



Mechanic's Handbook Version 1

1. INTRO

This handbook shows the most important points from the 2021 ACO/FIA Regulations for you as a mechanic. Of course, not every point is listed. Be always aware of rule changes during the event. **Please also keep in mind that there is a penalty for any rule breach.**

2. SAFETY CLOTHING

All personnel allowed in pit lane (from the red line in front of shutter) during sessions and race shall wear:

- Full fireproof garments (overall, gloves, balaclava, long underwear, socks, shoes), goggles + helmet. (any alteration of the underwear such as cutting off the trouser legs or sleeves due to high outside temperatures is absolutely forbidden and the condition of the underwear is always checked !)
- The **refueller, extinguisher and dead valve attendants** must wear a full-face helmet with **closed full visor** (visor can stay open only until car enters pit-lane!). Zippers must always be complete closed during refuelling
- As an exception, personnel on the pit-wall may wear fireproof overall only

Every mechanic is responsible for his equipment. Please check each other for the correct dress-up before you leave the garage. **TEAM WORK IS A MUST!**

3. PIT LANE AREA

During sessions and the race, access to the pit lane is reserved for people with a job.

Competitor is responsible for the people leaving his pit also if they do not belong to his team.

Team staff is only allowed in the pit lane immediately before working on a car once it is stopped with engine off and must leave the pit lane as soon as the work is completed. SEE PIT-STOP RULES BELOW

Pit lane is normally divided into three areas:

- "**Fast lane**": the closest to the wall / racetrack
- "**Acceleration and Slowing down lane (blending lane)**": the central lane
- "**Working area**": the closest to the pits, where work is permitted. Defined on one side by the yellow line painted in front of the pit curtain, and by a separating line with the middle lane. **The presence of people is only authorized during interventions on the car.**
- Cars in the fast lane have priority over those in the acceleration lane or working area.



Note on STOP-GO PENALTY

The Stop & Go penalty shall be completed in the working area, under the responsibility of the car controller.

The car must come to a complete stop and may be released either immediately, or if a Stop & Go with time penalty is specified, the car must remain motionless for this time.

No operation is authorized on the car, and the driver must remain on board.

After the Stop & Go, the car must leave the working area to re-join the track.



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4. REFUELING AND DRAINING

During all sessions, refueling is authorized at the beginning of a pit stop in the working area, unless the car has entered the garage for repairs, in which case the refueling can be done at the end of the pit stop, only in the working area.

Refueller, extinguisher and dead man valve attendants must have **CLOSED VISORS** on their helmets and close the zippers on the overalls



5. ARMBANDS

Per each racing car, Teams will get the following armbands:

- 4 PIT LANE armbands
- 1 RED FLAG armbands
- 2 INDUSTRY (Tyre and brake) armbands





6. PIT STOPS

Cars may not enter or leave the pits or their pit stop position in a way that could endanger pit lane personnel or another car and driver.

Engines must always start with the own starter and without any pushing of the car in the pitlane . If the engine did not start electronic system must power cycled or car must be repaired until engine starts without any external help !



Cars may not be released in an unsafe condition.

PUSHING A CAR

A car can be pushed by a maximum of four persons only under the following circumstances:

- To put it in or to exit its pit – IT MUST BE PARKED PARALLEL BEFORE AND AFTER
- From the pit entry as far as its pit
- When it overruns the location of its working area (the use of the reverse gear is prohibited).
- The same rule applies when the car leaving its pit has broken down before the limit of the pit lane.

GENERAL OBLIGATIONS

During a pit-stop, only places where work can be done are working area or garage. The same applies for drivers change.

The presence of equipment and personnel in the working area is only authorised when the car enters his position and is stopped and its engine is off.

Drivers are prohibited from releasing the safety belts except when the car is stopped in the working area and its engine is off.

Before leaving, the driver must restart the engine and the lights without external assistance, only when the car is resting on its 4 wheels. CRANKING is considered as STARTING the engine!

Skates can be used to position a car parallel to the line only when both adjacent working areas are occupied by stopped cars. The use of skates to position the car for release will only be allowed under the same conditions.

