

Bulletin Nr. 12/2017 dated 21.07.2017

To Sporting & Technical Regulations 24H SERIES 2017 with KNAF-permit No.: 0314.16.272

Subject: BOP Hankook 24H PORTIMAO 25-26-27 August 2017

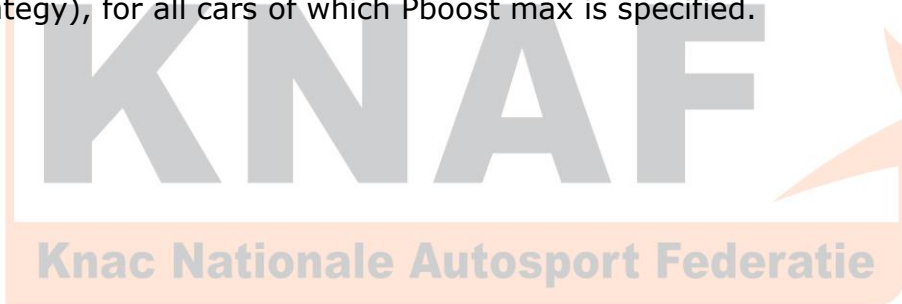
Dear Teams and Drivers

In this bulletin you will find the Balance of Performance (BOP), applicable Minimum Reference lap times **and Theoretical Minimum reference lap times**.

This BOP and other figures are in force with immediate application and replaces the figures of appendix 16 of the Sporting & Technical regulations and eventually previously published BOP-figures.

Notes on boost control:

Control of Pboost strategy as per document attached (Appendix: Control of Pboost strategy), for all cars of which Pboost max is specified.



KNAF approved at: 15th August 2017
With KNAF Permit nr: 0314.17.223

Petrol & Diesel Touring cars, up to 3500cc

| Class | Cylinder capacity | | Minimum Weight | Max Refuelling amount | Remarks | |
|-------|---|---------------------------------------|----------------|-----------------------|--|---|
| D1 | Diesel cars up to 2000cc | | 1100 kg | 100L | Min ref lap time* 2min00 (Portimao) Theoretical Min Ref lap time 1min59 | |
| | | | 1200 kg | 120L | | |
| A2 | Petrol (up to - 2.000cc) | up to 1.300cc | 710 kg | 80 L | Min ref lap time* 2min00 (Portimao) Theoretical Min Ref lap time 1min59 | |
| | | 1.300 - 1.400cc | 760 kg | 80 L | | |
| | | 1.400 - 1.600cc | 820 kg | 90 L | | |
| | | 1.600 - 1.800cc | 900 kg | 100 L | | |
| | | 1.800 - 2.000cc | 980 kg | 100 L | | |
| | Petrol Supercharged engines (up to 1.650cc) | Supercharged engines up to 1.650cc | 1000kg | 70 L | | |
| | | Peugeot RCZ 1.600cc / Turbo | 1100 kg | 80 L | | |
| A3 | Petrol (2.000 - 3.500cc) | 2.000 - 2.500cc | 1000 kg | 120 L | Min ref lap time* 1 min57 (Portimao) Theoretical Min Ref time 1min56 | |
| | | 2.500 - 3.000cc | 1100 kg | 120 L | | |
| | | 3.000 - 3.500cc | 1200 kg | 120 L | | |
| | Petrol Supercharged engines (1.650 - 2.000cc) | Peugeot 208 GTI 1.600cc / Turbo | 1050 kg | 85 L | | |
| | | 1.650 – 1.800cc | 900 kg | 100 L | | e.g. Lotus Elise 1.8 Turbo |
| | | | 1000 kg | 120 L | | e.g. Seat Leon MK1 |
| | | 1.800 – 2.000cc | 1000 kg | 90 L | | e.g. Seat Leon MK2, Opel Astra (NO TCR cars) |
| | | | 1100 kg | 100 L | | |
| | 1200 kg | 120 L | | | | |
| | Diesel 2.000 – 3000cc | 2.000 – 2.500cc | 1100 kg | 85 L | | |
| | | 2.500 – 3.000cc | 1200 kg | 85 L | | |
| CUP 1 | BMW M235i Cup | 3.000cc Twin Turbo | Remarks | Remarks | According to BMW M235i Cup regulations | |
| TCR | Supercharged engines 2.000cc | | See art. 5b | 100 L | (Models 2015 and younger) | |

