USER GUIDE


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Versions

Date	Index	Author	Remarks
30/05/2018	A	D. Arbonnier	Creation
12/12/2018	B	D. Arbonnier	Addings/Corrections, engine curves, looms pinouts
27/03/2019	C	D. Arbonnier	Turbo sealing update, gravel setup updated, engine curves updated, mileage recommandations, tightening torques, sysma customers.
16/09/2020	D	D. Arbonnier	Short gear ratio set, USB Stick use, precision on the 100% diff locking ratio, rear wing position, chassis seal, turbo seal, etc
25/03/2021	E	D. Arbonnier	New software, Steering wheel and central panels, C3Rally2, evo kit 2021
03/02/2023	F	D. Arbonnier	Update
03/05/2023	G	D. Arbonnier	Update, Software 14.2.2.53, dashboard Tremondi

New info, corrections or modifications have been highlighted in yellow
Info related to new software 14.2.2.53 have been highlighted in green

SOMMAIRE

1 FOREWORD

1.1 THANKS

Dear Customer.

Thanks for your trust in our car. We hope a lot of win with C3Rally2 and that it will give you satisfaction.

2 CUSTOMER SERVICE CONTACT

2.1 TECHNICAL SUPPORT

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2.2 COMMERCIAL SUPPORT

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2 rue Gay Lussac
95500 GONESSE
FRANCE

3 CAR PRESENTATION

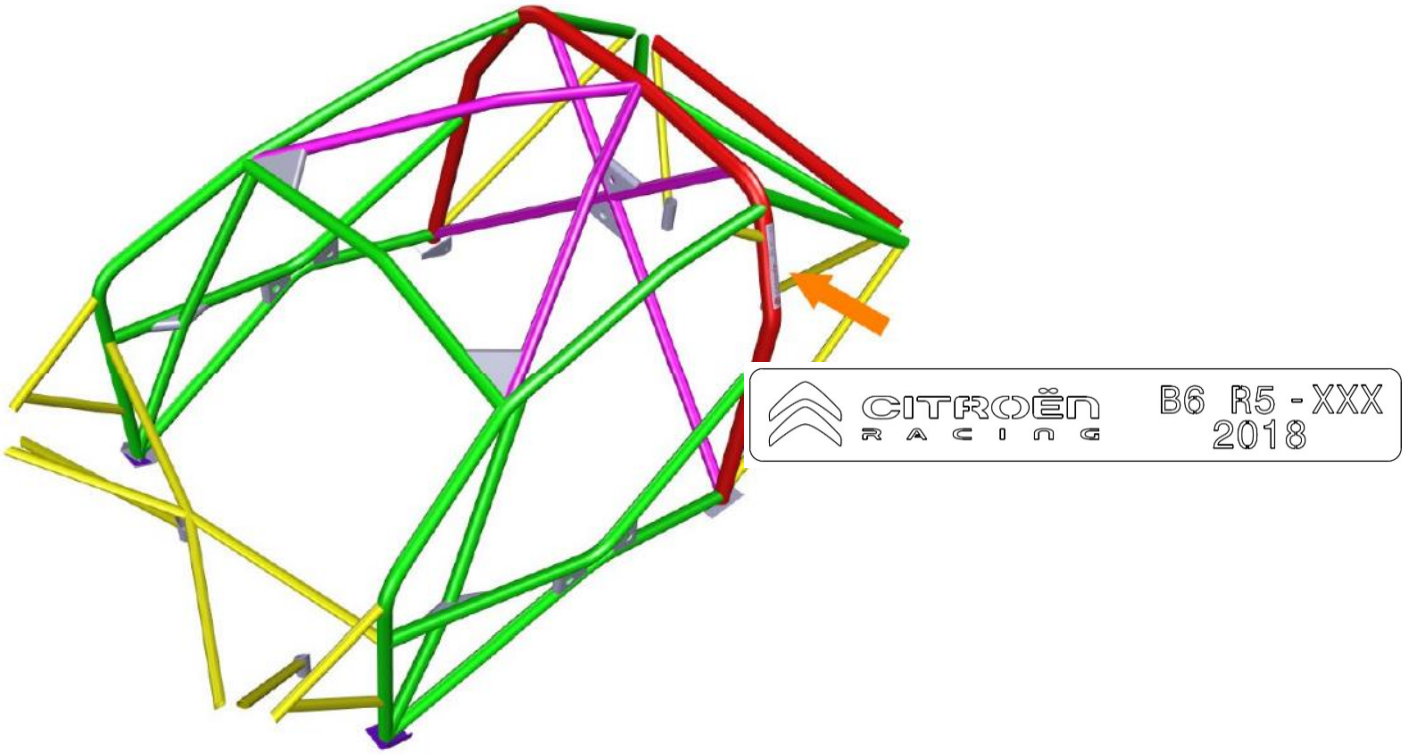
3.1 GENERAL DIMENSION

General dimensions of the car:

Basic dimensions (see Appendix) (please refer to the homologation form A5773)	
Total Length:	3996 mm
Total Width:	1820 mm (w/o mirrors)
Wheelbase:	2567 mm
Front Overhang:	806 mm
Rear Overhang :	647 mm
Front Track:	1618 mm
Rear Track:	1618 mm
Total minimum FIA Weight	1230 kg
Balance front / rear (%)	55% Front
Fuel Tank capacity	82,5 L

3.2 ROLLCAGE IDENTIFICATION

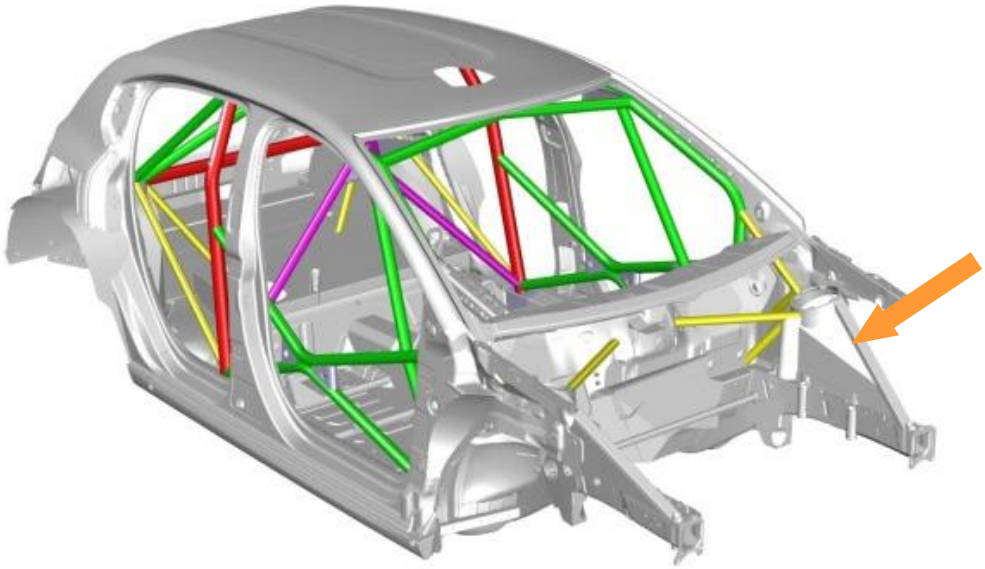
The rollcage number (B6 R5 – XXX) is stamped onto a plate welded on the rollcage (on the left side of the main rollbar tube behind the driver).



See appendix §15.4.1 for chassis sealing.

3.3 CHASSIS IDENTIFICATION

The chassis number plate is welded on the front left wheel arch and visible from the engine bay.



4 A00 ENGINE:

4.1 GENERAL INFORMATION

4.1.1 Characteristics

Here are the main characteristics of the engine for C3Rally2.

Engine Information	
Type	Straight 4 Cylinders, DOHC, 16 valves
Capacity	1600 cm^3
Bore x Stroke (mm)	77 x 85.8
Max power @	282hp @ 5000 rpm
Max torque @	420N.m @4000 rpm
Cooling system	Water with thermostat
Lubrication	Oil sump
Turbo	Garett
Engine Management	Magneti Marelli SRG
FIA Restrictor	32mm

4.1.2 Fuel consumption

As a base, you can use the following values to calculate your fuel consumption.

Road: 15-20L / 100km

Stage: 60-65L / 100km

These values can vary according to the driver style, road/stage profiles and average speed.

We recommend you to keep a margin of 10L in the fuel tank.

For a good fuel management, the use of the fuel gauge (correctly sampled) alongside with the ECU fuel calculation is highlty recommended.

4.2 ENGINE RUNNING

For the first engine start or after each engine, ECU, turbo, wastegate electrovalve, throttle body and pedal change, please do the calibration procedure as described in § 13.1.8.1.

4.2.1 Warmup procedure

Please find below the detailed warm up procedure of the C3Rally2 engine after checking all fluids levels are correct.

Engine crank procedure to prime oil pressure

- Main switch on, power off
- Ensure gear is on Neutral
- Press on the HORN button and then on START button on the steering wheel. The starter will turn the time you keep the start button pressed
- Maintain start switch on until oil pressure raises above 1.5 bars. (Maximum cranking time is 10s but you can repeat if necessary)

There is no need to depress the clutch during this procedure.

This procedure needs to be done after every oil change. ~~or after a period of 2h without running.~~

Since software 14.2.2.53 (homologated April 1st 2023), the engine will start automatically as soon as the oil pressure target (depending of the engine oil t°) is reached. So, there is no need anymore to prime oil pressure after a period the engine is off.

Engine and transmission warm up

- Main switch ON, Power ON,
- Push once on the start button of the steering wheel (no need to keep the button pressed during cranking phase) to start the engine.
- Let the engine warm up on idle until the water temperature reaches 70 °C and the engine oil temperature reaches 60 °C.
- Switch to the 1st '' Mechanics Page '' of the dashboard to monitor the temperatures, pressures and battery voltage.
- Get the car into first gear (hold the neutral button whilst pulling the gear lever) and accelerate to bring the engine to 4000/5000 rpm and shift up through all 5 gears.
- Shift back down to 1st gear at 3000 rpm (hold the neutral button whilst pushing the gear lever to reach the Neutral position). Then try the reverse gear and come back to neutral.
- PEAL test: 1st gear, rise to 3000rpm, pull handbrake and check that rear wheels are locking and engine revs do not drop.
- Warm up the engine until the water fan turns (starts at 89°C and stops at 87°C)
- Restart the engine when hot.

IMPORTANT:

In a general way, to protect the engine, never drive the car when TWater is < 70°C.

4.2.2 Engine oil level

Only for the first engine start, when new or rebuilt, put 4L of engine oil before warming the engine. Then, after engine warmup, complete the oil level to 4,5L total and check the dipstick.

At any time, the oil level should be at its **maximum** at the dipstick (be careful which color of dipstick) without exceeding it.

Old

Max level (under the ball) is at 53mm, min level is at 40mm

New

Max level is at 45mm (8mm under the ball), min level is at 32mm

4.2.3 Final procedure

- Check for any leakage (engine side, gearbox and rear diff side)
- Download and check the data
- In case of doubt, do not hesitate to contact us and to send us the data for an analysis

4.3 ENGINE MAPPINGS

Engine mapping are available for the following fuel:

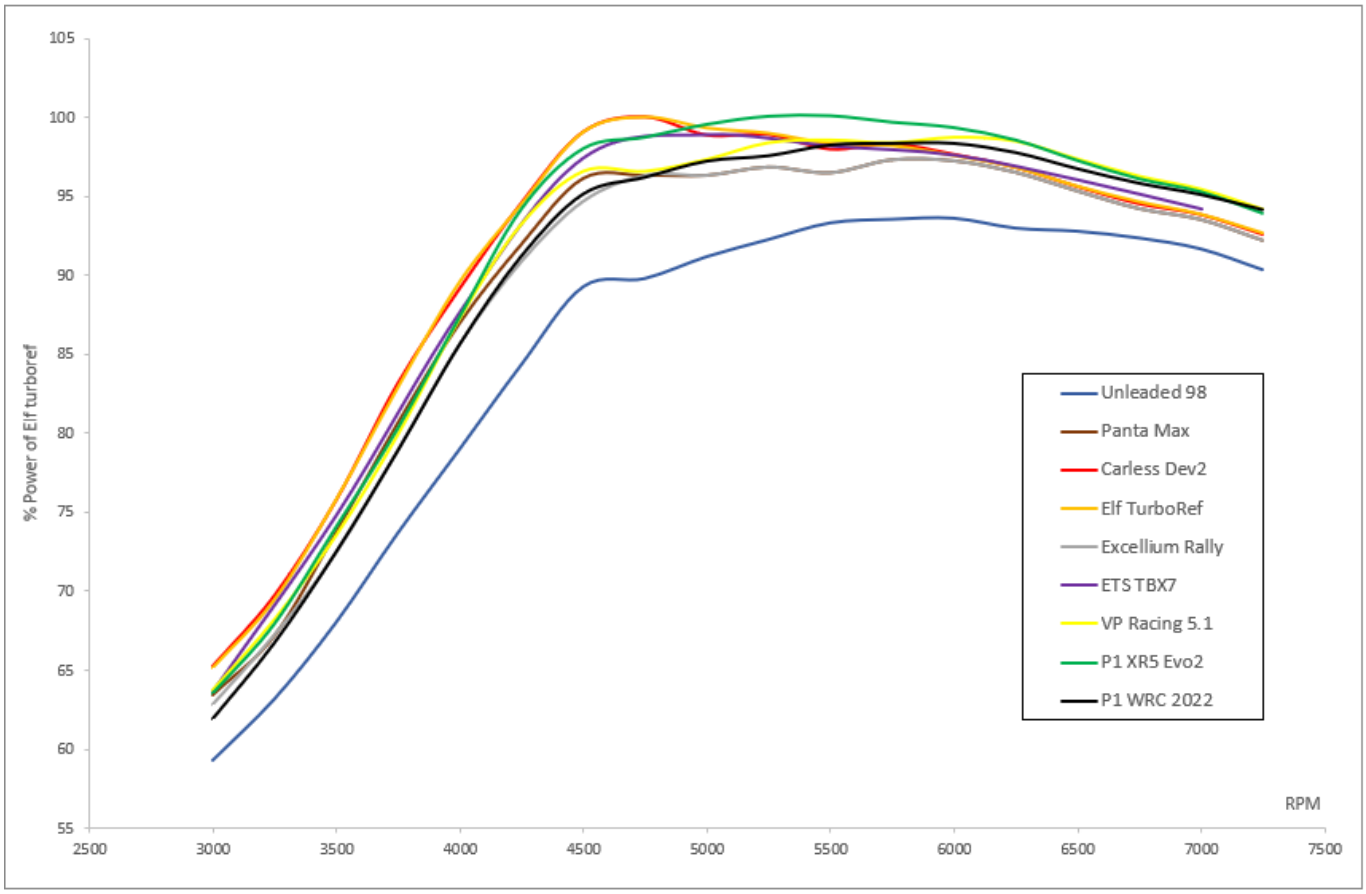
- P1 WRC (2022 -->)
- Total Excellium Rally (WRC 2019 --> 2021)
- Panta WRC (WRC --> 2018)
- Elf Turbo Ref
- Carless Turbo Ultimate Dev 2
- ETS TBX6 (no more FIA compliant)
- ETS TBX7 (map also available for 34mm restrictor, not FIA compliant)
- P1 XR5 (no more FIA compliant)
- P1 XR5 EVO2 (map also available for 34mm restrictor, not FIA compliant)
- VP Racing 5.1
- Unleaded 98

For engine map upload, see §14.1.9.

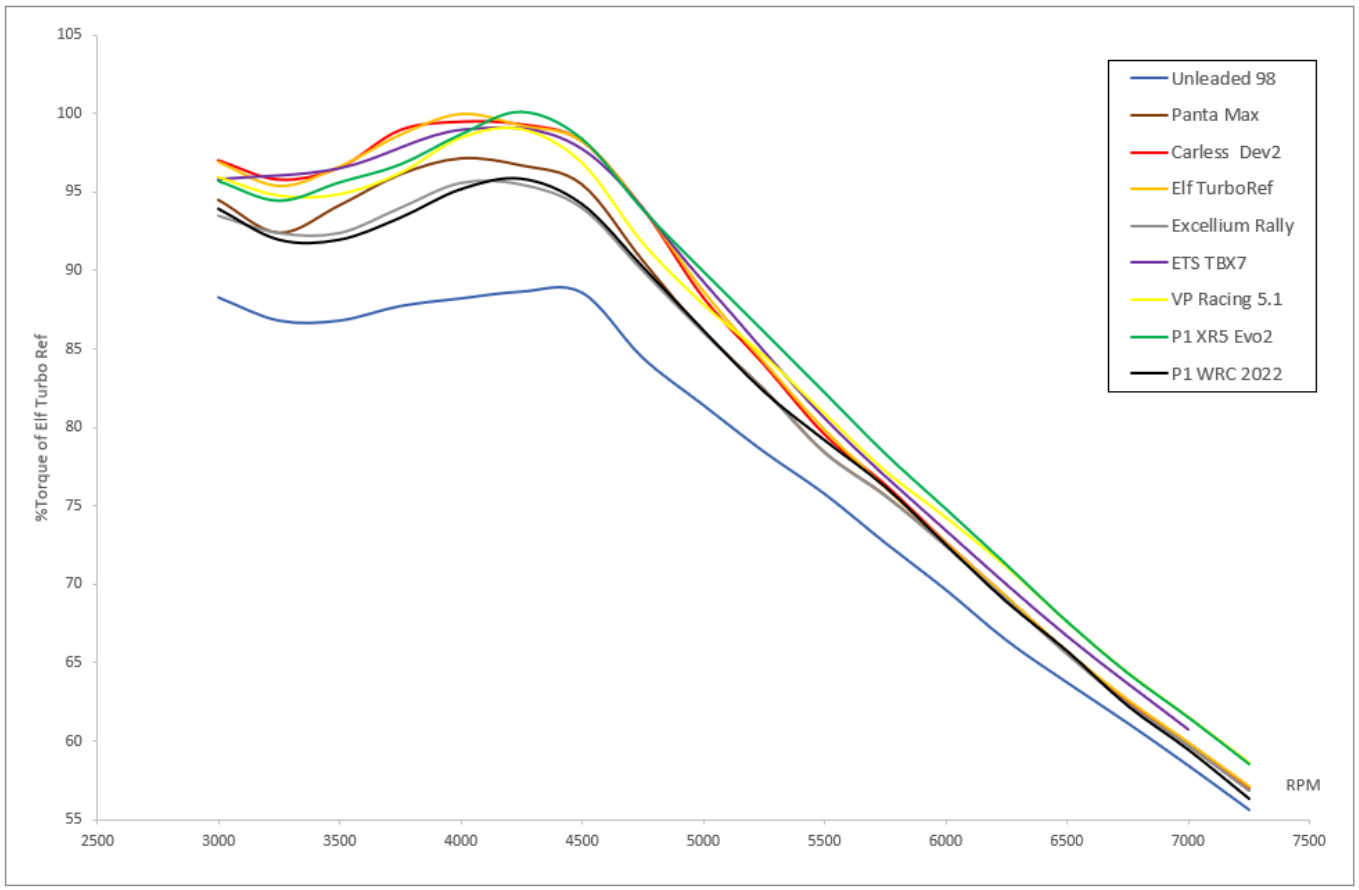
4.3.1 Engine Curves

The presented curves are % related to the fuel giving the maximum for power and torque (Elf Turbo Ref).

