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SCG LMH

Tyres management process – R02

Roles

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- **Race engineer: Bruno, Christophe**
- **Data engineer: Fabio, Matteo**
- **Tyre engineer: Vincent, Thierry**
- **Tyre man: tba, tba**
- **Performance Engineer: Stefano**

Software tools required:
- Screen share of the tyre watch system
- Telemetry template for data engineers
- Telemetry template for tyre engineers
- Excel for cold-hot deltaP for tyre engineers
- ~~Chat system~~
- Screen share of tyre engineers to data engineers

Timeline before RACE

TIME

When	What	Who
- 2 weeks	Confirm tyre quantity with Michelin	Race engineers
- 1 day (installation day)	Define target hot P and T	Perf. + Tyre + Race
FP1		
+ 2h (FP1 performance debrief)	P and T evolution report	Data engineers
	Cold and Hot P, T targets update	Perf. + Tyre + Race
	Tyre plan for FP2 **and FP3**	Race engineers
FP2		
+ 1h (FP2 performance debrief)	P and T evolution report	Data engineers
	Cold and Hot P, T targets update	Perf. + Tyre + Race
	Tyre plan for FP3 **and QUALY**	Race engineers
FP3		
+ 1h (FP3 performance debrief)	P and T evolution report	Data engineers
	Cold and Hot P, T targets update	Perf. + Tyre + Race
	Tyre plan for QUALY update	Race engineers
QUALY		
+ 2h (QUALY performance debrief)	P and T evolution report	Data engineers
	Cold and Hot P, T targets update	Perf. + Tyre + Race
	Tyre plan for RACE update	Race engineers

Note 1: if ambient condition are different than expected, at least 30m before the session the race engineer needs to agree with tyre engineers the adaptation to the out-of-oven pressures target.

Note 2: pressures inside the oven to be set to 1.85 bar, to allow any out-of-oven pressure.

Scenarios for tyre data management

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1. **Set-up day**
2. **During session**
3. **After session**

#1 Set-up day

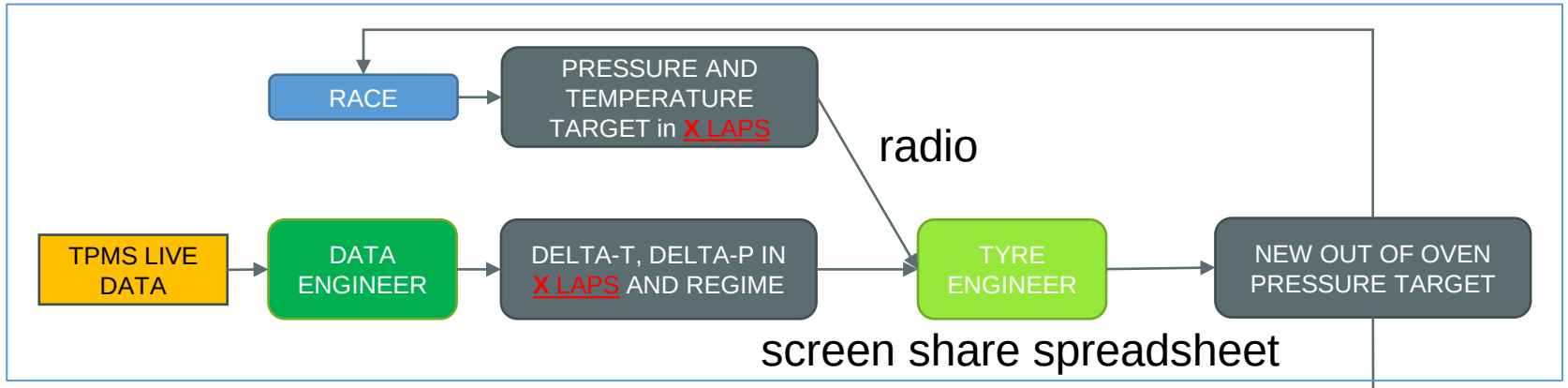
RACE	DATA	TYRE ENG	TYRE MAN	PERF
Check remote tyre watch	Check remote tyre watch	Oven chamber T check	Oven warm-up	Check remote tyre watch
Weather forecast check	Update report template	Record ambient and track T every 30m	Prepare sets for Free Practice	Initial Pressure and Temperature target
Share tyre plan for FP		Test tyre watch system operation		
		Pressure manometers calibration (also spare ones)		
		Temperature probes calibration (also spare ones)		

Notes for Qualy:

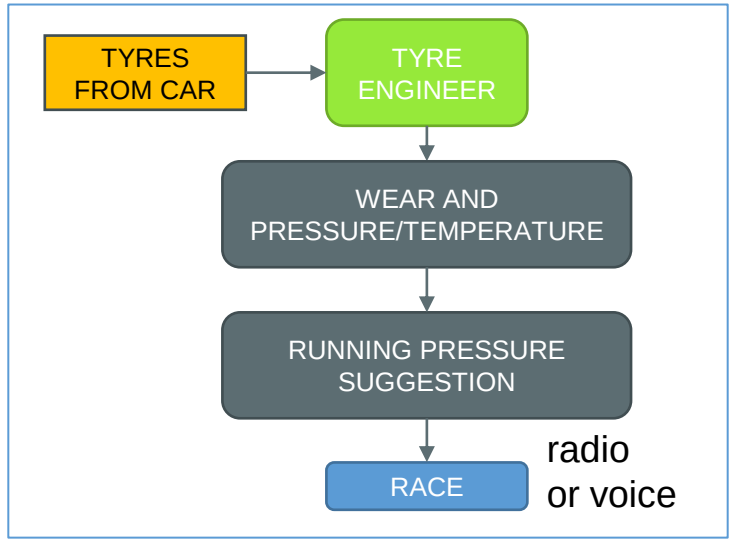
1. P and T targets to be defined at least 30m before session, keep in mind cold car (different from FP)
2. During 1st lap, Data to inform Race if 2nd lap is going to be in the P and T window
3. Race to decide if to do 2nd lap in the first out or not
4. Data to inform Tyre Engineer of deltaP -> Tyre Engineer to adjust out-of-oven pressure

