriate) and report that they are satisfied all spectators are in a suitable area that is set up according to the safety plan and that there are sufficient marshals in place.

Although this vehicle is running very close to other Safety Cars, it should carry spare stage equipment as well as equipment for cordoning off spectator areas.

While it is very important that the Spectator Safety Car maintains its pre-determined time schedule it is critical that they are satisfied the stage is in a safe condition to run. Even if ensuring the stage is safe means delays then this cannot be avoided.

Car	Radio communication between Rally Control & FIA/ASN Safety Delegate	Siren	Loudspeaker	Warning roof light	Time card	Overalls and Helmets
SSC	← YES →					NO

2.4 SAFETY CARS 000/00

Ideally (for gravel events) 000 and 00 should be 4x4 vehicles to ensure their suitability for undertaking the role in all conditions. These vehicles also provide greatest visibility to spectators.

For asphalt events, the vehicle chosen should be determined according to the venue and requirements.

Only experienced crews should be utilised.

These vehicles should always have suitable identification as well as a PA system, sirens and warning lights.

Pre-event they should familiarise themselves with the route, the safety plan including anticipated spectator numbers and other relevant documents plus the time schedule as well as liaise with the event officials over their final responsibilities.

Onevent – check official notice board for any route alterations.

Either the 000 or 00 Car must follow the full route and should ensure they have a completed time card for each control that they visit. This must be clarified in the final safety car schedule and may involve coaching the timing marshals in the correct completion of the time card.

It is essential that the 000 and 00 Cars comply with the pre-determined time schedule to enable the event to run on time but are ready to adapt the time schedule should the event require this.

They must have a method of communication with all other Safety Cars and Rally Control and work as a team to follow through on any requests related to spectator movement and locations.

At each time control before a special stage they should liaise with the Stage Commander before they enter. The Clerk of the Course or Chief Safety Officer should structure the safety car's itinerary to allow for this. This may mean the 000 and 00 Car having a shorter time in any service/re-group area than competitors. They need to ensure they are clear about any amendments to the safety plan, predicted numbers or set-up plans in respect of signage or predicted numbers.

The 000 and 00 crews should, between them carry out a final check on stage furniture, safety issues, marshalling & spectator safety. They must also carry spare stage furniture/equipment and the means to repair it.

Any issues encountered must be reported through to the Stage Commander/Rally Control for awareness or advice.

Interim Safety points as well as Mandatory Radio Location signs and Red Flags, should also be checked by these crew.

Check Flying Finish & Stop locations are in accordance with the road book and that fire extinguishers are also in place.

At the end of each stage they should confirm to the Stage Commander (or Deputy Stage Commander where appropriate) that the stage is in an acceptable condition to run. They should also ensure that this message is passed to Rally Control.

They should give/provide a post-event debrief/report to the Chief Safety Officer or Clerk of the Course.

Technology is continually developing and these new developments can be used to enhance the information available to the Safety Car crews and Rally Control. Real-time information on the readiness of the special stage is a crucial part of the preparation before the first competitive car starts the stage. Dependant on the availability of a strong data connection along the rally route, it is possible to link a web-cam to the front of the 000 car and / or 00 car. These images can be sent to Rally Control and also viewed by the Safety Delegate before they enter the stage, so they have an impression of the stage situation before leaving the stage start.

Local GDPR regulations will need to be checked to ensure compliance at all times when contemplating using live images from one of the safety cars.

Car	Radio communication between Rally Control & FIA/ASN Safety Delegate	Siren	Loudspeaker	Warning roof light	Time card	Overalls and Helmets
00/000	← YES →					NO

2.5 ZERO CAR (0)

The Zero Car role is a crucial role as the last car from the safety car caravan to enter the stage before the first competing car. Whilst they get to travel at a higher speed than the other safety cars and to do so in a competition car, it is a very serious and important job. The crew have to monitor the work done by the previous safety cars, monitor the stage radio communications and be prepared to stop on the stage to solve any issues they may come across. Having the 0 car stopped on a special stage is very much the last resort. The efficiency of the work carried out by the previous cars in the safety caravan should mean that this never happens. If it does, there has been a failing in the work carried out by the previous cars.

The job function can be as prescribed below, along with how it fits in with the running of the rally.

JOB FUNCTION

- Final check of the special stages before the first competing car
- To run at 70/80% competitive speed
- To ensure that marshals are prepared for start lights, time cards, spectator zones
- To confirm that the safety car caravan work has been completed
- To ensure the stage complies with the set-up and safety plan
- To communicate any concerns immediately to Rally Control

SAFETY

- To check for any spectator movement after the Safety Delegate and 00 car have been through
- To be check marshals hand signals

ITINERARY

- Sporting Regulations state that the clerk's job is to respect the itinerary
- Any delays lead to spectator movement
- Series promoter pressure on some events
- Running on time keeps marshals alert
- Competitors are alert to stages starting on time, not fatigued through delays

RALLY CONTROL

- To control the rally convoy
- To maintain the balance between safety and itinerary
- Acknowledgement of safety car caravan communications, actions and concerns
- To track the position of the zero car throughout the special stage
- To communicate with the stage commander that stage is ready to run or to coordinate any action to solve any issues
- To be prepared to stop the stage from starting, or to red flag any competing car if the zero car stops at an issue

2. SAFETY CARS AND THEIR DUTIES

As the Zero Car should be a rally prepared vehicle then it should be presented for safety scrutineering as any other competition vehicle, and the crew must at all times abide by the same rules as all other competitors, i.e. they must wear harnesses, FHR devices and approved overalls and Helmets.

The Zero car provides spectators with a warning of the first competitive car. It should run at a maximum of 70 – 80% of rally speed to allow it to identify any last-minute issues on the special stage.

There should always be a spare Zero car available.

The Zero car does not need to be clear of the stage before the first car starts as long as the the Clerk of the Course is satisfied that they will be able to be clear of the stage ahead of the first competing car.

The Zero Car must follow the full route as per road book and should ensure they have a completed time card for each control that they visit.

One member of the zero-car crew must be from the main rally organising team. This role cannot be held by the clerk, event safety officer or spectator safety officer but will be an individual whose sole responsibility on the day will be to be part of the zero car crew. This will ensure that the crew are conversant with the overall plan for the full event, know the safety plan intently, as well as the senior officials and

stage commanders across the rally. One member of the crew should also have both safety and safety car experience, and the driver should either be an existing, or previous competition licence holder.

It is advisable for the zero-car crew to carry out a reconnaissance of the special stages in advance of the rally. This will enable them to familiarise themselves with the safety plan, the special stages and the road book. The crew can also use a set of descriptive route notes that they need to mark up with post numbers, spectator areas and radio locations.

It is recognised that it is safer for the zero-car to travel at 70-80% of rally speed if they are operating from a very basic set of route notes. These will also allow the co-driver to keep alert to any issues that may be seen and to take instruction from the driver on any observations they make about the special stage.

The primary function of the zero-car is to monitor the work of the 000, Safety Delegate and 00 cars, to check that spectators have not moved since these cars passed and to be prepared to STOP should they have to take any action.

At all times the crew must monitor the special stage radio communication and also be prepared to call in any concerns or actions.



It is essential that the Zero Car complies with the pre-determined time schedule to enable the event to run on time.

The Zero Car should have a method of communication with all other Safety Cars and Rally Control.

At each special stage start they should liaise with the Stage Commander and should enter where practicable on their due time.

If the special stage is more than 30 km in length, it is strongly recommended to run two Zero Cars, one from the start, the other from a mid-point to the finish with appropriate timing.

Ensure the route is still compliant with the safety plans and if necessary be prepared to STOP. If this is required immediately report to Rally Control requesting a delay to the stage start and explaining the situation. If it is possible to resolve the issue, do so. If not, be prepared for the Stage Commander and Rally Control to cancel the stage. IT is NOT acceptable to run a stage that is not considered compliant with the safety plan.

The Zero car is the final safety car to traverse the special stage before it goes live. It should not have to stop, it is primarily there to alert spectators that the first competing car is next. If the Zero car sees any issues this shows that the previous safety cars have not been doing their jobs correctly.

At the end of each stage they should confirm to the Stage Commander, Deputy Stage Commander that the stage is in an acceptable condition to run. They should also ensure that this message is passed to Rally Control.

Post-event debrief/report to the Chief Safety Officer or Clerk of the Course where necessary.

Car	Radio communication between Rally Control & FIA/ASN Safety Delegate	Siren	Loudspeaker	Warning roof light	Time card	Overalls and Helmets
	YES		NO		YES	

2.6 SAFETY PATROL CREW

If a special stage is run in an open area, Safety Patrol crews shall be prepared to overview specific zones of the special stage. Ideally located on spots with good sight of view, the Safety Patrol should be ready to intervene on any issue during the live special stage. Those locations shall be indicated in the Safety Dossier. The car shall be equipped at the minimum as follows:

Car equipment:

Sticker identification "Safety Patrol 1 / 2 / 3 / ..."

Sirens

Loudspeaker

Taping / Mesh / Hammer / Poles to implement an area

Radio connected to the Rally Control + Stage Commander

Tracking system unit from the event tracking provider – Copy of the Safety Dossier / Safety Road Book

Crew requirements:

Experimented crew of 2 local people (important knowledge of the field to avoid crossing the special stages while moving, and local language speakers)

2 spare marshals minimum

Must attend to any pre-event safety briefing / training

Communication protocol:

Connected to the safety radio channel

Any movement and intervention in close consultation with the rally control and the Stage Commander

Report on the status of any issues.

[See appendix H of the ISC for more information.](#)

2.7 SWEEPER CAR

Some events may have more than one Sweeper Car, however where this is the case only one Sweeper Car should traverse each stage. The Sweeper Car should normally be identified by a single chequered flag on a door panel to indicate that the stage is finished.

The Sweeper Car should follow the complete route, including road sections. At each stage start they must report to the Stage Commander who will be able to provide the following information:

- a. the number of cars that have entered the stage
- b. number of cars that have exited the stage
- c. accurate reports as to the location of any cars that have failed to complete the stage
- d. the time the previous competitor left the stage start control

The Sweeper Car should confirm that the number of competitors that have entered the stage matches the number that has left the previous stage including any that have retired on the road section.

They should collect all control record cards from all locations visited.

It is essential that they gather all completed control record cards, official reports (including those of judges of fact) together with officials signing on sheets from each stage. These sheets must be returned to Rally Control at the earliest opportunity. It is advisable to keep them accessible for any queries Rally Control or the Results team may have. If there are any incident reports, try to photograph them and provide to Rally Control at the earliest opportunity.

The Sweeper Car shall enter the stage only with approval from Rally Control.

The crew in the Sweeper Car should have an in-depth knowledge of how the event timing system operates and should, where possible, stop at each vehicle that is over

the maximum time limit (OTL) and, in consultation with Rally Control, gather their time cards.

It is essential that the Sweeper Car liaises with Rally Control at all times in order to verify when a competitor is OTL and hence is no longer eligible to continue in the event.

If a Sweeper Car is delayed they should advise Rally Control immediately.

If the stage is being used again, the Sweeper Car crew should advise Rally Control of any junction or area which requires rebuilding/re-marking, any missing safety items, as well as identifying any areas with significant numbers of spectators. They may also be asked to report on the location and where possible cause of competitor retirements.

If competitor vehicles are still in the stage, consider whether there is a need to move them or whether it is more prudent to leave them in situ. Competitors will always want to have their cars recovered at the earliest opportunity, this may however not be in the best interests of all others involved in the event. Do not ask for a vehicle to be recovered or moved unless it is actually blocking the stage or you are concerned it presents a hazard.

Once they are satisfied all crews have been accounted for and if it is the last time the stage will be run, on the authority of Rally Control, and only then, will marshals, doctors and rescue crews involved in the running of that stage be able to stand down.

The Sweeper Car should send or give a post-event debrief/report to the Chief Safety Officer or Clerk of the Course where necessary.



2.8 INTERIM SAFETY CARS

A minimum of 1 additional spare car with additional materials to assist the Safety Cars should be provided. A car needs to be inserted into the Safety Car Caravan with additional marshals that can be deployed, should they be needed on the stage.

For gaps of less than 20 minutes, it may be appropriate for you to consider the use of an interim safety car, or the Spare Zero Car dependant on the length of the stage and its position within the event time schedule.

The Deputy Stage Commander may be suitable for this role or a dedicated crew and vehicle dependant on route and practicalities.

Interim safety cars do not have to be competition prepared or 4 x 4's but they **MUST** have lights, sirens and a PA which should be used to advise spectators that further cars are to follow.

It is not necessary for the Interim Safety Car to be clear of the stage before the First Car enters, dependant on length and terrain.

Factors such as the linear nature of your route might make it impractical to redeploy both or either Safety Car in the event that you need to restart a stage after a stoppage or period of delay.

It is important that provision is made for the crew of this interim safety car to engage with and manage any spectators before judging the stage ready to recommence.

2.9 ADDITIONAL SAFETY CARS

A minimum of 1 additional spare car with additional materials to assist the Safety Cars should be provided. A car needs to be inserted into the Safety Car Caravan with additional marshals that can be deployed, should they be needed on the stage.

These cars should be available to follow and help the OOO and ASN/FIA delegate, by fixing the last details of the stage setup if necessary.

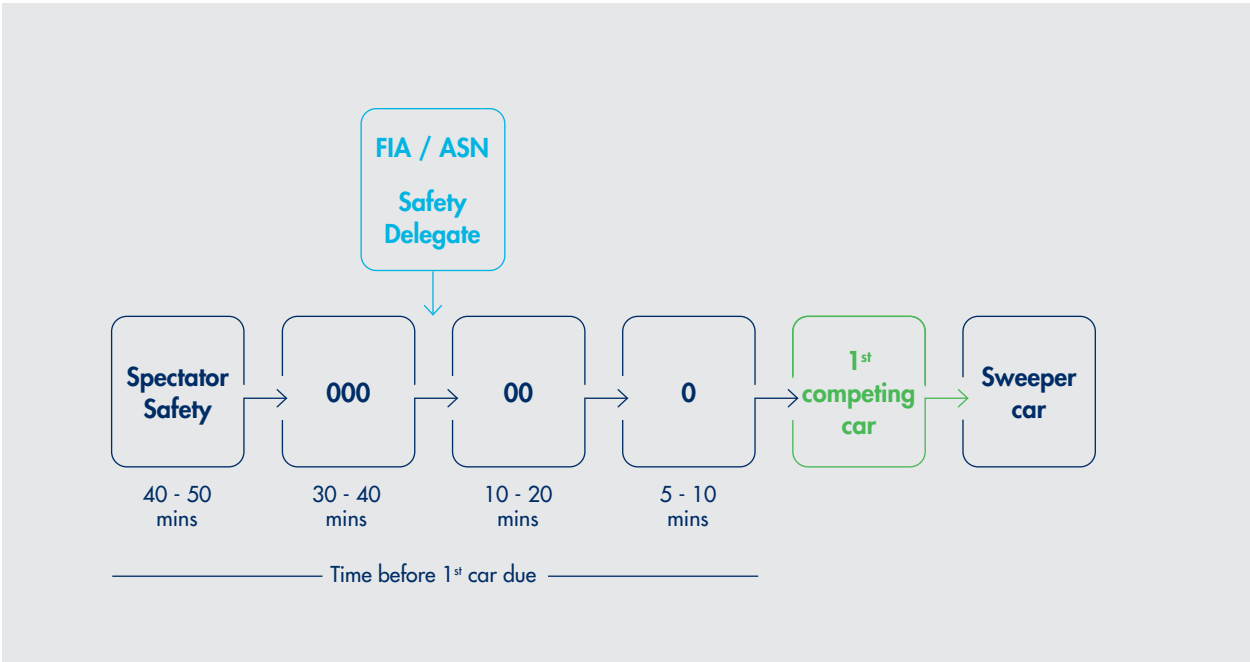
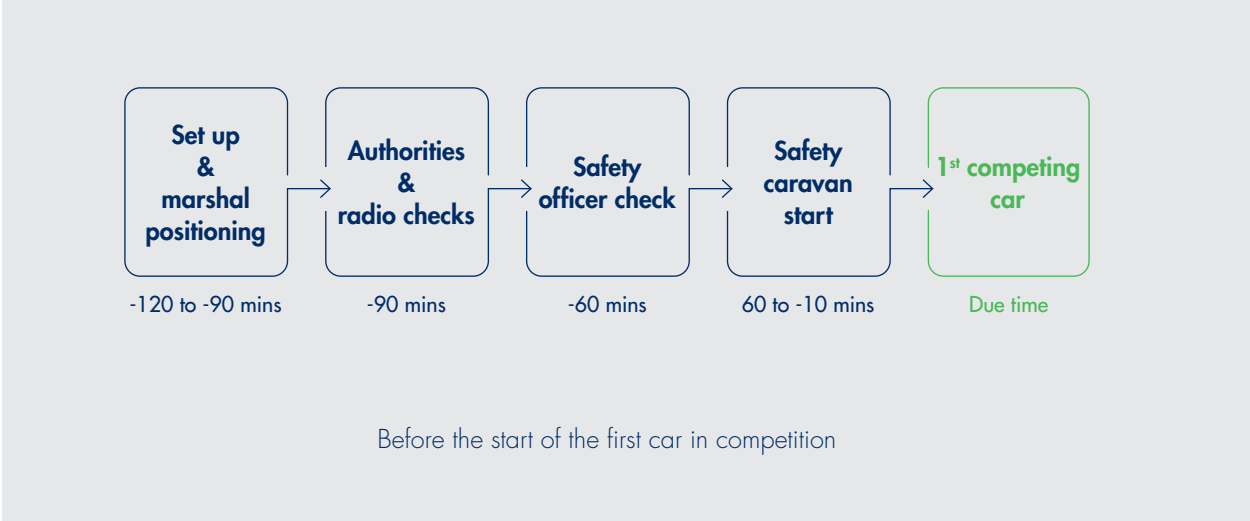
In case of unexpected positioning of spectators, experienced marshals with radios could be dispatched by these cars onto the stages to control them.

Their role should be to better control the position and location of the public and eventually leave extra marshals when necessary.

There is to be a minimum of two of these additional safety cars per day.

Their schedule is to be planned to allow them to move onto subsequent stages once any issue has been resolved (either all the cars have passed and they can regroup with the safety car convoy, or the spectator area has been sorted and they can move on.)

2.10 SAFETY CAR TIMING



2.11 VIP CARS

VIP cars should not form part of the safety car caravan. Point 7 in the Safety Car Golden Rules stipulates, "Safety cars should not be used to entertain sponsors or to give 'stars' a free run in order to boost event publicity, they have a vital role to play and as such their occupants are there to work."

There is no safe location to place a VIP car travelling at near competition speeds within the safety car caravan make up.

Should an organiser deem that VIP cars are necessary for commercial or promotion purposes, a time in the schedule of the running of special stage should be found for them. If there is time between the two runs of a stage, this is one possibility when the stage is already set-up and clear of competing cars.

ALL SAFETY CARS CREWS SHOULD NOTE:

Where an opportunity arises throughout an event, an informal meeting should be held between loops of stages in order to discuss any issues that may have arisen and could be improved on for the second running.

Spectators should be prohibited from walking on the special stage 30 minutes before the time of the first competitive car by closing the start and finish of the stage.

This message needs to be reinforced by the Public Address (PA) system on the safety cars and with the support of the marshals.

The OO car will be responsible for checking that no spectator is present on the stage.

To enable spectators to adapt to this new measure, it is recommended that the marshals give a prolonged blast on their whistle at the 30 minutes to first car time.

2.12 ADDITIONAL VEHICLES (OFFICIAL CARS)

These vehicles may travel through the stage before the Safety Cars at reduced speed.

EQUIPMENT OFFICER/STAGE SAFETY OFFICER

The Equipment Officer, if used, or Stage Safety Officer, is either responsible for ensuring that the stage is set up in a condition ready to run or for ensuring the stage commander has the correct equipment required for each location and timing point.

If the former, there should be no alterations required to anything on the special stage after it has been checked by the Equipment Officer.

Not all events run an Equipment Officer at the front of the field but those who do should take the following into consideration:

The Equipment Officer should run approximately 90 minutes before the due time of the first car.

Should the event be delayed there is no need to re-schedule the timing of the Equipment Officer.

They should have an in-depth knowledge of the complete route (both stage and road sections) and as far as reasonably practicable, should know all the permutations of special stages being used.

The Equipment Officer should be driven round the route by a competent person, thus allowing them to concentrate on the stage furniture etc. and ensure it is all set up as per the setup book from which they are working.

They should carry as a minimum a complete set of stage start and finish boards along with barrier tape, stakes, mallet, arrows, a staple gun and staples.

They should also have a direct method of contact with the Chief Timekeeper, Chief Marshal, Rally Control and the Clerk of the Course.

Wherever possible they should inform Rally Control that they are about to enter the stage and also ensure that the radio controller knows when they have exited the stage.

As with all Safety Cars it is essential that they maintain the "if you see it, you sort it" attitude to any problems which they may encounter.

When the Equipment Officer has passed through all stages they should remain in a location central to the event, in order to co-ordinate any equipment requirements that may arise.

CHIEF TIMEKEEPER

The Chief Timekeeper or nominated deputy, should run as one of the first official cars through the stage usually just in front of the Chief Marshal (this can be anything from 60 to 120 minutes before the due time of the first car depending on the structure of the event and the timing system being used).

The Chief Timekeeper must liaise with the Chief Marshal as to whom to expect at each control.

The Chief Timekeeper should liaise with Rally Control when they arrive at each stage arrival control area and they should ensure that they have an official time card completed at each control.

Prior to entering any stage, they should obtain permission from Rally Control to proceed into the stage.

They should also confirm if there are any other vehicles in the stage at this time.



The Chief Timekeeper should ensure that any marshal that is to use the clock or timing equipment knows exactly what they are doing and if necessary spend time reassuring the marshal on the operation of the equipment to ensure that the timing system is operated accurately for all cars.

The Stage Commander should ensure that at least one member of the Timing Team is available when the Chief Timekeeper comes through for this purpose.

The Chief Timekeeper should ensure that where the previous car number system is being used, the marshals are competent in completing the Time Cards correctly.

At the end of each stage the Chief Timekeeper should verify that there is a working system of communication between the Flying Finish and the Stop Line and that a backup system exists in the event of failure.

The Chief Timekeeper should be driven by a competent person who should have knowledge of the complete route and who also is competent in the timekeeping role.

They should check all control area signage when traversing the route and ensure that it matches the supplied road book/route information.

If any signage or equipment is missing they should report through to Rally Control to request the next official or safety car to issue the missing items.

It is also essential that they visit each time control, including the service area and regroup area to ensure everyone in these

areas knows what they are doing, they do not necessarily have to traverse the complete route.

If this is not possible, one of the other official or safety cars **MUST** attend these locations and undertake the role of Chief Timekeeper for those locations.