4.3.1.1 Engine Power



4.3.1.2 Engine Torque



4.4 IDENTIFICATION

The engine is identified by an ID plate screwed onto the head cover.

4.5 FLUIDS

Engine oil:

- TOTAL Quartz INEO FIRST 0W30 (reference PS97727A10 / 1L)
- TOTAL Quartz Racing 10W50 with P1WRC Fuel (reference 903587078A / 1L)
- Engine oil capacity : ~ 4.5 L
- Gauge level to achieve : Max

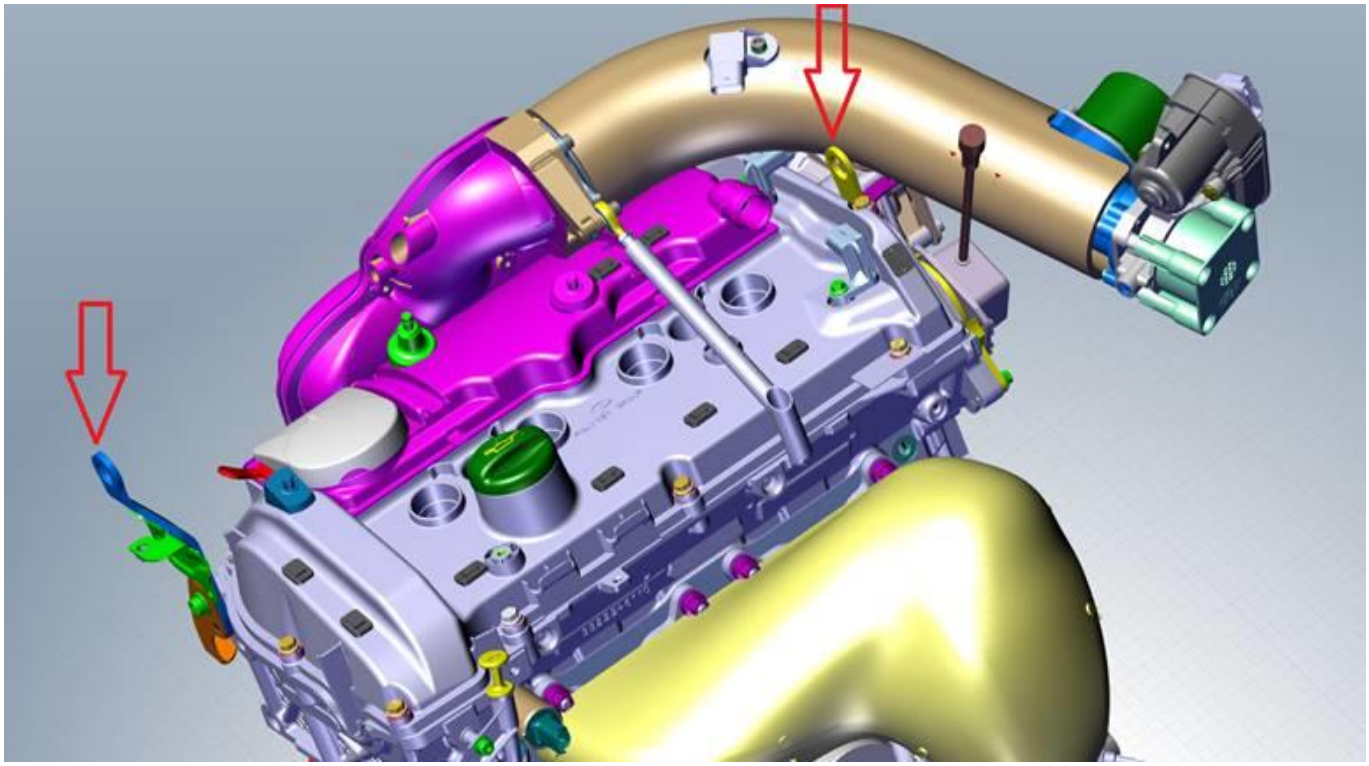
Engine coolant:

- Coolant ref 9735K0
- To be adjusted according to the water tank level. See §5.1 for the level.

4.6 FIA SEALING

See appendix §16.4.2, §16.4.3 & §16.4.4 for engine, turbo and popoff sealings.

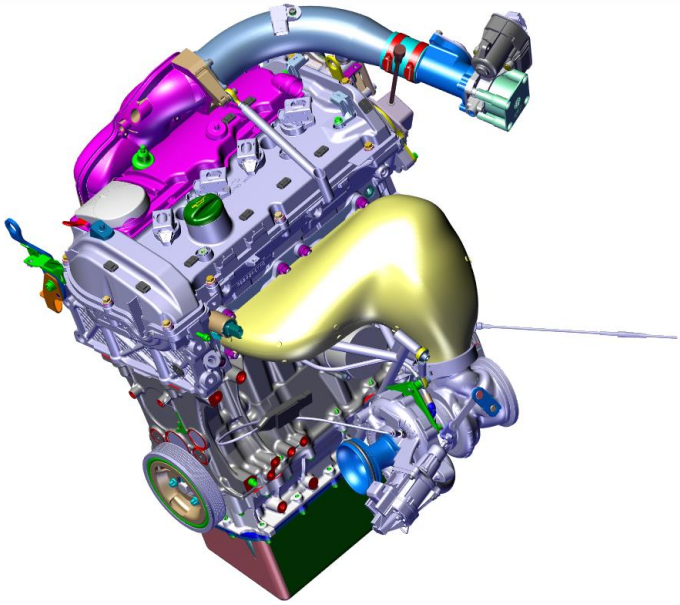
4.7 REMOVAL / REFITTING OF THE ENGINE

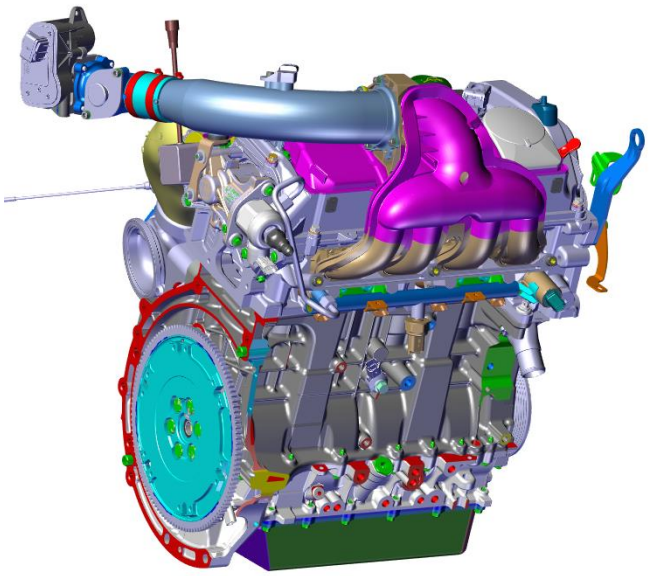


6913V1	Screw	2
1880 G9	Engine lifting hook 1	1
V8 601 834 80	Engine lifting hook 2	1

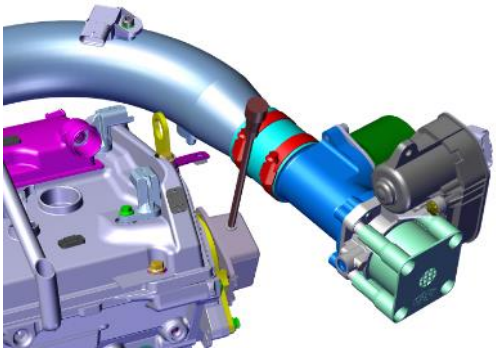
4.8 TRANSPORT OF THE ENGINE

In case of engine shipment for rebuilt, this one must be correctly attached to the pallet (see picture below) and (un)equipped as mentionned:





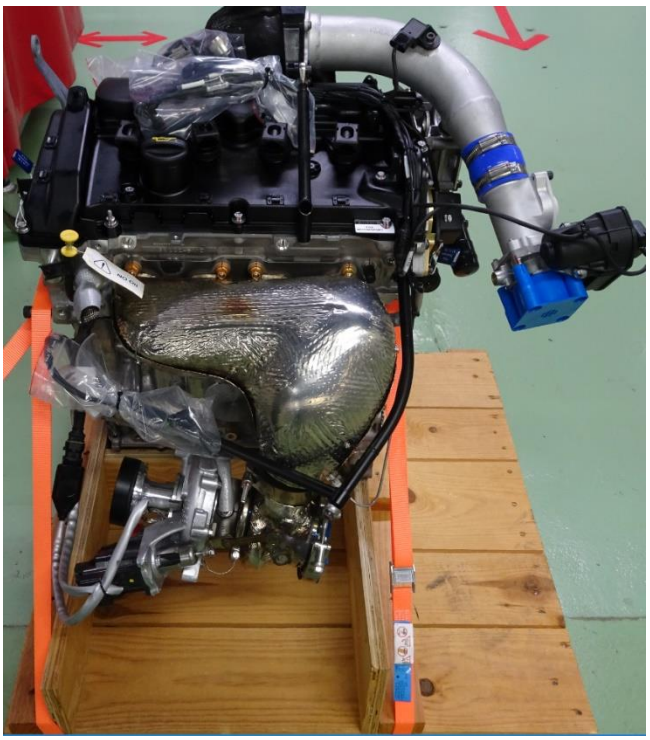
(exhaust V-Clamp collar must be supplied)

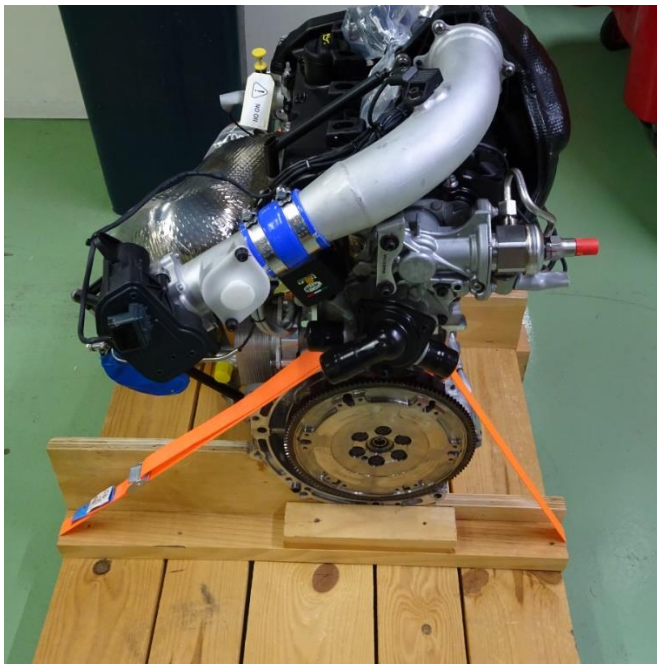


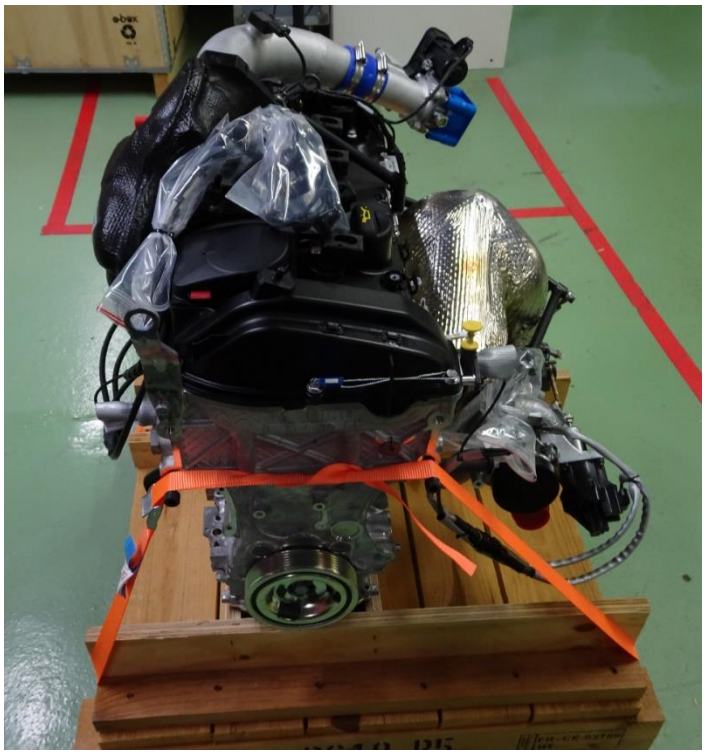
Parts list to be removed:

- Engine mount
- Engine loom and coil loom
- Complete clutch
- Alternator and belt (place a socket instead of the alternator in case of evo turbo holder)
- Power steering pump and its bracket
- Starter
- Water pump, hoses and its brackets (x2)
- Air line before the throttle body
- Lower and upper geabox cover
- Gearbox reinforcement bracket
- Popoff valve and its insert (put the popoff cap with its seal instead)

Here are below some pictures of the engine attached on its pallet:





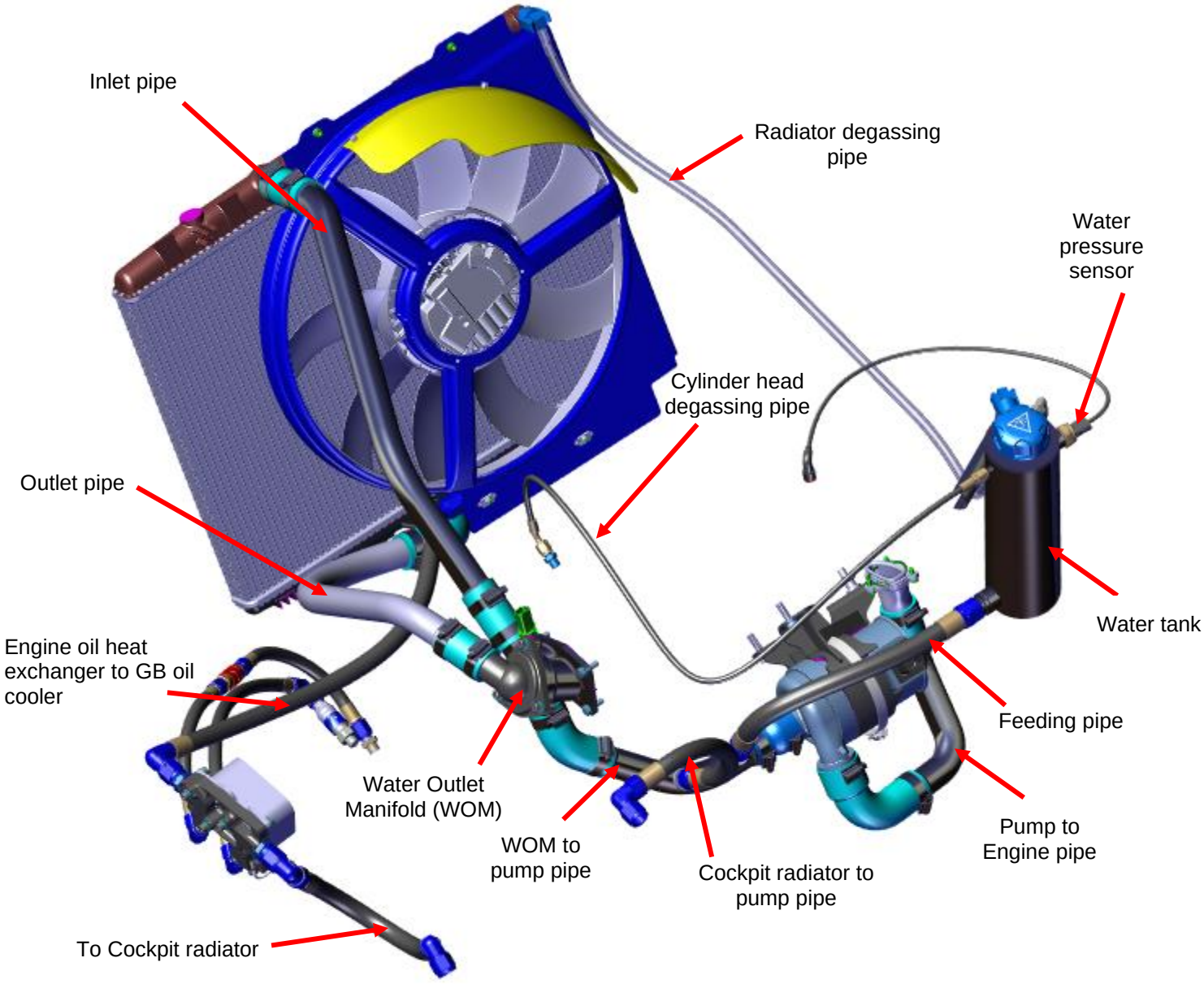


Thanks to strap the engine on its pallet as per above (by using 4 long CHC screw fitted on the engine block) to avoid any damage to the engine.

5 B00 COOLING:

5.1 WATER COOLING SYSTEM

The car is equipped with one water radiator (front right of the car), one heat exchanger for the engine oil and one for the gearbox oil. The circulation of the coolant is generated by an electrical driven water pump.



Please note that any work on the cooling system must be carried out when the engine is cold in order to maintain a correct water circuit pressure.

The cooling circuit is fitted with a thermostat which start to open at 78°C (so before that t°, the water radiator is shunted) and is fully open at 87°C for water t° regulation.

There is no need for bumper blanking (except on road section in WRC event with the use of P1WRC fuel).