#2 During session

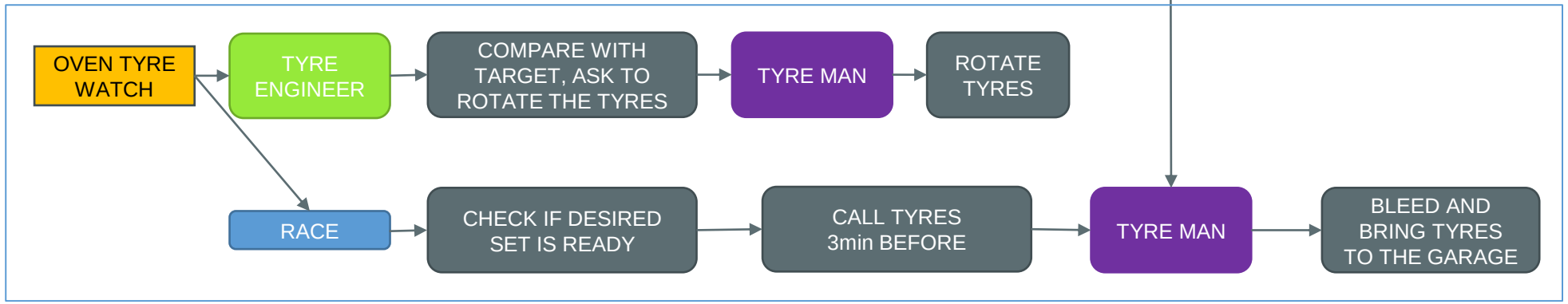
Loop 1



Loop 3



Loop 2



What if not?

X LAPS:

TBD for FP

1 LAP FOR QUALY

10min FOR RACE

#3 After session

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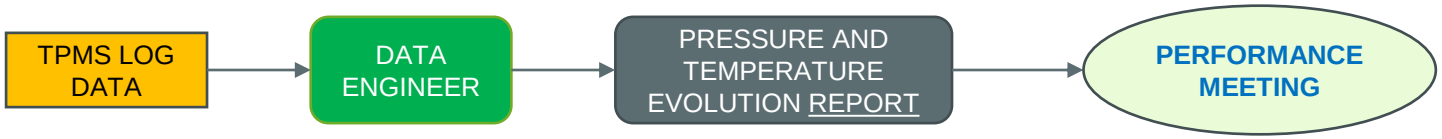

Data management

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List of documents:

1. **Data <> Tyre engineers Excel file for Cold to Hot pressure delta**
2. **Tyres after-session report: Data Engineers**
3. **Tyres after-session report: Tyre Engineers**
4. **Tyre plan: Race Engineers**

DATA <> TYRE engineers communication

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- Remote desktop (or Ammyy) to the tyre engineer laptop, in the tyre tent
- Excel file
- Each outing the tyre engineer puts pressure at which he and the tyre man bled the tyres.
- The data engineer, reached the reference point of X laps, puts the pressure readings
- The new pressures for the next stint are calculated

TARGET	1.78

	TYRE ENGINEER				DATA ENGINEER				CALCULATION				OUTPUT			
	Pressure at car out				Pressure at lap X				Delta from car out				New cold pressures			
Out	FL	FR	RL	RR	FL	FR	RL	RR	FL	FR	RL	RR	FL	FR	RL	RR
1	1.56	1.43	1.49	1.36	1.80	1.90	2.00	1.95	0.24	0.47	0.51	0.59	1.54	1.31	1.27	1.19
2									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
3									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
4									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
5									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
6									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
7									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
8									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
9									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78
10									0.00	0.00	0.00	0.00	1.78	1.78	1.78	1.78

Tyres after-session report: Data Engineers

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Content:

- PAGE 1 : PLOT + TABLE : Lap average of Pressure. In the table include Lap Min and Lap Max.
- PAGE 2 : PLOT + TABLE : Lap average of Temperature (IR Channel 2 and internal ambient air). Include Lap Min and Lap Max.
- PAGE 3 : TABLE : DATA <> TYRE engineer spreadsheet for Cold-Hot delta pressure

Notes:

❖ Each data engineer for his car

❖ Templates to be prepared in WinDarab and WinTax* (backup) by the data engineers. Same for both cars.

❖ Report will be a screenshot of the each of the 3 pages, put into PowerPoint, save as *.pdf

❖ Bring 2 printed copies at the performance meeting after the session.

*You will not have air internal temperature in WinTax

Tyres after-session report: Tyre Engineers

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Content:

- PAGE 1 : PLOT + TABLE : Laps number and wear measurement per each stint.

Notes:

❖ Each tyre engineer for his car

❖ Templates to be prepared in Excel by the Race Engineers and the Tyre Engineers. Collaboration needed. Same template for both cars.

❖ Bring 2 printed copies at the performance meeting after the session.

Tyre plan

Content:

- PAGE 1 : TABLE : Outings plan with number of laps/stint, tyres per each stint, total number of tyres to be fitted on rims

Notes:

- ❖ Each race engineer for his car
- ❖ Templates to be prepared in Excel by the Race Engineers. Same template for both cars
- ❖ Bring 1 printed copy at the performance meeting after the session

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