CHIEF MARSHAL AND/OR CHIEF SAFETY OFFICER

Pre-event - the more work the Chief Marshal puts in prior to the event the easier it is for them to carry out their duties on the day.

It is recognised that on some events the Chief Marshal may not travel through the stages, or may travel along with the Chief Safety Officer (ESO).

Where the Chief Marshal does not travel through the stages one of the other official cars should undertake these duties:

The Chief Marshal should ensure that there are sufficient marshals available to cover the event and stage start areas and that they have the correct paperwork and suitable control boards and equipment.

Where practicable the Chief Marshal should complete the route in full as is laid down in the road book or any other official route information.

On arrival at each control the Chief Marshal should lead by example and always wear an official tabard or event clothing and/or identification.

They should ensure that every marshal at each post they visit has a clear and concise understanding of what duties they

are expected to perform and that all stage personnel are wearing tabards.

By the time the Chief Marshal reaches each control all stage/control furniture should be in place and they should check off each item on the set-up book.

The Chief Marshal should check that the correct number of marshals are in place to meet predicted numbers as described in the event safety plan.

They should always have their time card completed and run through the complete stage start procedure that will be implemented for each competing car.

As with all Official or Safety Cars the Chief Marshal should be driven by a competent person.

The vehicle should always have suitable identification as well. (A PA system may be useful).

They should have communication links with all other Safety Cars as well as Rally Control.

As well as stopping at timing points they should stop at each point that has been advertised as a spectator access point, ensuring that all Spectator Safety marshals are in position, at least the predicted number as identified in the Special Stage Safety Plan.

If this number is not according to the plan, a dynamic risk assessment will need to be undertaken to ascertain whether the number of marshals at that location are sufficient for the actual number of spectators anticipated.

All official signage and appropriate warning notices should also be checked at access points onto the special stage safety plan.

If, on their route through the stage they identify an issue,

they should immediately call Rally Control to discuss with the stage commander and agree an action plan to rectify the problem.

At the end of each stage they should radio back to the stage start and Rally Control and inform the stage commander that they are satisfied the stage is in a complete and acceptable condition to run.

Only when this message has been confirmed should they proceed to the next stage/control point.

In the event of delays the Chief Marshal should keep in constant communication with Rally Control in case there is an adjustment to their time schedule.

If the Chief Marshal is aware of any delay they should cascade this information to the marshals out in the field.

The Chief Marshal should always have a complete set of spare stage furniture, warning notices and barrier tape together with a mallet and a staple gun in their vehicle.

The Chief Marshal should also ensure that all doctors, rescue, recovery and radio crews are in position along the route.

If any of these officials are not in position, the Chief Marshal should investigate and deal with appropriately, while keeping Rally Control advised of any actions taken.

Where Red Flags are being used on the stage it may be appropriate for this vehicle to check that Red Flags are in the right locations and are being correctly displayed.

It is advisable for the Chief Marshal to carry spare flags.

Post-event – they collate all feedback from the marshals and provide a report to the event organising team for their debrief.





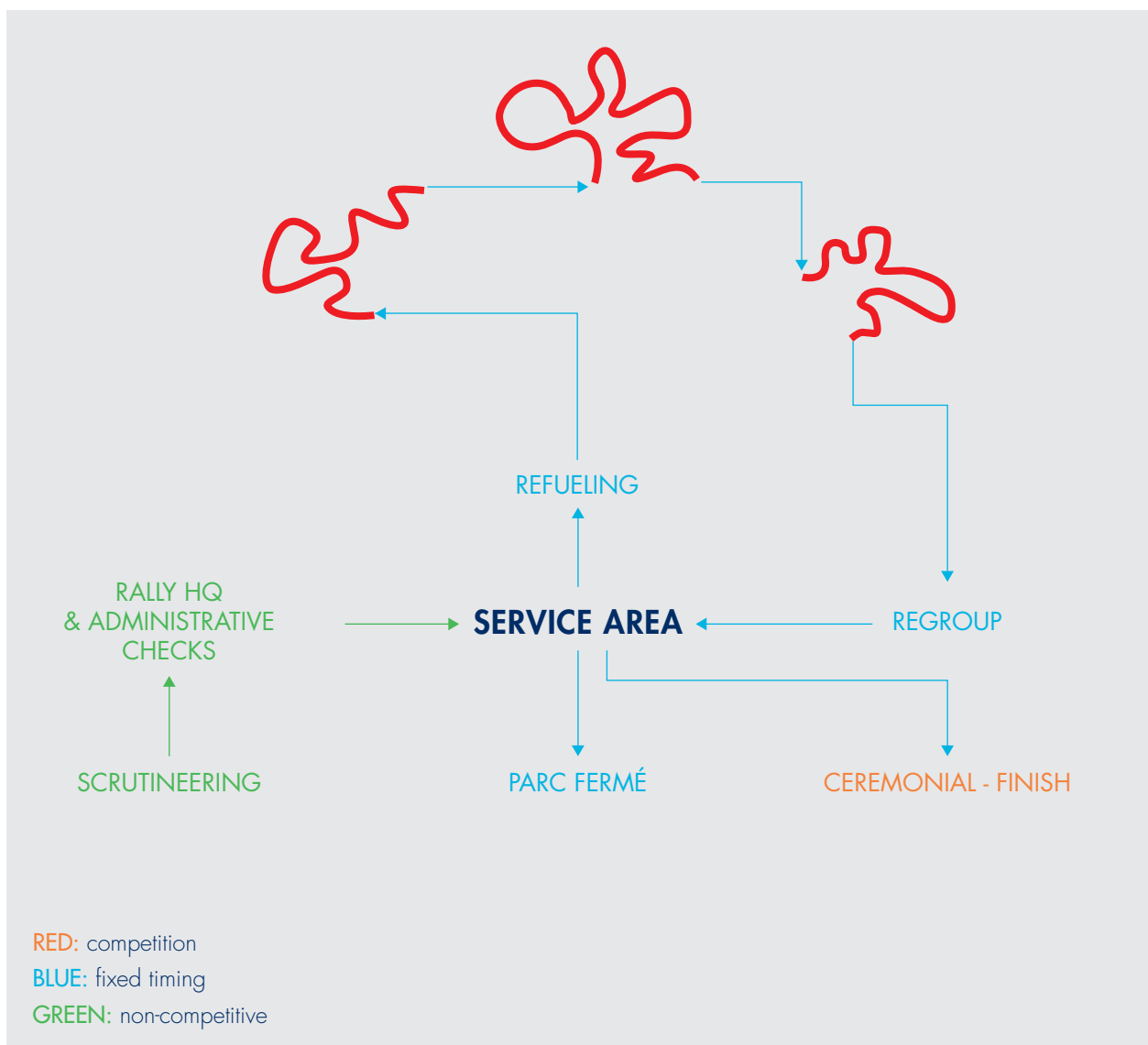
3/ SAFETY DOSSIER

- 3.1 Safety Dossier
- 3.2 The Safety Dossier in detail
- 3.3 Incident Management Plan
- 3.4 Medical Points
- 3.5 Special stage radio communication
- 3.6 Mandatory Radio Points
- 3.7 Supplementary Radio Points
- 3.8 Tracking Systems
- 3.9 Chicanes
- 3.10 Corner Cutting
- 3.11 Service Park
- 3.12 Refuelling of Competing Cars
- 3.13 Electric rally cars
- 3.14 Recommendations for Private Testing
- 3.15 Environmental Policy
- 3.16 Disability and Accessibility



3/ SAFETY DOSSIER

SPECIAL STAGES



* Based on the laws of the land to ensure competitors maintain a speed that does NOT involve going over the national speed limit

3.1 SAFETY DOSSIER

The Safety Dossier is a set of operational and critical incident management procedures, encompassing all sporting and non-sporting safety elements of an event.

Organisers must prepare the Safety Dossier within the template and timelines stipulated by the respective championship regulations.

Not every part of the safety dossier is completely relevant to everyone's job role. For many roles it could be that only one section of the dossier is required to successfully deliver that job function. It is recognised however that should an incident occur many job roles will require information or details on role structure that would not necessarily have been important in the delivery of their day-to-day role on the rally. Therefore the dossier cannot be divided into different sections for delivery but should be compiled as one document for everyone who would have received a 'safety plan' in the past to have a copy of.

Best practice would be for a condensed 'Road Book / Setup' combined tulip-based road book to be produced for those in the Safety Car Caravan and the safety people on the stage. Having an unwieldy Safety Dossier whilst passing through the special stages can be difficult to work with. Having this abridged version makes the document simpler and more efficient to work with for these particular crews.

An effective safety dossier requires optimum preparation in order to be understandable for those who have to work with the document.

It is also the document that proves the event has assessed the risks faced by the rally and planned how to minimise that risk and run a safe event.

The vast majority of rallies have already established an effective safety dossier, but they do not all sufficiently consider the special needs of spectator safety.

The safety dossier is a critical element of stage rallying. The dossier demonstrates the actions taken and in place to reduce or prevent the likelihood of an incident occurring as well as mitigating the result of any incidents should they occur.

The Safety Dossier has several roles and is also one of the documents requested by the authorities, the document used to set up the stages and the safety road book.

It should be sent to the ASN/FIA at least one month before – to allow the Safety Delegate/Chief Medical Officers to examine, and if necessary, to suggest/request adjustments.

Best practice is for the safety delegate to visit the rally route two months before the event to visit each special stage with the Chief Safety Officer/Clerk of the Course.

The stage inspection is to involve a hazard identification, risk assessment and risk reduction process. This process is to be applied to the entire stage, not just spectator locations.

Consideration throughout the inspection is given to spectator locations – primarily location setup, prohibited areas and access, as well as competitor safety. During this inspection, amendments can be made to the safety plan.

The safety dossier is a working document that should be updated every year according to the experience gained in previous events/seasons.

The overall safety dossier should consist of the following main elements which will need to be combined in such a way as to maximise distribution without incurring

unnecessary printing costs. You may therefore choose to incorporate sections in the most effective way for your event. What is critical is that they include.

A. SAFETY DOSSIER INCLUDING:

- a. Risk Management documentation
- b. Stage safety information and maps
- c. Stage/venue set-up information and diagrams
- d. Spectator area plans

B. OPERATIONAL PLANS FOR ALL OFFICIALS/ROLES (THESE MAY INCLUDE YOUR RADIO LOGISTICS PLAN)








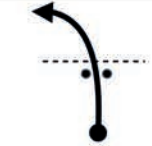

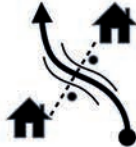




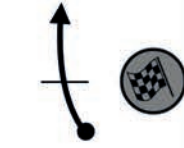


C. AN INCIDENT MANAGEMENT PLAN (INCLUDING THE MAJOR INCIDENT & COMMUNICATIONS PLAN)

D. SAFETY CAR ROAD BOOK FORMAT

The Safety Dossier should be in a practical, road book style format that can be used on the road by the Safety Car crews and include:

- a. Distances from the stage start and box numbering as per the Road Book
- b. Distances from the road to the spectator zones in metres, so safety car crews can anticipate areas in advance of driving the special stages
- c. Height of spectator zones from the special stage
- d. Safety vehicle position at the start of the stage as per the diagrams in Chapter 4.2
- e. Taping – where it will be positioned and colouring
- f. Marshals positions. This gives clear instruction to the marshals as to where the author of the Safety Dossier wishes them to be positioned. Enables the safety car crews to quickly identify if the marshals are in position or not when they reach this point on the special stage.

RB box	Total	Inter	Direction	Marshal	Radio GSM	Information	MIV	TV
1	0,00	0,00		2		START 	Y	Y
1A	0,70	0,70		1		House access	N	N
1B	0,80	0,10		1		House access	N	N
2	1,20	0,40		3		Evacuation Road 1 Spectator Zone 2 Hill on the Left Side Media Allowed Inside	Y	Y
<p>SZ 2</p> <p style="text-align: center;">SPECTATOR ZONE 2</p>								
3	1,60	0,40		2		No Spectator Media Allowed	N	N

RB box	Total	Inter	Direction	Marshal	Radio GSM	Information	MIV	TV
3A	2,30	0,70		2	 	House access	N	N
4	2,60	0,30		3		House access	Y	N
4A	2,75	0,15		1		House access	N	N
5	2,95	0,20		2		Car park on left side	Y	N
5A	3,15	0,20		2	 	House access	N	N
5B	3,30	0,15		1		Spectator allowed on the hill on the Left Side	N	N
6	3,52	0,22		2	 	FLYING FINISH	N	N



3.2 THE SAFETY DOSSIER IN DETAIL

1. An introduction setting out:

The purpose of the plan;

Who should read it;

Reference to all other documents/operational plans produced for the event;

Your Safety Policy.

2. The safety plan should specifically address issues in each of the following areas:

Safety of the public (including medical/first aid cover);

Safety of the competing crews;

Safety of the volunteers at the event.

3. The full event time schedule including all safety cars used and an overall route map;

4. The location and primary contact number for the Rally Headquarters (Rally Control) and/or the Emergency Telephone number if different

5. A note of the key roles and responsibilities followed by the names and primary contact number for the various people in charge:

- FIA/ASN Safety Delegate
- FIA/ASN Steward and Stewards
- Clerk of the Course
- Deputy Clerks of the Course
- Chief Safety Officer
- Chief Medical Officer

- Spectator Safety Officer
- Radio Controller(s)
- Stage Commanders for each special stage
- Media Officer

6. The telephone numbers of the various emergency and safety services:

- Police
- Hospitals (including address)
- Fire Service
- First Aid and casualty transport
- Ambulance Service
- Rescue Units located at each special stage
- Recovery units located at each special stage
- Doctor(s) &/or Paramedics located at each special stage
- Others as appropriate

The hospitals selected should be contacted in writing before the rally requesting that the emergency services be placed on standby

7. Risk Assessment is simple common sense. You will need to consider the risks during set up and break down as well as on the live event. For the safety delegate and others outside your event organising team, a template is often the simplest way to understand your risk management plans.

8. The plan must describe the risks assessed and how they are to be managed. There should be specific coverage for spectators/general public, competitors and the officials/marshals.

Itinerary

2021 RALLY

V 1.0 01 February 2019

Start (Sections 1 & 2) Friday 1st June 2019

TC SS	Location	SS Dist. Km.	Liaison Dist. Km.	Total Dist. Km.	Target Time	First Car Due
0	Parc Fermé - Out Service - In	-	-	-	-	06:45
Service A (Queensferry)						
0A	Service - Out	-	-	-	0:15	07:00
RZ	Refuel (FIA Fuel) - Service Park	-	-	-	-	-
1	Distance to next refuel	(29.57)	(144.68)	(174.25)	-	-
1		-	75.24	75.24	1:40	08:40
SS 1	Hilltop 1	10.99	-	-	-	08:43
2		-	35.26	46.25	0:55	09:38
SS 2	Mountain	1.63	-	-	-	09:41
3		-	24.56	26.19	0:36	10:17
SS 3	Valley 1	16.95	-	-	-	10:20
RZ	Refuel (FIA Fuel) - High Town	-	(9.62)	-	-	-
2	Distance to next refuel	(29.13)	(56.42)	(85.55)	-	-
4		-	22.93	39.88	0:45	11:05
SS 4	Lakeside 1	29.13	-	-	-	11:08
4A	Regroup & Technical Zone - In	-	43.06	72.19	1:38	12:46
4B	Regroup Out - Service - In	-	0.05	0.05	0:15	13:01
Service B (Queensferry)						
		(58.70)	(201.10)	(259.80)	0:30	-

Section 1

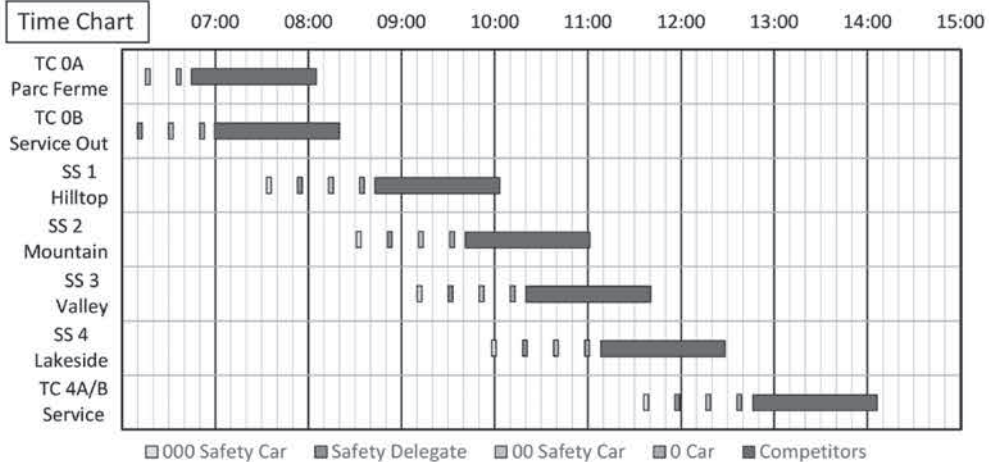
EVENT SCHEDULE

Safety Car Schedule

Location	Timing Delivery	Closed to Priority Media	Regional Safety Car	FIA Medical Delegate	Timing Car	Spectator Safety Officer	Safety Car 000	FIA Safety Delegate	Safety Car 00	Safety Car 0	1st Car Due
Friday 1st June											
TC 0A/0B Service Park	03:45	---	---	---	---	---	05:35	---	06:15	---	06:45
SS 1 Hilltop 1	05:43	06:43	06:48	07:13	07:13	07:23	07:33	07:53	08:13	08:33	08:43
SS 2 Mountain	06:41	07:41	07:46	08:11	08:11	08:21	08:31	08:51	09:11	09:31	09:41
SS 3 Valley 1	07:20	08:20	08:25	08:50	08:50	09:00	09:10	09:30	09:50	10:10	10:20
SS 4 Lakeside 1	08:08	09:08	09:13	09:38	09:38	09:48	09:58	10:18	10:38	10:58	11:08
TC 4A/4B/4C Service Park	09:46	---	---	---	---	---	11:36	---	12:16	---	12:46

SAFETY CAR SCHEDULE

Time Chart



OVERALL RALLY CONVOY DIAGRAM

9. For spectator safety, you should include information under the following headings:

- Likely numbers of spectators expected and any specific issues that have arisen;
- Plans showing access routes, parking and spectator viewing areas with the relevant text pages on the facing page;
- Signage used on your event;
- Communications to spectators on the event regarding safety e.g. programme, website, safety cars;
- Role of marshals on stage in managing spectators in relation to no-go areas, taped areas and spectator viewing areas;
- Predicted marshals per stage. – there must be a process to be able to directly contact the stage marshals in case they are required to move to a new position
- Role of stage commander in assisting marshals dealing with unruly spectators i.e. in suspending the stage if spectators do not wish to move when asked;

10. The safety plan for each special stage, which should list all key officials, emergency services for that stage plus a detailed map of the special stage including radio and rescue locations, spectator areas and rendezvous points for casualty transfer locations.

[You should make provision for an alternative route for each special stage, to be used in the event of a stage cancellation.]

11. Safety Plans should also be in place for all non-stage venues such as Scrutineering, the Service Area, Regrouping, Media Zones and Time Controls

	1 What are the hazards?	2 Who might be harmed and how?	3 What are you already doing?	4 Do you need to do anything else to manage this risk? If so, what?	5 Action by whom	6 Action by when	7 Date complete
1	Uneven ground and tree trunks	Spectators and marshals	Advising everyone to wear sensible shoes and taping off any excessively bad areas	As the stage is run entirely in daylight no other precautions are in place. First Aid cover is in place at spectator areas	Advise marshals of the risks Notes in programmes and on website	2 weeks prior to event	
2	Refuel Area	Marshals	2 metre clear zone Separate from service area	Fire trained marshals with fire extinguishers in "ready" mode	Service Area Manager	Setup	Event day



Route overview map and showing rendezvous' points



3.3 INCIDENT MANAGEMENT PLAN

Whilst nobody likes to believe that there will be an accident which will involve spectators, officials or competitors, it is prudent to plan for such an eventuality.

This plan can be part of the overall Safety Dossier or can be held as a separate document.

This plan is designed to identify what actions should be taken IF an identified risk or an unexpected event occurs.

The Incident Management Plan (IMP) should consist of an explanation of how a Minor or Serious Incident (a routine occurrence that impacts on the safe running of the event but does not require the police to assume the co-ordination of its resolution) or a Major Incident would be handled.

For example, what will you do if there is a crowd control situation? These incidents can be categorised as:

a. Minor Incident – a routine occurrence that impacts on the running of the event but does not need outside assistance, any injuries will be minor and easily able to be treated by either the First Aid personnel available or the events own resources.

b. Serious Incident – an incident that impacts on the safe running of the event. A serious incident may include injuries; however, all required actions are able to be managed within the resources of the event.

c. Major Incident – is defined as an occurrence that poses a threat of serious injury, loss of life or a breakdown in public order and does require the Police to assume the co-ordination of its resolution.

MINOR INCIDENTS

Despite effective planning there may still be minor incidents. However, it is recognised that Rally Control should be able to address such circumstances effectively.

Resolution of such routine occurrences is an intrinsic part of the management of the event.

Given their predictability, appropriate contingency arrangements should have been implemented and will be managed by Rally Control.

SERIOUS INCIDENTS

Some incidents are more significant than a minor incident and may require event interventions such as rescue and recovery vehicles entering the stage.

Management of a serious incident is also an intrinsic part of the actions of Rally Control and as such will be coordinated through standard radio procedures to ensure the correct resolution and control of the event.

If there are injuries, the event medical crew and the Chief Medical Officer will liaise and ensure the correct treatment is provided.

MAJOR INCIDENTS

Whilst Rally Control is responsible for dealing with Minor and Serious incidents, those involved must be aware of the limitations of their own ability to cope with a situation and thus recognise the occurrence of a Major Incident.

In such circumstances responsibility for co-ordination of the response will pass to the Police who will require the assistance of Rally Control in the communication of essential information to marshals, officials and members of the public.

Your Incident Management Plan needs to cover how this situation would be managed.

In all cases, contact should be made with the local authorities to draw up this rescue plan to be implemented in the event of a major incident which does not fall within the scope of the medical service on site.

For example, how would you handle a fire or a bomb threat?

In each case, you will need to explain the process and arrangements for:

- Decision making roles and responsibilities
- Communicating with the event's safety services and if required, the emergency services
- Communicating with the competitors, the officials and the spectators
- Communicating with the media
- Reporting mechanisms for those on scene.

The Incident Management Plan can be included within the overall safety dossier or can be a separate standalone document

A Major Incident Communication Plan is a useful element to include in the IMP and should explain who will be involved in any decision making, what messages will be issued and by whom.

Pre-planning these matters is most helpful when dealing with a major incident.