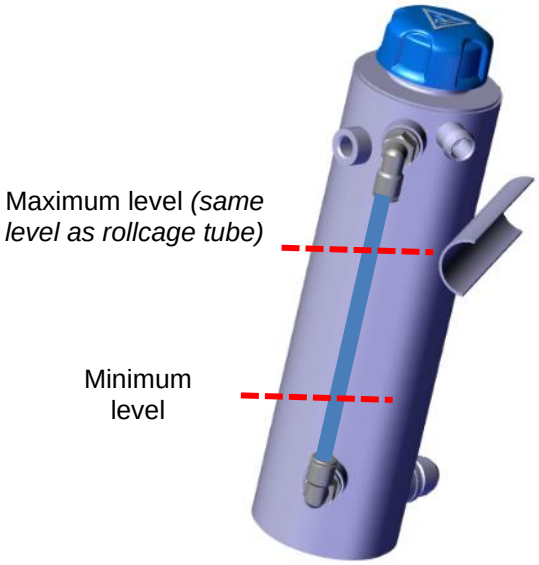
The water fan starts at 95°C and stops at 91°C and is driven following the water t°.

The water pump is also now driven according to the water t°.

The circuit is equipped with a pressure sensor (on the water tank) that allows you to check any leakage during engine running. Maximum pressure accepted by the circuit is 2,5b before the cap valve opens. Water pressure in normal condition should be around 1,4b and 2b (depending of the water t°).

Coolant level check:

- Engine stopped and cold
- Check the coolant level and adjust it if necessary to the level shown on the picture below. You can place a tie rap at the coolant level on the pipe to easily monitor any drop.



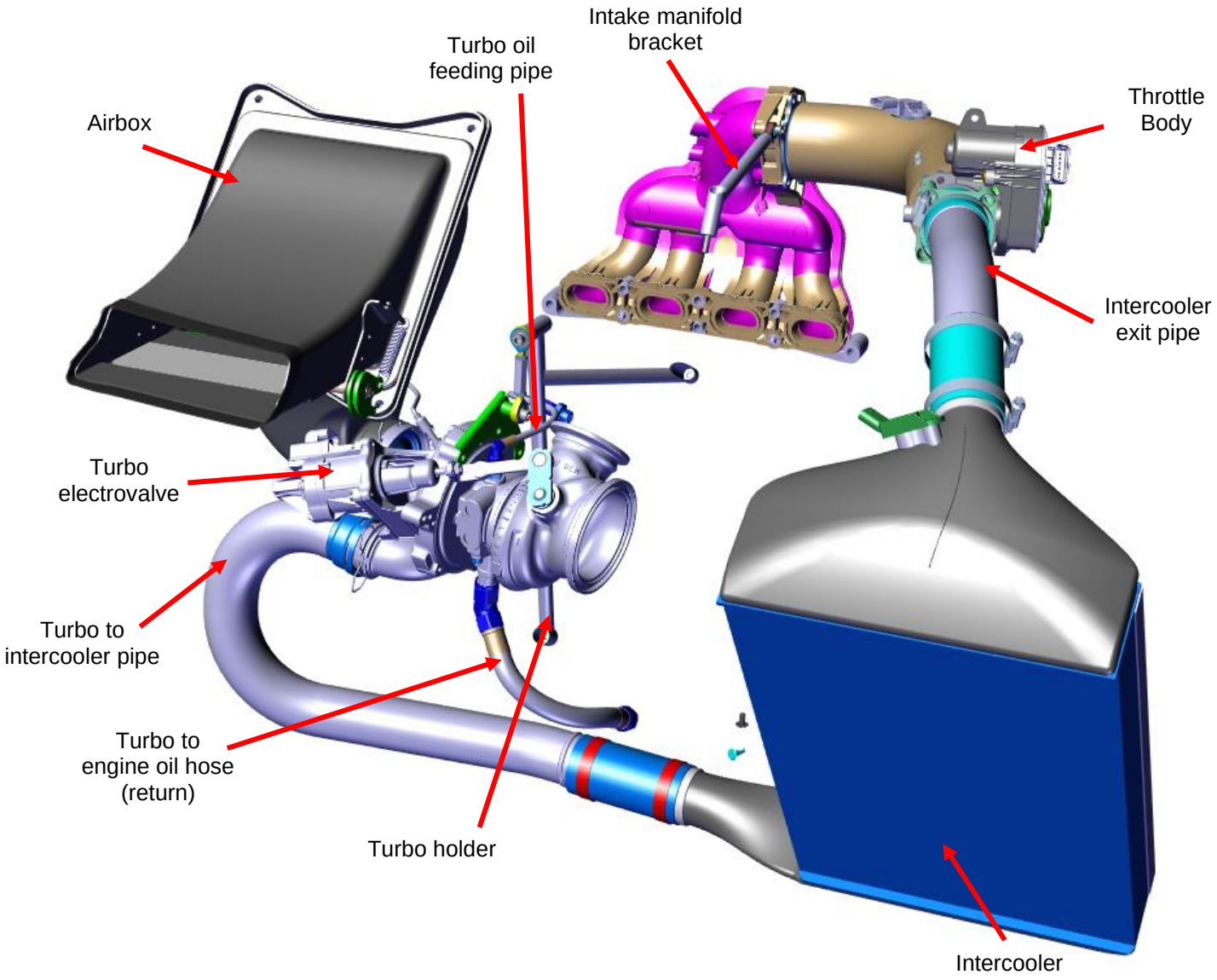
Water cooling circuit bleeding:

To bleed the cooling line, you can force the water pump to run through the central console. See §14.1.8.2.

When possible, keep the water tank close so that the correct pressure is read during engine running.

5.2 AIR CHARGED COOLING SYSTEM

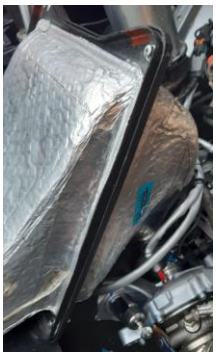
The intercooler is located at the front left of the car.



To get the maximum efficiency of the air cooling, ensure the air ducts/hoses are always in good state and well placed.

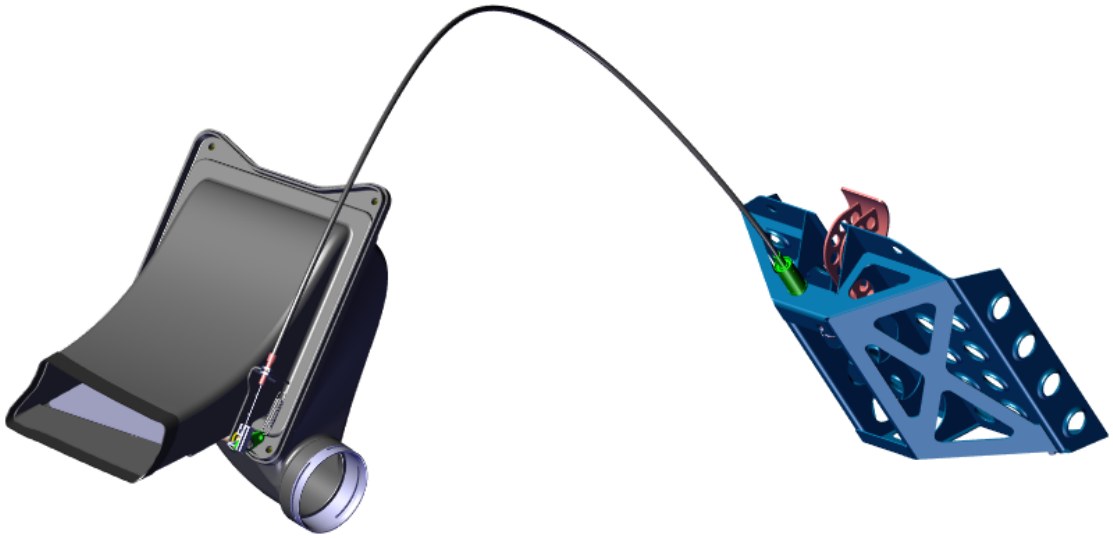
Take care about the positioning of the airbox air inlet into the bumper. The rubber lips must seal the interface between the bumper and the airbox at any time. This must be always in good condition as it can affect reliability and engine performance.

You can also insulate the airbox with thermal protection to help keeping the air as cold as possible.



5.2.1 Water-splash valve

A water-splash valve is available (as an option) for the C3Rally2 (reference C3R5-TRAPPE).



We advise you to close it 2 sec before the water-splash and to open it back 2sec after the water-splash.

It is also possible to feel a lack of power during the valve is closed as it reduce the amount of air feeding the engine for a short period of time.

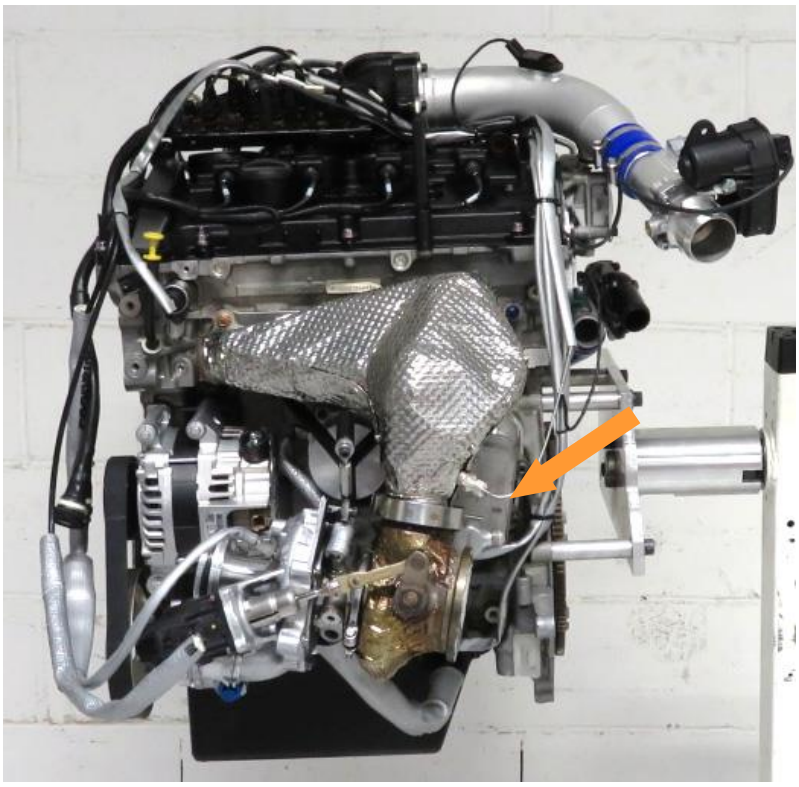
During the service following the use of the water-splash valve, check if there was any water entrance into the intake circuit.

See infotech 19-30 for fitting instructions.

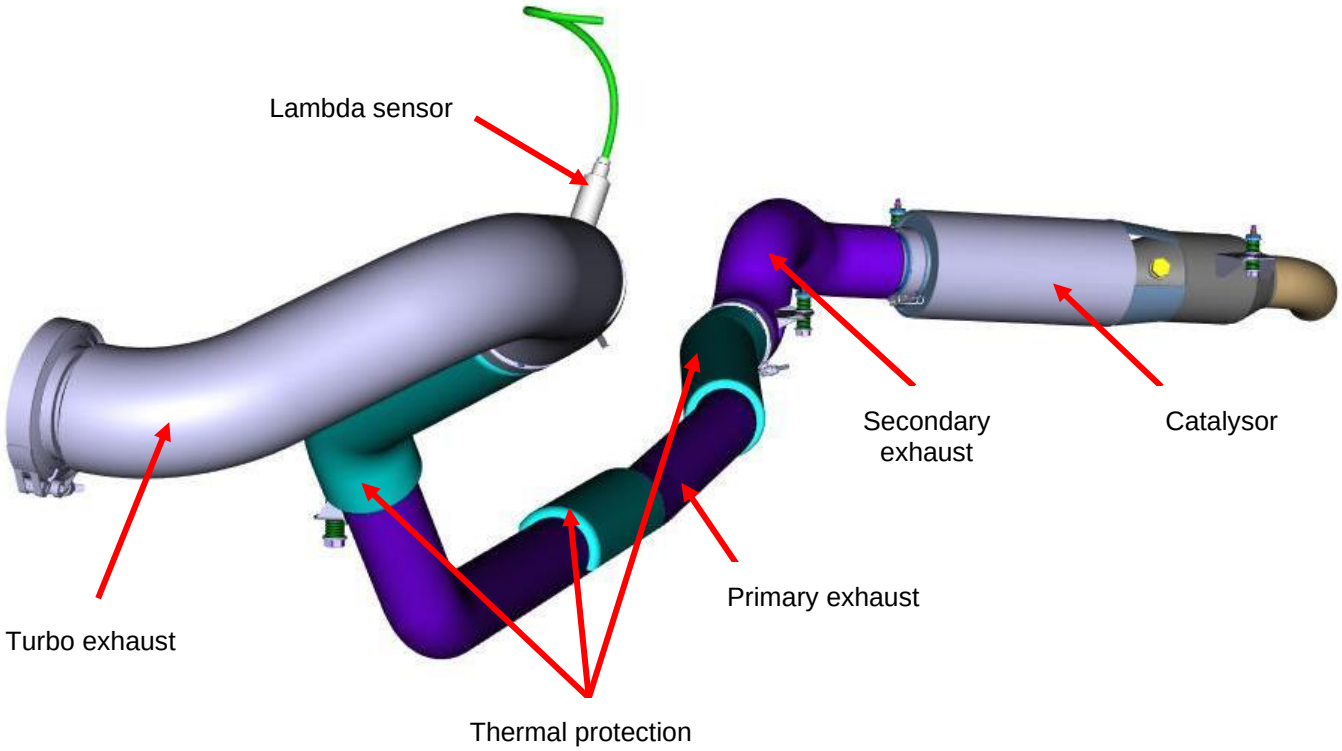
5.3 ENGINE OIL COOLING

The engine oil cooling is done with an oil to water heat exchanger located behind the turbo.

The average oil t° in normal condition is around 105-125°C.



5.4 EXHAUST



Ensure all connexions are always in good state as well as the thermal protections.

Ensure infotech 21-10 is applied to ensure a better dilatation of the exhaust line during racing.

The catalyser is from Rosi model FFSA-004-95052
(old ones were from HJS model S2 1210-10 PE).

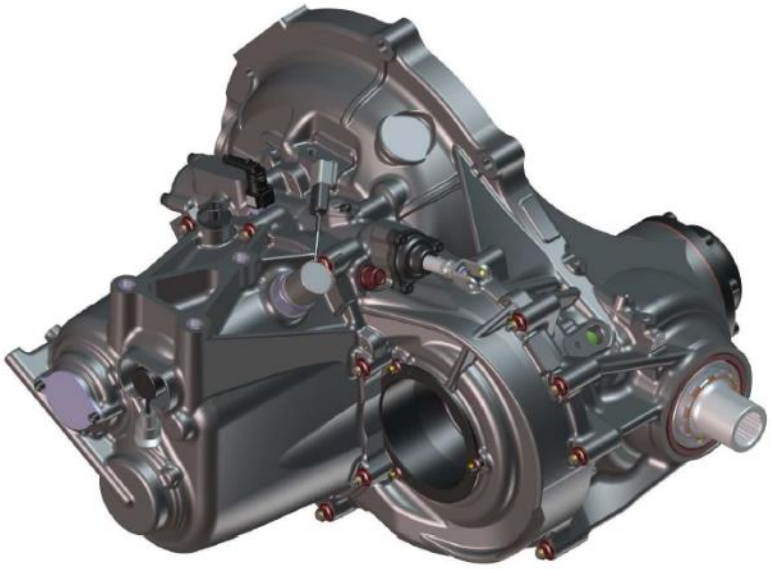
Homologation forms are available on the media server.
/Citroen Racing/C3Rally2/12_Homologation/Homol Cata Rossi_ Rossi Catalysor homolation form

6 C00 TRANSMISSION:

This chapter will show you some overall informations, but for more details, please refer to the Sadev technical guide.

6.1 GEARBOX

C3Rally2 is equipped with the Sadev ST4-49 R5 PSA Gearbox with adjustable differential preload and manual shifting.



6.1.1 Gear ratios

2 sets of gear ratio (and final drive) are homologated and thus authorized.

Standard ratio set:

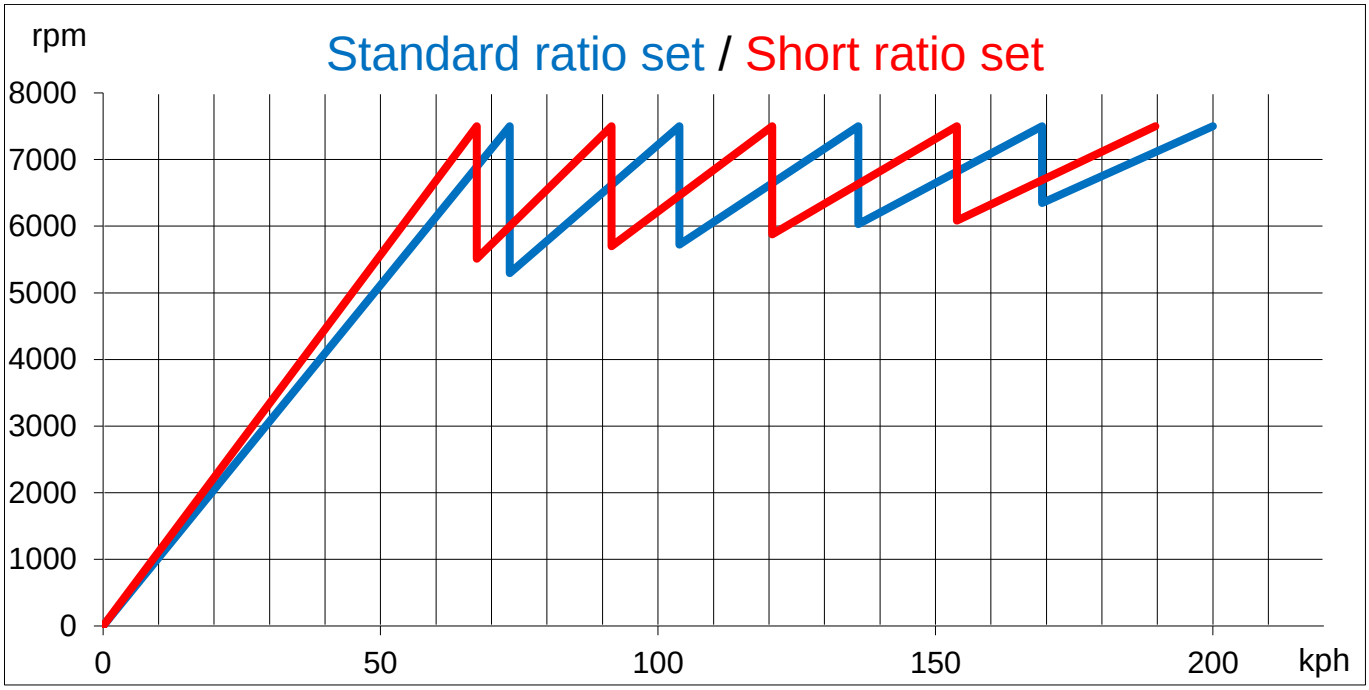
	1st	2nd	3rd	4th	5th
Primary Shaft	12	14	19	22	26
Secondary Shaft	34	28	29	27	27
Sadev Reference	K909053R07915F5F *		C9017R19291915F	C9014R2227915F	C90104R2627915F

* 1st and 2nd are together on the primary shaft

Short ratio set:

	1st	2nd	3rd	4th	5th
Primary Shaft	12	15	18	20	21
Secondary Shaft	37	34	31	27	23
Sadev Reference	K909053R02915F5F *		C9017R1831915F	C9014R2027915F	C9014R2123915F

* 1st and 2nd are together on the primary shaft



6.1.1 Maintenance

1rst drain	Drain Frequency
After a 50 km running-in	350km

6.1.2 Front differential

As previously indicated, the differential preload is adjustable.
This can be done by a preload adjuster that allows 0 to 100N.m.