If only one of the two adjacent working areas is occupied when a car stops or leaves its working area, only the persons with the appropriated armbands to intervene on the car, are allowed to push the car back.

Any person from a team, staying on the working area is considered to be working on the car.

PIT STOP PROCEDURE



The persons who intervene in the working area must wear the armbands when required (see below)

A car controller is responsible for the safety of the whole pit stop.

a) Arrival of the car in the working area

Only one person, the car controller (no armband), is permitted in the working area before the car stops. He is responsible solely for stopping the car safely (parallel to the 2,5 m line and at least 50 cm from it) in its working area. This person may remain in the pit lane all time and supervise but may perform no other function. He can visually inspect the entire car during the entire pit stop and report any damage via radio to the vehicle crew.

b) Driver change

A driver change may be completed at any time during a pit stop. Drivers may not take part in any other intervention than directly related to the drivers' change.

The driver help must be operated either by a driver of the concerned crew or by one of the persons authorized in the working area, wearing the appropriate armband. The use of tools is not allowed.

c) PHASE 1 - WHEN NOZZLE CONNECTED - Refuelling

A refueller can intervene to put fuel into the car (which must be on its wheels) only when:

- The car has been **grounded** by one of the 4 armband mechanics
- The **deadman valve attendant** is in position and operating the valve

The **fire extinguisher attendant** is equipped with an extinguisher. He is needed in any pit stop and must remain all time operational beside the car. He can visually inspect the car on right side during the entire pit stop and report any damage via radio to the car controller / race engineer.

- - A maximum of four persons, without any tools except for those for manual cleaning or tyre/brake checking, may perform operations, **and ground the car**, provided that no bodywork panel is removed, **and no part of any sort is brought to the working area**.

A maximum of two industry representatives and/or technicians are permitted to check the tires and/or the brakes but may not perform any other function.

NOTE: the time when the nozzle is connected can be longer than the time the dead-man rig valve stays open, due to regulations constraint.

d) PHASE 2 - WHEN NOZZLE DISCONNECTED - Interventions

- A maximum of four persons are authorised to intervene on the car, to conduct any type of operations.
- **A maximum of two industry representatives and /or technicians** are permitted to check the tires sand/or brakes, but may not performany other function
- **Tyre changing** must be done with the help of at most **2 pneumatic wheel guns**.



- At any time during tyre changing operations, **wheels cannot be left UNATTENDED.**

Detached wheels must always be either carried by a person or laid flat in the ground

e) Departure of the car from the working area

A car controller is responsible for allowing the car to leave the working area safely. **UNSAFE RELEASE to be avoided!**

REPAIRS IN THE GARAGE

The car can return inside its garage for any type of intervention. The restrictions regarding equipment and personnel do not apply when the car is in the garage. Nevertheless, refuelling is not authorised in the garage and can only take place in the working area, also after the intervention.

Note on RUNNING OF ENGINE

Whatever the reason is, when a car comes to a stop in the pits, the **engine must be switched off.**

For any check or tuning, an external source of energy may be used to start the engine. In all cases when all the operations are finished and the car is going to rejoin the race, the engine must be switched on by the driver alone sitting behind his wheel, with no outside assistance, the car resting on its wheels.

Outside assistance ("push starting", etc.) is prohibited when a car leaves the pit to rejoin the race.(see above)

Note on LIGHTS

The rear rain light must be switched on permanently when the track has been declared wet, unless the Race Director gives instructions to the contrary.

The Leader Light system must be operational at all times during the Competition.



In case of malfunction of a car's lighting and light signaling system, whether on the track or in the pit lane, the Race Director shall immediately inform the Competitor, who must remedy the situation during the next pit stop, unless the Race Director, for safety reasons at his own discretion, decides to order the immediate stopping of the car in order for repairs to be carried out.

If the lights are not working **DO NOT send the car at the end of the pit-stop**, the marshals will not let him enter the track at pit exit!!!



7. PARC FERMÉ

One mechanic of each team may enter the Parc Fermé in order to connect or disconnect an additional **power supply** to run internal cooling units or **to place external cooling devices around the car in order to prevent damage**, as a proper cool-down must be carried out.