3.4 MEDICAL POINTS

- A medical point must be set up at the Start of every special stage, and at intermediary points if the length of the stage is equal or longer than 15 km, which should be at a distance with an approach time of not longer than 10 minutes in relevant vehicles driven at intervention speed.
- The medical point consists of vehicles for emergency primary medical care (MIV), technical intervention (disincarceration/extrication/fire fighting) (TIV) and evacuation of injured (ambulances).
- Medical and technical intervention vehicle can be of combined/mixed use or separate as two vehicles.
- All vehicles should be positioned with direct access to the stage, without any obstructing element in front (e.g. any other vehicle, fence tape, barrier, safety marshals) and in the starting order of MIV, TIV and ambulance.
- All medical points must be associated with a radio point and properly signed (lightning and cross).
- Each MIV has a crew consisting of at least one doctor proficient in resuscitation and experienced in prehospital trauma management, as well as one paramedic/nurse.
- Each TIV should have a crew experienced in disincarceration/extrication/fire fighting, preferably personnel from the fire brigade.
- If the stage is running in an area with steep drop offs, the TIV must be equipped with adequate tools to rescue a car should it fall into the ravine.
- One ambulance at the Start should be a resuscitation unit, with a doctor accompanying any injured with need for intensive care during evacuation.
- Medical intervention vehicles equipment should be in conformity with Appendix H Supplement 3.
- Dispatching of a medical vehicle is initiated by the Clerk of the Course in consultation with the Chief Medical Officer and with information to the stage commander.



3.5 SPECIAL STAGE RADIO COMMUNICATIONS

A radio car crew shall ideally consist of two marshals comprising a radio operator and a radio marshal.

All radio marshals may be required to assist with event management issues such as vehicle incidents and spectator management as needed so they should be prepared for outdoor work as well as in car duties.

Whenever they are deployed outside of the radio car, they must wear a marshal's tabard.

Events should ensure that there is a distance of approximately 5 kilometres between radio locations.

Be aware that any radio location listed in your road book **MUST** be staffed at your event in order for the stage to run.

During reconnaissance, a sign bearing the radio point symbol must be displayed at the location of each mandatory radio point.

This sign may be smaller, but must be clearly visible to crews performing reconnaissance, in order that the location may be noted in their pace notes.

The radio communication network and Radio Controller should remain in place until all Rescue, Medical and Recovery services have completed their tasks.

In all cases, radio operatives must ensure that they park and position themselves sufficiently far back from the competitive route and do not block the exit route.

Not only for their own safety but to protect the radio car from any debris that may be thrown up by the competing car.

The red flag should always be visible when the Safety Car caravan passes through the stage.



3.6 MANDATORY RADIO POINTS

Mandatory Radio Points should ideally be staffed by two or more people and are defined as follows:

Radios at the Start and Finish of each stage.

These must be shown in the safety plan and road book and require radio boards to be displayed.

The Start, Flying Finish/Stop radio positions should be located to ensure direct communications are possible to Rally Control.

Priority should be given to the safe running of the event and consideration should be given to the siting of these locations and this may necessitate the shortening of the stage route.

Radios need to be located at intermediate safety/medical intermediary points and at a shortcut re-join junction that safety vehicles may use.

Radios needed to comply with the FIA requirement for a distance of approximately 5 kilometres between radio points.

Red Flags must be displayed and withdrawn only on the instruction of the Stage Commander via the Clerk of the Course.



MAIN SPECTATOR AREAS

These radio marshals do NOT need to see the competitor numbers and should be located to keep their eye on the spectator area.

These locations must be shown in the safety plan but are not required to be shown in the road book or have radio boards.

They do not require red flags unless they coincide with locations described above.

3.7 SUPPLEMENTARY RADIO POINTS

Supplementary Radio Points (not mandatory) should ideally consist of two or more marshals.

These points are located throughout the stage as required by the event, signage is not required and they do NOT need to appear in the road book.

Their location and details should however be listed within the safety plan. They do not require red flags.

As these locations are NOT included in your road book they do NOT all have to be staffed in order for your event to run.

DUTIES OF RADIO OPERATORS ON A SPECIAL STAGE:

- They are responsible for their sector.
- They are in position well before spectators arrive, and they prevent them from entering forbidden areas.
- They check communication with the safety officers of the special stage and rally headquarters.
- In a polite manner, they inform spectators that the special stage will be run only if they follow the marshal's instructions to stand in the recommended areas.
- They inform their stage commander about the number of spectators, and he decides if more support personnel are needed.
- During the running of the stage, they stay next to their radio and follow the announcement of each car starting the special stage.
- They record cars passing in front of them. If a car is missing, they immediately inform the safety officer of the stage and wait for instructions.
- They co-operate with the safety marshals positioned before and after them to alert spectators to approaching rally cars by means of whistles.
- They will display the red flag only on the instructions of the Clerk of the Course.

RE 6 RADIO SCRIPTS

Script 1	Route Marshal	Stage Commander
	Hello, Hello – Stage Commander can you hear me?	Go ahead – who's calling the Stage Commander?
	Hi, it's Mike – we've had a car roll in front of us it's terrible, there's lots of damage I don't know what to do?	Hi, which stage are you on and what is your location?
	I'm on your stage just after the right-hand bend?	Can you give me an exact location please?
	Yes, about 1.5 metres after the bend, the car is on it's roof and the competitors are still in – what do I do?	Mike, what is the stage number and name?
	Its stage 3 I think, I don't know the name	What is the number of the car?
	It's car 8	OK Mike, please walk towards the front of the car if it's safe to do so – is there anyone else that can go back down the track to warn you if another competitor is coming?
	There are lots of spectators going to help now, I think they're going to help put it back on its wheels.	

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Trainer Comments:

1. The Stage Commander has NOT asked if there are any injuries?
2. The marshal is NOT clear at all in what they've said
3. Should they put it back on its wheels?
4. ALWAYS send someone back down the track.
5. Warning triangle and if necessary OK/SOS board

Example of on special stage radio communications following an incident

RE 6 RADIO SCRIPTS

Script 2	Route Marshal	Stage Commander
	Commander 3, Commander 3 from Mike Smith post 5+ on SS 3.	Go ahead Mike, Commander 3 receiving.
	Car 8 has rolled immediately in front of us just after the right-hand bend about 200 metres after post 5. I am investigating now but the stage is partially blocked. Over.	Thank you for that Mike, please send someone back down the track to warn you of any oncoming competitors – keep yourself safe and keep me updated.
	Will do.	Standing - by
	Commander 3, Commander 3 from Mike Smith - The crew seem OK, they are asking to be put back on their wheels, so they can continue but that looks impossible because the left front is badly damaged. Over.	Can cars get past, over?
	Yes, with caution, how do you want me to proceed, over ?	Mike, please make a few notes on the Incident Report Form for me. I'll update you once Rally Control have decided what action will be taken. Control standing by.

Example of on special stage radio communications following an incident

3.8 TRACKING SYSTEMS

It is strongly recommended that all cars be fitted with a safety tracking system. The installation should be checked at scrutineering and instructions regarding collection, return and fitment will be issued by each organiser, normally in the supplementary regulations. Any interference with the system(s) during the rally shall result in the competitor being reported to the Stewards.

When a tracking system is used, the system must be easily accessible for the driver and co-driver when seated with their harnesses fastened.

A member of the team in Rally Control must be assigned to monitoring the tracking signals from each competitor, though all members of Rally Control should be watching the tracking screens. Any reported signal from a competing car; whether OK, stopped, SOS or lost communications should be reported to the special stage involved and investigated. Remember, no matter how sophisticated the tracking system is, no system is 100% fool proof. Always investigate the signals received.

There should always be a backup to the tracking system in the competing cars. The radio operator at the start of each stage should announce the car number starting the stage over the stage radio network, each radio post throughout the stage should keep a chart monitoring the car numbers announced as they pass their location. Any car out of sequence, or not passing a radio location should be reported to the stage radio controller so that a search for the competitors' location can start in conjunction with the tracking system.

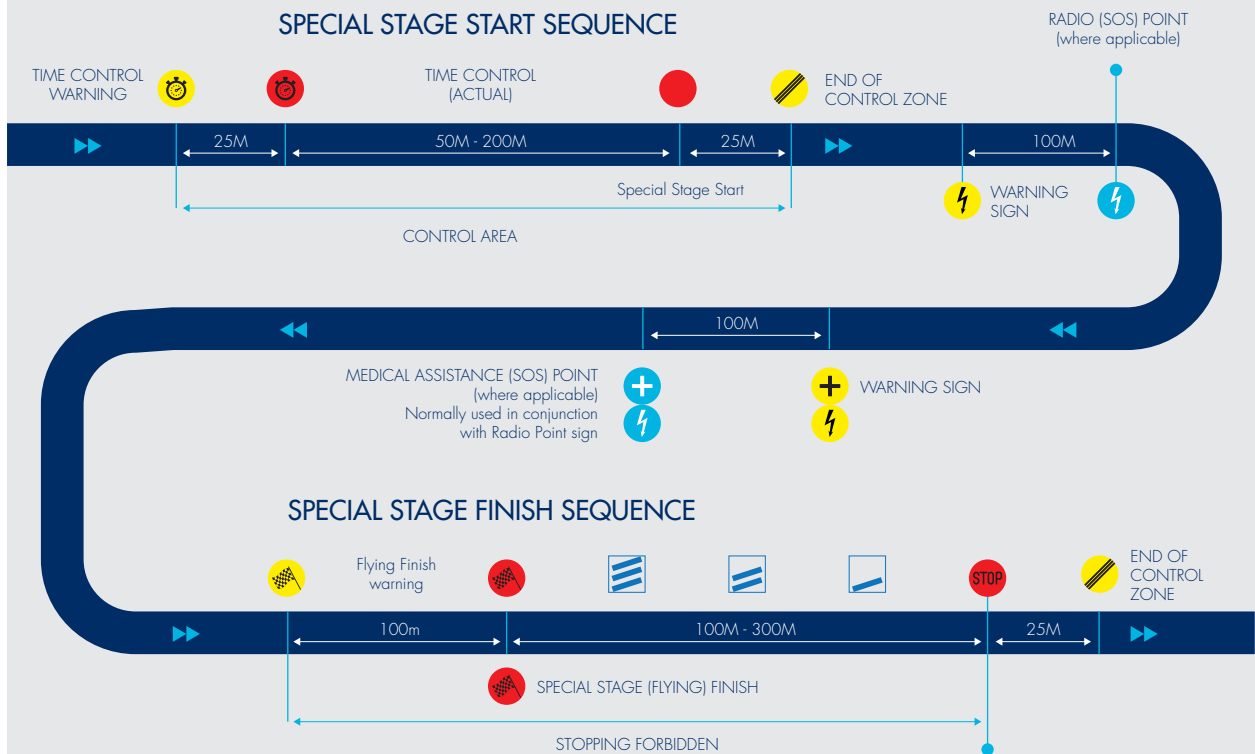
Both the primary and secondary tracking systems need to be detailed in the event safety dossier along with the procedures of how to locate a car, should it go missing.

The FIA has published tracking usage guidelines, intended to the event organisers to explain the challenges and the importance of the tracking. The guidelines could be downloaded on www.fia.com/rally-safety



Tracking Systems

EXAMPLE STAGE LAYOUT



Time Pre-Control 	Time Control 	SS Start 	Radio Warning Point 	Radio Point
SS Pre-Flying Finish 	SS Flying Finish 	Stop Control 	Medical Assistance 	Medical Assistance
End of Control Zone 	Passage Control 	Passage Control 	Refuelling Zone 	Tyre Zone

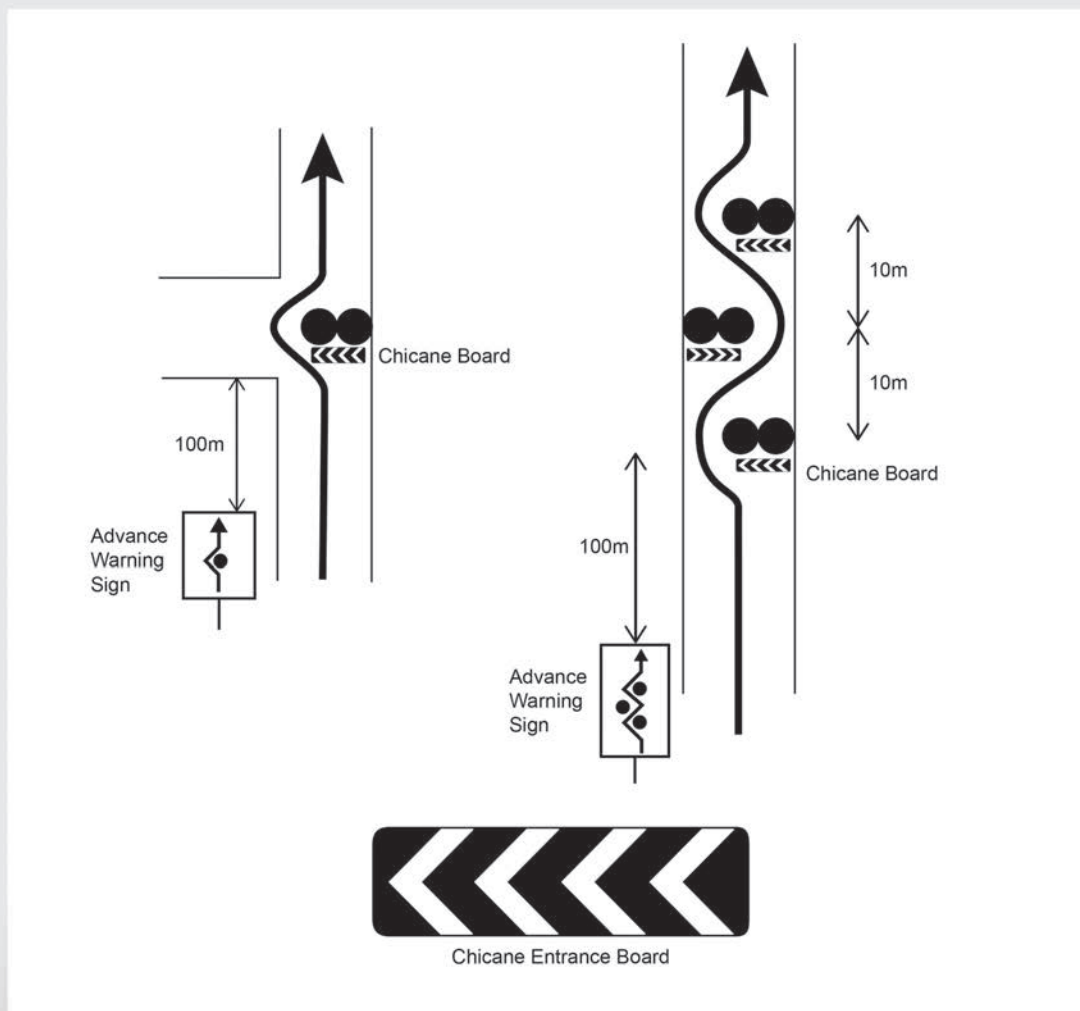
TYPICAL STAGE SYMBOLS

3.9 CHICANES

Chicanes can be used for reducing speed before certain high-risk spots on a special stage, but it is desirable that stage routes should be planned where chicanes will not be required wherever possible. All chicanes must be noted in the road book and must already be marked or in place during the reconnaissance.

A distance of 10 m between the walls should be respected for consistency between stages and between events.

It is important to mark the direction of the chicane by zebra markings or arrows, and to put a "100 m" panel before the chicane. The precise position of the elements of the chicane should be clearly marked by a painted line such that they can be repositioned if they are moved out of position.



Recommended Chicane Profile

Chicanes should be made from:

- Straw bales (250kg minimum)
- Water tanks
- Wall of connected tyres
- Concrete barriers, with the exposed edges protected

During the rally, marshals need to be positioned at each chicane to repair any damage caused by cars hitting parts of the chicane. A radio marshal should also be at this location.

If the chicane is damaged beyond just a small knock and it needs repairing, then:

Post a lookout for on-coming cars and use their whistle to warn their colleagues of any approaching cars whilst they look to rebuild the damaged area.

If it is not safe to undertake this task – advise the stage commander who will inform Rally Control to determine the next action.

One of the marshals should be designated as a Judge of Fact to report to the Clerk of the Course of any cars that hit the chicane. It would be beneficiary to have the chicane filmed for the purpose of reporting any collisions.

3.10 CORNER CUTTING

For FIA championships it is recommended to use a type of block measuring about 20 x 20 x 38 cm and weighing 1.5 kg minimum. The stick should be made of plastic.

If straw bales are used instead, they must be wrapped securely in plastic film and a means of moving them rapidly back into position provided



3.11 SERVICE PARK

The service area at a rally can be an area of frantic activity as the teams prepare the competing cars for the next section of the event. The environment can be time pressured with service bays busy with team personnel, media, family members and spectators. It is an area that can create significant risks to people and has to be managed carefully to minimise these risks whilst letting people work on the cars and making the area attractive to spectators.

Entrants, competitors and service crew members should be aware of their own and others well-being. The event organiser has the overriding responsibility to coordinate the activity and to ensure, so far as reasonably practicable, the safety requirements for these areas are met.

The event organiser should allocate a 'service area zone' to each competing team within the service park. These zones must be managed in such a way that they represent neither a safety nor environmental risk to other teams or to the venue location.

BASIC STANDARDS FOR SERVICE PARKS/AREA

- The service area should be an appropriate size to allow adequate space for individual service bays, vehicle movement and safe pedestrian access. The ground should be relatively even with any significant hazards adequately controlled.
- Organisers must set a speed limit for the service park and publish this information in the supplementary regulations.
- All entrants will have an environmental ground-sheet in place before work commences on the vehicle.
- Temporary structures such as awnings and pop-up tents must be erected securely and with sufficient ballast to cope with wind conditions. All structures deemed unsafe by the event organisers must be dismantled and removed.
- Fire extinguishers should be readily available at all times when vehicles are being worked on, particularly in the event of any welding or grinding being carried out and when vehicles are being refuelled.





- The layout of the service park must permit emergency vehicle access, should the need arise.
- The organiser is responsible for establishing emergency arrangements for the service park including fire, injury and security incidents. These arrangements need to be communicated to all entrants and competitors.
- Vehicles need to be supported by axle stands, chassis sill stands or ramps, all with base plates, when raised in the air by trolley or any other type of jack. No other work should be attempted when raising or lowering of the car is taking place.
- When necessary, as part of the service, changing of the fuel tank, fuel pump, fuel filter or any other item of the fuel circuit, emptying and/or refilling of the fuel tank is permitted provided that:
 - The work is carried out with the knowledge of the organiser
 - A fire extinguisher with operator is on standby
 - No other work is carried out on the car during this operation
- A safety zone is established within which all sources of ignition are removed
- A minimum amount of fuel is used and any removed fuel is stored in a sealed container
- Service bays should be controlled in such a way that they do not present any unacceptable risk to competitors, crews, adjacent teams or members of the public.
- Trailing cables and hoses should not be allowed to create a trip hazard and should not be run across access or roadways unless covered by cable protectors.
- Service crews and competitors need to be aware of the long periods of exposure to cold, wet or heat, experienced while on location in service parks and dress accordingly.
- Entrants are reminded of their obligation to comply with the requirements of the sporting regulations and supplementary regulations at all times.

ELECTRICAL SAFETY

- All electrical equipment needs to be maintained in a safe condition.
- All electrical equipment used externally has to be weatherproof and tools insulated against electric shock.
- Electrical equipment and hand tools cannot be used where flammable vapours are present.

FIRE PRECAUTIONS

- All competitor and service vehicles need to carry a suitable fire extinguisher.
- Special consideration should be made before lighting any cooking appliance.
- All sources of ignition need to be kept away from any fuel store or re-fuelling area.
- Fire extinguishers should not be moved from their known location, other than when in use.
- In the event of any fire, a report is to be made to the organisers of the event before leaving the service park.
- The organisers are responsible for putting in place an emergency plan to cover fire.

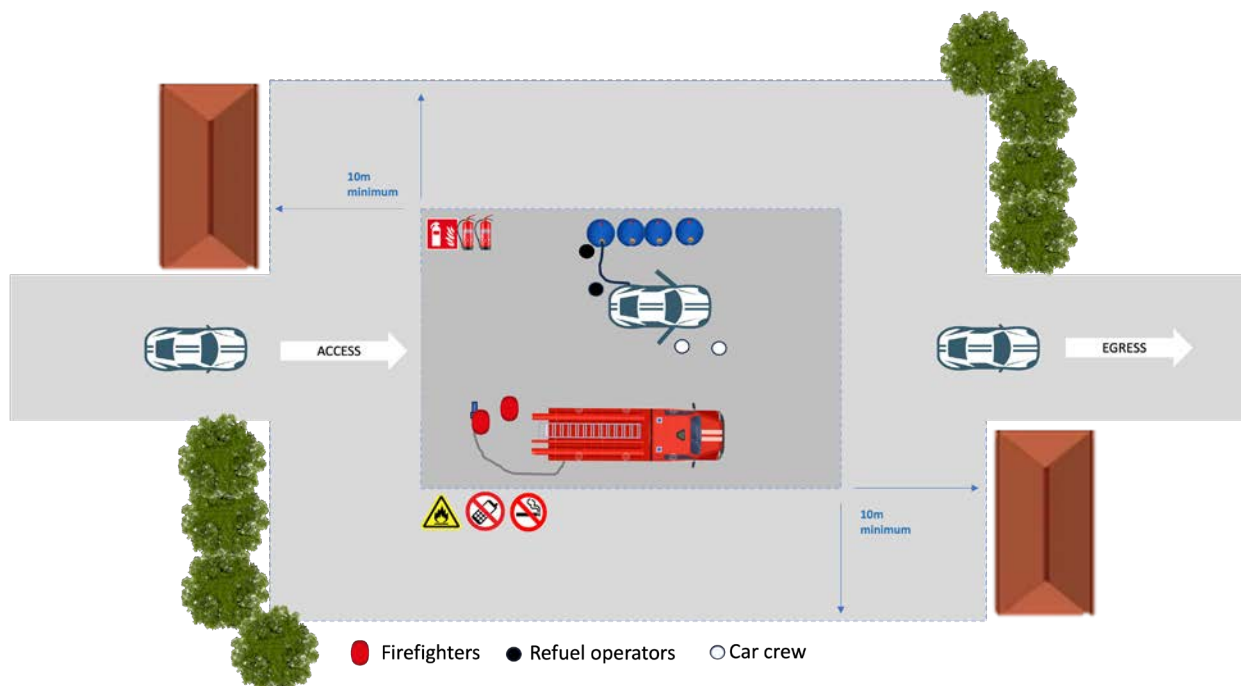
WASTE

- Entrants must remove all waste from the service park, including containers, packaging, tyres, oils, etc. They must be disposed of in accordance with environmental legislation.
- General waste facilities on site must not be used to dispose of hazardous substances or materials which have been contaminated by hazardous substances. These must be segregated and disposed of in accordance with the waste regulations.