Class TCR

| Brand & Type | Minimum Weight | Max Refuelling amount | Ride height | TCR Technical form Certification Nr. / Variant Option | Remarks |
|---|----------------|-----------------------|-------------|---|-----------|
| ALFA ROMEO GIULIETTA TCR RF | TBA | 100 L | 70 mm | 6 | |
| AUDI RS3 LMS DSG (2017) | 1230 kg | 100 L | 70 mm | 9 & VO 18 | |
| AUDI RS3 LMS SEQ (2017) | 1250 kg | 100 L | 70 mm | 10 & VO 18 | |
| FORD FOCUS TCR | TBA | 100 L | 70 mm | TBA | |
| HONDA CIVIC TCR SEQ (2016) | 1200 kg | 100 L | 70 mm | 001 & VO 20 | |
| HONDA CIVIC TCR SEQ (2017) | 1240 kg | 100L | 70 mm | 11 & VO 20 | |
| KIA CEE'D TCR | TBA | 100 L | TBA | TBA | |
| LADA VESTA TCR | 1250 kg | 100 L | 70 mm | TBA | 95% power |
| OPEL ASTRA TCR | 1240 kg | 100 L | 70 mm | TBA | 95% power |
| PEUGEOT 308 RACING CUP | 1100 kg | 95 L | 70 mm | TBA | |
| SEAT LEON CUP RACER V1 DSG (2015) | 1200 kg | 100 L | 60 mm | TCN2-C-001 | |
| SEAT LEON TCR V2 DSG (2016) | 1200 kg | 100 L | 60 mm | 004 | |
| SEAT LEON TCR V2 SEQ (2016) | 1200 kg | 100 L | 70 mm | 002 | |
| SEAT LCR TCR V3 DSG (2017) | 1220 kg | 100 L | 70 mm | 15 & VO 17 | |
| SEAT LEON TCR V3 SEQ (2017) | 1240 kg | 100 L | 70 mm | TBA | |
| SUBARU STI TCR | TBA | 100 L | TBA | 007 | |
| VOLKSWAGEN GOLF GTI TCR SEQ (2016) | 1210 kg | 100 L | 70 mm | 003 | |
| VOLKSWAGEN GOLF GTI TCR DSG (2017) | 1200 kg | 100 L | 70mm | TBA | |
| VOLKSWAGEN GOLF GTI TCR SEQ (2017) | 1220 kg | 100 L | 70 mm | 14 & VO 19 | |
| Your (TCR) car not listed here? Please make an individual request to info@creventic.com | | | | | |

Maximum Absolute Supercharging Pressure, according TCR-International:

- Technical Bulletin No.16 (Date: 2017, July, 7th)

Waiver regarding Rear wing, acc. Technical Bulletin No.16 (Date: 2017, July, 7th) is applicable.

GT cars*: Porsche 997 Cup and Porsche 991 Cup classes

| Class | Brand & Type | Cylinder capacity | Minimum Weight | Max Refuelling amount | Remarks |
|-----------|-----------------|-------------------|----------------|-----------------------|---|
| Class 997 | Porsche 997 Cup | 3.600 cc | 1150 kg | 120 L | Models 2007 .. 2009 Restrictor-Blende N/A |
| | | 3.800 cc | 1200 kg | 120 L | Models 2010 .. 2013 Restrictor-Blende 65mm |
| Class 991 | Porsche 991 Cup | 3.800 cc | 1230 kg | 100L | Models 2014 .. 2016 Restrictor-Blende 65mm |

A6-BOP-TABLE

BOP- table class A6-Pro & A6-Am

| Class* | Qualifying range | Race Minimum reference lap time | Balance Of Performance*** | | Remarks*** |
|--------|------------------|---------------------------------|---------------------------|------------|--|
| | | | Weight | Refuelling | |
| A6-Am | > 1.49 | 1.49,0** | -/- 50kg | 120 L | BOP-advantage |
| | 1.47 .. 1.49 | 1.47,0** | +0kg | +0 L | BOP-neutral |
| A6-Pro | < 1.47 | free | +30kg | -/- 5 L | BOP-handicap (No lap time restrictions) |