A person per team shall be present at the entrance of the Parc Fermé to be informed of any decisions which might be taken regarding possible technical checks.

Be aware of additional Parc Fermé situations through the event, after a red flagged session or after **Qualifying** where it is forbidden to touch the car. **NO CAR LIFTING AFTER SESSIONS!!!**

It is strictly forbidden to lift the car to go inside the garage or into the scrutineering area. After qualifying, cars must remain in their wheels, no lifting, no trolleys!!!

8. WEIGHING

Cars may be weighed during and at the end of the practice sessions and after the finish of the race. When weighing is in process, no solid, liquid, gas or other substance or material of whatsoever nature may be added to or removed from a car.

Only Officials may enter the weighing area. No intervention whatsoever is allowed there save under the control of Officials.

Drivers must abide by the signals made by the marshals and they must stop when the red light is on. As soon as he is informed, the driver must switch off the engine and the car is weighed.

9. RACE START – TBC WITH LATEST COVID RULES

10. SUSPENDING THE RACE (RED FLAG)

When **RED FLAG** is given, overtaking is forbidden, **pit entrance and exit are closed** and drivers must proceed on track slowly to the **red flag line** where they line up in single file. Safety Car will be driven to the front of the line of cars behind the red flag line.

While the race is suspended:



- Neither the race nor the timekeeping system will stop
- Driving time during a red flag period will not be counted and the Stewards will confirm the updated driving times before the restart of the race.
- Only officials are allowed on the grid.
- The drivers are allowed to leave their cars (**but must not move away from them**) and remove their helmets and gloves.
- Driver changes are prohibited.



- The drivers must obey the marshals' instructions at all times.
- Parc Fermé rules apply to all the cars, no repairs are authorised in the pits.
- **If a car is in the pits, all works shall stop immediately.**

INTERVENTIONS ALLOWED ON THE CARS

All interventions on the cars are prohibited on the grid and in the pit lane, except with authorisation from Race Control and under the supervision of a Scrutineer solely for:

- installation of an additional external stationary device fitted on the car for cooling the energy recovery systems (Hybrids – ERS)
- connection of an external battery
- engine start for temperature control
- if it is raining, covering the car.

These interventions may be carried out by only 1 team member per car, wearing the appropriate armband (Red Flag Armband).

The Race Director, for safety reasons, may decide to authorise a **tyre change**.

RESUMING THE RACE - FURTHER INSTRUCTIONS WILL FOLLOW

11. SAFETY CAR – PIT LANE SITUATION

- During the **first 3 laps** of SC, **pit entry is closed**.
- Any car entering the pits during the first 3 laps may only **refuel for max 5 seconds** and/or replace a damaged tyre/or repair if dangerous, **on condition that after the third lap**, or as soon as the pit entry opens, **the car comes back in again** for refuelling and/or a tyre change. In this case the car may only cross the Line on the track once before entering.
- **If the Safety Car is withdrawn during first 3 laps:** cars will **cross the Control Line on track with the green flag** and only afterwards they may enter the pit lane without penalty.
- **Exiting the pit lane under the Safety Car:** pit exit closed from when the Safety Car crosses SC Line 1 until the last car of the line crosses SC Line 2.



12. SLOW ZONES

This is an area of the track that is put under strict 80 km/h max. rule (guardrail repair i.e.). The drivers have to use their FCY pit speed limiter there.



13. TOP POINTS

- Only **4** armband mechanics in the working area at any time
- Check correct safety clothing -help and check always also your colleagues!
- Check your equipment and tools
- No work under the car without safety
- You are always faster if you work quiet, calm and concentrated
- Listen to the radio- if you don't understand a call please ask instead of proceeding work which is may not communicated
- At any time be ready in the pits with all your equipment ready, as there may be a very late call to bring the car in!
- Be focused on the race, know where your car is (moving track map in the garage)
- Follow the race on the TV and time screens
- Ask questions and help each other
- Remember: We are one team with one aim!
- Always only do the work that is on your job list, coming from your engineer. If someone else comes and asks you to do a specific job, send him to your race engineer so he can put it onto the joblist.