VEHICLE SAFETY

- A set speed limit must be observed at all times in a service park, other than emergency vehicles responding to an incident.
- There may be pedestrians in the service park. Special care must be taken in these circumstances to avoid collisions and organisers need to work, where practicable to segregate pedestrian routes.





3.12 REFUELLING OF COMPETING CARS

The organiser of the rally must determine the refuelling arrangements for that event and put in place adequate measures to control the risk of a fuel spillage, fire or other accident. In deciding on the refuelling arrangements and the level of risk, the organisers need to consider what is practical for their event and the options available at the service park.

There are four options for refuelling on a rally:

Pump fuel from a commercial filling station

This option places no responsibility on the organiser as all refuelling takes place on commercial refuelling premises away from the event. Generally, this is an option for crews who wish to use commercially available fuel from road-side refuelling stations. It is not an option for the whole field to use a commercial refuelling station unless a dedicated number of fuel pumps were being given over to the event for the passing of the rally cars. Otherwise, the queues would be unsustainable within the road liaison time schedule.

Professional fuel supplier

The organiser maintains overall responsibility but has delegated duties to a competent supplier. The contractor's arrangements for managing the risk should still be verified

by the event organiser and checks made to ensure that safety systems are in place.

Refuel zone

The responsibility for controlling and coordinating the storage and dispensing of fuel rests with the organiser. A risk assessment, safety plan and incident plan is required.

Self-refuel

The responsibility for controlling and coordinating the storage and dispensing of the fuel STILL sits with the event organiser, however they have no direct control over the activity and therefore pass the safety requirements onto the entrants/competitors. A risk assessment, safety plan and incident plan is required.

The organiser has the responsibility for monitoring safety in the self-refuel area.

Fire cover must be in place at all times that fuel is being dispensed. The area must be protected from public access, ideally with 2m high fencing and environmental spill mats must be laid out.

Competitor – best practice

At all refuel locations, away from a commercial filling station, it is best practice for both crew members to exit the rally car. Sitting in the competing car whilst it is refuelling can represent a

risk to the crew, who are unlikely to be wearing their protective gloves or balaclavas at this time. For all the time it takes to refuel a car it is not a large burden to ask the crew to disembark from the car whilst it is refuelled.

In World Rally Championship and Regional Rally Championship events is now a regulation that competitors are always required to exit their cars during the refuelling process.

RISK CONTROL

The following needs to be considered when making event refuelling arrangements:

- Transportation of fuel, the risk of spillage and compliance with safety legislation. The arrangements for bringing the fuel to site are the responsibility of the competitor/entrant. The organiser needs to give consideration to the movement of fuel on site.
- Storage arrangements for fuel including appropriate containers, clear designation of the storage area and protection from impact by vehicles. Containers must be in a good state of repair, not leaking, securely sealed and appropriately signed 'Petrol – Highly Flammable'.
- The area used for storage of fuel must not be in direct sunlight.
- Control of the dispensing area which should be approximately 10 metres away any pit garages, service spaces/pitches, onsite buildings, adjoining properties or groups of people.
- Removal of any combustible materials or sources of ignition.
- Maintenance of clear access & egress from the fuelling area.
- Provision of facilities to deal with fire and spillage and appropriate emergency procedures. An appropriate number of fire extinguishers (dry powder and AFFF) must be provided.
- Adequate security of the area to prevent access by unauthorised persons.
- Environmental protection – fuelling should be carried out on an impervious surface with either bunding or interceptor tank.
- Appropriate personal protective equipment is worn by those dispensing fuel.
- Appropriate signage is in place to warn of the presence of flammable substances and the prohibition of sources of ignition

STORAGE AND USE OF FUEL

- The organiser must establish suitable arrangements for refuelling with a preference for a designated refuelling zone.
- If refuelling is permitted in the service bay, this should be the last operation to be carried out before the vehicle leaves. The vehicle should be off any support stands, have all four

wheels on the ground and have all other work ceased and have no occupants before refuelling commences.

- Ideally refuelling should be done by hand pumping, rather than from hand held containers.
- All empty containers must be removed from the service park after the event.
- Petrol is to be used as a fuel only, not for any other purposes.
- All vehicle refuelling is to take place in the open air. Smoking and any other sources of ignition must be prohibited and a safe area should be enforced with an operator on stand-by with a fire extinguisher.
- Those carrying out the refuelling, including those standing by with fire extinguishers, should ensure they are wearing protective clothing, including gloves and eye protection.
- The use of mobile phones and radio communication should be strictly prohibited in the refuelling zone.

EMERGENCY MANAGEMENT

The emergency plan should be tailored to the risks associated with the event and include:

- The person in control
- Actions required in the event of a spillage or fire
- Communication methods and the procedures for dealing with an emergency
- Arrangement for contacting the emergency services.



3.13 ELECTRIC RALLY CARS

2022 saw the introduction of the Rally1 cars to WRC and the hybrid technology. Regional Rally Championships are seeing some fully electric cars competing on their stages. The appearance of these cars with electric propulsion attracts new interest in rallying. The new technology is welcomed, though we will have to adopt and adapt new methods to continue our sport in a safe manner for competitors, organisers, marshals and spectators.

All electric cars will have to meet the type-approval standards applicable to all road going cars. On top of these standards, the cars will have to meet the regulations stipulated by the FIA. These are outlined in ISC, Appendix J 253, Article 18.22.

Permanent monitoring of the high-voltage system is important for the safe operation of an electric rally car. The master alarm indicator will provide information of the status of the high-voltage system by the means of light signals, visible to the interior and exterior of the competing car. Sensor systems will immediately report a fault on the high-voltage system which can then be switched off from the inside or outside the cockpit area once the fault has been rectified.

The Safety Dossier must highlight what each warning light means, this needs to be repeated to marshals at their briefings. The same message must be publicised through a social media campaign for spectators so that anyone approaching the car; marshal or spectator knows that there is an issue with the system and they should wait on specialist assistance arriving before going near the car.

Any event that has an entry from an electrical or hybrid propelled car needs to prepare the following:

- High-voltage trained personnel on each special stage – either the likes of the ADAC FIU or trained teams in the TIV vehicles.
- Pre-event training for special stage marshals and service area marshals.

- Pre-event messaging to spectators about the difference with these electric/hybrid powered cars and the meanings of the different warning signals.

Light Status	RESS Status
STEADY GREEN	SAFE
FLASHING RED	DANGER, don't touch the car
No light	To be considered as unsafe, don't touch the car

In case of running electrical or hybrid rally car, the event organiser should prepare a quarantine zone to manage any e-safety issue.

See below some key points to setup that zone:

- Clean area for cars with electrical faults to be parked safely
- Easy access zone (for recovery truck driving back from stage)
- Weather-proof temporary structure (shall be mobile by hand)
- Dimensions: allow min 3m around the car (1,25m for e-safety distance + 2m working distance for equipment and personnel)
- Isolated from other buildings / infrastructure / populated areas (heat, flames, smokes...)
- Allows access to intervention/recovery vehicles (fire truck)
- Requires access to a water source (10 to 15,000 liters)- Allows safe management of chemical risks (battery leaks) due to battery fire



3.14 RECOMMENDATIONS FOR PRIVATE TESTING



Seeing a rally car in action on a special stage is always an exhilarating experience. Rally fans that can access team test days know that they will get to see the car and driver multiple times throughout a day, most likely in a less crowded environment than on an actual rally.

Rally Test Organisers need to include spectator access, viewing areas and control into their pre-test planning to be able to have control over the site, to enhance safety for all and to protect our sport.

FIA has published a Guidelines to help the Test Organisers to improve the safety during rally private tests. The guidelines developed for this are relevant to ALL rally tests.

The risk of an incident is just as high during competitor testing as it is during an event. It must be recognised that wherever a rally car is being driven at speed there is a risk of an accident happening.

All private tests should plan for the following:

- Ambulance and paramedics in attendance
- Marshals at test road starts, finishes and all access roads / paths to secure the area
- All warning signs on approach to the test area, the start, finish and all access roads. Anyone approaching the test area should pass at least three of these warning signs before arriving at the test road.
- Radio communications between the stage start, finish and any access roads.
- Plans for spectator zones, spectator access and NO-GO areas.

For Rally Tests the safety checklist below is a great guide for all test organisers to ensure that they have considered and acted on the points raised.



FEDERATION INTERNATIONALE DE L'AUTOMOBILE

RALLY PRIVATE TEST SAFETY CHECKLIST

NOTICE

SAVE

PRINT

CLEAR

The aim of this document is to ensure that all safety measures are in place before your private tests start. The stage should be set-up accordingly to the Rally Private Tests Safety Guidelines, and the Rally Safety Guidelines.

Please fill the form in prior to the test, together with the team and test organiser, and complete the safety checklist before the first recce/run of every test day.

TEAM INFORMATION

Team personnel in charge of test and safety:

Mobile number during the test (international format):

TEST ORGANIZER INFORMATION

Company name:

Address:

International phone number:

Country:

Person in charge of the test and safety:

Mobile number during the test (international format):

TEST BASE INFORMATION

Country:

Region:

Town:

Road name/nr:

Road surface:

INFORMATION ON CAR(S)

Number of cars:

Rally 1	0	Rally 2	0	Rally 3	0
Rally 4	0	Rally 5	0	Other	Specify 0



RALLY PRIVATE TEST SAFETY CHECKLIST

SAFETY CHECKLIST TO BE FILLED IN BEFORE FIRST RECCE/RUN

Please fill in this section together with the team and test organiser representative, as declared on page 1, prior to the first recce/run.

Test road map number (according to "Detailed test road map #" above): 1

Test date:

Test start time:

Test end time:

Closest hospital:

Emergency number (int. format):

Nr of marshals on the detailed test road plan:

Actual nr of marshals on site:

Number of extra marshals:

Number of radios:

Number of extra radios / batteries:

Please ensure that you have sufficient time to go through the stage from the entry to the exit closed road signs with the team and test organiser representative, as declared on page 1, prior to the first recce/run, while filling in the safety checklist below.

If anything is missing, please ensure that you have a strong back-up solution before starting the tests, and report in the Observations section.

- | | |
|--|--|
| <input type="checkbox"/> Official documents and authorisations duly obtained by the test organiser | |
| <input type="checkbox"/> Marshal briefing done | <input type="checkbox"/> Start line closure public warning signs |
| <input type="checkbox"/> Radio for each marshal | <input type="checkbox"/> All marshals are at safe and dedicated position |
| <input type="checkbox"/> "No public" signage | <input type="checkbox"/> Red flag for each marshal point |
| <input type="checkbox"/> All junctions safely closed | <input type="checkbox"/> Taping for public allowed zones |
| <input type="checkbox"/> Fire extinguishers available | <input type="checkbox"/> No car parked / No people on escape roads |
| <input type="checkbox"/> Doctor / Ambulance team ready | <input type="checkbox"/> Finish line closure public warning signs |

Please remember to go through the list several times throughout the day, especially after a long maintenance or lunch break, as people are likely to move during no-car periods.

Keep a close watch on the public arriving throughout the day, sometimes from directions that you would not expect.

Remember that safety is the top priority; do not hesitate to interrupt the tests momentarily in case of doubt, to rectify a situation.



3.15 ENVIRONMENTAL POLICY

<https://www.fia.com/environmental-accreditation-programme>

Events should appoint an Environmental Champion and look to achieve the support and commitment of the senior members of the event team to ensure that environmental impact and sustainability is considered in every action.

The primary goal is to increase awareness of environmental management issues, and provide guidance to facilitate adoption of environmental initiatives by various FIA stakeholders.

The FIA has employed a multi-tiered strategy to achieve this objective:

- firstly, it has provided a best practice framework;
- secondly, the FIA has created an accreditation guidelines document for stakeholders who wish to adopt the framework;
- thirdly, it has developed an accreditation checklist which would enable stakeholders to ascertain their baseline level in terms of environmental performance, as well as identify the requirements for increasing their level of environmental performance; and
- finally, the FIA has provided a summary version of the guidance for ease of reference, targeted at different stakeholders.

These documents, which are part of a number of publications relating to the FIA's Action for Environment strategy, focuses on the best practice in Environmental Management in motor sport. They have been designed to be used as a template by motor sport stakeholders across the world to introduce or enhance environmental management in their organisation.

3.16 DISABILITY AND ACCESSIBILITY

All due consideration has to be made to be able to ensure that all competitors, officials, volunteers and spectators are able to access and enjoy the sport in a safe and considered manner.

For officials, volunteers and spectators the accessibility of all has to be at the forefront of everything planned by the event.

Articles 10 and 11 of Appendix L of the ISC give regulation detail on this matter for competitors.



4/ SPECIAL STAGE SELECTION

- 4.1 Special Stage Selection
- 4.2 Tyre Warming Zone (TWZ)
- 4.3 Start, Finish & Stop Lines
- 4.4 Identifying the Risks
- 4.5 Protection of Guard Rails and Other Hazards
- 4.6 Stages run in open desert



4/ SPECIAL STAGE SELECTION



4.1 SPECIAL STAGE SELECTION

The selection of special stages is crucial to overall event safety for; competitors, marshals, spectators, media and public.

There are no simple criteria on what makes a stage suitable or unsuitable. It can even change depending on which direction the stage is run, or the time of day, or season of the year.

A lot of special stage selection is done from experience and knowledge and not from a document.

The purpose of this section is to add weight to decisions made when choosing a special stage.

SELECTING A SPECIAL STAGE THAT HAS PREVIOUSLY BEEN RUN IN THE PAST.

What tools are available to event organisers when it comes to stage selection?

- Is there experience of running the stage in both directions?
- What onboard footage is there of the stage when it has been previously run?
- Is there data available that measured the speeds along the special stage from previous runs?
- Average speed is not an indicator of the suitability of a special stage, though it is one consideration in any choice. High-speed sections are not necessarily dangerous. It all depends on the surroundings; are there large drops, cliff faces, established tree line, a sudden corner or jump that

would present a risk? All factors that come into consideration that are affected by speed in that section, not the overall average speed of the stage.

- Are there any high-speed points? Are these areas of prolonged high-speed?
- Is there a GPS trace available from competing cars?

HISTORICALLY, WHAT HAS BEEN THE EXPERIENCE OF RUNNING THIS STAGE?

- Where there any incidents involving competitors in the past?
- What information is available from previous Safety Delegate's reports?
- What information is there about the spectator experience at this location?
 - How was the traffic management getting to and from the stage?
 - Was there over-crowding?
 - Were there any injuries – trips or falls?
 - Where there any near misses between competing cars and spectators?
 - Did the spectators overspill from their designated area into some unexpected locations?
- Is there historic information about the stage from stage commanders and marshals?

CONSIDERING A NEW SECTION OF ROUTE AS A SPECIAL STAGE.

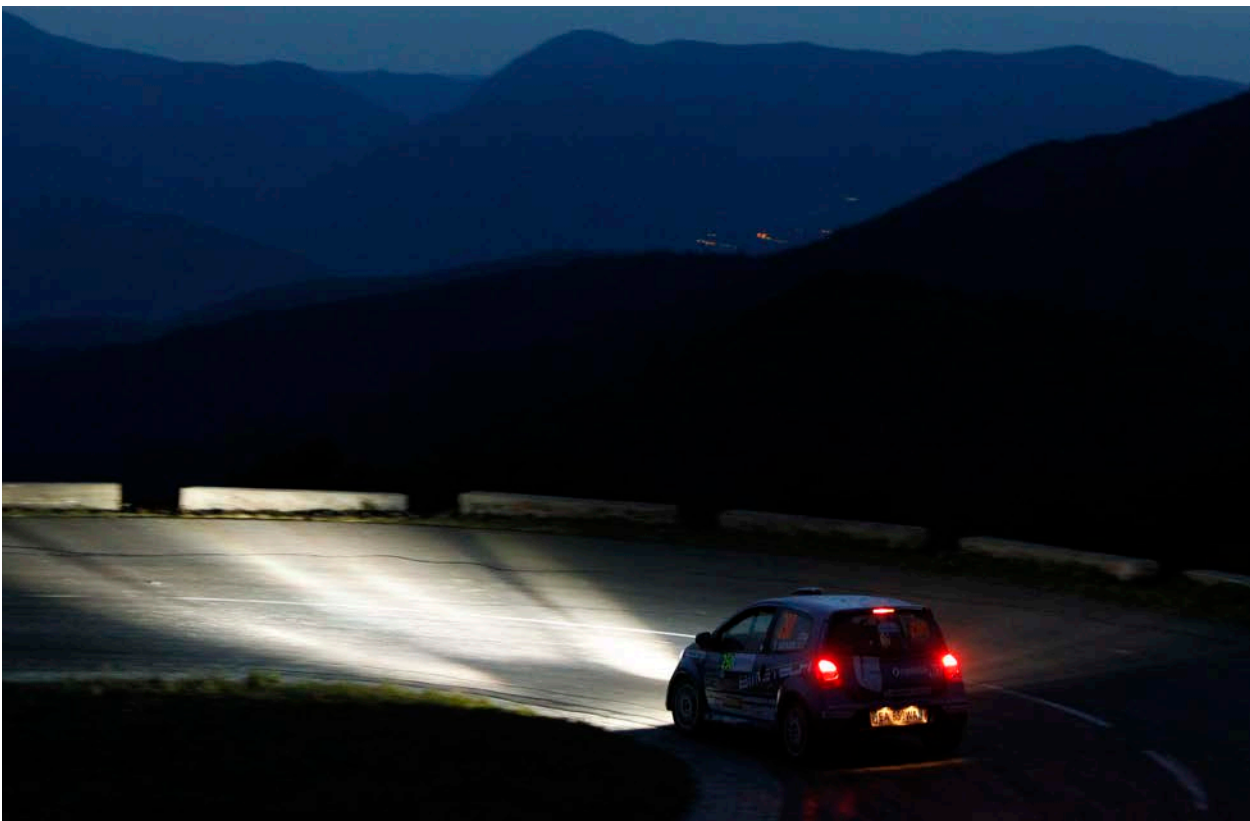
The list below is not exhaustive but gives an indication of considerations required when looking at a new special stage.

- What length is the proposed special stage to be?
- Is it a road that will add to the sporting and promotional features of the rally?
- Are the access roads for competitors, MIV, ambulance and recovery units suitable?
- Are the spectator access routes acceptable to high traffic flows?
- Are there suitable car-parks for the expected spectator numbers?
- What capacity can the allocated spectator viewing areas accept?
- It is best to avoid using a loop within a special stage - a section where the rally car goes over the same section twice during the same stage - it is very difficult to manage the time between the two cars. Something that can lead to the risk of a collision, or managing the safety services in the case of an accident.

RUNNING A SPECIAL STAGE IN THE DARK.

A 'Night Stage', (run in the hours of darkness, either in early morning or late evening) has to have additional considerations applied to its planning operation.

- Spectator walkway access routes have to benefit from lighting to illuminate the access routes from the car park areas.
- Marshals have to have reflective tabards to highlight their positions.
- Special stage time control, start and stop controls need to have powered lights for these areas.
- Junctions in the special stage with radios should be lit, in the direction of rally traffic, to enable the radio operators to monitor the competition number of the car passing that location.
- Marshal locations should be provided with torches.
- All MIV and recovery vehicles need to carry portable lighting units to assist them with any rescue or recovery operation.
- Consideration needs to be made in the use of any highly reflective stage signs/furniture or public road signs that may dazzle the driver given the powerful competition lights used by the competing cars.



- Competitors need to be reminded at a Briefing of the importance of positioning the reflective red triangle at least 50m in advance of where the rally car has stopped or left the special stage.

WATER HAZARDS

Lakes, sea, pools and dams all provide areas of significant risk when planning special stages.

The risk of a competing car entering a water hazard unseen by a marshal is significant.

The risk of the crew becoming trapped in the car when it is submerged is very significant.

Ideally any planned route would avoid any water hazard throughout an event. It is recognised that this may not be completely possible so precautions have to be taken to ensure that all risk reduction measures have been taken.

- What is the proximity of the water to the special stage?
- Are there natural obstacles blocking the chance of a competing car reaching the water?
- Is the approach to the area adjacent to the water taken at high or low speed by the competing cars?
- How deep is the water? Will the car be completely submerged?
- Can the event arrange for divers and a boat to be in location throughout the running of the special stage?

If so, are these divers restricted in their operating window by wind, storms?

The organiser needs to know these operating restrictions, if any.

- Is it possible to protect the area around the water to stop cars from leaving the stage route?

Earth bunds, concrete barriers are all examples of protection that could be planned for these areas.

Ensure where possible that all potential entry points into water are covered in line of sight by marshals.

It is regarded as not acceptable to run a stage in darkness that runs alongside a water hazard.

All competing cars should have a harness cutting tool, that includes the hammer end within easy reach of both driver and co-driver in the cockpit of the car. It may well be the case that two cutting tools are required to ensure that either of the crew can reach this whilst buckled into the competition seat.



TUNNELS

Where possible, the inclusion of tunnels on a special stage should be avoided. In case of an incident, accident, or breakdown, they may present significant hazards and risks to competitors, medical/rescue/recovery personnel and spectators.

By definition, the minimum length of a tunnel differs around the world ranging from 50-150m, however, even a relatively short tunnels should be avoided, as this could compromise the safety in the event of an accident or incident. The risks are further increased where fire occurs.

General Risks

- Tunnels with extended length and/or restricted width and/or height may, in the event of an accident/incident or breakdown
- Not allow the crew to provide adequate warning for oncoming cars in the event of an incident/accident or breakdown of a competitor car
- Compromise communications between competitor cars/rally HQ and teams
- Impede emergency egress for driver/co driver
- Impede emergency access for firefighting/medical/rescue and recovery crews
- Compromise and/or delay rescue and recovery process

Risks In Case of Fire

Due to their enclosed nature, a fire in a tunnel can be catastrophic due to.

• Limited Access and Egress

Access and egress routes will likely be compromised due to smoke logging and radiated heat therefore immediately compromise emergency access for firefighting, medical and rescue personnel, and emergency escape for driver/co driver.

- **Lack of ventilation**

Smoke build up may be intensified by lack of natural or assisted ventilation.

- **Radiant heat intensified**

Heat build-up is rapid within a tunnel due to lack of ventilation and (where applicable) low height. Tunnels are highly insulated spaces allowing the possibility for more rapid-fire growth.

- **Increased risk of structural damage and spalling**

Intense heat can cause failure of the tunnel resulting in partial or full collapse.

- **Excessive travel distances**

Longer tunnels will limit the working duration of firefighters and delay firefighting and rescue operations.

Fire involving a Hybrid or Electric Car

Where a hybrid or electric car is involved (or specifically where the hybrid/EV unit is involved) in fire, there is a possibility that firefighting operations may be protracted due to the presence of lithium-ion. This occurrence inside a tunnel will represent a significant hazard and will require additional resources.