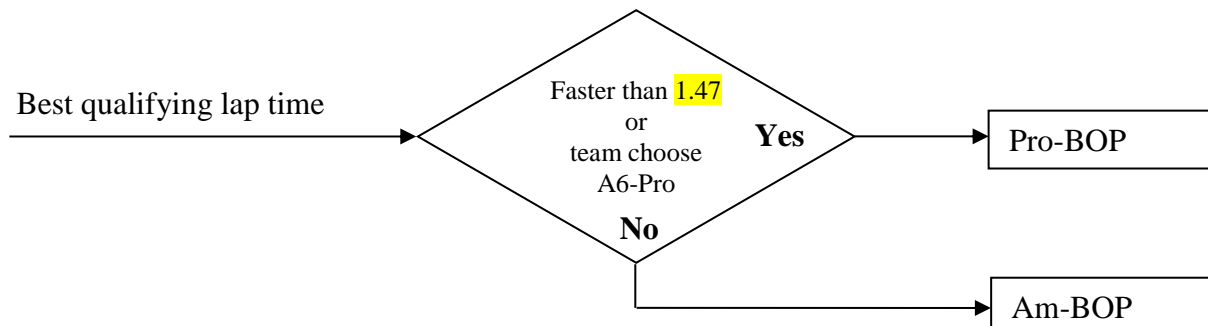
* Class (A6-Am or A6-Pro) is basically determined by the best qualifying lap.

According to the regulations: The organiser reserves the right to modify BOP for individual cars at any time of the event.

** Applicable Minimum reference lap time during the race. In case a fast driver is faster than the Minimum reference lap time, by incident, the team can use one of the "Escape Joker" (Each team in class A6-Am will receive 10 escape jokers)

*** BOP adjusted (+/-) ballast weight and refuelling amount, referred to initial value specified in Appendix 1 (Class Overview)

Criteria to be assigned with Pro-BOP or Am-BOP:



GT cars (Mainly GT cars, also American GT's are eligible)