Recommended preload range: 30 – 100 N.m

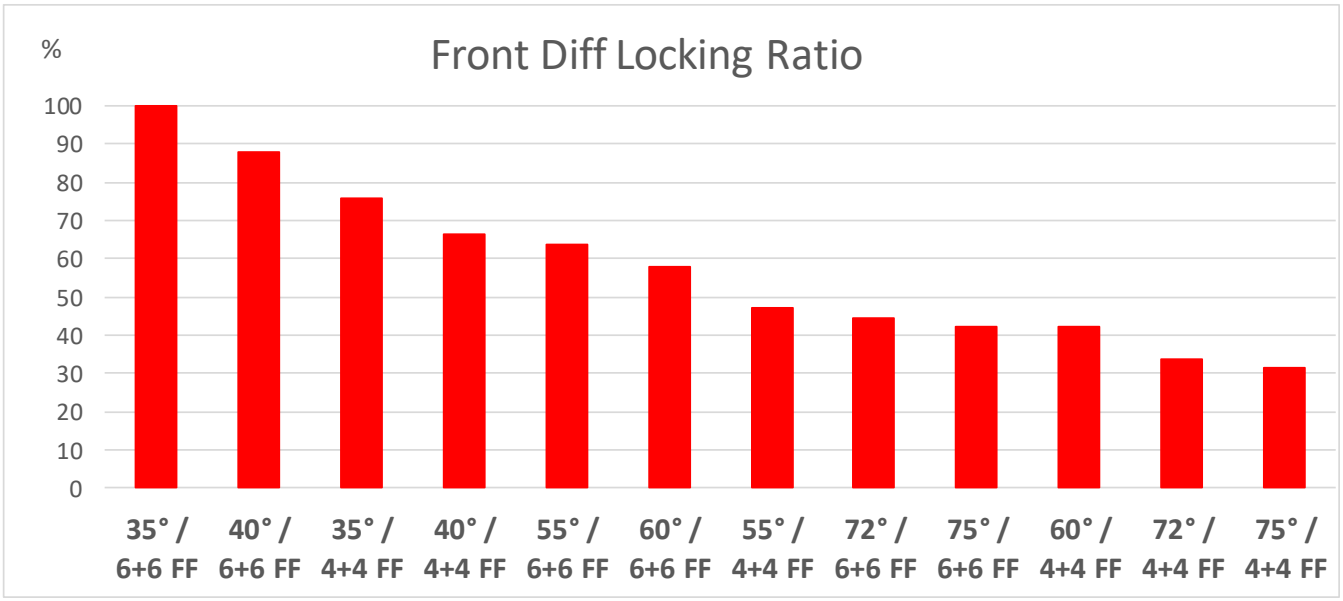
Recommended number of friction faces: max 12 (6+6), min 8 (4+4)

There are 3 sets of ramps homologated (and thus authorized):

- 35° / 60° (coupled with 35°/90°)
- 35° / 90° (coupled with 35°/60°)
- 40° / 60°

Since 01/03/21, 3 new sets of ramps are homologated:

- 35° / 72° (coupled with 40°/75°)
- 40° / 75° (coupled with 35°/72°)
- 55° / 75°

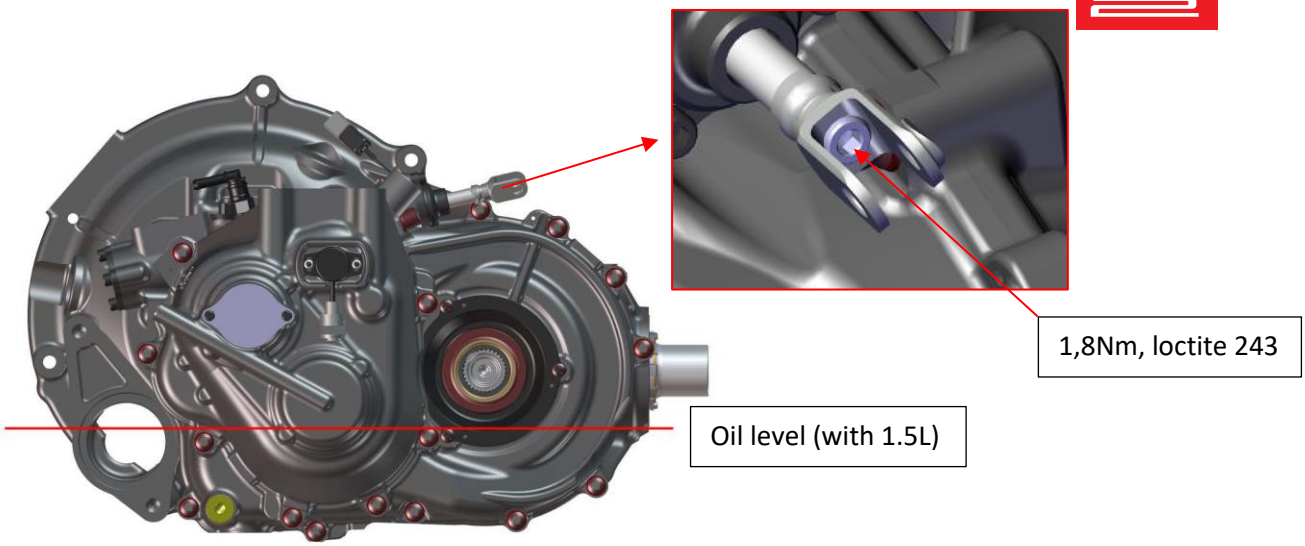


Front differential locking ratios (compared to the max locking ratio where 35°/6+6FF is set at 100%)

Nota Bene: Preload decrease from approximately 15% after 50 km of running.
Nota Bene: the cold measured preload (workshop) is approximately 15% higher than warm measure.

6.1.3 Gearbox oil

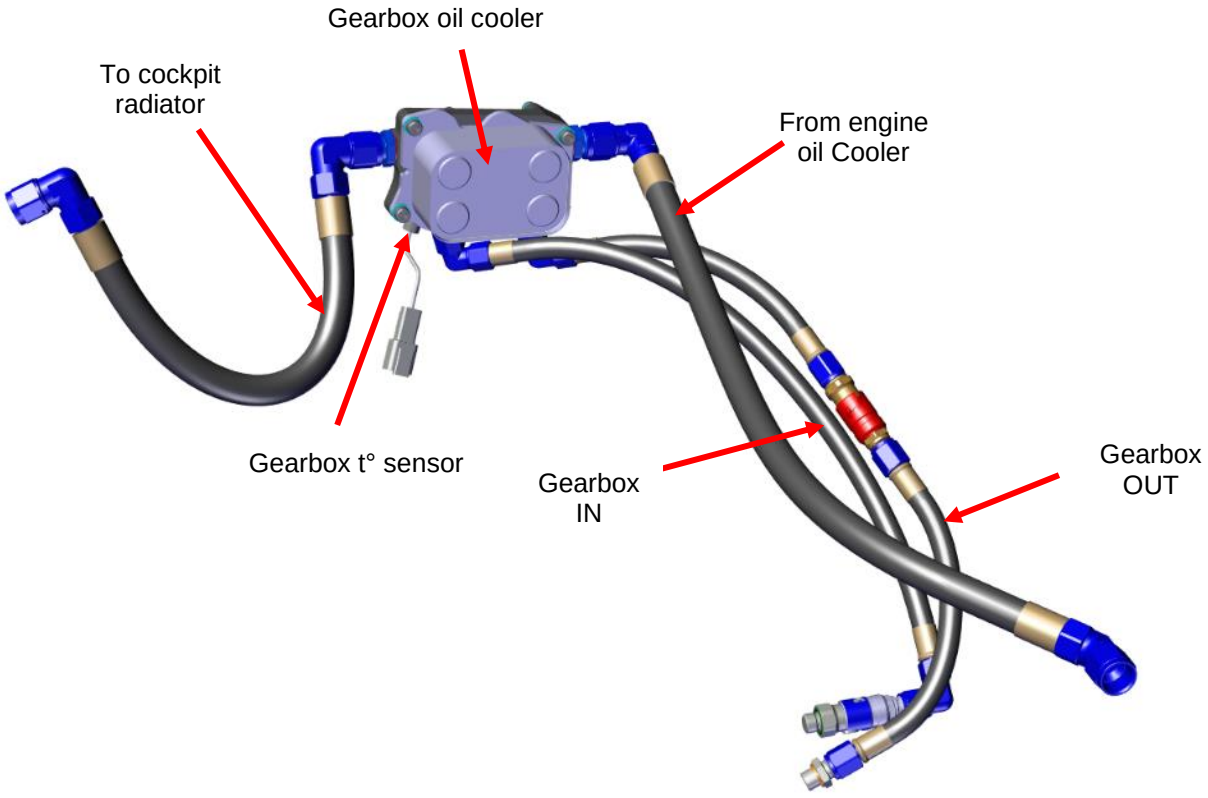
- ELF HTX750 (904895438A, 1L)
- Capacity :
  - Gearbox + cooling lines = 1.7 L
  - Gearbox only (draining) = 1.5 L



6.1.4 Cooling

The gearbox oil is cooled down through the engine coolant by an oil/water heat exchanger fitted on the front left wheelarch in the engine bay.

Normal running t° under race condition is between 80 & 120 °C.



6.1.5 FIA sealing

See §16.4.5

6.2 REAR DIFFERENTIAL

C3Rally2 is equipped with the Sadev SP49 R5 PSA rear differential with adjustable differential preload and diff lock mechanism.

6.2.1 Rear differential

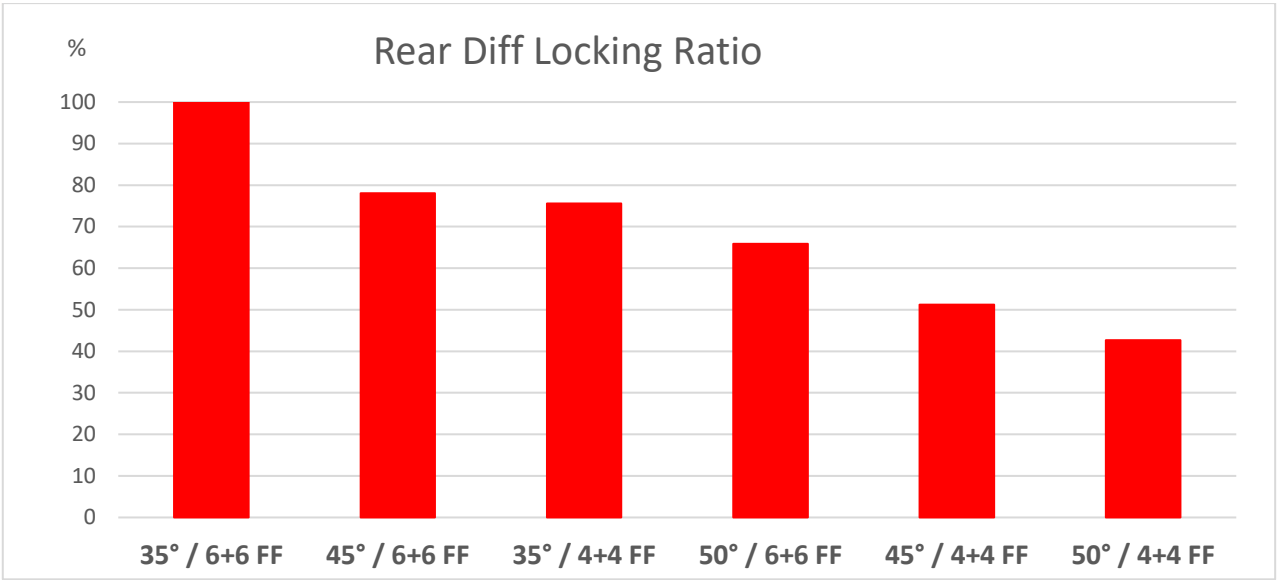
As previously indicated, the differential preload is adjustable.
This can be done by a preload adjuster that allows 0 to 100N.m.

Recommended preload range: 30 – 100 N.m

Recommended number of friction faces: max 12 (6+6), min 8 (4+4)

There are 3 sets are ramps homologated (and thus authorized):

- 35° / 90° (coupled with 35°/60° which is not homologated for the rear diff)
- 45° / 90° (coupled with 50°/90°)
- 50° / 90° (coupled with 45°/90°)



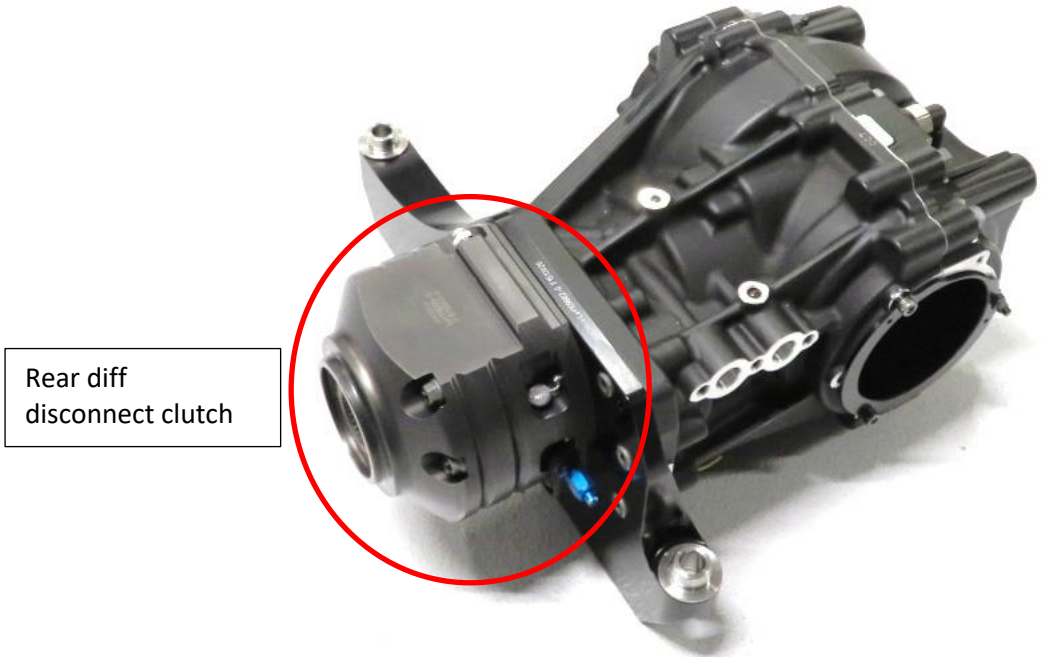
Rear differential locking ratios (compared to the max locking ratio where 35°/6+6FF is set at 100%)

Nota Bene: Preload decrease from approximately 15% after 50 km of running.
Nota Bene: the cold measured preload (workshop) is approximately 15% higher than warm measure.

6.2.2 Rear diff disconnection / PEAL

The rear differential is equipped with a disconnect clutch device to disengage the rear axle during handbrake.

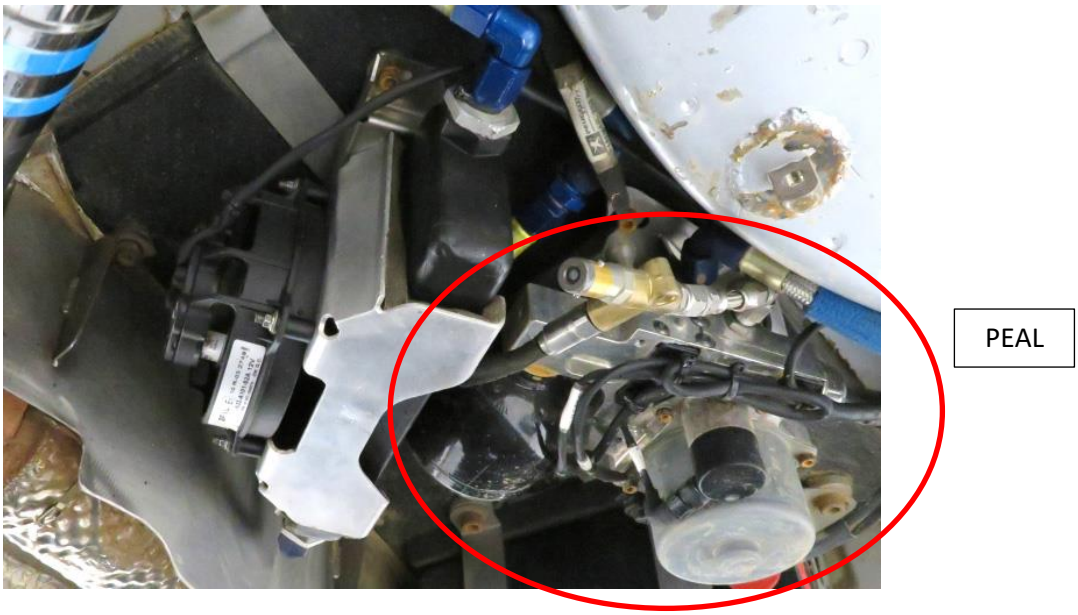
For more information, please refer to the Sadev manual.