Considerations

- Where tunnels cannot be avoided as part of a special stage (or are part of the designated route in between special stages), a full emergency/rescue plan should be produced following a comprehensive risk assessment and the following should be considered.
- Tunnel height and diameter – will this allow immediate access to medical/rescue and recovery crews?
- Is the tunnel illuminated?
- Does the tunnel have fixed installations e.g., automatic fire detection, fire sprinklers, ventilation (natural or assisted) and can these systems be used in an emergency?
- Are there escape or refuge areas that can be used by drivers/co drivers?
- Are there alternate access points for emergency services?

- Position fire and rescue services at each end of the tunnel with adequate and sustained water supplies, positive pressure ventilation (PPV) and self-contained breathing apparatus

- Marshals to be placed at the entry and exit of tunnels and maintain line of sight

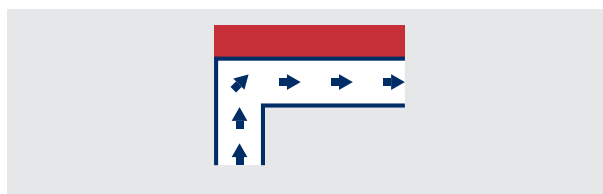
- This emergency/rescue plan should be available to medical and rescue teams.

CHOOSING A SPECIAL STAGE FOR SPECTATOR VIEWING

Items to consider for spectator locations are:

- Elevated viewing platform
- The depth of the viewing area
- What is access like from the car parks?
- Does the area need a crossing-point? If so, is there a safe area to locate this?
- Is there natural protection around the spectator location for spectators?
- What are the approach speeds to the area for the cars?
- Is the spectator area as safe if the stage is run in the reverse direction?
- Does the spectator access point conflict with a competitor escape road?

90° DEGREE BENDS



The outside of a bend is always considered as a prohibited area for spectators, marshals or media to stand to view a special stage.

There are however exceptions to this rule if the natural topography of the area allows. If the outside of the corner is a steep bank of c.3 metres in height, the banking will provide protection to those standing at the top.

The edge of the bank will need to be taped at least 1 metre back from the edge to reduce the risk of a spectator slipping.

The bank needs to have a steep drop to the special stage so that it does not act as a ramp to any car that is out of control.

CURVING BENDS



The outside of a bend is always considered as a prohibited area for spectators, marshals or media to stand to view a special stage.

There are however exceptions to this rule if the natural topography of the area allows.

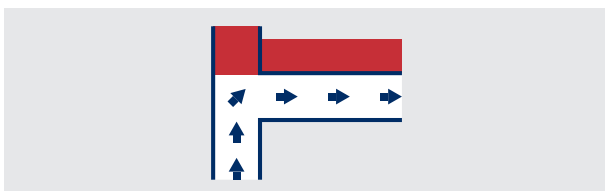
If the outside of the corner is a steep bank of c.3 metres in height, the banking will provide protection to those standing at the top.

The edge of the bank will need to be taped at least 1 metre back from the edge to reduce the risk of a spectator slipping.

The bank needs to have a steep drop the the special stage so that it does not act as a ramp to any car that is out of control.

It is important that this type of bend is not preceded by crest that can make the competing car jump or 'go light', unsettling it before arriving at the bend.

T-JUNCTION WITH A ROAD STRAIGHT-ON



As well as considering the requirements of the other type of bends, a T-junction, where the rally route goes left or right at the junction is a regular feature of special special stages and a natural attraction for spectators.

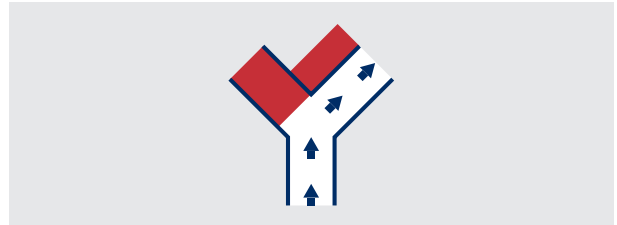
The straight-on position needs to be a prohibited area for EVERYONE and the area should be made sterile for 100m.

If spectators are to be permitted to stand on the inside of the junction, close to the apex, the following must be considered: can the inside of the corner be 'cut' by the rally car?

Could a car lose control under braking for the junction and end up on the inside of the corner?

Is there natural banking, protection on the inside area of the approach?

Y-JUNCTION WITH A ROAD AHEAD OF RALLY ROUTE



As well as considering the requirements of the other type of bends, a Y-junction, where the rally route goes left or right at the junction is a regular feature of special special stages and a natural attraction for spectators.

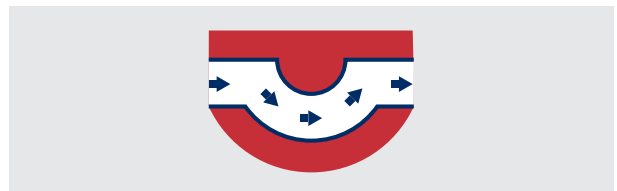
The non-competitive road off to the left of the right of rally route needs to be a prohibited area for EVERYONE and the area should be made sterile for 100m.

If spectators are to be permitted to stand on the inside of the junction, close to the apex, the following must be considered: can the inside of the corner be 'cut' by the rally car?

Could a car lose control under braking for the junction and end up on the inside of the corner?

Is there natural banking, protection on the inside area of the approach?

S-TYPE BEND



Where the rally route sweeps left and right or vice-versa the area needs to be protected on both the inside and outside of each bend.

Depending on the topography of the terrain, the cars could have the opportunity to 'straightline' the curves, or if the corners are after a crest, the cars could jump/'go-light' and be unstable through this section.

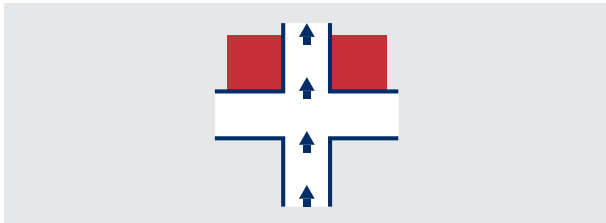
There are however exceptions to this rule if the natural topography of the area allows.

If the outside of the corner is a steep bank of c.3 metres in height, the banking will provide protection to those standing at the top.

The edge of the bank will need to be taped at least 1 metre back from the edge to reduce the risk of a spectator slipping.

The bank needs to have a steep drop the the special stage so that it does not act as a ramp to any car that is out of control.

X-ROADS, STRAIGHT-ON



The exit of cross-roads is an area where measures have to be taken to reduce the risk to spectators.

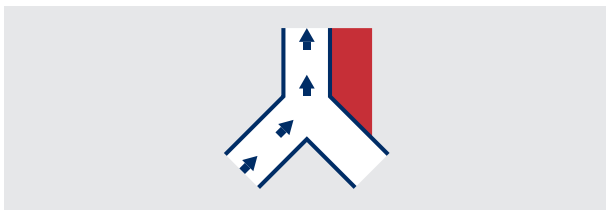
Given the general straight-on nature, speeds can be high, there is likely to be either a dip or crest to the road that can unsettle the car making the exit unstable.

All personnel have to be prohibited from exit area surrounding cross roads.

The prohibited area must be at least 50m if there are no obstacles before this that could stop an errant competing car.

Spectators are not to be allowed to stand within 30m of the roads going off to the left or right of the cross-roads.

Y-JUNCTION WITH A ROAD BEHIND FOR RALLY ROUTE

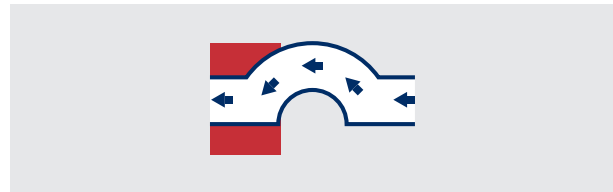


As well as considering the requirements of the other type of bends, a Y-junction, where the rally route goes left or right at the junction is a regular feature of special special stages and a natural attraction for spectators.

The non-competitive road off to the left or the right, that is behind rally route is somewhere spectators can view from, with a short sterile section of 15m from the stage edge.

The outside of the junction should be a prohibited area for all spectators, marshals and media unless it is at a height as described for a 90° degree bend.

CREST /JUMP



A crest, where cars may jump or fly can be the most spectacular viewing.

The risk element is the unpredictable nature of how the cars will behave when they land following the crest/jump.

The area for 100m following a jump has to be sterile with a considerable distance to the left/right of the area where the cars will land.

This area can be narrowed if there are obstacles between the stage route and where spectators are to be positioned.

No media are to be allowed in this vicinity either, though remote operated cameras can be positioned stage side.

Unless the area following a jump has high banks on either side or is tree-lined some metres back from the special stage, no exception to the exclusion zone will be allowed.

USING DATA TO ASSESS THE SUITABILITY OF A SPECIAL STAGE

We have detailed how the use of historic information from previously run special stages can help to analyse the suitability of a stage for an event.

There is technology that can provide data on any particular road that can help to judge its suitability for rallying.

One such option is the Jemba System.

The Jemba System records the terrain of any special stage; the inclines, the dips, the bends and crests.

Once the road terrain – gravel or asphalt – has been recorded, it is possible to install the data detailing what type of car will be tackling this stage at speed, that may be a historic car, a Rally2 or a Rally1.

This will then give details on the average speed for the stage, the highest speed areas and those areas that will involve the heaviest braking from speed.

The Google Earth trace below shows the changes in speed across this special stage.

The colours have the following meanings.

- Purple – over 150kph
- Red – over 90kph
- Yellow – 75 – 90kph



This trace can allow organisers to easily identify the high-speed regions on any section of road.

The decision can then be taken; does the speed represent an unnecessary risk, does the area require some speed reduction measures like a chicane, or is it acceptable given the terrain in that area?

Jemba also allows the user to analyse each corner in minute detail. It is possible to see what the maximum cornering speed would be at any particular bend.

This is detail that can be examined around proposed spectator areas or following any incident on a stage to enhance the learnings for future years.

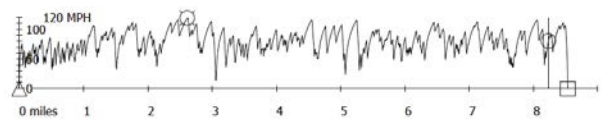
Some examples are shown on the following pages of how the data acquired by Jemba has been used to insert speed reduction measures and the difference this can make to a special stage time.

EVENT: CEREDIGION 2019 PRE-EVENT

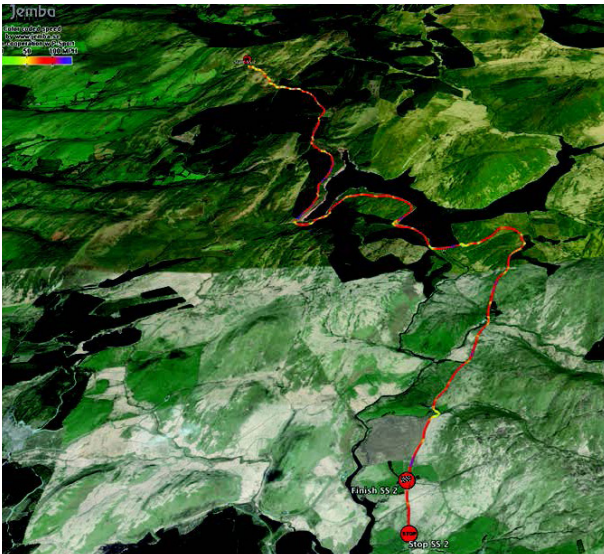


SS2 - Action required - Apply proposed chicane

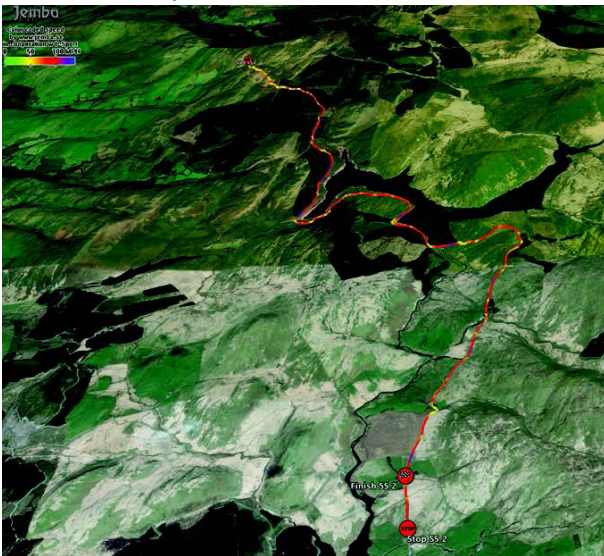
- Length of stage to finishing line: 13.25 kms
Altitude: 944-1419 (Interval: 764m)
- Length of stage to stop line: 13.73 kms 1000
- Max speed on stage: 191 KPH (pos: 2614)
Estimated stage time : 6:39
Estimated average speed on stage: 119 KPH
Without Chicane added.
Estimated stage time : 6:32
Estimated average speed on stage: 120 KPH
Margin for braking dist before stop: 264 * 1000 kms
(used of available braking dist: 12%)



SS 2 - CHICANE AT 4.911 KMS



SS 2 Speed trace before recommendations



SS 2 Speed trace after recommendations

SS 2. Our initial survey indicated an average speed of 120 KPH.

This puts the stage at risk of average speed regulations.

Our first proposal is to introduce a 4 Element Chicane at 4.911 KMS.

This will reduce the average speed by 1.6 KPH.

We would suggest the layby on the left on approach to the slower corner, a good place with the most effect (see speed traces to left)

We also feel that on the approach to the dam an effort should be made to keep the cars to the right by means of a barrier system.

This will slow the cars but will also help on the entry to the dam by keeping the cars straight.

This measure will also help reduce the average speed of the stage by a couple of seconds.

It may also be worth considering moving the Flying Finish back a little if an appropriate location is suitable.

Mainly because of the high speed nature of the road in that vicinity.



For guidance only.

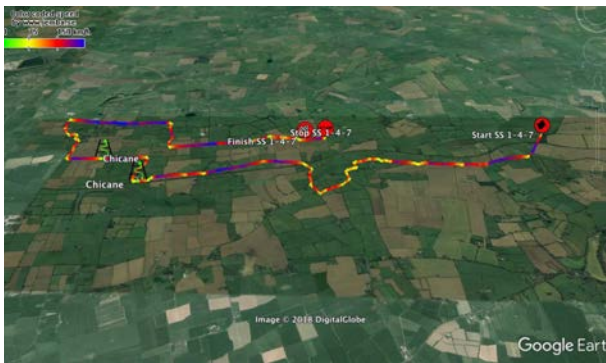


For guidance only.

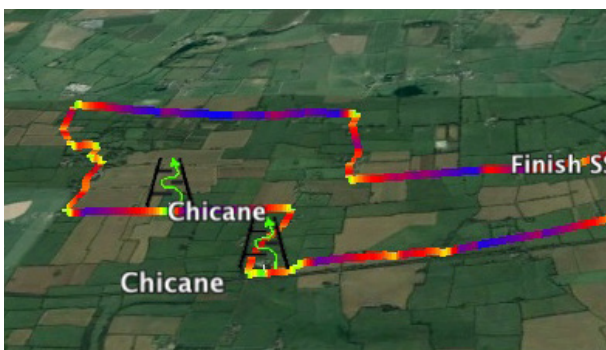
SS 1-4-7 - PROPOSED CHICANES AT 7.37 & 8.6 KMS

SS 1-4-7 - This stage requires very little adjustment and we are recommending 1 speed reduction chicane at 8.6 Kms plus we have included a safety chicane at 7.37 Kms before the junction with a pond outside.

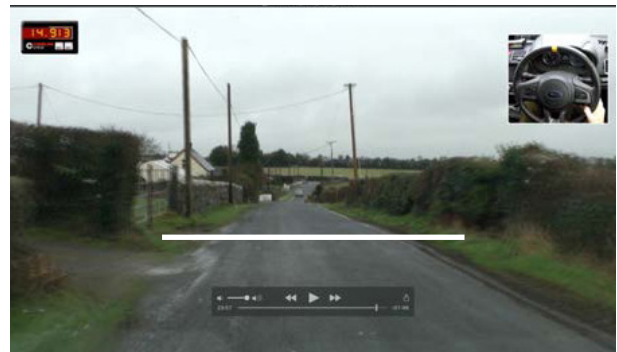
We have also moved the finish back to 14.9 kms, and the stop to 15.2 kms on the junction (just over 300 mtrs with line of sight) The start is 1.17 Km from the main road, arrival at 0.9.



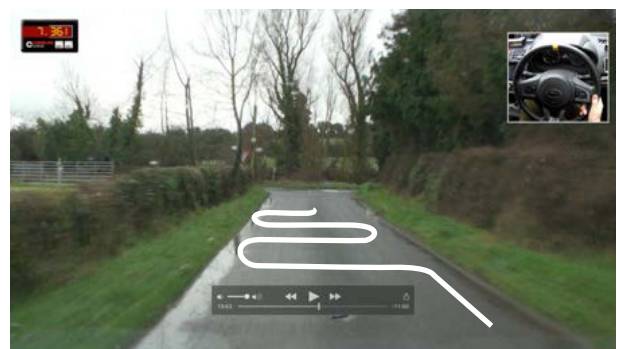
Speed trace before recommendations.



Speed trace after recommendations.



For guidance only.



For guidance only.



For guidance only.

SHAKEDOWN



The shakedown is a special stage that may be held before the event begins. It has to be treated with the same safety considerations and number of marshals as any other special stage.

Spectator numbers may be higher at the shakedown special stage as there is the opportunity to see the competing cars on more than once in a short space of time. Therefore, it has a similar spectator dynamic to a Super Special stage and may require additional crowd control measures.

Safety cars should be prepared to enter the stage a sporadic intervals to assist with spectator management if required.

The shakedown is also a good opportunity to perform a medical intervention test.

CLOSING OF JUNCTIONS - FOR THE DRIVER

All Junctions should be marked with an internationally recognized sign (zebra/chevron), indicating the correct driving direction to the drivers, easy to understand in case of "brain fade", placed in the middle of the unused road, but not close enough to the edge of the stage to be hit by vehicles or gravel (stones).

Here is an example of a sign that could be used to mark the closed road:



CLOSING OF ACCESS ROADS - FOR THE SPECTATORS, MARSHALS, MEDIA, GENERAL PUBLIC

- All access roads should be closed at a 50m distance back from the edge of the SS by tape to ensure that spectators, marshals and media are kept well back.
- This should be a tape of red/white colour for uniformity.
- Spectators should be directed left and right to safe areas.
- A marshal must always be positioned at any access road or junction where there is a possibility that spectators or members of the general public may try to enter the SS.

Identifying the potential risks to spectators is the first step to managing spectators on your event and is fundamental to running a safe event.

It is recommended that before the route is finalised, that a local very experienced driver or co-driver goes through the stages in advance to help identify and note any perceived high-risk areas to competition crews.

There are many ways to protect high-risk areas such as:

- Straw bales (round or square more than 1m in diameter recommended)
- Concrete barriers
- Sand bank
- Earth bund
- Plastic filled water barriers
- Wall of connected tyres

Where an exposed, significant drop exists, consider whether an alternative route is available or provide route definition in the way of coloured mesh to ensure competitors can clearly see the correct route to take.

4.2 TYRE WARMING ZONE (TWZ)

It is recognised that the optimum performance from competition tyres does not materialise until the tyres are at their operating temperature. Therefore, competing crews can use the last kilometre of the liaison section working to get heat into the tyres. Creating a Tyre Warming Zone takes this activity off the public roads.

It is recognised that not every event or indeed every special stage will be able to accommodate a Tyre Warming Zone between the Time Control and the Start Line. It would be best practice for events to start to investigate if it was possible to build such a zone into their route when surveying special stages for their next event.

The first stage after any service break or long regroup really must have a Tyre Warming Zone built into the stage design to ensure cars are at temperature to start the stage.

HOW DOES A TYRE WARMING ZONE WORK?

The zone will be between the Time Control and the Special Stage Start. The area should be a minimum of 500m in length and needs to be set up as any section on a special stage would be. Spectators must be kept back at a safe distance. No walking on this section of road from 30 minutes before the due time of the first car. Everything must be set up with the same safety mind set as it is for the special stage. The only difference being that the safety vehicles; MIV, TIV, Doctor etc. remain at the start line.

The Tyre Warming Zone start with a 'TWZ board' just after the Time Control and finishes at the 'TWZ ends' board, which will be a minimum of 100m before the stage start line. Before entering the Tyre Warming Zone the competing crews must have all their personal safety equipment in place,



as if they were going to start the stage. It is forbidden to stop in the Tyre Warming Zone, or to travel against the direction of rally traffic.

Once the competing crew reaches the 'TWZ ends' board, they must reduce their speed to walking speed as they approach the special stage start to position the car for starting the stage.

Organisers must consider that this new addition to special stages may attract spectators. The area may require spectator marshals to help police the spectators. The sudden acceleration, braking and turning of the car over such a short distance will provide a different spectacle. Safety, as always, must be the primary consideration when deciding upon the placement of the Tyre Warming Zone.

4.3 START, FINISH & STOP LINES

START LINE (FIA WRC SPORTING REGULATIONS ART. 48.1 AND 48.2)

Special stages commence from a standing start, with the car placed on the start line. The stage start area needs to

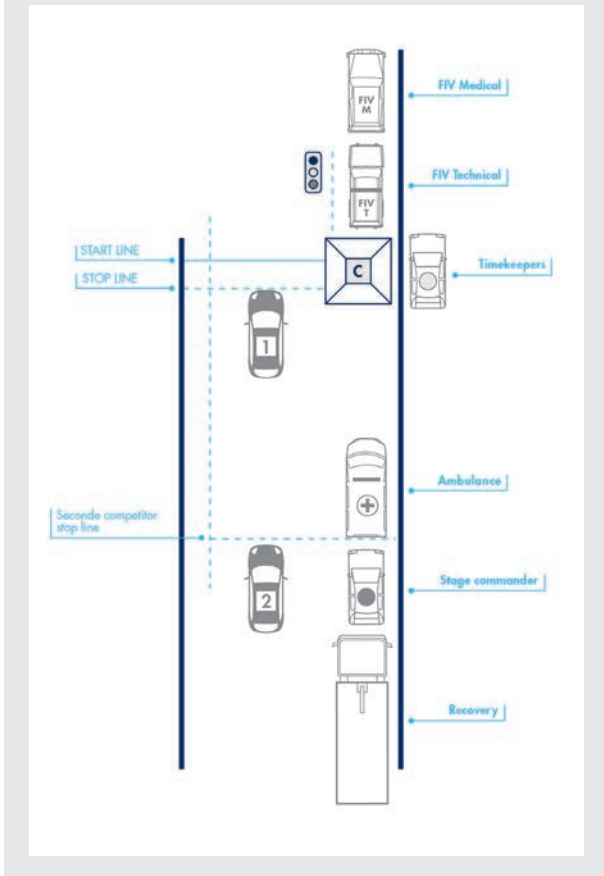
be large enough to accommodate the following vehicles:

- Doctor
- MIV
- FIV
- Marshals gazebo / shelter

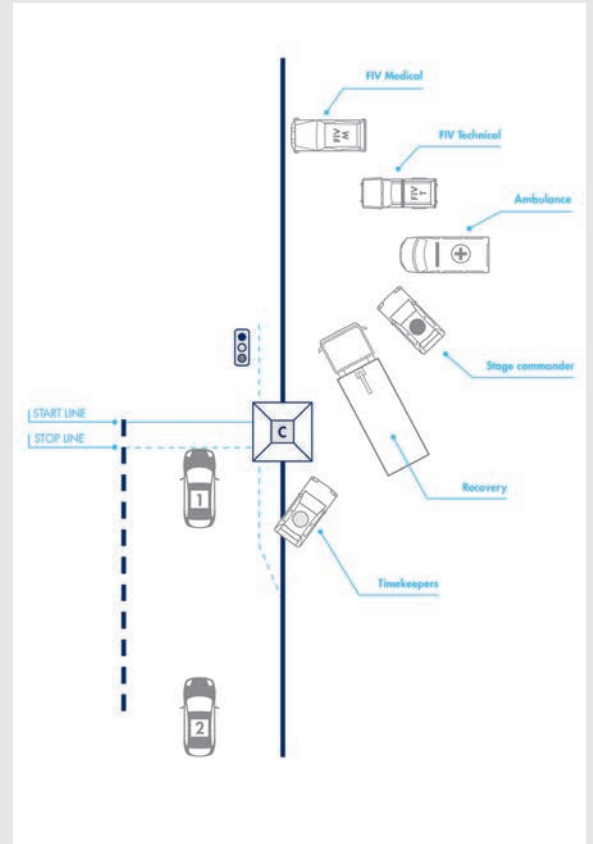
The emergency teams must have clear access to the special stage from the start, so space must be available for them to move quickly without having to move auxiliary vehicles.