Class A6-Am & Class A6-Pro

| Brand & Type | Cylinder capacity | Minimum Weight | Max Refuelling amount | BOP | Remarks |
|---|-------------------|----------------|-----------------------|----------|--|
| ASTON MARTIN VANTAGE GT3 | 5900cc/12cyl | 1280 kg | 110 L | 2x41,5mm | FIA-restrictor design |
| AUDI R8 LMS Ultra | 5200cc/10cyl | 1245 kg | 110 L | 2x47,2mm | up to and incl. 2014 |
| AUDI R8 LMS (GT3-038) | 5200cc/10cyl | 1240 kg | 100L | 2x39,0mm | Or 1280kg/2x40mm (only for A6-AM) FIA-restrictor design |
| BMW Z4 GT3 | 4400cc/8cyl. | 1230 kg | 105 L | 1x70,0mm | |
| CHEVROLET CORVETTE C6-ZR1 | 5500cc/8cyl. | 1250 kg | 100 L | 2x31,6mm | LMGTE-2-04 Chas #00002 |
| DODGE VIPER CC SERIES 2 | 8400cc/10cyl | 1280 kg | 115 L | N/A | Chas #VCC-113 |
| FERRARI 458 ITALIA GT3 | 4500cc/8cyl. | 1260 kg | 110L | 2x50,0mm | FIA-restrictor design |
| FERRARI 488 GT3 | 3900cc/8cyl. | 1300 kg | 95L | N/A | Max Boost(barA/rpm) 1,47/4000 1,51/4500 1,56/5000 1,60/5500 1,63/6000 1,59/6500 1,54/7000 1,49/>7250 |
| FERRARI F458GT (VdeV1) | 4500cc/8cyl. | 1230 kg | 100 L | 2x56,0mm | Chas #2850# Chas #2842# |
| LAMBORGHINI GALLARDO LP560 GT3 | 5200cc/10cyl | 1205 kg | 100 L | 2x47,2mm | |
| LAMBORGHINI HURACAN GT3 | 5200cc/10cyl | 1260 kg | 100 L | 2x39,0mm | FIA-restrictor design |
| MASERATI GRANTURISMO MC GT3 | 4700cc/8cyl. | 1200 kg | 105 L | 1x65,0mm | |
| McLaren MP4-12C GT3 | 3800cc/8cyl. | 1255 kg | 115 L | 2x36,0mm | Max Boost(barA/rpm) 1,82/4000 1,80/4500 1,78/5000 1,76/5000 1,72/6000 1,65/6500 1,59/7000 1,53/>7500 |
| McLaren 650S GT3 | 3800cc/8cyl. | Tba | Tba | Tba | Max Boost(barA/rpm) Tba |
| MERCEDES SLS AMG GT3 | 6200cc/8cyl. | 1330 kg | 105 L | 2x38,0mm | FIA-restrictor design |
| MERCEDES AMG GT3 | 6200cc/8cyl. | 1330 kg | 105 L | 2x36,0mm | FIA-restrictor design |
| NISSAN GT-R GT3 | 3800cc/6cyl. | 1315 kg | 115 L | 2x40,0mm | Up to and incl. 2014 Max Pboost 2,05 barA (all rpm) |
| | 3800cc/6cyl. | 1280 kg | 110 L | 2x40,0mm | EVO 2015 Max Pboost 2,0 barA (all rpm) |
| PORSCHE 997 GT3 R | 4000cc/6cyl. | 1205 kg | 100 L | 1x72,0mm | MY2012 or older |
| | 4000cc/6cyl. | 1205 kg | 100 L | 1x60,0mm | MY2013 |
| PORSCHE 991 GT3 R | 4000cc/6cyl. | 1245 kg | 95 L | 2x41,5mm | FIA-restrictor design |
| RADICAL SPORTSCARS RXC TURBO GT3 | 3500cc/6cyl. | Tba | Tba | Tba | Max Boost(barA/rpm) Tba |
| RENAULT SPORT RS01 Configuration BOP GT3 | 3800cc/6cyl. | 1220 kg | 105L | 2x42,0mm | Max Pboost 1,95 barA (all rpm) See also appendix Renault RS01 aerodynamics |
| SCG 003C | 3500cc/6cyl. | 1260 kg | 115 L | 2x35,0mm | Max Pboost 1,95 barA (all rpm) |
| SRT VIPER GT3-R | 8400cc/10cyl | Tba | Tba | Tba | |

Your (GT) car not listed here? Please make an individual request to info@creventic.com

* FIA-restrictor design, according FIA-2013/2014/2015/2016/2017 restrictor design

Exceptional cars, class SPX

BOP / Minimum reference lapttime table for class SPX

Class SPX cars with (partly) fixed BOP

| Brand & Type | Cylinder capacity | Minimum Weight | Max Refuelling amount | BOP* | *In case car will be amalgamated to class A6. Initial BOP will be: |
|--|-------------------|----------------|---|--|---|
| LAMBORGHINI Huracan Super Trofeo | 5200cc/10cyl | 1275 kg | *According BOP-table below | 2x41,0mm | 1275kg/110L/2x42mm |
| Porsche GT America | 4000cc/6cyl | 1250 kg | *According BOP-table below | N/A | TBA |
| Porsche 911 GT3 Cup 2017 model (991 II) | 4000cc/6cyl | 1200 kg | *According BOP-table below | N/A | TBA |
| Vortex 1.0 | 6200cc/8cyl | 1100 kg | *According BOP-table below | N/A | 1100kg/105 L |
| KTM X-bow (special) | 2000cc/4cyl. | 1030 kg | *According BOP-table below @ column 1050 kg | Pboost max is 2,7bar (independent of ambient air pressure) Max rpm 7000 at all gears Ride height is free | 1000kg/120L Pboost max is 2,7bar (independent of ambient air pressure) Max rpm 7000 at all gears Ride height is free |
| Your (GT) car not listed here? Please make an individual request to info@creventic.com | | | | | |