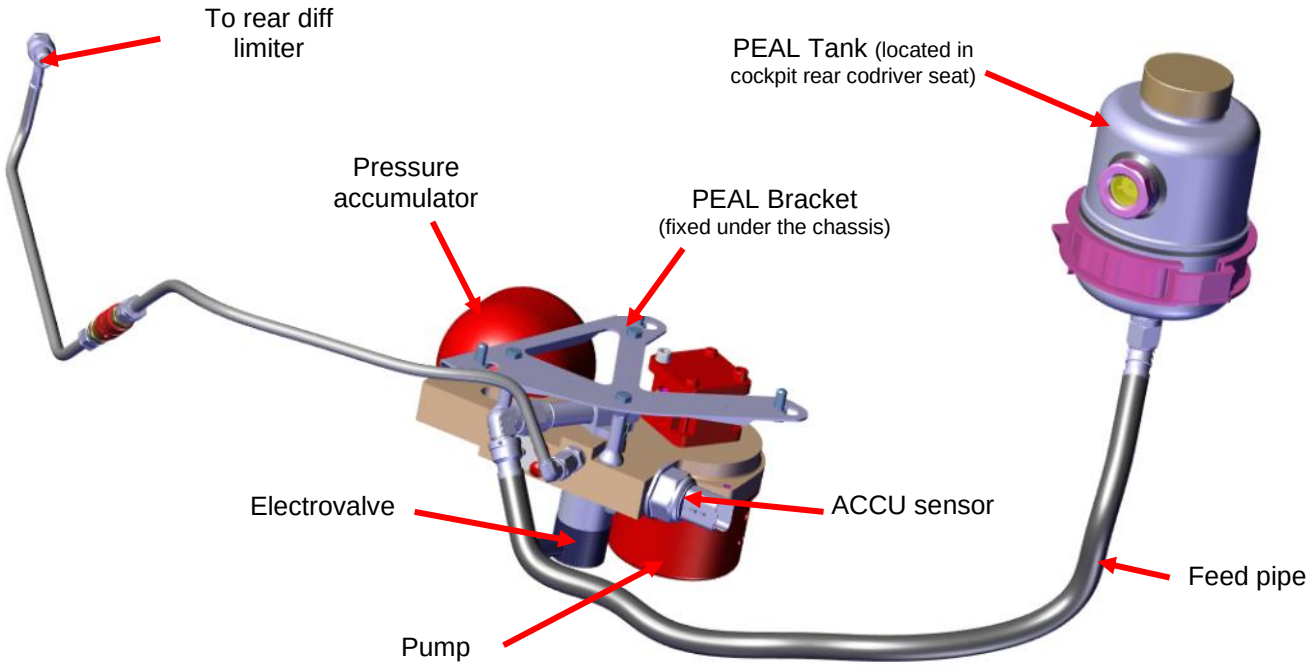


6.2.2.1 PEAL

The disconnect clutch device is activated through a hydraulic device called PEAL when pulling the handbrake and when the difference between rear brake pressure and handbrake pressure rise above 5 bar.

The PEAL is located under the floor at the rear right side (between the battery and the rear diff radiator).

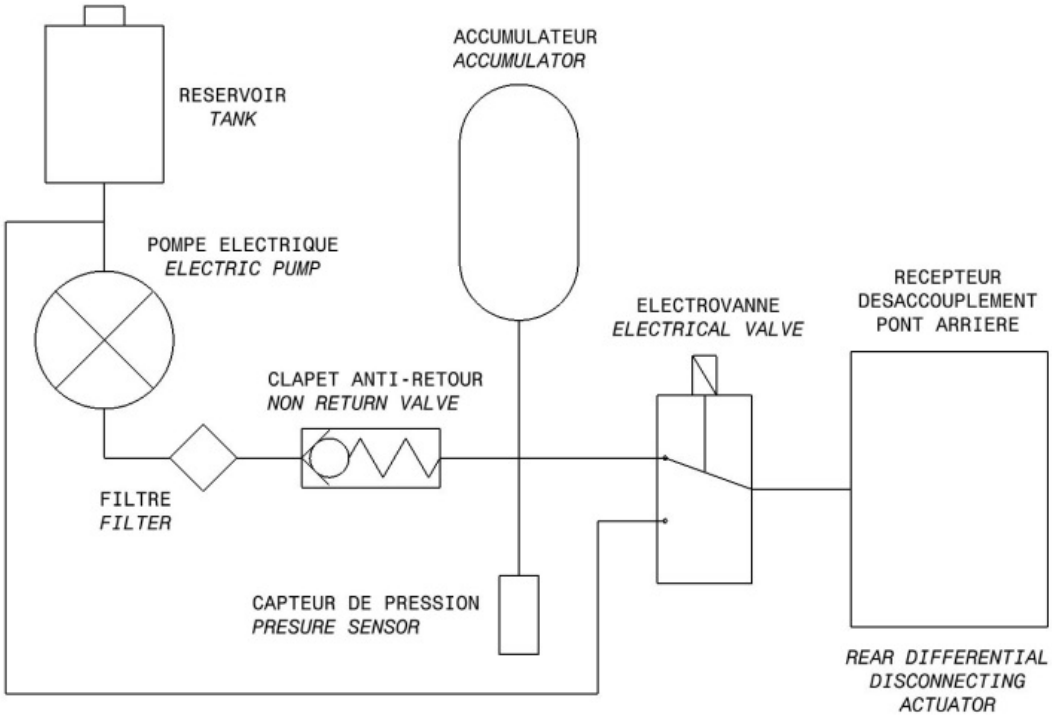




Here is the hydraulic schematic of the PEAL:

Pump is activated when pressure drops under 60 bar and stop when pressure reaches 70bar.

It is automatically charged when engine start running and is discharged when engine is stopped (it may be necessary to switch ON/OFF the Ignition quickly one more time to let the pressure drop to 0).



6.2.2.2 PEAL bleeding:

To bleed the PEAL, proceed as follow:

- Main ON, POWER ON (to charge the hydraulic system),
- Pull the handbrake and open the PEAL bleed nipple **gently** (pressure!)

6.2.3 Maintenance

1rst drain	Drain Frequency
After a 50 km running-in	350km

6.2.4 Rear diff oil

- ELF HTX750 (904895438A, 1L)
- Capacity :
  - Rear diff + cooling lines = 1.1 L
  - Rear diff only (draining) = 0,8 L

6.2.4.1 Testing procedure

In order to ensure that the disconnection is efficient, here is the procedure to follow:

- Engine is warmed up,
- Engage 1st gear ,
- Rise engine to 3000rpm -> Vcar= 30kph,
- Check the 4 wheels are turning at the same speed (fit the engine wheel speed sensors to help you),
- Pull handbrake (keep pedal throttle constant) and ensure the rear wheels lock and engine rpm does not stall (or about to stall)

If engine stall (or nearly), that means the disconnection is not working properly.

To solve this, follow the setting procedure.

6.2.4.2 Setting procedure

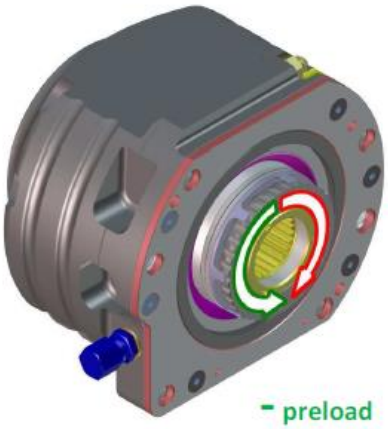
For a brand new rear disconnecting clutch, add (tighten) 15 clicks after 150km of stage.
Then check by a stand test that all is working properly (see §6.2.4.1).

Then, after 500km of stage, add 10 clicks more.
Check by a stand test that all is working properly (see §6.2.4.1).

To control in real conditions, you can check during a launch procedure that the average front and rear wheel speeds are equal. If the rear disconnect clutch spins, you will see a difference between the 2 average speeds during the launch phase.
For this, you need the wheel speed sensors fitted.

If rear diff clutch spinning is experienced, set the setting to 35 clicks (see Note below).
Check on stands if the issue is solved.

If issue is still present, send the rear diff clutch to Sadev for an inspection and rebuilt.
In any case, the rear diff has to be sent to Sadev after 2000km of stage for inspection and rebuilt.



+ preload = add clics (tighten)

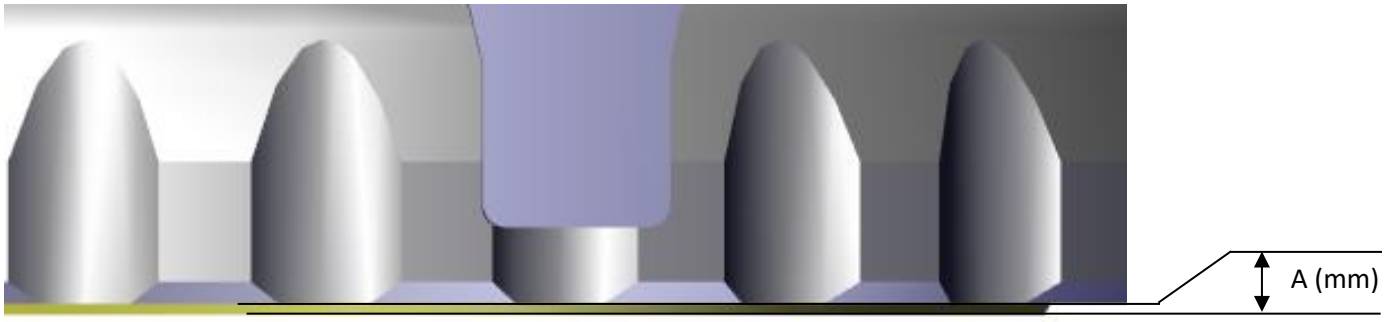
- preload = remove clics (loose)

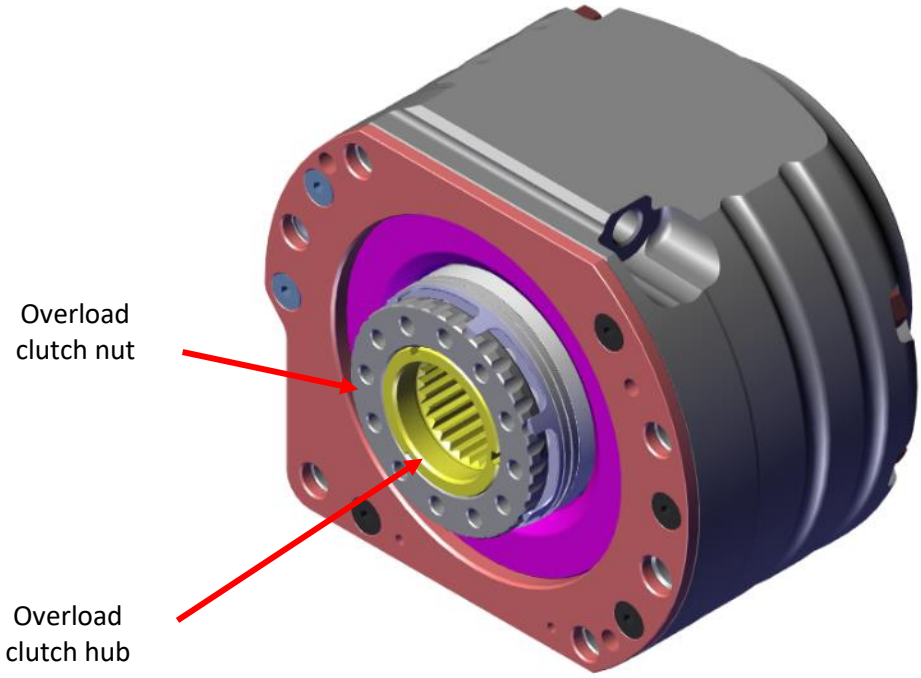
Note :

The 0 clic reference is when the face of the overload disconnect nut (in grey below) is on the same plane than the overload clutch hub (in yellow). That means the distance between the 2 faces is 0mm.

The thread is 35 clics for 1mm. So number of clics = 35 x A

Max number of clics is 35 = 1mm.





6.2.5 Cooling

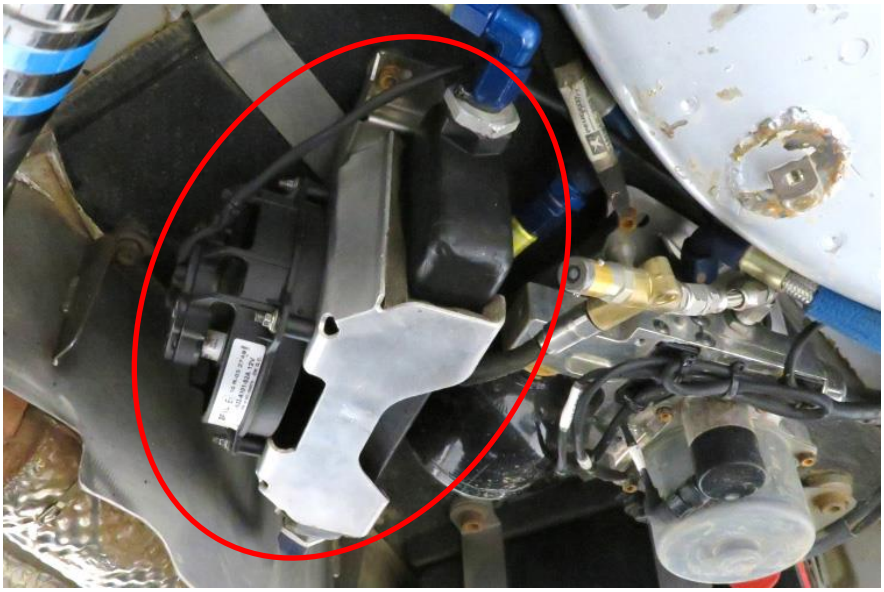
The rear differential is equipped with a radiator and fan. These are located under the floor at the rear right side.

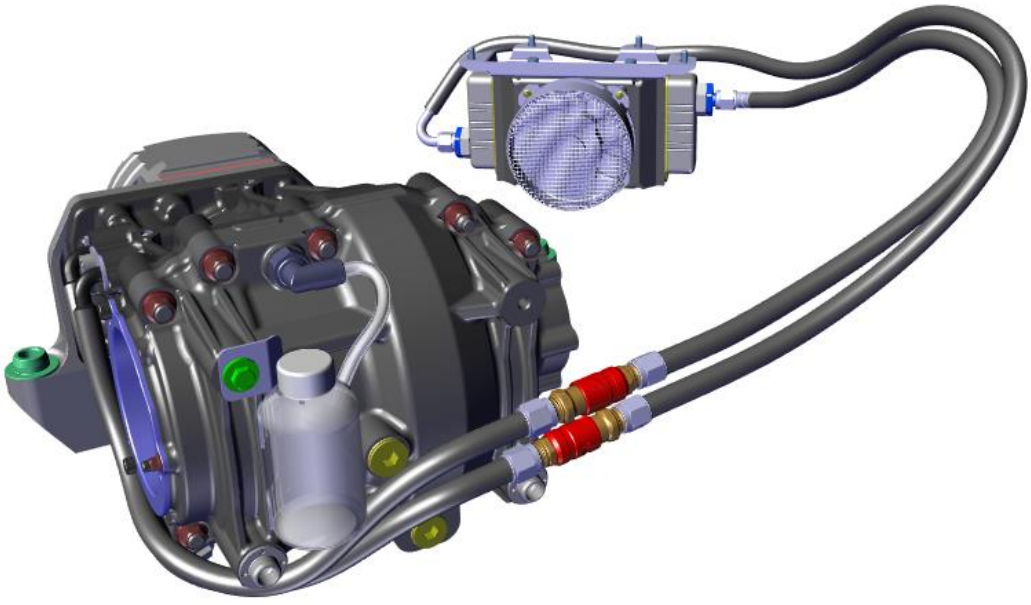
The fan is managed by the ECU and starts at 90°C and stops at 85°C.

The rear diff oil is usually around 70-95°C under race conditions.

The rear diff fan working can be check by forcing it with the FAN button on the steering wheel (see chapter §14.1.1.6).

Ensure the fan is away for mud (can also block the fan when drying) and gravel.





In case of an issue with the cooling system, it's possible to shunt it using the 2 staubli couplings.

6.2.6 FIA sealing

See Appendix §16.4.6.

6.3 DRIVESHAFTS

Inspect the driveshafts after each test or rally.

Regularly inspect the boots for any rupture that could lead to grease leakage.

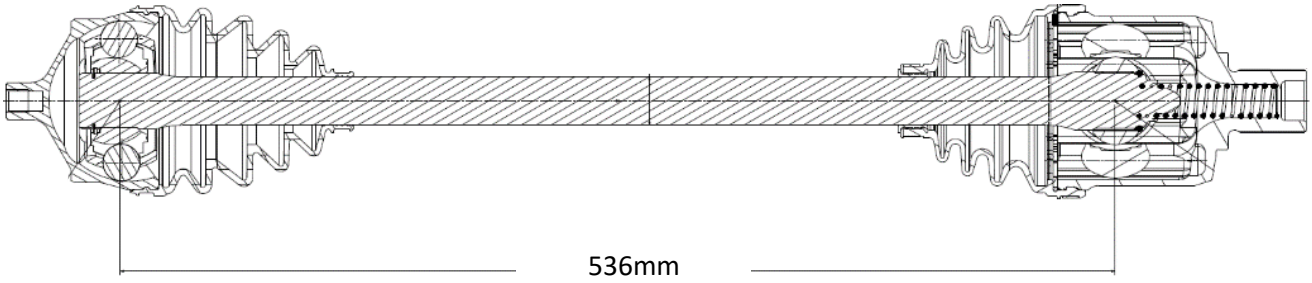
Regularly control the tightening torque (65Nm) of the driveshaft screw.

Always ensure there is some axial play at the shaft when in max droop and bump.

Note: the front ones are shorter than the rear ones.

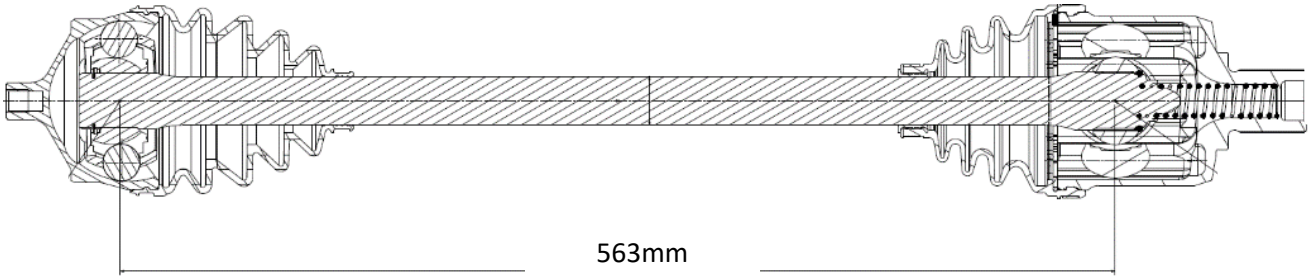
6.3.1 Front

Driveshafts are identical left to right.