MINIMUM ACCEPTABLE PLACEMENT OF VEHICLES



RECOMMENDED PLACEMENT OF VEHICLES



FLYING FINISH (FIA WRC SPORTING REGULATION ART. 49.1)

The purpose of the Flying Finish is to record the finish time of the special stage. As it is a timing location that ceases the speed element of that particular test of the event the location needs careful consideration.

The location of the Flying Finish should not pose a challenge or test to the competitor. The location needs to be straight or certainly NOT with a corner immediately following the Flying Finish 'gate'. A competitor could lift off the throttle as soon as they pass through the Flying Finish 'gate' and this can affect the mechanical grip the car has. Having to take a corner or crest when the crew may have 'switched off' and with less grip than they have had throughout the stage, any additional hazard poses a risk for an accident to happen.

There needs to be at least 200m from the Flying Finish 'gate' to the Stop Line to allow the competitor to come to a halt at the Stop Line without having to slow or brake excessively.

The timing marshals at the Flying Finish need to be in a protected area to be able to record the time of the car going past and not have any risk of being hit by flying stones or in an area that an errant car may head. Whilst they need to be level with the finish line of the stage, they need to be on the inside line of

whichever direction the rally cars will take. They need to be on higher ground than the road and at least 3 metres back from the edge of the stage.

It may not be possible to have access for a vehicle at the Flying Finish location.

STOP LINE (WRC SPORTING REGULATION ART.49.2)

The car must come to a halt at the STOP control boards to receive their time. This time will have been communicated either automatically through the timing system as the beam was broken at the Flying Finish, or through a radio message from the Flying Finish marshals. The Flying Finish marshals will have the time but may not have the car number so the STOP Line team must ensure that this information is relayed back to keep everyone's check sheets correct.

The STOP Line must have fire extinguishers at hand should they be required for any situation when a car arrives at this location.

The STOP Line should not be positioned within 150m of any main or adjoining road that is not closed for the competition.

On some events the Stop Line can be busy with media

looking to get quotes from the crews as soon as they complete the special stage. The marshals should outline how they want to work with the media before the cars arrive so that everyone can conduct their duties safely and efficiently.



4.4 IDENTIFYING THE RISKS

'Motorsport can be dangerous' is on the back of every pass issued by events or on warning boards approaching or near a special stage.

There may be risk involved within our sport but it is managing that risk that is the most important task we have and has to be at the front of all our planning – for the route, for spectator viewing, for scrutineering to service parks.

Common sense generally manages these risks in a straight-forward, planned way but this does not satisfy local authorities or landowners who need to be reassured that you are an experienced and responsible event in looking to reduce all risks where possible. Therefore, you should document all that you do.

If you can provide evidence that you have asked yourself the questions below on each occasion it will assist you:

- Remove all removable hazards and protect the non-removable ones. A simple mantra to set up the special stages
- What are the hazards that are faced by your marshals, officials, competitors and spectators?
- What is the risk attached to each of these hazards?
- What measures as an event do you already have in place?
- If an injury occurs – how serious will the consequences be?
- What else can be done?

Identifying the potential risks to spectators is the first step to managing spectators on your event and is fundamental to running a safe event.

You must consider the risks to spectators when planning your route and not after the route has been set.

The event and/or spectator safety officer should be involved at the route planning stage and should consider suitable viewing

points, access/egress points and car parking.

There are a number of things to be aware of and to plan for in seeking to effectively manage the risks to spectators attending your event. These are set out below. You should also use the experience of your team in running the event, the debrief from the previous year's event and any issues that are flagged up to you by the FIA/ASN Safety Delegate.

Use your previous experience to know the popular viewing points and ensure that your marshalling teams are in position ahead of the crowd to place the spectators where you want them and to ensure that they don't establish themselves in unsuitable locations.

IDENTIFYING AND ASSESSING THE RISKS

Set out below are some things to consider that will help you to identify the risk areas and the level of risk to spectators.

All high-risk areas should be designated as prohibited or "no-go" areas. Outside of those areas, you need to ensure that you manage risks to an appropriate level – clearly there are no 100% safe areas on a rally but you need to put appropriate steps in place to manage risks and ensure that you are clearly communicating the risks to spectators and everyone out on the stages.

THINK ABOUT THE FOLLOWING TO HELP YOU TO IDENTIFY RISKS

What spectator risks and issues arose in previous years, particularly at the last event, where did they happen and why? Utilise social media comments and online footage of your rally taken by spectators;

Have there been changes to the route that need special assessment?

Are you running any specific spectator areas?

Are you expecting any changes in the numbers of spectators at your event?

Are there any changes planned to access routes or planned car parking facilities for spectators?

If there were any incidents or near misses in the previous year, have all the implications for this year's event been thought through?

What weather conditions are you expecting?

Are you aware of the implications of any work taking place on the stages in the run up to the rally?

Are there likely to be gazebos in the Service Area or at any time controls? If so, check for ballast and fixings.

4.5 PROTECTION OF GUARD RAILS AND OTHER HAZARDS

Rallying takes place on roads / tracks that are open to other road users on the days away from the competition. As such there are many items placed road-side that may create hazards to our competitors but either present no such hazard to normal road going traffic or in fact, are there to add to the road safety.

Guard rails can have exposed ends, or ramped sections to the beginning and ends of the guarded sections. These can possibly penetrate a competing car, or act as a ramp to launch a car over the hazard they are designed to protect. It is recommended that these sections of guard rails should be protected by a large bale at the end approached by the competition. The bale should not be placed against the end of the guard rail but approximately 1 metre away from the end. This gives the bale some movement in the case of an impact and will help to absorb some of the forces when the car, bale and guard rail all impact.

A special attention should be paid to the guardrail overlap bolting, particularly when using the road in the opposite direction to the normal traffic, and / or in high-speed sections.

The same process should be in place for bridge parapets that may be approached at an angle that could result in a side-impact from a competing car. Having a bale on the exposed parapet should give enough absorption from the impact to protect the crew.

Of other hazards, these can be more often classed as hazards of nature; trees, cliff faces, protruding rocks etc. can all be found at the side of public roads used for rallies. It is here that the use of an experienced driver / co-driver driving through the special stages in advance of the event can have a huge benefit. They will be able to recognise areas that may cause a hazard due to the approaching speed or changes of surface.

Again, the best way to protect these areas is through the use of a bale, or tyres. Something that will help to absorb any impact. All these protection items, whether bales, tyres or something else must be in place when reconnaissance takes place so competitors can mark these into their pace notes.

Should the section of road be narrow and therefore made narrower by the use of a large round bale, consider using a large square bale so that the straight edge can still be kept to the edge of the road.

If at all possible, work to this mantra - remove all removable hazards, protect all non-removable hazards.

An example risk assessment template

	What are the hazards?	Who might be harmed & how	What is already being done?
1			
2			
3			

What additional steps, if any, could be done to manage this risk?	Action to be taken by whom	Action to be done by when	Completed date



4.6 STAGES RUN IN OPEN DESERT

When a stage is intended to be run in desert area, specific provision should be done to ensure a good safety level. These are outlined in this chapter to ensure best practice.

STAGE SELECTION

Throughout this document it has always been stated that safety begins with the selection of the special stages. When planning the route for the rally, stage selection and the delivery of a competent, safe special stage of competitive interest is primary in the search for an itinerary. This is no different in open desert locations.

Things to consider before choosing a special stage:

Access roads for evacuation routes, marshal access, spectator viewing locations.

Any natural hazards that will require action to lessen the risk to the competitors?

Is the terrain suitable for the technical capabilities of the class of competing car?

Is there good radio communication across the whole of the stage and back to Rally Control?

Has the stage been run before? If so, what can be learnt from that previous experience?

Are there concerns over the top speed in sections or the overall average speed?

Are there commercial businesses, farms, settlements along the route that will need to be met with to secure the special stage and closed stage access for the event?

TRAINING

The requirements of each official and marshal on any rally special stage are covered elsewhere in the FIA Rally Safety Guidelines. Historically, open desert stages have meant that – large open areas with few marshals, possibly covering many kilometres on stages that perhaps were not 100% secure from other road users or citizens.

Rally cars are now technically more able. The competitors are

more athletes and every tenth of a second counts towards the competition.

Organisers need to accept these demands from the competitors. They also must be aware of how to protect the safety of the competitors, the marshals, officials, spectators, and members of the public who may not have an interest in the sport. Much of the process of protecting these parties is down to communication and training.

Officials and marshals training

This is already covered elsewhere in these Guidelines. Additional topics are:

- The crews of the Safety Cars & Safety Patrol cars should be local or have extensive knowledge of the area and the residents.
- Look to use Sporting Student Associations for marshals and officials. The agreement helps the event and helps their experience of sporting organisation.
- To organise a Training Day in advance of the event. To cover control procedures, special stage setup, incident handling, spectator control.
- To review everyone's performance after the rally and to look to improve year on year.

PUBLIC SAFETY AND INFORMATION

Securing the special stages for the safety of all is of utmost importance. The use of the word 'securing' does not just mean on the day the stage is run but takes in all the work that needs to be done during the weeks in advance of the event.

All settlements, townships and businesses along the route need to be visited giving a detailed breakdown of:

- Date of the rally
- Time of the special stage
- Time the course will be closed off from and to
- Contact number for stage commander / Rally Control in case of an emergency.

Meeting the local leader of each area will have the benefit of the rally message getting to the right residents through their contacts.

A local advertising campaign needs to be devised to reach the non-rally fans. This must be a mixture of local advertising around the event area, plus social media messages. You cannot rely solely on social media, as algorithms can mean

it may not reach the audience you want it to. Or search out local community groups on social media and reach out to the communities that way. It would be useful to install banners inside the stage, close to the spectator areas, to display safety messages in local language.

The use of the local rally drivers to front any advertising campaign can be more powerful than the written word or images of a rally car.

There is a social media toolkit available through the FIA and ASNs.

Make use of any local volunteers who wish to be involved with the running of the rally around their area. They could be invaluable for local knowledge and contacts should something arise during the build-up or on the day of the stage.

SECURING THE SPECIAL STAGES

Desert special stages offer a unique and fantastic challenge for the competitors. They offer great landscapes for promoting our sport. They show that rallying is a sport that is free to all the landscapes and surfaces available around the globe.

Due to their open, sparse landscapes, they are also a challenge to event organisers to set up and to keep to a defined route that is competitive and safe for all.

In the stage selection process the following must be identified:

- Identify hazards: landing areas after jumps, rock outcrops, drops, ...
- Locate the best positioning for MIVs, TIVs and radio cars at suitable intervals and spots throughout the special stage.
- Where are spectators likely to congregate? Identify these areas and design them for easy set up, and detailed drawing in the safety plan. Remember, to include facilities for the spectators at these locations.
- If the stage has been used on previous editions of the event, what lessons have been learned from these experiences? Where there particular 'hot spots' that need to be planned to better to create a safe zone?

The stage team must be briefed that the special stage must be set-up as per the event safety plan. No deviation from the plan can be permitted. The safety plan is what the safety car caravan will be using when checking the stage on the day. All must comply.

To define the route, it is useful to use natural materials; but also flags or barriers inside of corners to stop competitors

from excessively cutting the route (the use of metallic sticks must be avoided as it can become a hazard). Orange directional arrows, preceded by a single directional arrow 100m before will assist the competitors to identify the route. At junctions, chevron boards would be useful to reconfirm to the competitors that they are making a turn at this point of the special stage.

To assist the stage teams in controlling and securing their special stage it would be advisable to engage with the military for the region. To have the senior officer in Rally Control to oversee the event alongside the clerk of the course. This presence means the senior officer can order their personnel to deploy, if needed, alongside the rally marshals to any incident or potential incident.

Having military personnel at the stage start with the stage commander gives additional security measures across the stage. It should also be identified that military personnel could assist the rally marshals at spectator areas, or areas where vehicles could access the special stage. The military will always carry more authority than a volunteer marshal, but they must be briefed that they work alongside the event officials, and most of the time they are not aware about the risks of the rally.

The Safety Patrol car and its duties are covered in Chapter 2.6 of these Guidelines. In essence this is a vehicle which has radio contact with Rally Control and the special stages. It is there to have an immediate reaction to any incident on a special stage or spectator zone. They will be based in a location that is central to the special stages that are running as possible so they can react to any incident in any special stage. The crew should have good local knowledge of the terrain, of the local communities, of how to deal with rally incidents so they can have independent thinking on the ground.



5/ SPECTATOR SAFETY

- 5.1 Areas of Risk
- 5.2 Set-up Diagrams
- 5.3 Colours of Tape
- 5.4 Communications with Spectators
- 5.5 Marshal Communication
- 5.6 Assisting Cars
- 5.7 Media Safety and Identification



5/ SPECTATOR SAFETY

WE HAVE COME A LONG WAY FROM THIS...



TO THIS...



BUT THERE IS STILL A LOT TO DO TO IMPROVE RALLY SPECTATOR SAFETY...

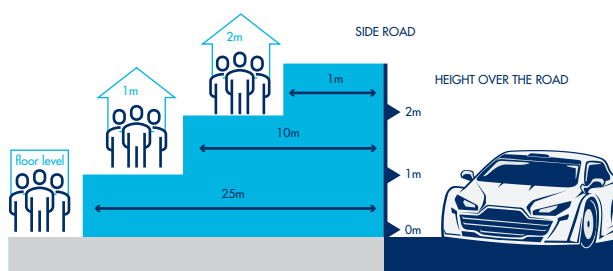
5.1 AREAS OF RISK

WHAT RISKS ARE THERE AT SPECIFIC POINTS OF THE ROUTE?

High risks might be at the following points

- Major changes in direction;
- Sharp corners;
- “S” bends – a double change in direction;
- Immediately over jumps or a brow where cars could lose control on landing and leave the road;
- Deceptive bend after a very fast section;

As detailed in Section 4 Special Stage Selection – CHOOSING A SPECIAL STAGE FOR SPECTATOR VIEWING each location requires its own dynamic risk assessment. There is no text that can account for each scenario you will come across on a special stage. Experience, a sensible and a methodical attitude will enable a consistent approach to all spectator areas on the chosen stage.



The above diagram gives a good indication of distances to look out for when assessing an area for spectators and how it should be setup. The lower, or lack of a banking means the further back the spectator line should be placed. The higher the banking the closer the spectator viewing area can be. But remember the points from Section 4, you must ensure that any bank could not act as a launch ramp into the spectator area for any errant rally car.

AFTER YOUR RISK ASSESSMENT, YOU SHOULD BE ABLE TO IDENTIFY:

- High risk areas that should be designated;
- Areas that are particularly suitable as spectator viewing areas;
- Appropriate measures to control risks at all other areas of the route.
- Prohibited “no-go” areas

These areas need to be identified in your risk assessments and any actions shown as part of your safety plan.

They need to be carefully marshalled by appropriately experienced individuals.

Marshals’ briefings and training need to include reference to these locations along with the rationale behind the risk management approach you have taken.

They should also be made aware of how to manage any specific situations at their location.

No-one should be allowed in a prohibited area – member of the public, media or a marshal.

Having reviewed the complete stage, and identified the sections that require attention particularly from a spectator safety point of view, it is advised to grade these critical points on a scale of one to three, with one being general safety requirements, up to three being acute.

CATEGORY 1 – LOW RISK

Low-risk sections of the stage can be managed by the placement of suitably briefed and identified marshals, tape and markers to identify the points beyond which spectators may not pass.

CATEGORY 2 – MEDIUM RISK

Medium-risk sections are where additional spectator marshals may be required. Danger signs and no-go areas identified by signage, an additional barrier net and possibly the inclusion of security to ensure that the spectators obey the officials. Such areas will also recognise those locations where run-off areas are required for competitors’ cars.

CATEGORY 3 – HIGH RISK

High risk areas. All Category 3 sections need to be identified as No-Go areas, except for high ground above the stage. **It must be assessed that the high ground will not act as a ramp for any errant car.**

Speed	Low speed	Medium speed	High speed
Height of bank	1m	2m – 3m	More than 3m

The same considerations must be given to the angles of corners when deciding if the area is a category 1 through to 3 risk.

Does the corner have a high-speed approach, is the angle more than 60 degrees and require heavy braking from the competitor.

Through the experienced skill set acquired by your team you will be able to recognise these areas and the risks at hand.

Use your previous experience to know the popular viewing points and be in position ahead of the crowd.

High ground is usually the better place to be, consequently identifying higher ground that can be used by spectators is helpful when planning your spectator areas.

These areas can simply be managed by the placement of suitably briefed and identified marshals with tape and signage to identify the points beyond which spectators may not pass.

All hazards that your risk assessment has identified should be taped and/or have appropriate signage. Footpaths, junctions and gates should be marshalled.

You will want to identify suitable locations on stage for marshals to park.

REMEMBER, A CAR THAT IS OUT OF CONTROL CAN TRAVEL A LONG DISTANCE. ALWAYS ENSURE THAT SPECTATORS ARE KEPT WELL BACK OR ON HIGHER GROUND AT DANGEROUS POINTS.

SPECTATOR CROSSING POINTS:

It is sometimes impossible to avoid having to create a crossing point to get spectators from one point on the stage to another. These crossing points need to be clearly marked in the Safety Plan and in the Set-up documents. The 'holding area' for spectators needing to cross the stage needs to be at least 20m back from the stage and protected. The crossing point must be manned by experience marshals who can handle large numbers of the public but who are also conversant in the sport to know when it is safe to instruct the public to cross the stage.

5.2 SET-UP DIAGRAMS

A consistent format should be adopted for each stage to assist the stage teams to prepare the stage in compliance with the event safety plan.

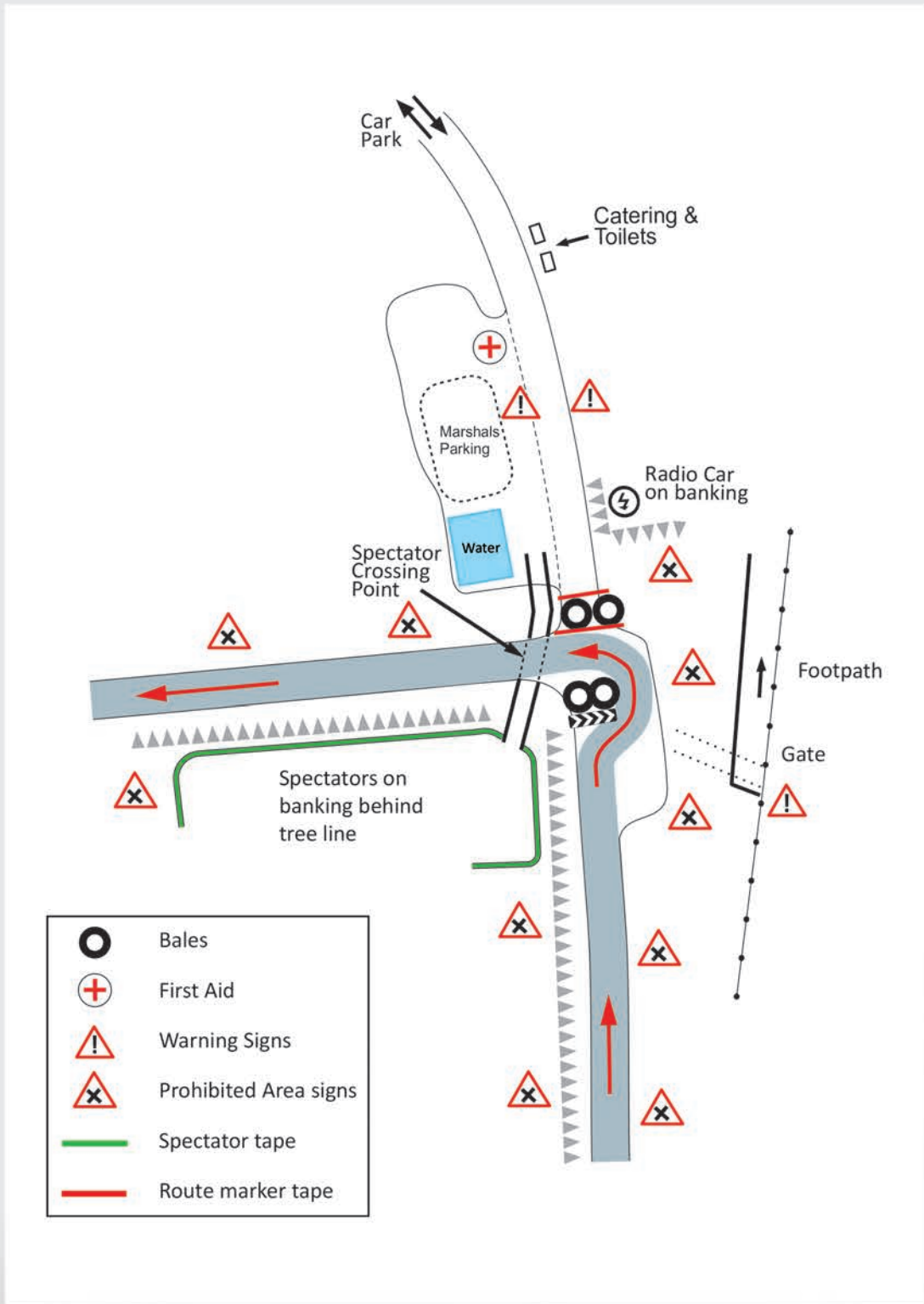
Information that should be included in specific spectator area diagrams is:

- Stage number, name, total distance, First Car Due (FCD)
- Post number and distance from Stage Start
- Direction of rally route
- Distance from the road to the spectator zones
- Height of the spectator zones
- Type of taping or barrier required
- Indication of the location of PROHIBITED AREA signs
- Indication of NO SPECTATORS beyond this point notices
- Direction for the spectator access
- Predicted marshal numbers (this is what you believe you need to run this location based on the predicted spectators anticipated)
- Direction of and distance to nearest radio point if NOT at that location
- Explanatory notes for those involved in the area to explain any of the points in the diagram

You must also include:

- Crossing points
- Box junctions
- Mandatory Radio location
- Name of Sector Official
- Call sign and name of Radio marshal
- Walkways to other spectator areas if available
- Any special media locations (e.g. film crew)
- Location of radio car
- Location of Rescue/Recovery





Detailed special stage map for safety plan



- Direction of First Aid (if required)
- Hospitality

Within a forest rally, it is common practice to tape at the tree line along certain parts of the route. A few metres can make a significant difference, for example, where cars are expected to slide under muddy conditions.