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Class SPX (for these cars there is a "Minimum reference lap times" applicable)

| Class | Minimum reference lap time / Theoretical Min. Reference lap time | Minimum Weight 1050 kg | Minimum Weight 1150 kg | Minimum Weight 1250 kg |
|-------|--|----------------------------------|----------------------------------|----------------------------------|
| | Min ref lap time* 1min48 (Portimao) / Theoretical Min Ref lap time 1min47 | 90 L | 100 L | 110 L |
| | Min ref lap time* 1min49 (Portimao) / Theoretical Min Ref lap time 1min48 | 100 L | 110 L | 120 L |

Exceptional cars, class SP2

BOP / Minimum reference lapttime table for class SP2

Porsche 991 /997 Cup S: Fix BOP for accepted (modified) models.

- Minimum weight: 1260kg
- Restrictor-Blende: 62mm
- Ride Height is free
- Refuel amount according SP2-BOP-Table

Porsche 997 3800cc: Fix BOP for accepted (modified) models.

- Minimum weight: 1200kg
- Restrictor-Blende: 65mm
- Ride Height is free
- Refuel amount according SP2-BOP-Table

Porsche 997 3600cc: Fix BOP for accepted (modified) models.

- Minimum weight: 1150kg
- Restrictor-Blende: is free
- Ride Height is free
- Refuel amount according SP2-BOP-Table

GC Automobile V8: Fixed BOP

- Minimum weight: 1100kg
- Refuel amount according SP2-BOP-Table

KTM X-bow: Fixed BOP:

- Minimum weight: 1030 kg
- Pboost max is: 2,3bar (independent of ambient air pressure)
- Max rpm: 7000 rpm (at all gears)
- The car must be equipped with a data logger including pressure sensor according art.4.10 of chapter II of the Sporting & Technical Regulations.
- Ride Height is free
- Refuel amount according SP2-BOP-Table

For all other SP2 cars:

| Class | Minimum reference lap time / Theoretical Min. Reference lap time | Max Refuelling amount | | |
|-------|--|--------------------------|---------------------------|---------------------------|
| | | Minimum Weight 750 kg | Minimum Weight 1000 kg | Minimum Weight 1250 kg |
| SP2 | Min ref lap time* 1min50 (Portimao) / Theoretical Min Ref lap time 1min49 | 80 L | 90 L | 100 L |
| | Min ref lap time* 1min51 (Portimao) / Theoretical Min Ref lap time 1min50 | 90 L | 100 L | 110 L |
| | Min ref lap time* 1min52 (Portimao) / Theoretical Min Ref lap time 1min51 | 100 L | 110 L | 120 L |

Exceptional cars, class SP3-GT4

BOP / Minimum reference lapttime table for class SP3-GT4

Ginetta G55 2016 or older (without any of 2017 upgrade parts):

- Refuel amount according SP3-GT4-BOP-Table

Ginetta G55 with new-for-2017 upgrades:

- TBA

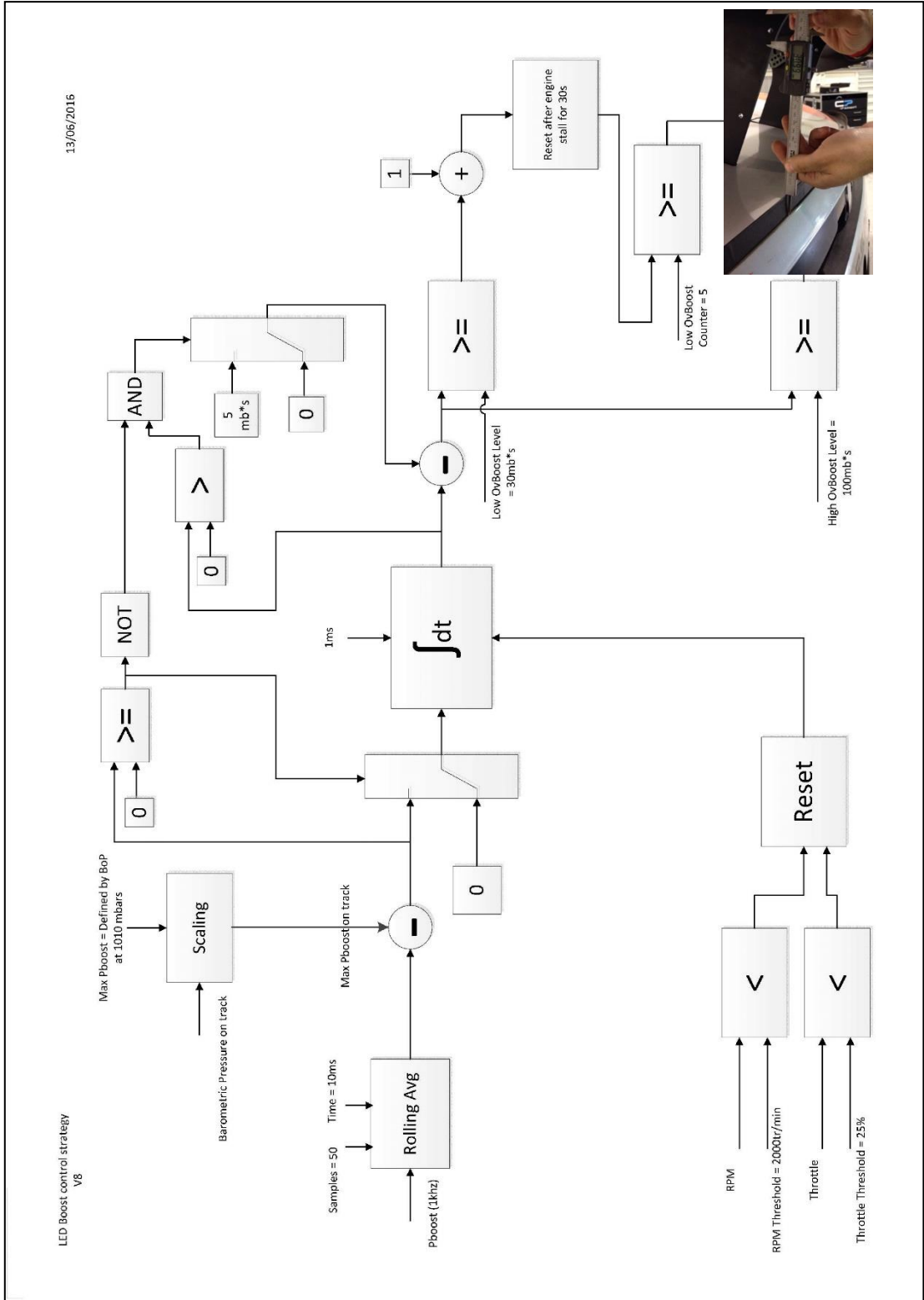
KTM X-bow GT4: Fixed BOP:

- Minimum weight: 1100 kg
- Pboost max is: 2,3bar (independent of ambient air pressure)
- Max rpm: 7000 rpm (at all gears)
- The car must be equipped with a data logger including pressure sensor according art.4.10 of chapter II of the Sporting & Technical Regulations.
- Ride Height is free
- Refuel amount according SP3-GT4-BOP-Table

For all other SP3-GT4 cars:

| CLASS | Minimum reference time / Theoretical Min. Ref. time | Max Refuelling amount | | | | | |
|---------|--|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | | Minimum Weight 750kg | Minimum Weight 1000kg | Minimum Weight 1100kg | Minimum Weight 1200kg | Minimum Weight 1300kg | Minimum Weight 1400kg |
| SP3-GT4 | Min ref time* 1min53 (Portimao) / Theoretical Min Ref time 1min52 | 60 L | 70 L | 80 L | 90 L | 100 L | 110 L |
| | Min ref time* 1min54 (Portimao) / Theoretical Min Ref time 1min53 | 70 L | 80 L | 90 L | 100 L | 110 L | 120 L |
| | Min ref time* 1min55 (Portimao) / Theoretical Min Ref time 1min54 | 80 L | 90 L | 100 L | 110 L | 120 L | 120 L |

Appendix: Control of Pboost strategy



Appendix: Renault RS01 aerodynamics