6.3.2 Rear

Driveshafts are identical left to right. (Inner CV joint body and shaft are longer than the front ones).



When using new driveshaft, it is advised to run them up on stand during 5 min while turning the steering wheel.

6.4 PROPSHAFT

The shorter side is to the front of the car.

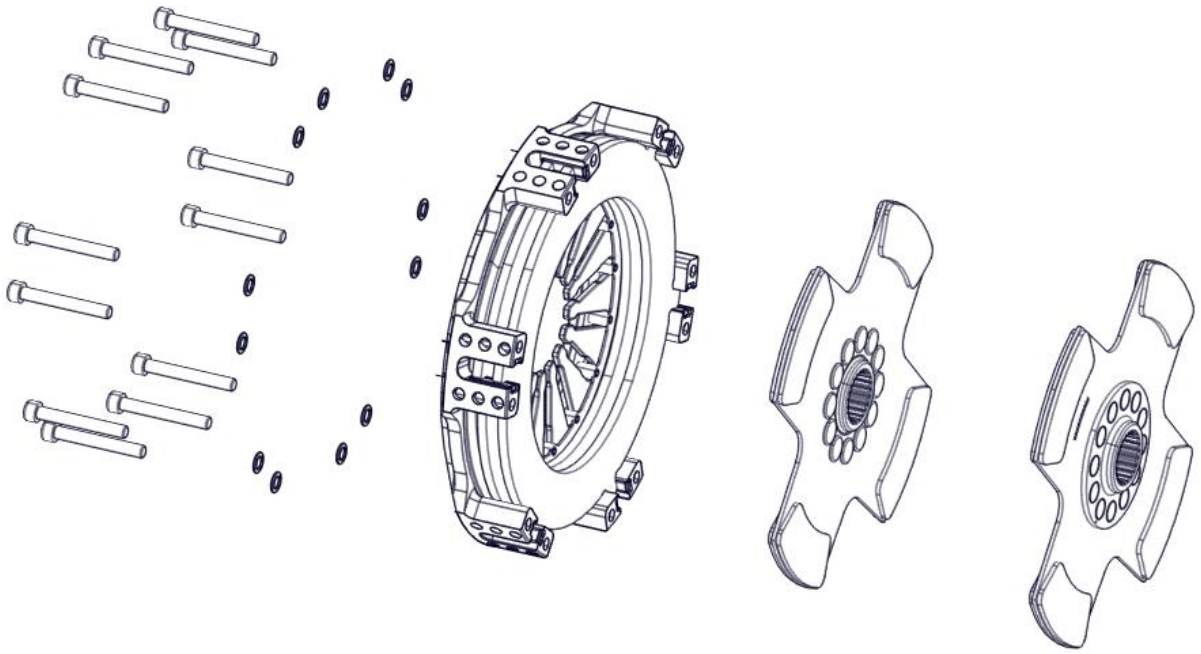
To remove the propshaft, you just need to remove the center bearing support (1 screw).

Regularly grease the 2 ends with copper grease.

6.5 CLUTCH

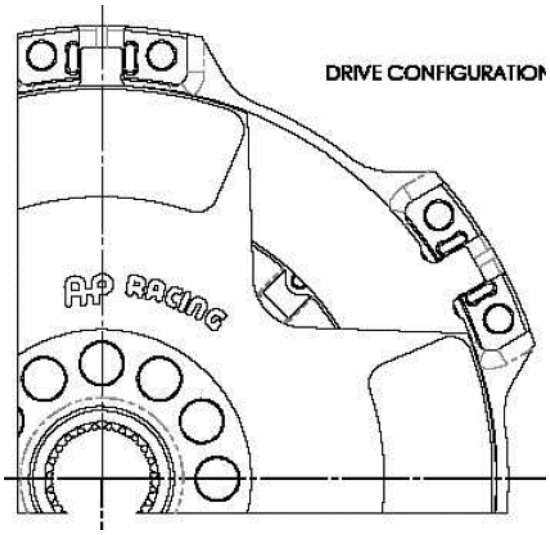
The clutch used for C3Rally2 is from AP-Racing.

It's a cerametalic one, composed of 2 discs with 4 paddles each.

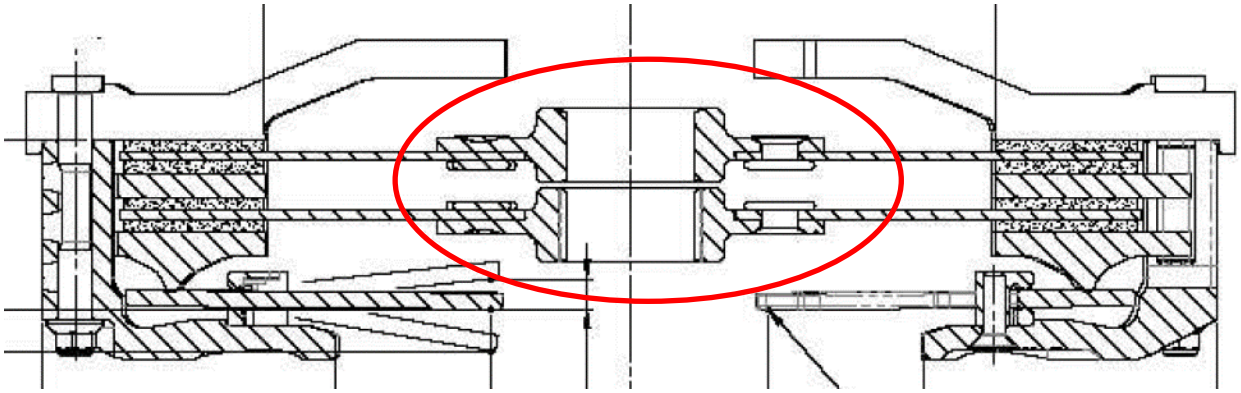


6.5.1 Fitting

During clutch assembly, ensure the discs are aligned as per the picture below.



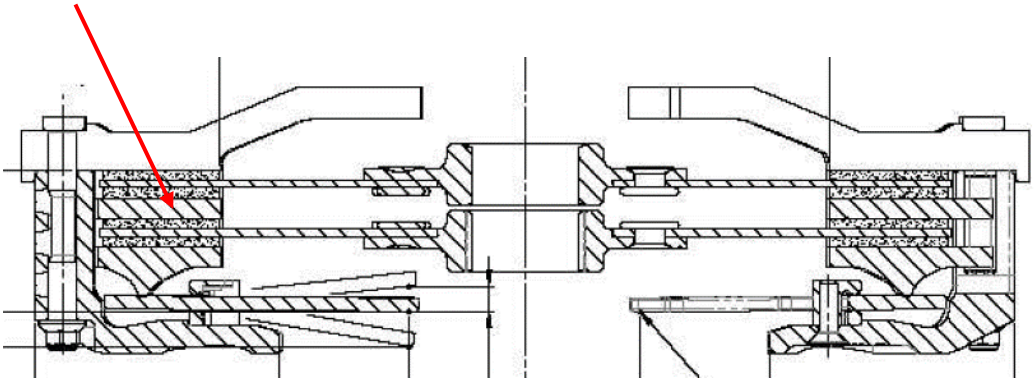
And make sure the discs are placed ‘’face to face’’ as shown below.



6.5.2 Inspection

Paddle thickness must be > 5,45mm (6,00mm when new).

Maximum intermediate plate taper : 0,2mm



It’s recommended to change the 12 screws each time you change the clutch.

7 D00 POWERTRAIN MOUNTS

You have 3 powertrain mounts:

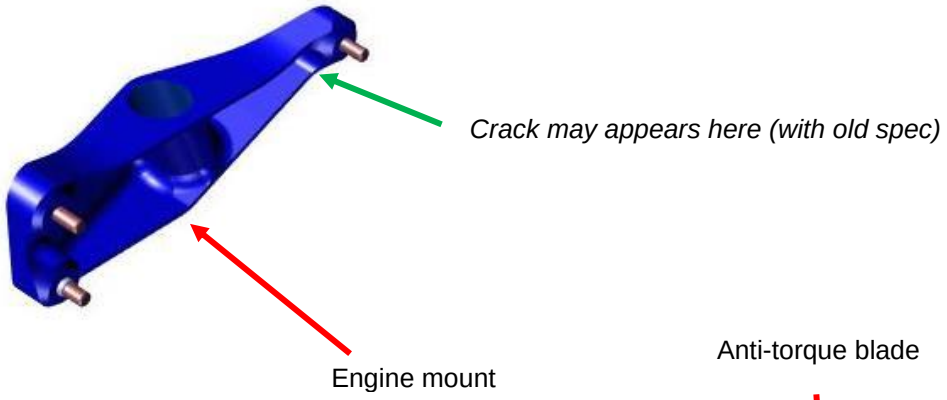
- Engine mount,
- Gearbox mount,
- Anti-torque rod,

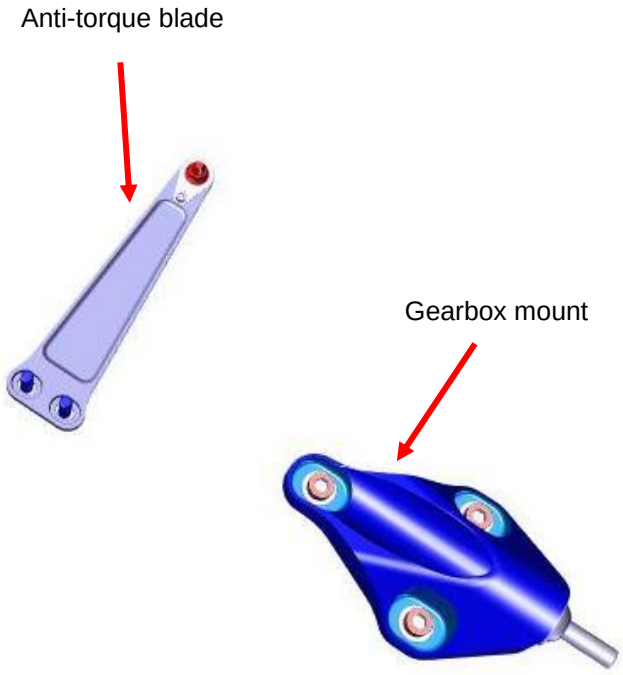
Regularly check the tightening torque of each mount and use tightening marks to visually check that point quickly.

NB: regularly control the engine mount for crack (see green arrow), especially after a front impact (even light)

NB: for the gearbox mount, pay more attention to the tightening torque of the bolts maintaining the mount onto the gearbox and the washers.

NB : for the anti-torque rod, regularly check (for crack) the welding of the socket on the front crossmember.





To fit the engine/gearbox into the engine bay, proceed as follow:

- Approach the engine mount to the right chassis rail
- Approach the gearbox mount to left chassis rail
- Tighten the gearbox mount onto the gearbox
- Tighten the anti-torque blade
- Tighten the engine and gearbox mounts

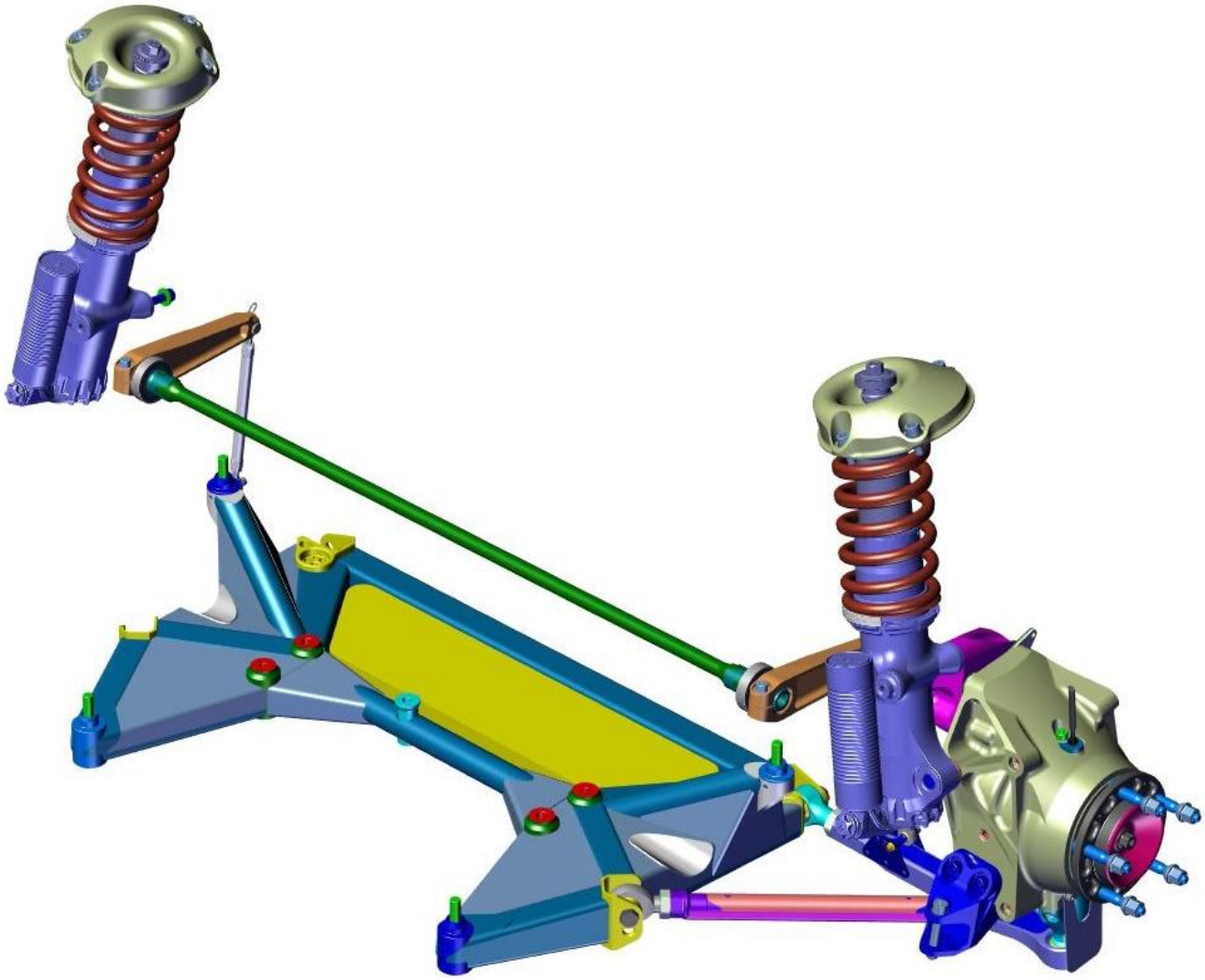
8 E00 SUSPENSION

8.1 FRONT AXLE

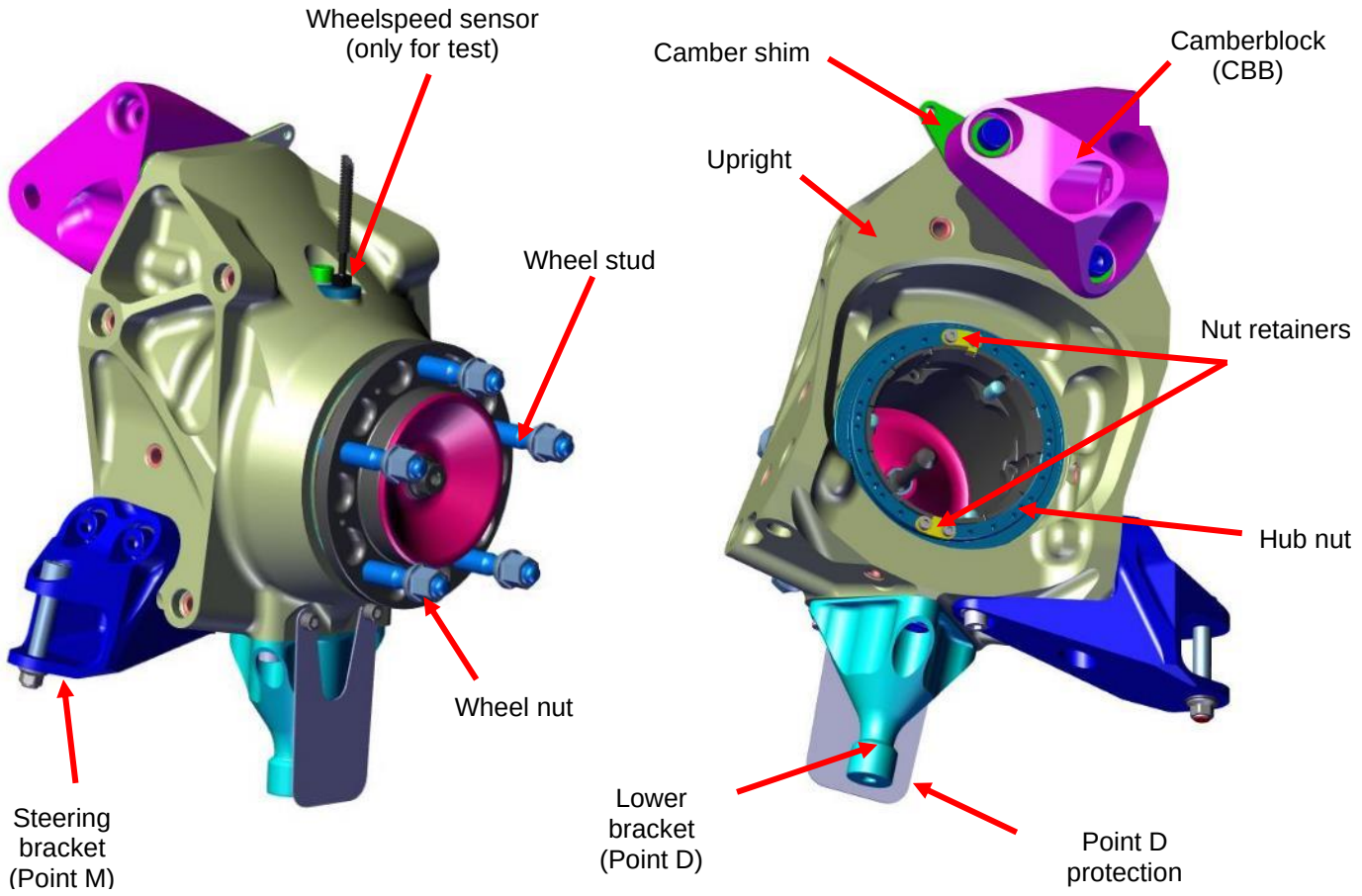
8.1.1 Presentation

The front axle is a pseudo Mc Pherson type.