Consider the status of the treeline – taping at the first tree line may be an insufficient approach if the trees are extremely close to the stage at all points or if the trees

are further apart. Consider taping at the second tree line as opposed to the first.

Where the crowd is likely to push against any tape, consider using rope to wrap the tape around or use plastic netting or other, more substantial barrier to prevent the crowd from pushing forward into a potentially risky location.

Once the route is set up, it is good practice to have photographs or video taken of the finished set up layout in order that the event has a record of what was originally in place.

All of the above will be related to the number of spectators attending. In many situations, the positions described above will generally not be accessible to spectators. The success of the plan depends on being able to manage and control the spectators.

The best way to achieve this is to be there before them. Be early and ensure the spectators are where you want them.

5.3 COLOURS OF TAPE

In the FIA World Rally Championship, they are working towards only having one colour of tape to indicate where spectators should stand, with everything else marked by prohibited area 'No-Go' signs.

However, some countries are not ready for this yet and still use two different colours of tape to indicate 'Go' and 'No-Go' areas.

GREEN TAPE (or the 'official' colour in each country)

Green tape (or preferably netting) should be used to indicate an area reserved for spectators that presents no apparent danger. These spectator zones should be closed on both sides to contain the spectators, and should be controlled by marshals.

Spectator zones should be included in the official event programme and spectators provided with as much information as possible to access these zones – parking, buses, etc. The public should understand that they must only enter the 'Go zone' authorised by the marshals.

"No tape, no public" is the new mantra for how spectator areas are marked on the special stages.

It is human nature to stand behind any tape and feel in a safe position, regardless of the tape colour. The use of one, consistent colour of tape, only to designate spectator area highlights to spectators where they can stand.

This change to only taping spectator areas will take a consistent promotional campaign to educate the spectators of what is expected from them when stage side.

'No-Go' / Prohibited area signs need to be used in the first sweep of the educational programme to mark out the areas where it is unacceptable for spectators to stand. The use of these signs are also proven to assist rally organisers with local authorities in showing the responsible attitude taken by the sport to safety of all.

The preferred tape colour is green. It is accepted that in some countries this colour is not recognised or allowed on sporting events. What is important is that, whatever colour is chosen, is that it is consistent across the event and consistent in the

messaging to the public.

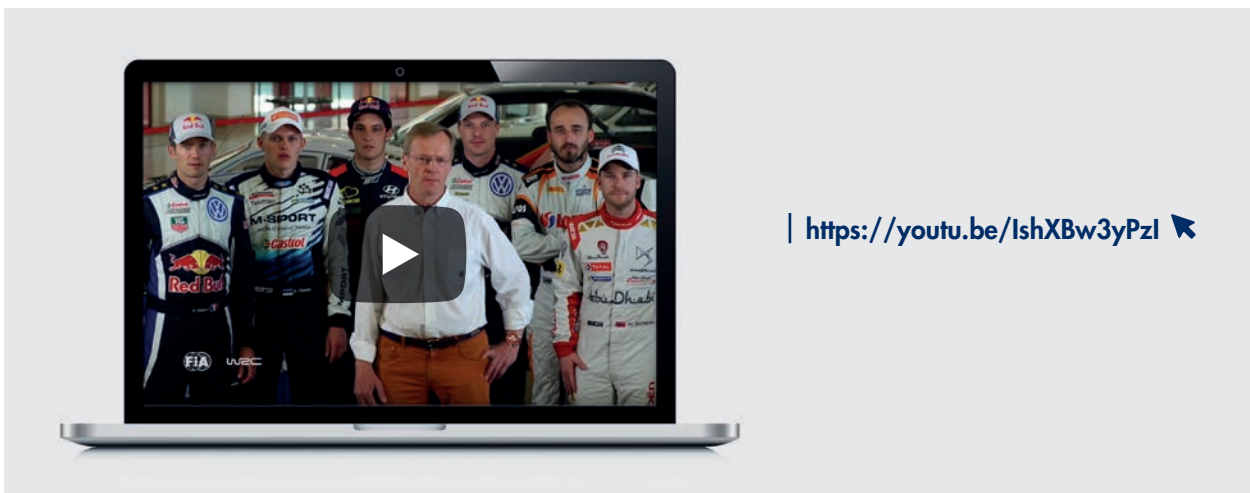
All junctions on special stages need to be taped to secure the access to the road. This should be the only other colour of tape that is seen on the special stages. This should be red/white tape, similar to the chevron board, and placed 3 metres back from the stage.

Each junction needs to be assessed for safety and spectator access. If it is a possible spectator location, the green, spectator tape needs to be placed behind the red/white box junction so that it is clear to the spectator where their viewing location is.

KEY POINTS FOR SPECTATOR SAFETY

- Measures should be taken as described in Article 5.4.5 of FIA Appendix H to warn spectators and, where necessary, ensure that any spectators who are in high risk places are removed from those areas.

- Any high-risk area must be identified in the Safety Plan. The organisers, with the assistance of the public order authorities where necessary, should identify and demarcate danger zones in conformity with the Safety Plan, well before the arrival of the public.
- The Clerk of the Course should take into consideration the recommendations of the Chief Safety Officer, as well as the crews of the zero cars (and of the FIA Safety and Medical Delegates if present), in order to ensure that a special stage is cancelled if dangerous conditions exist.
- When large numbers of spectators are expected for a special stage or a super special stage, they should be protected by special means and a proper zone should be prepared for this venue.
- The public should be prevented from moving along the route of the special stage after the 30-minute warning has been given by the marshals.



- Adequate numbers of marshals or public order authorities (police, military etc.) should be present to ensure public safety during the special stage.
- Marshals should wear a clearly identifiable tabard as recommended in Article 5.2.6 of FIA Appendix H.
- Special stages should be situated and scheduled to allow the safe movement of spectators between them
- Access of spectators to special stages should be recommended only in spectator zones.
- Emergency roads should be guarded by public order authorities and/or marshals/security guards, from the point where they join the main roads leading to the stages.
- All access roads should be indicated with special signs and additional information.
- Where possible, media parking areas should be provided near the photographers' areas. Special marshals should be available to assist photographers and to prevent spectators from approaching these venues.
- Spectator zones should be clearly marked out with fences or signs. Where appropriate, these zones should be far from the road, in order to keep spectators within safe areas.

30 MINUTES DEADLINE FOR CROSSING THE START AND FINISH LINE

Throughout the preparation for the rally a constant message must be promoted through the event website, spectator programme and social media channels that NO access will be permitted through the special stage start or finish lines after 30 minutes before the due time for the first competing car. Why? Any spectators accessing the special stage from these locations still have to walk in to choose their viewing location and will be doing this whilst the safety cars are working through the stage to ensure everyone is in a safe spectating area. They cannot do this if spectators are still walking into the stage.

Steps must be taken to prevent spectators from crossing the stage start and finish/stop areas. The use of a rope across the road, controlled by marshals just to permit safety cars to pass through would be one such suggestion to stop pedestrian access.

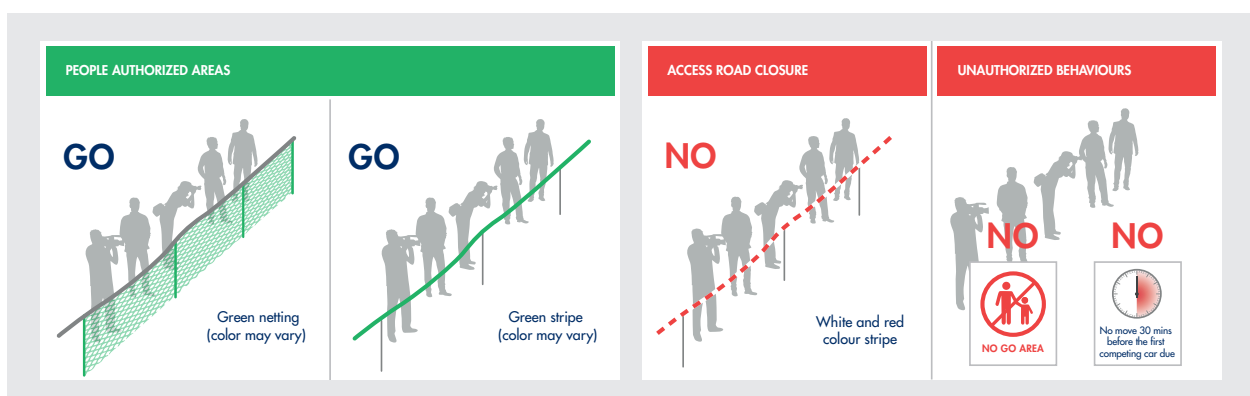
Spectators should be directed towards the areas that are allocated to them, without crossing these areas. No spectators should walk on the road 30-minutes before the due time of the first car.

5.4 COMMUNICATIONS WITH SPECTATORS

What messages are you sending to your spectators? As rally event organisers, you will want to ensure that potential spectators have access to information about the event, but you also have an important role in ensuring that spectators are made aware of the risks. Good communication with spectators is vital to everyone. Pre-event publicity is critical to ensuring that the general public are aware of your event and know that there are specific areas that are considered acceptable for them to view from. Try to ensure that your message is clear and does not contain sporting jargon. It is important that they know it is not acceptable to view from anywhere they choose.

To do this, you can use a range of communication methods. Consider the following:

- Have full information, including spectator safety information, on your website at least a couple of weeks before the event;
- Circulate information through the local car clubs;
- Use social media e.g. Facebook and twitter;
- Publish a programme and make it available locally e.g. in local shops prior to the event, as well as on your website;
- Involve local commercial radio and newspapers both before and during the event;
- Use prominent signage to direct spectators to access points/spectator areas/car parks;
- Use all FIA/ASN required signage;
- Provide links to ASN and other events safety videos such as:



<https://www.fia.com/rally-safety>

- Consider asking other local organisations to publicise the rally, e.g. local councils usually have web pages and notice boards.

Remember to include safety awareness messages for spectators. This can include the link to safety information on the FIA/ASN website. Safety messages should be included in all your communications, including your programme, and at the entrance to the venue. Each spectator should have the opportunity to see at least three safety signs as they approach the special stage.

In addition, provide clear information to your Safety Car crews, to ensure that they pass on the correct messages as they apply to your event. Define in advance the messages you will convey to spectators with the loudspeaker

EXAMPLE OF SAFETY MESSAGE

“Spectators must obey the instructions of rally marshals. Spectators who are asked to move and refuse to do so are putting their own safety and that of others at risk. Where this happens, a rally marshal has authority to notify the stage commander that the stage may have to be delayed and the stage commander will immediately take the appropriate action, which may include stopping the stage.”

SPECTATOR SAFETY ADVICE

Here are some tips that spectators should remember:

- Always keep your own safety in mind
- Park in a safe place
- Follow marshals' instructions
- Observe and obey all event signs
- Stay within the official spectator areas

- Do not enter any prohibited areas
- Keep off the road or track
- Listen to official announcements
- Expect the unexpected.

On rally special stages in particular, remember:

- Cars may run wide on corners
- Cars may cut corners
- Cars may throw up stones

5.5 MARSHAL COMMUNICATION

All marshals should ensure they have their whistle with them as part of the event equipment. This whistle is to be used for two purposes:

To advise the spectators and other marshals in their location of the approach of a vehicle, whether that is an official car, a safety car or a competitor.

To advise the spectators (at exactly 30 minutes before the First Car is Due (FCD) that there is to be no further movement on the special stage. This is to be done by a long continuous whistle at FCD minus 30 minutes.

Marshals should be standing up in position from 30 minutes before FCD.

The use of the Marshal sign language is crucial to the preparedness of every special stage. The reasons being:

1. Ensures communication between marshals and safety vehicles
2. Gives responsibility to the marshals to confirm everything is ok





3. Confirms the marshal is alert, ready, waiting and in position
4. Gives the marshal a visible recognition of their 'authority' to help with crowd control
5. Helps with team spirit
6. Helps the safety cars work more efficiently!

5.6 ASSISTING CARS

This has been a tradition in rallying but one that can unnecessarily place individuals or small groups of spectators (with or without marshals) at risk. Another car can easily leave the stage at the same point and very often, other competing cars are still continuing to pass on the stage.

When an incident happens, a marshal's primary responsibility is to act as a look out in order to allow another person to assess the needs of the competitor. The use of the whistle is vital as part of this role.

Where marshals are on site, they should be responsible for guiding spectators to avoid positions of danger.

If the incident has created a blockage or partial blockage and there are sufficient marshals on the stage, an additional marshal should go further up the stage to warn approaching cars.

If the incident involves assisting competitors ensure that you have a lookout, that you are in a safe position, that the SOS/OK board carried by all competitors is being shown and ensure that someone takes and displays the warning triangle approximately 100 metres down the stage. The SOS board should be shown at the vehicle itself if a competitor needs medical assistance;

In a non-marshalled site, the spectator safety posters and on event communications must cover this element of the event. The education of the spectators is a key part of the overall safety strategy for the continued success of our sport.

5.7 MEDIA SAFETY AND IDENTIFICATION

It is acknowledged that the media play an important role in rallies, and each member of the working media must be permitted to carry out his or her work in the best possible conditions.

However, the media are not exempt from having to respect general safety rules. This should not interfere with their ability to perform their duties. If a choice has to be made between carrying out their work and being exposed to an unacceptable level of risk, safety must always take precedence.

Journalists/photographers are issued with official tabards and passes, which authorise them to move outside the areas that have been set aside for the special stage.

This of course is to enable them to obtain clear action photographs; however, at no time can the photographers place themselves in a position that is a danger to them or to the competitors.

Photographers wearing official media tabards can walk on the special stage within the 30-minute zone.

No special viewing position is necessary for journalists.

If the Senior Marshal considers that the photographer is in a dangerous position, he must ask the photographer to move to a safe location. Be firm and calm and do not enter into a situation of confrontation.

If this instruction is not complied with, a senior official of the event may request the person concerned to move to a safe place. If this instruction is also ignored the official in charge will immediately submit a report to the Clerk of the Course and the stewards.

Any person wearing a tabard must ensure that it is clearly visible at all times, and is not covered by any other garment.

Permitted movements

When a media tabard is worn, the wearer is permitted to:

- Walk immediately in front of the spectator tape/marker boundary.
- Walk from one point of the stage to another and/or cross the stage during the intervals between the passage of competing cars, in accordance with the marshals' safety instructions.
- Exit the special stages between the running of the repeated special stages, in the direction of the rally route, but only when this is permitted by the stage commander/Clerk of the Course and only after the sweeper car has announced the opening of the road.



6/ HELICOPTERS & DRONES

6.1 Helicopters

6.2 Drones



6/ HELICOPTERS & DRONES

6.1 HELICOPTERS

The airspace over the special stages on certain rallies can be busy with various helicopters carrying out tasks such as: event safety; MEDIVAC; spectator control purposes; television; as well as transporting guests to and from the stages.

The purpose of establishing standard helicopter regulations for events is to create a safe flying environment for all helicopters.

In particular it is necessary to prioritise the role of the Safety and Medical helicopters. Each Organiser of an event where helicopters are being operated is asked to appoint a "Helicopter Coordinator".

SPECIAL STAGE LANDING AREAS

The long-term goal should be to establish a list of suitable and safe helicopter landing sites for all registered helicopters within walking distance of special stages, and to obtain the proper permissions for use.

It is proposed that the helicopter co-ordinator will, in conjunction with the event organisers, carry out reconnaissance and establish suitable sites in order to provide a map and details to all pilots.

TO PREVENT COLLISIONS, AND FOR FLIGHT SAFETY, PLEASE FOLLOW THESE SIMPLE RULES.

1. Priorities: except when normal national flying rules apply, helicopter pilots are to give priority to other helicopters in the following order of importance:
 - a) The FIA/ASN Safety and Technical helicopters (if the helicopters are operating)
 - b) The local Emergency Medical Services
 - c) The local Police and other security agencies
 - d) Camera-equipped TV helicopters filming the stages. In case of a Rally incident, b) and c) would have priority.
2. The TV helicopter will announce its presence on stages when following cars at low level.
3. If flying within 1000 meters of a rally stage, fly only in the direction of the stage. Minimum height above stage is 500 meters. If crossing a stage, try to do so at right angles, and at least 1000 meters. Try to land at least 100 m away from the stage. If landing/taking off within 100 m of a live stage, only do so after a competing



car has just passed, and fly away from the stage, so as not to distract the competitor. Do not attempt to follow a competing car by helicopter under any circumstances.

4. Be aware that the TV helicopter will often follow the leading cars over the same stretch of special stage, at very low level.
5. Ensure that you know the start time of each stage, and be on the ground by then. Understand the running intervals between competing cars.
6. Near stages and service areas, have your landing light on.
7. In the event of a Rally incident, the medical helicopter may need your landing place if there is nowhere else to land in the stage. Ensure that the pilot remains with the helicopter and be ready to move if need be.
8. Do not fly too close to the public (quote national rules).
9. Quote national weather limitation flying rules.

HELICOPTER LANDING ZONE AT SERVICE AREAS

Only helicopters registered with the Rally Organisers will be permitted to land at the service areas or other organiser sites.

The layout of the helicopter landing area, and the rules for landing, will vary according to the space available.

There should always be space for the FIA, Organisers, Medivac and TV helicopters to land either next to or within 1 km of a service area (the Primary landing site). If necessary, other public helicopters will be allocated a landing site at a different location. Public helicopters may, however, be permitted to land at the primary landing site to drop off or pick up passengers, provided their stay is momentary and the engines are not shut down.

Fire cover and fuel provision will be arranged, and compliance with local law and regulations respected.

SAFETY HELICOPTER (LOCAL ORGANISERS) IN COOPERATION WITH FIA/ASN SAFETY HELICOPTER

The safety helicopter, crewed by an assistant safety officer and equipped with loudspeakers, should be flying over each special stage between approx. 25 and 5 minutes before the first car is due to start. The ASO should check that all spectators are positioned in safe places and, if need be, should instruct them with loudspeakers. He should be in constant touch with Rally Control and should inform it of the complete "readiness" of the special stage.

MEDIVAC HELICOPTER

- One medivac helicopter should be ready to intervene in case of emergency, near and/or over the running stages. Landing points for emergency cases are shown by GPS positions in the safety plan in every stage.
- It patrols all special stages, ready to provide first aid and/or emergency medical transport in case of an accident.
- It is supported by ground engineers and a refuelling vehicle to keep it continuously airborne or ready to take off.
- It communicates directly with Rally Control.
- The helicopter intervenes after having consulted either the Chief Medical Officer or the Chief Safety Officer at Rally Control.
- As soon as the helicopter flies to the incident, it reports its arrival to Rally Control and does not land unless instructed to do so by Rally Control.
- If required and feasible it lands, as close as possible to the incident but off the stage.
- If unable to land at the site of the incident, the helicopter should land at the nearest available landing site, after the incident, clear of the stage. If a casualty or casualties is/are to be evacuated to hospital by the helicopter, an ambulance or a rescue vehicle should bring him/them to it, following the rally route.

THE ROLE OF HELICOPTER COORDINATOR

In cooperation with the national aviation authority (where appropriate) and for the purpose of flight safety, the coordinator will arrange appropriate restricted and/or NOTAM (Notice to Airmen) airspace designations for the duration of the event. Only helicopters registered with the rally will be permitted to fly within such airspace.

In conjunction with a local operator or pilot, the coordinator will conduct the pilots' briefing the day before the Rally. All helicopter pilots will be provided with details of the procedures to be followed, radio frequencies and other aviation-related items. A list of helicopters and pilots will be provided to each participant, so that an atmosphere of comradeship and accountability will be established.

RALLY HELICOPTER FLIGHT SAFETY RULES

The following is a draft of the proposed rules to be provided to pilots:

- There are (X) registered helicopters flying during the rally. A list is attached. All radio communications will be in English.

- The tasks of the helicopters vary in importance. The highest priority is to be given to helicopters operated by the event organiser for the purpose of spectator safety and medical emergencies.
- Most of the remaining helicopters will be flying passengers from the service areas to vantage points in the stages in order to watch the first few top cars, and return to the service areas. These helicopters are not permitted to follow the cars.
- By contrast, at least one TV camera helicopter will be following cars at low level along the stages for filming purposes.
- The big danger for all pilots is collision with another helicopter, especially in difficult weather conditions.

All helicopters registered to fly during the Rally will be provided with an identification sticker, which must be affixed to the helicopter. If you meet the pilot of an unregistered helicopter, give him a copy of these rules and report the details to the helicopter coordinator. Unregistered means that the pilot has not been briefed and could prejudice the safety of everyone.

TIMETABLE

4 weeks in advance Submission of helicopter registration forms.

2 weeks in advance Provision of Rally Route and GPS positions, event timetable, Rally Flying Rules.

1 day in advance Pilots' briefing. Helicopter marking stickers, maps & pilots list issued.

6.2 DRONES

Rally event organisers must be clear in their understanding of the current regulations pertaining to the use of drones on their events.

[International Sporting Code, Appendix H](#)

Unmanned Aerial Vehicles (UAV), commonly known as drones, operated by commercial entities may only be used at competition venues when permitted by, and operated according to, the civil aviation regulations and laws of the country in which the event is being held and the policies of the local ASN responsible for the event.

The use of a recreational UAV is prohibited.

In any case, a UAV must never fly directly over any competition course or public area unless under the direct control of persons authorised by the event organisers, the Race Director or the Clerk of the Course, for safety or information purposes only.







7/ INCIDENT HANDLING

- 7.1 Rally Control Operation
- 7.2 First on the Scene
- 7.3 Heli-Med Procedures
- 7.4 Competitors Safety Briefing
- 7.5 Critical Incident Handling
- 7.6 Accident Data Gathering
- 7.7 World Accident Database



7/ INCIDENT HANDLING

7.1 RALLY CONTROL OPERATION

All medical and safety crews report to the Stage Commander.

The Stage Commander should report to Rally Control as soon as an incident has occurred.

Should a serious accident be reported, the Stage Commander should let the Stage Safety Officer interrupt the starting procedure after informing the Clerk of the Course.

The CoC should give his permission to interrupt the starting procedure and implement the red flag procedure.

The following procedure will take place:

He interrupts the special stage and notifies by radio that the stage has been interrupted.

He orders the radio point marshals, up to the point of the incident, to display red flags.

Displaying red flags advises competitors that there may be emergency vehicles ahead of them and that they must reduce speed. If they catch up with these vehicles, they must not overtake them.

Any car that receives the red flag will be recorded by the radio point marshal so as to inform Rally Control.

The central hub of any rally is Rally Control.

This is the nerve centre for all communications and decisions regarding the safe running of the sporting event.

All instructions regarding the running of each element of the rally comes from this control centre.

As the hub of the event, Rally Control will have the overall picture of car movements, spectator locations and any ongoing incidents that may affect other aspects of the rally.

It must be manned by senior officials from the rally whenever a special stage is running.

PERSONNEL

Minimum personnel in Rally Control:

- Clerk Of the Course
- Deputy Clerk Of the Course
- Chief Medical Officer
- Event Safety Officer
- Radio Controller

Rally Control video



| https://youtu.be/ZjgOW8_ZakA

ROLES AND RESPONSIBILITIES FOR RALLY CONTROL PERSONNEL.

These are all over and above those details in the International Sporting Code, Appendix V, Article 3.1.1 and Supplement Event Command and Control 1.1.

Clerk Of the Course

The clerk's role in Rally Control is to lead the team and to ensure that the sporting integrity of the event is upheld throughout.

It is the clerk's ultimate decision when a special stage is to start, if red flags should be deployed and if a special stage should be cancelled.

They are also the person who keeps the chairman of the stewards constantly informed of the event progress.

Deputy Clerk Of the Course

The deputy's role is to support the clerk.

Primarily they are there to assist with the administration required by the event and stewards, as well as working ahead of the current stage to ensure that all is prepared in advance.

Chief Medical Officer

Ensures that his trained and equipped doctors are in the correct locations, in a timely manner on all special stages.

They also ensure that the medical helicopter is ready to fly and that conditions will allow this.

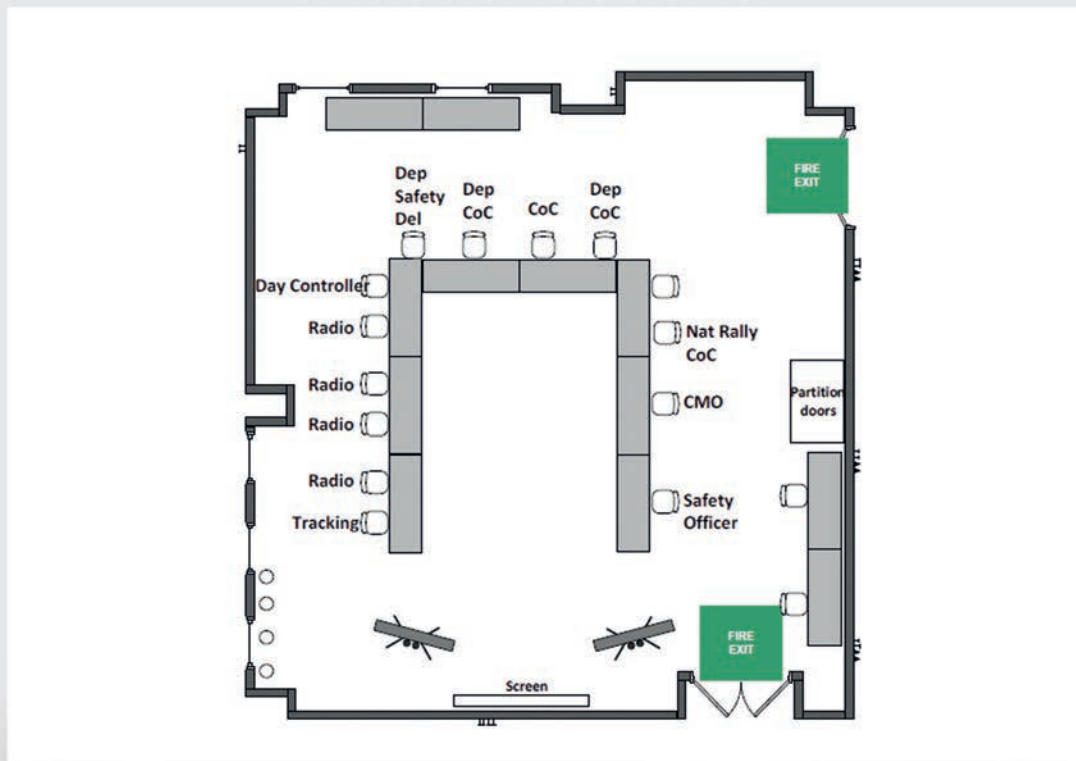
They coordinate any medical incident from Rally Control.

Event Safety Officer

Ensures that all MIV and Rescue units are in place, parked as per the safety plan and ready to deploy if needed.

As well as ensuring that the spectator areas have the sufficient First Aid provision in place.

They coordinate any recovery of retired cars and MIV movement on the special stages should they be required.



Wales Rally GB – Rally Control layout

Radio Controller

The 'ears' of Rally Control.

The controller keeps detailed notes from the moment they start communicating with each special stage till the sweeper car has cleared the stage at the end of that run.

They are also the person who delivers the instructions from Rally Control to each special stage.



Rally Finland - Rally Control



Arc Safari Rally - Rally Control

WHAT DOES RALLY CONTROL LOOK LIKE?

Throughout the world there are many different room layouts for Rally Control.

Many work with rows of tables but the preferred format is a horse-shoe layout.

This layout lets everyone see everyone in the room and no-one is talking to the back of someone else.

It allows clear communications to be heard across the room and everyone is aware of what is being said and planned.

TIMINGS FOR PERSONNEL IN RALLY CONTROL

The radio controller must be in position three-hours before the time of the first car is due at the first stage.

The clerk of the course or his deputy must also be in position at this time.

The chief medical officer and event safety officer must be in post at least 180 minutes before the due start time of the first stage.

RALLY CONTROL CHECK SHEET FOR STARTING A SPECIAL STAGE:

First Car Due time 3hrs minus

- Check that communications are working between special stage start, finish and mid-points.
- Ask how marshal numbers and positioning has gone.
- Check that the clocks and timing beams are in place and working.

FCD time 2hrs30m minus

- Check that all doctors, paramedics, MIVs and Rescue units are in attendance and in position.

FCD time 1hr30m minus

- Entry to the stage is closed to Priority Media – message has to go out to the stage.

FCD time 1hr20m minus

- Entry to the stage is closed for access to the Stewards.
- Spectator Safety Officer enters the stage. Passage through the stage is monitored by radio controller. All messages recorded and passed to following safety cars for any action to be followed up.

FCD time 50m minus

- Safety Car 000 enters the stage. Follows up actions from Spectator Safety Officer. Radio controller records all messages and passes these onto following safety cars for action or follow up.

FCD time 30m minus

- FIA/ASN Safety Delegate enters the stage. The clerk of the course needs to have confirmation from the Safety Delegate

that they are happy with the safety and set up of the stage before starting the first car. The safety delegate can delay the start time of a special stage by up to 30minutes. It is important to have continued communication as the safety delegate progresses through the stage.

FCD time 20m minus

- Safety Car 00 enters the stage. Any reports or actions from the Safety Delegate need to be confirmed to Rally Control as actioned by safety car 00. This gives confidence to the Safety Delegate about the preparedness of the stage and to the clerk for getting the stage to start.

FCD time 10m minus

- Safety Car 0 enters the stage. The progress of the safety car 0 is monitored throughout the stage by the tracking system and/or radio communications.

Given the length of the stage it may be that the first competing car enters the stage before the safety car 0 is clear of the stage.

This decision is only taken by the clerk when he is satisfied that the safety car 0 will not be caught by the first competitor and that permission to start the stage has been received by the Safety Delegate.

Throughout the running of the special stage, the radio controller will listen and record all communications with the special stage.

It is recommended that the other senior officials in the room are able to listen in to the conversations through headsets.

A note of the total number of cars that have entered the stage should be taken, the total number of cars that have exited the stage and a note of what cars are stopped in the stage.

This information is then passed to the Sweeper car and confirmed by the special stage check sheets at the Time Control, Stage Start and Stop Line.

CCTV AND LIVE VIDEO STREAMING

Technology is continually developing and these new developments can be used to enhance the information available to the Safety Car crews and Rally Control. Real-time information on the readiness of the special stage is a crucial part of the preparation before the first competitive car starts the stage. Dependant on the availability of a strong data connection along the rally route, it is possible to link a web-cam to the front of the 000 car and / or 00 car. These images can be sent to Rally Control and also viewed by the Safety Delegate before they enter the stage.

The images help Rally Control to coordinate with the Safety cars, the stage commanders and the marshals to orchestrate a plan to deal with any issue that may be arising and to deal with it before the first car is due.

There are added benefits to having real-time images from the 000 going back to Rally Control with immediate images of any traffic issues on liaison sections that may need to be managed before the competitors arrive.

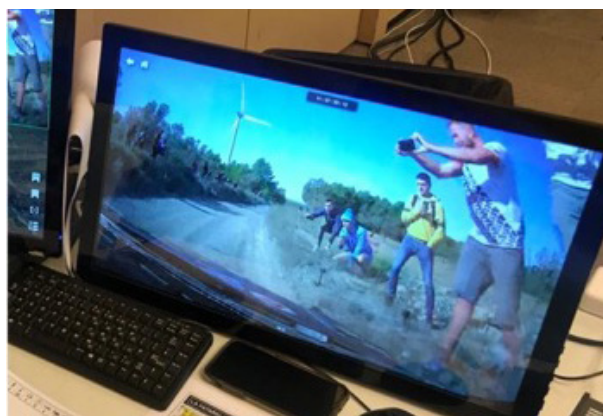
Live images from one of the Safety Cars is not the only way that technology can help Rally Control when they are remote from the time control locations. Web-cams monitoring time controls can help with seeing what is happening at any location. Information that backs-up the information from the special stage and tracking / results system.

It must always be remembered that these additional elements may not be available on every event but on the rallies where it is possible to use such enhancements, they are only there as an additional back-up to the primary radio reporting system coming from the Safety car crews and marshals on the special stages.

Local GDPR regulations will need to be checked to ensure compliance at all times when contemplating using live images from one of the safety cars.

DEPUTY SAFETY DELEGATE ON WRC RALLIES

On 2019 WRC events the role of a FIA Deputy Safety Delegate was introduced, sitting in Rally Control monitoring the live onboard footage available from the first 15 cars into each special stage. This raw footage allow the delegate to monitor any spectator in unsafe locations.



Hidden rogue spectators until first competition car on stage

These raw rushes allowed the delegate to monitor any spectator movement.

It is recognised that with the successful work of the FIA/ASN Safety Delegates in traversing the special stages before the first car some irresponsible spectators are 'hiding' from the safety car caravan and emerging into potentially hazardous places just before the first competing car.

If this area is not marshalled the only way to spot these individuals is through the competing car onboard footage.



Deputy Safety Delegate work station on WRC rallies

Given the extensive resource of the WRC-TV production team it is possible to view the onboards from three or four cars at one time on any special stage.

This allows the Deputy Safety Delegate to liaise with the clerk of the course about any potential spectators that need to be moved.

Using the safety plan and the event communications network, the clerk can look to see if they can move any marshals from a near-by location to the areas highlighted from the live onboards.

Before any call to move marshals is taken it needs to be assessed if the marshals can move safely from where they currently are to the new location whilst the special stage is running.

If they cannot, the decision has to be considered to stop the special stage until the marshals and irresponsible spectators can be moved.

This decision has to take into consideration if by stopping the stage for 10 – 20 minutes it will cause other spectator movement in other locations.

The technology available to our sport is developing very quickly and we need to embrace all of these new tools to add to our armoury to ensure a safe, competitive and enjoyable rally to spectators, competitors and officials.

7.2 FIRST ON THE SCENE

If a marshal needs to go to an incident scene from his post, he must be very careful regarding oncoming cars and ensure his safety at all times.

Special attention must be given to the state of the stage, live or red flagged, before moving around the stage road.

IF THE COMPETITOR IS STILL IN THE VEHICLE, IS RESPONSIVE AND THERE IS NO RISK OF FIRE:

- Approach from the front, look them in the eyes
- Do they seem aware of their surroundings?
- Speak to them, ask their name - do they respond?
- Any pain, loss of feeling - if yes keep them where they are!
- Keep them calm and keep them talking.

Do not move them until professional help arrives.

- Do nothing else
- Stop any life-threatening bleeding by applying direct pressure/plugging the wound
- Ensure an open airway
- Immobilise the head and c-spine (neck)
- Check if they are breathing

Events are strongly recommended to include in ALL road books a simple list of First on Scene actions, suggested text is below, as well as making a First on Scene video available on their own websites.

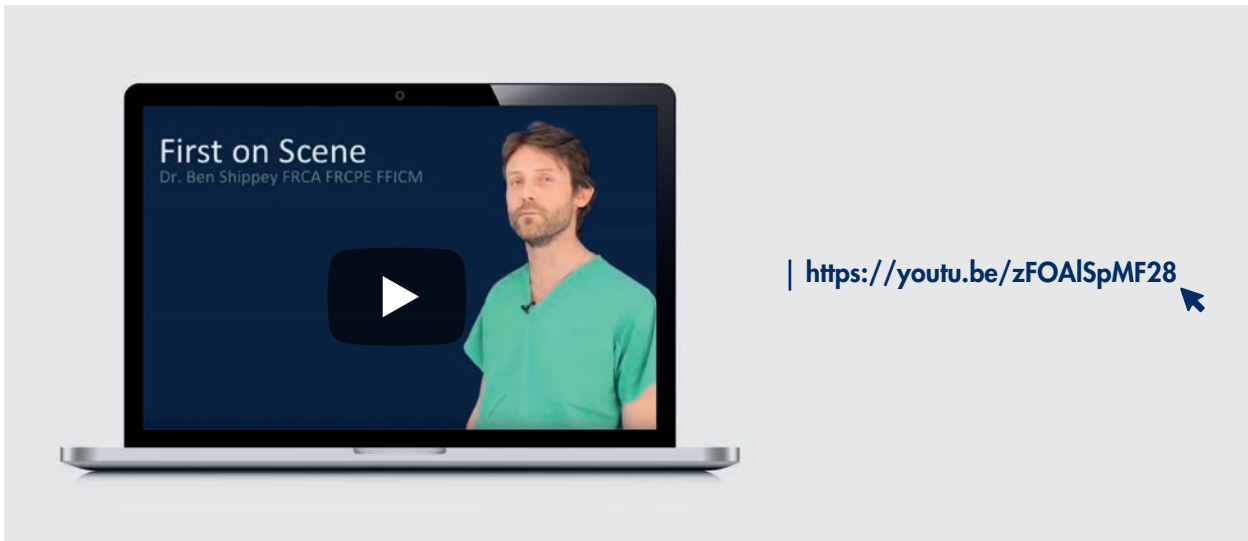
You may wish to add a section to the road book, reminding competitors of the regulation and their required action should a red flag be shown to them.

If the competitor is still in the vehicle and the vehicle is on fire **GET THEM OUT IMMEDIATELY.**

Do not remove their helmet unless there is no other way to ensure an open airway.

IF THE COMPETITOR IS OUT OF THE VEHICLE:

- Do not grab hold of them - they might be unaware of what is happening and become combative.
- Guide them to a place of safety away from the incident and other competitors.
- Speak to them, ask if they are OK?



- Keep someone with them.
- Once in a safe place, assess them for injuries:
- Are they aware of their surroundings?
- Any signs of injury/are they experiencing pain?

Do not let them wander around, but keep them under observation

Afterwards please write a short report for the organisers and either hand it to the first control official that you reach or to the Competitor Relations Officer.

This report should cover the facts as you know them and include times of the incident starting and when you left the scene; always include your own details so that the organisers can, if necessary, contact you.

7.3 HELI-MED PROCEDURES

If an incident requires urgent medical care, events should have on call a dedicated medical evacuation helicopter.

The use of this facility will be coordinated from Rally Control through the CMO and the Emergency Services.

Requests for restricted air space over the stages for the duration of the event in order that safe control of aircraft can be maintained should be made in advance of the rally.

An experienced person is responsible for all helicopter movements.

AIRCRAFT TASKING

The aircraft will be tasked by the Chief Medical or Safety Officer from Rally HQ after informing the Clerk of the Course.

The aircraft will be tasked to the junction on the special stage prior to the incident.

Post Number References will be provided for the GPS navigation system in the aircraft.

The aircraft flies to the incident, reports arrival to Control, DOES NOT LAND ON THE STAGE.

If required, and feasible, the aircraft will land close to the incident, CLEAR OF THE STAGE.

The ONLY exception to this rule being;

If instructed to do so by Rally Control.

The Stage is clearly blocked by the Rescue Unit and other vehicles at the site of the incident. In these circumstances the aircraft MUST land within sight of the Rescue Unit.

This will prevent the possibility of a competitor colliding with the aircraft.

If unable to land at the site of the incident the aircraft will fly down the stage to the nearest available landing site clear of the stage.

In these circumstances the casualty will be brought to the aircraft by the rescue unit proceeding down the stage in the direction of rally route.

Depending upon the severity of the injuries and number of casualties, the patient will then either be evacuated to hospital or to an ambulance RV point where an ambulance can collect them.

SAFETY PROCEDURES

DO NOT APPROACH THE AIRCRAFT - unless specifically

7. INCIDENT HANDLING

instructed to do so by a member of the aircraft crew.

Keep yourself and ALL other people at least 100 metres from the aircraft.

NEVER ALLOW ANYONE TO APPROACH THE REAR OF THE AIRCRAFT - the tail rotor which if turning cannot be seen - KILLS.

Loading of the casualty will be carried out by the crew of the aircraft - if they need assistance from rescue crew or marshals they will tell you.

AT ALL TIMES THE AIRCRAFT CREW ARE IN CHARGE OF THE SITUATION.

During landing and take-off, the aircraft generates considerable wind - be prepared to secure any loose items of clothing, hats, etc.

REMEMBER - KEEP SAFE - KEEP YOURSELF AND OTHERS AWAY

7.4 COMPETITORS SAFETY BRIEFING

Competitors, by their very nature, are always looking for a competitive advantage, that latest change to their car that will increase their speed.

They may not be just as up-to-date with the latest safety regulations or availability of safety equipment. The correct fitting of FHR restraints, helmets and belts can reduce the

level of any injuries sustained in an incident.

Knowing how the in-car tracking system works and what event organisers are looking for can reduce false alarms and increase response times for incidents.

A presentation on the safety equipment and its purpose should be presented to each competitor a minimum of once every calendar year at FIA sanctioned events.

The FIA steward shall examine each entry list to check who has attended a briefing previously within that period from information available from previous events.

It is recommended that the Clerk of the Course and safety delegate conduct a short (15 minute) safety briefing with the drivers and co-drivers before each event.

It is also recommended that the CMO attends the briefing for some advice on First Aid. The topics for this meeting should include:

- Red flag procedure
- First on scene actions
- Any incidents from previous events and the learnings from these
- Any features particular to that event that the competitors should be aware of

Attendance at the safety briefing should be mandatory, with a financial penalty applied for non-attendance.

It should be arranged to take place during pre-event administrative checks or promotional activities when the majority of the





competitors are likely to be in the same place at the same time.

7.5 CRITICAL INCIDENT HANDLING

A Critical Incident, for the purposes of these Guidelines, is one which results in:

- death or serious injury to a competitor (driver, co-driver);
- death or serious injury to any other person (official, team personnel, public services), or death or any injury to a member of the public, resulting directly from the competition;
- prejudice to the image of motor sport.

Coordinated and efficient management actions must be taken in such a situation.

On FIA events:

- The Clerk of the Course should will immediately contact those FIA Delegates present (Sporting Delegate, Chairman of the Stewards, Safety Delegate, Medical Delegate, Technical Delegate, Media Delegate, Observer) and confirm and coordinate the actions to be taken.
- If present, the FIA Media Delegate must ensure, through the organiser, that communications with the team or relatives of any casualties and to the media are managed according to FIA Media Guidelines, available from the Communications Department of the FIA on request.
- No FIA personnel will make any statement except at the request of the FIA Media Delegate or FIA Communication Manager for Sport.
- The FIA Safety Department and FIA Rally Department should be copied on all communication.

On other events a similar procedure should be followed to ensure communications surrounding the incident are handled in a professional manner at all times.

7.6 ACCIDENT DATA GATHERING

It is vital that all information and data relating to any critical incident is secured for further analysis.

The Incident Reporting Officer (IRO) will coordinate the gathering of data for the FIA World Accident Database (WADB) in conformity with the WADB Data Gathering Guidelines and notably:

- will impound any FIA approved safety equipment involved, unless this equipment is required by local authorities and ascertain the destination of the vehicles (and equipment) in case of need for a further investigation.
- will gather any ADR (Accident Data Recorder) or other electronic data available from the vehicles involved.
- will gather video recordings or photos of the incident as available.
- will complete WADB Forms 0 and 1 and request that the CMO completes Form 2 (Medical)

The IRO is normally the Senior Official present, as designated by the Parent ASN or the Clerk of the Course.

On FIA events, the IRO is normally the FIA Technical Delegate unless otherwise designated by the FIA.

The FIA Safety Department, in conjunction with its FIA WADB Data Processors, is available to support the submission of data to the WADB following any critical incident.

7.7 WORLD ACCIDENT DATABASE

Further information on the World Accident Database (WADB), and the WADB Data Gathering Guidelines can be found here:

<https://www.fia.com/wadb-world-accident-database>

The WADB was developed to build a data resource for the analysis of motor sport safety issues, using an online portal where ASNs and FIA-appointed Incident Reporting Officers (IROs) can enter information on serious accidents through a simple and secure interface.

The objectives are:

- to facilitate the reporting of serious accidents in adequate detail;
- to create a scientifically valid source of data concerning traumas in motor sport accidents and their causes, enabling epidemiological analyses;
- to monitor the performance of regulatory safety systems;
- to afford the FIA a real-time overview of safety issues throughout motor sport, in order to identify areas where research into measures to prevent injuries is indicated;
- to promote to ASNs the benefits of a highly responsible attitude to accident reporting in gaining the recognition and support of public authorities for the governance of all forms of the sport.

We thank everyone involved for ensuring that all serious accidents are submitted to the WADB.

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