8.1.1.1 Main view



8.1.1.2 Upright



Camber shims versus Camber variation:

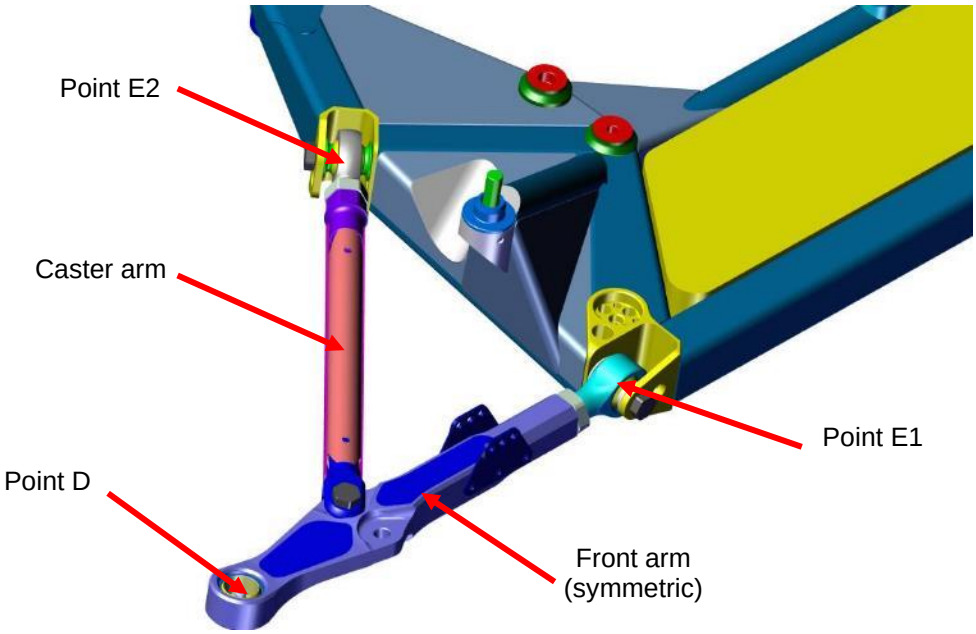
Tarmac: Front 20' = 1mm
Rear 20' = 1,7mm

Gravel: Front 20' = 1,3mm
Rear 20' = 1,3mm

Remarks:

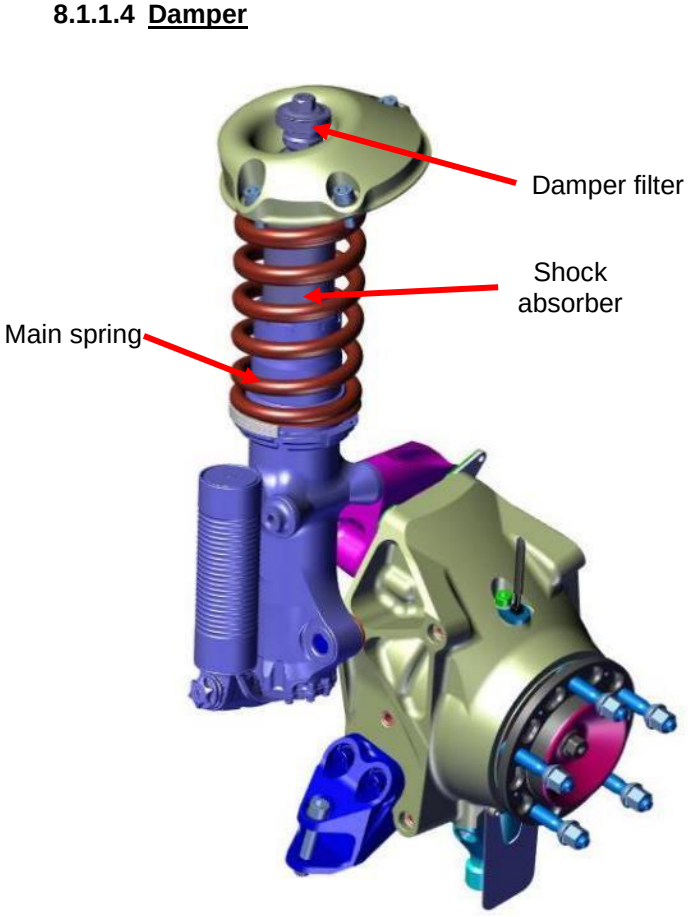
- The 2 hub nut retainers have to be placed diametrically opposed (as on the picture above),
- Hub nut tightening torque: 550 Nm,

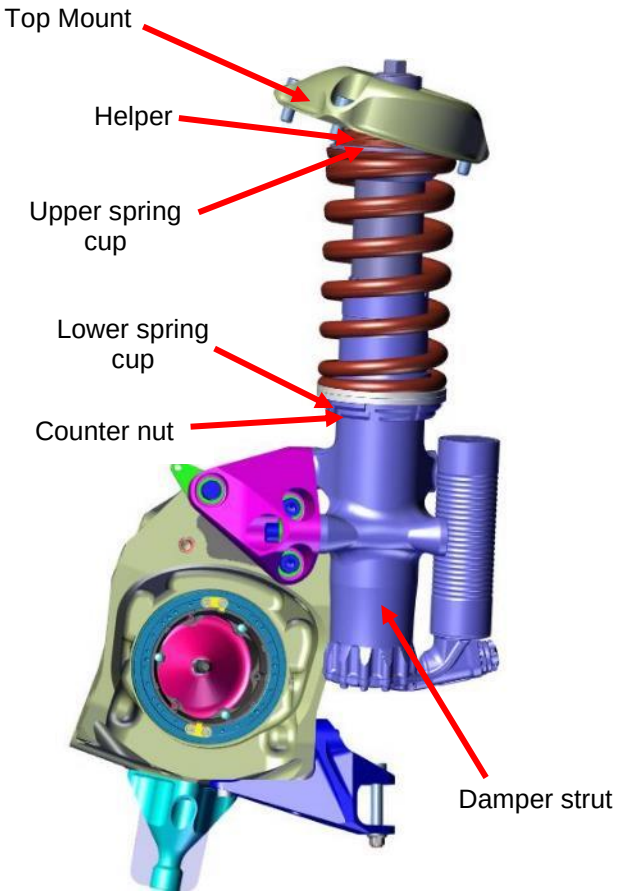
8.1.1.3 A-Arm



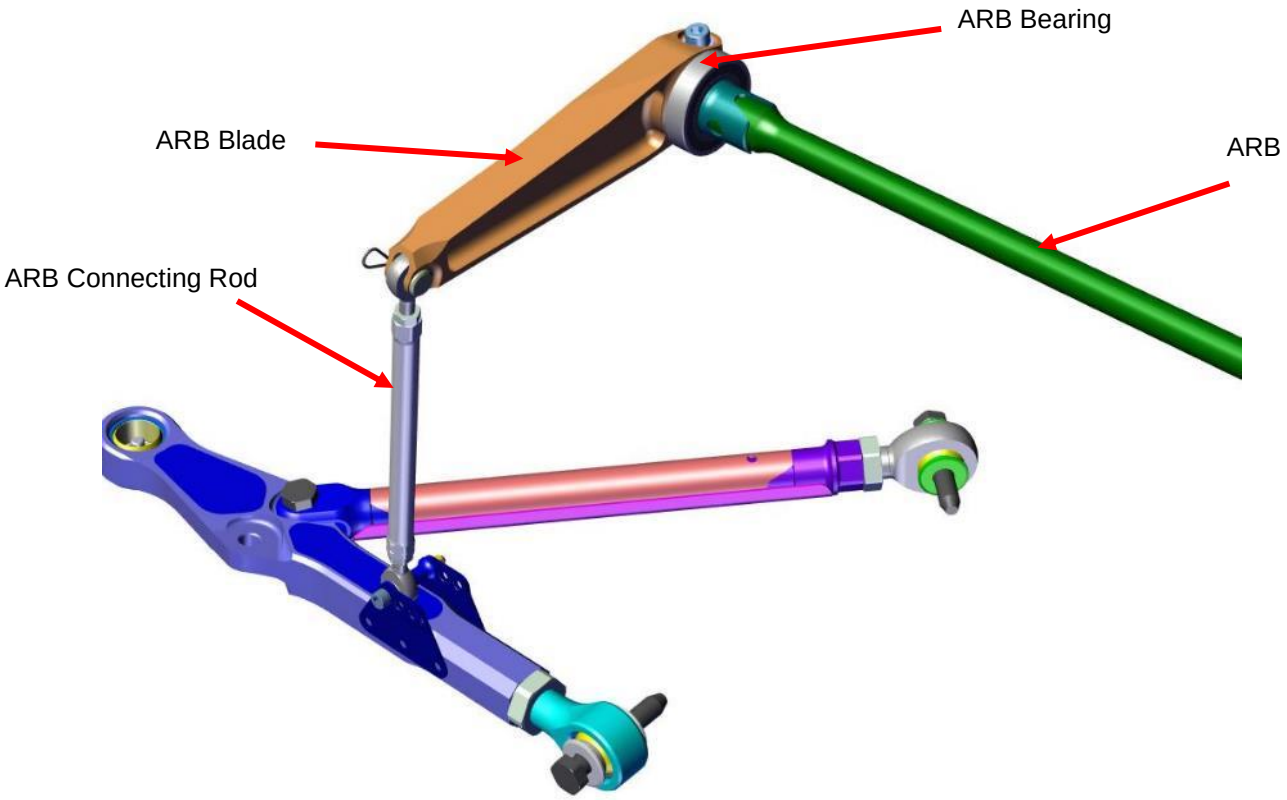
The E1 & E2 ball joints are oriented at 90° compared to the arm plane.

8.1.1.4 Damper



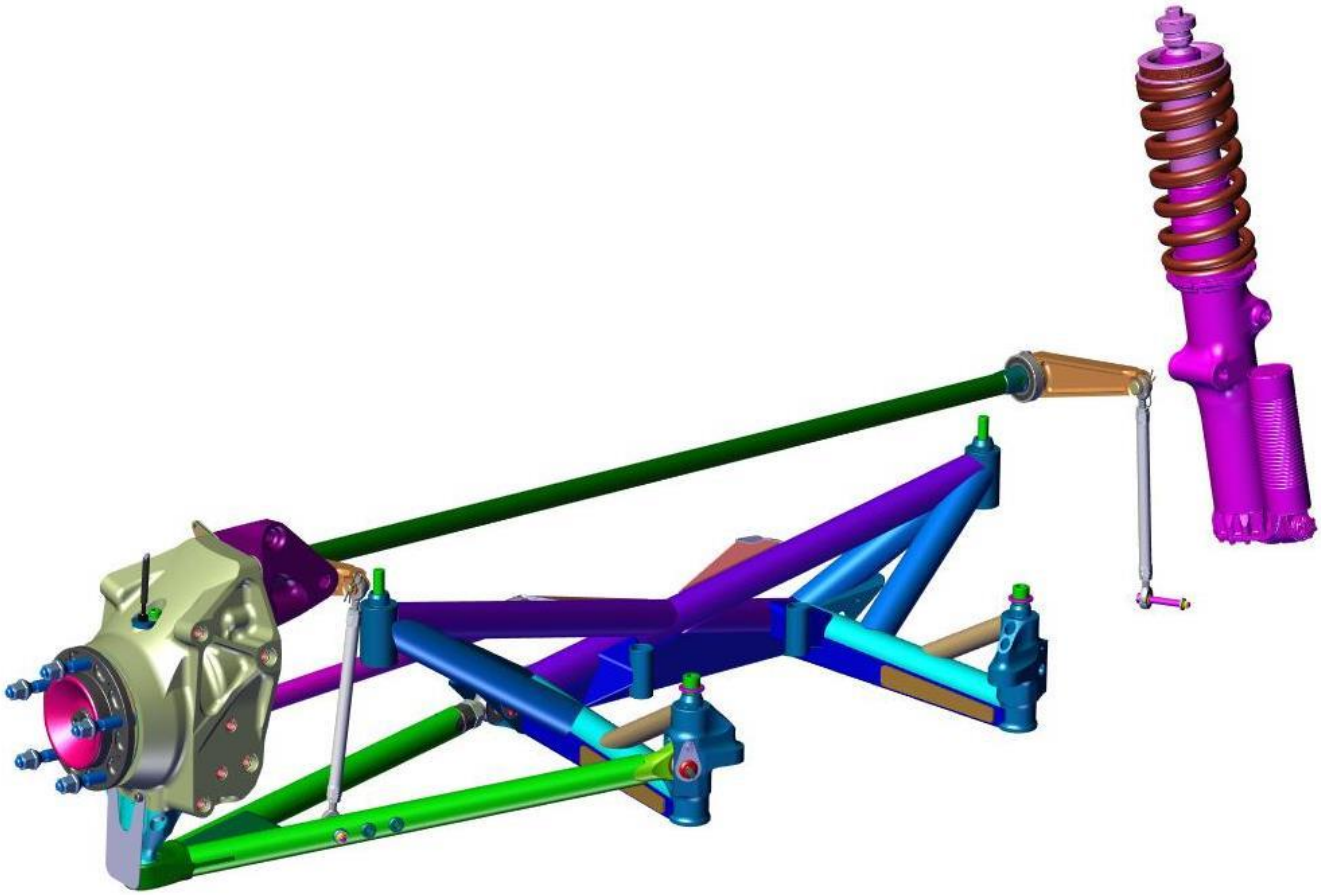


8.1.1.5 Antiroll bar (ARB)

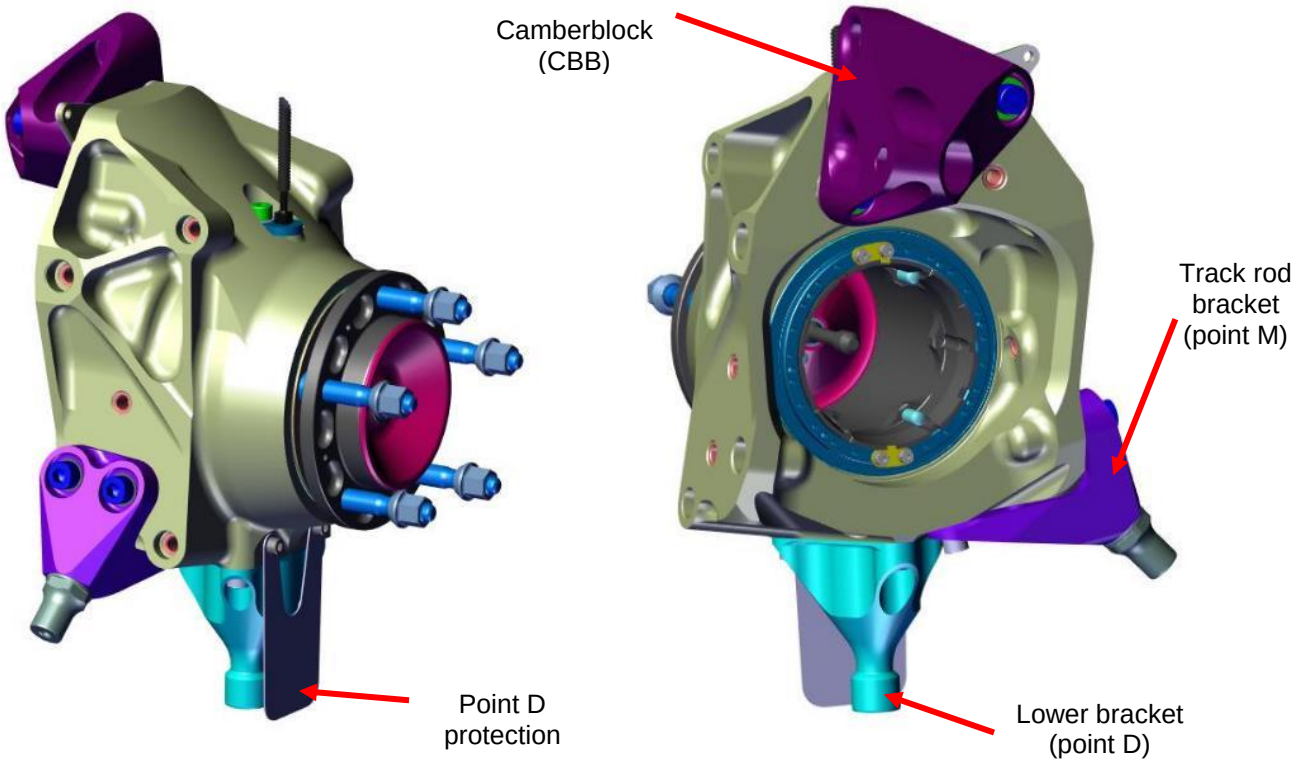


8.2 REAR AXLE

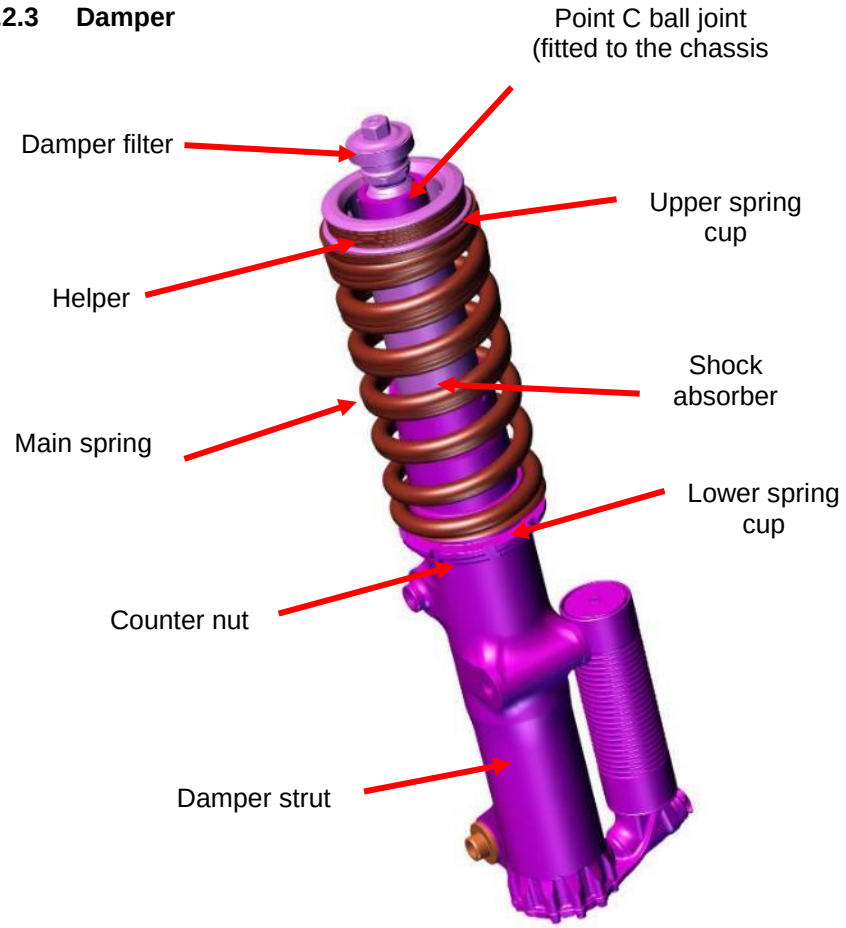
8.2.1 Presentation



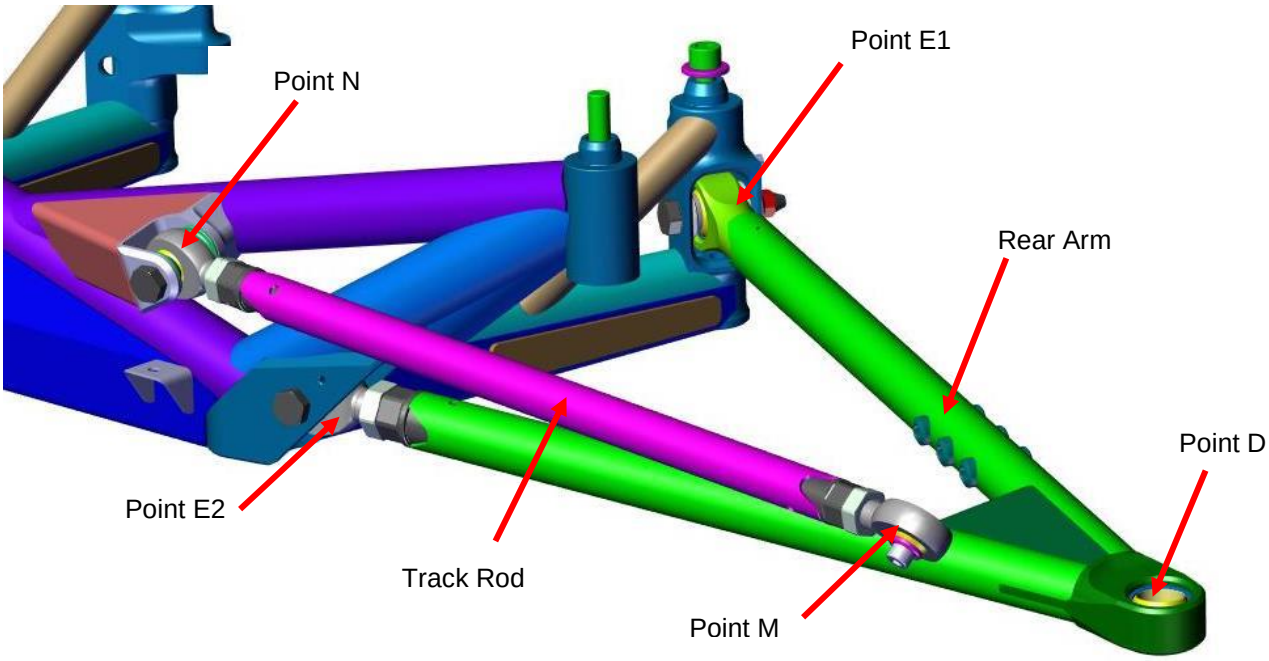
8.2.2 Upright



8.2.3 Damper



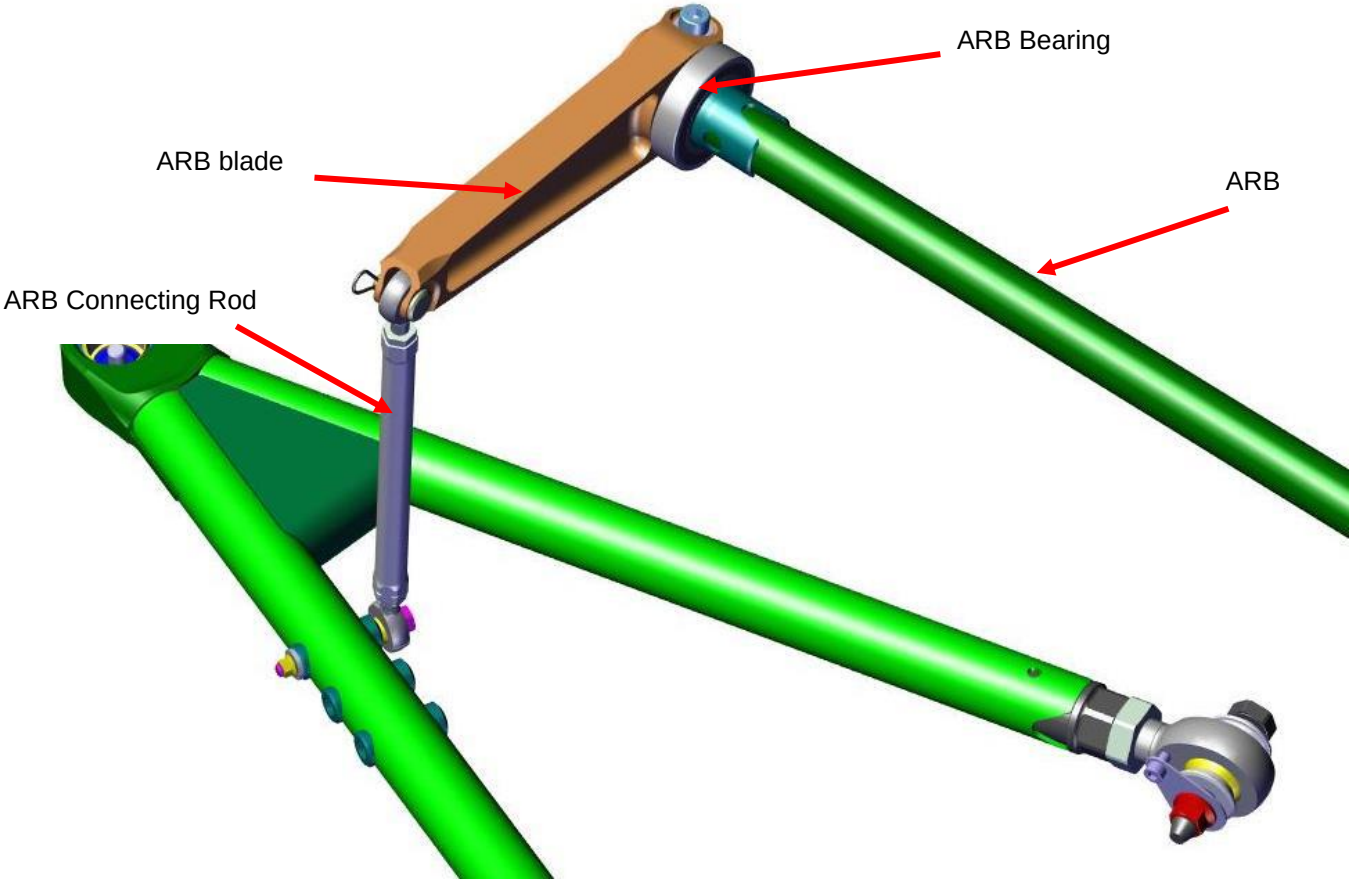
8.2.4 A-arm



E2 ball joint is 90° oriented compared to the arm plane.

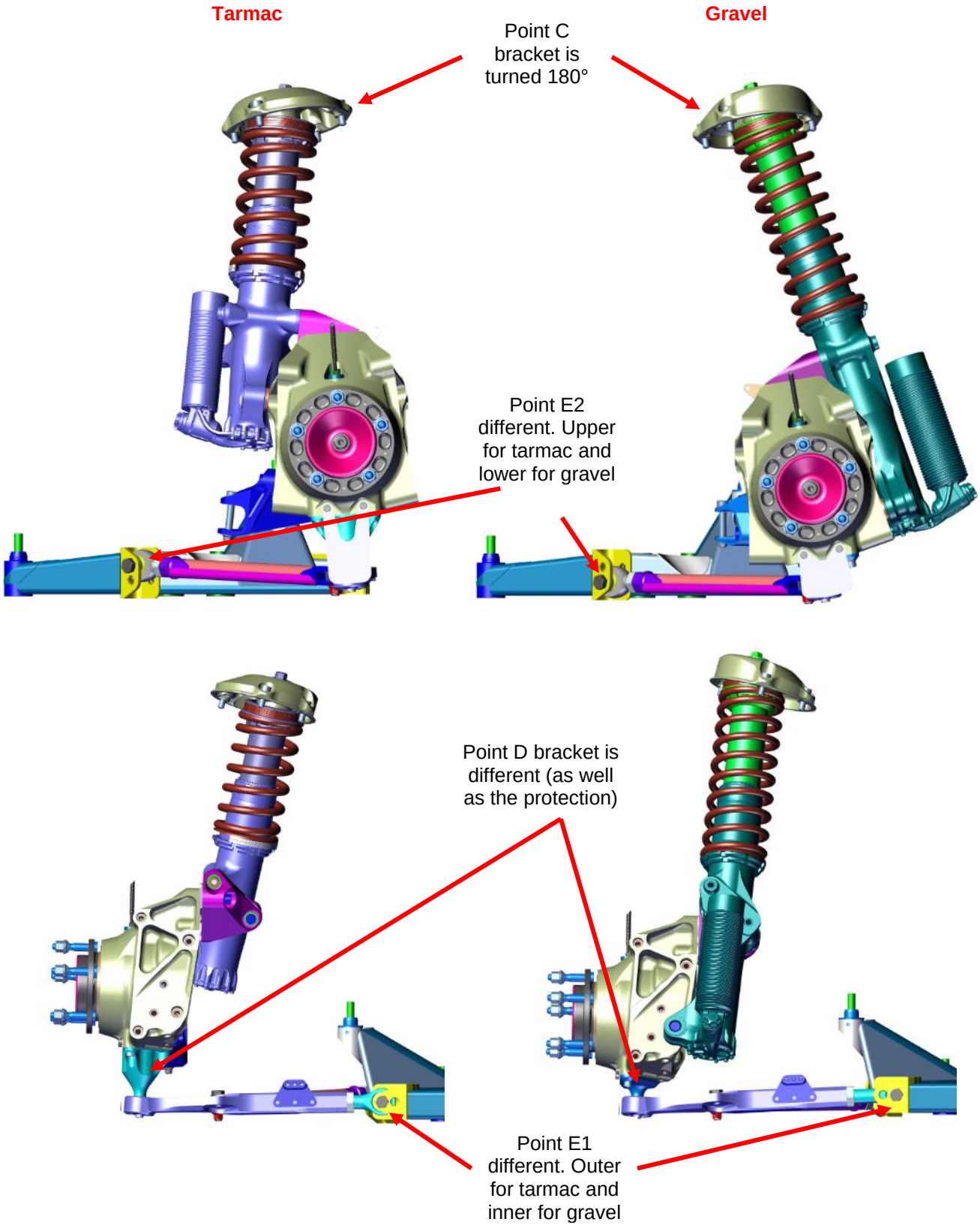
Angle between point M and point N ball joint is 32°.

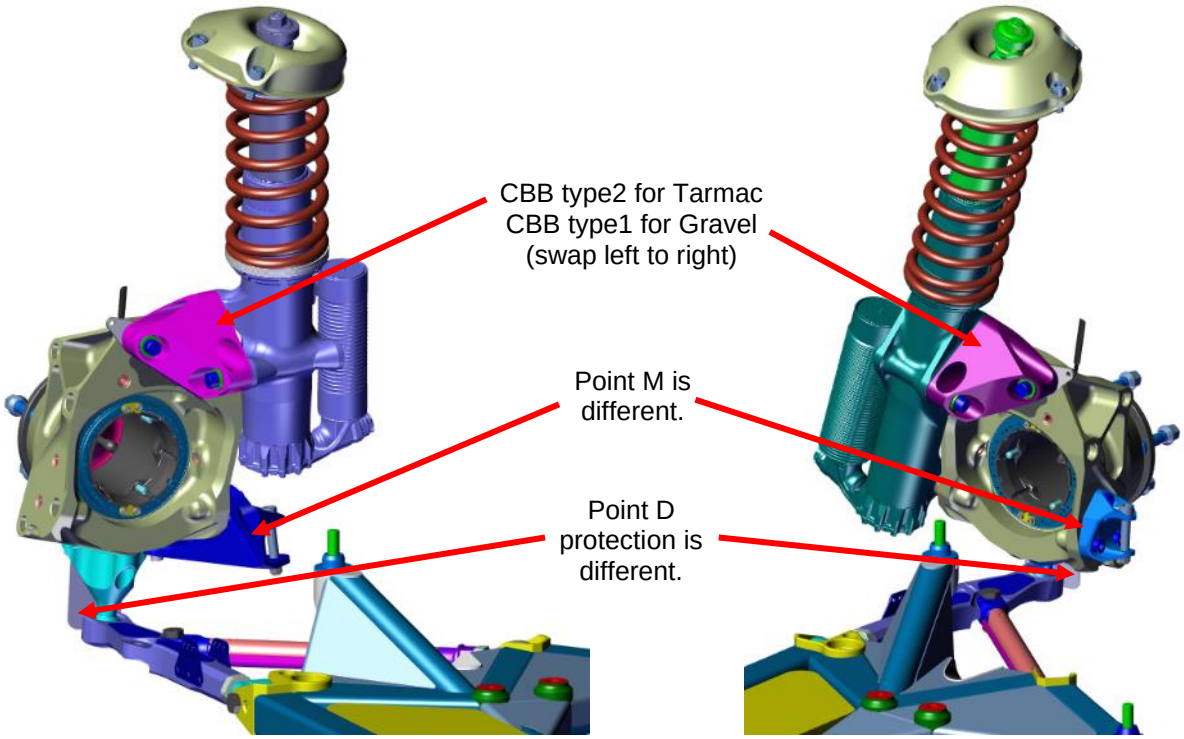
8.2.5 Antiroll bar



8.3 TARMAC / GRAVEL SPECIFICATION

8.3.1 Front (right side is represented)



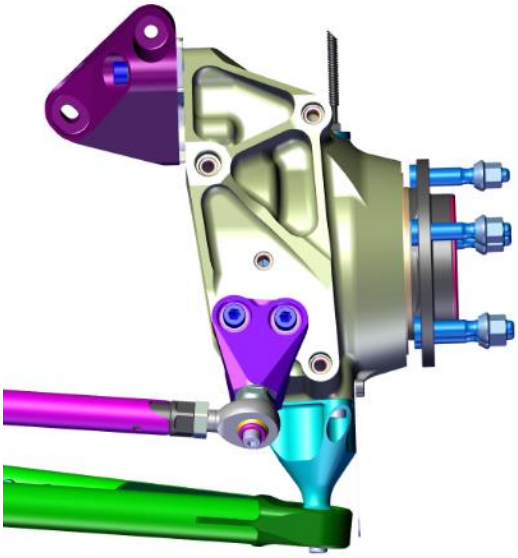


For tarmac: CBB type1 for the left side and type 2 for the right side.

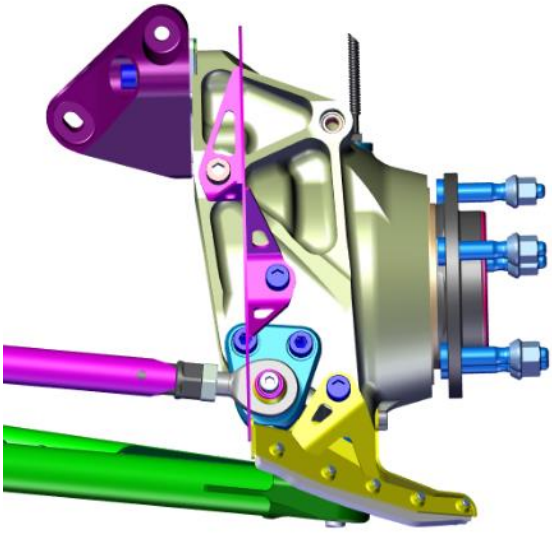
For gravel: CBB type2 for the left side and type 1 for the right side.

8.3.2 Rear (right side is represented)

Tarmac

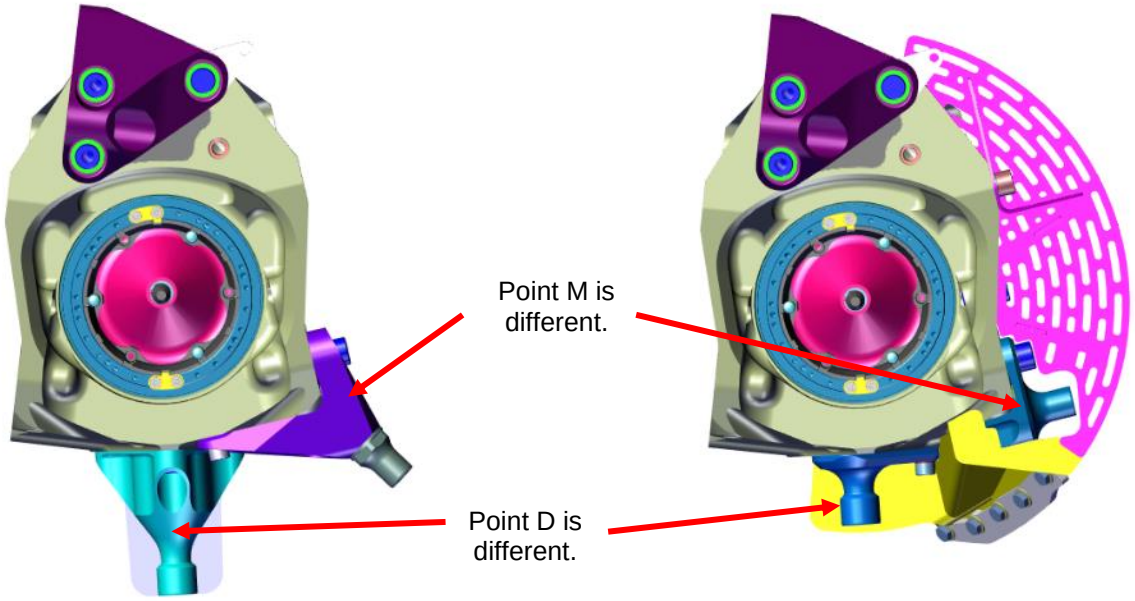


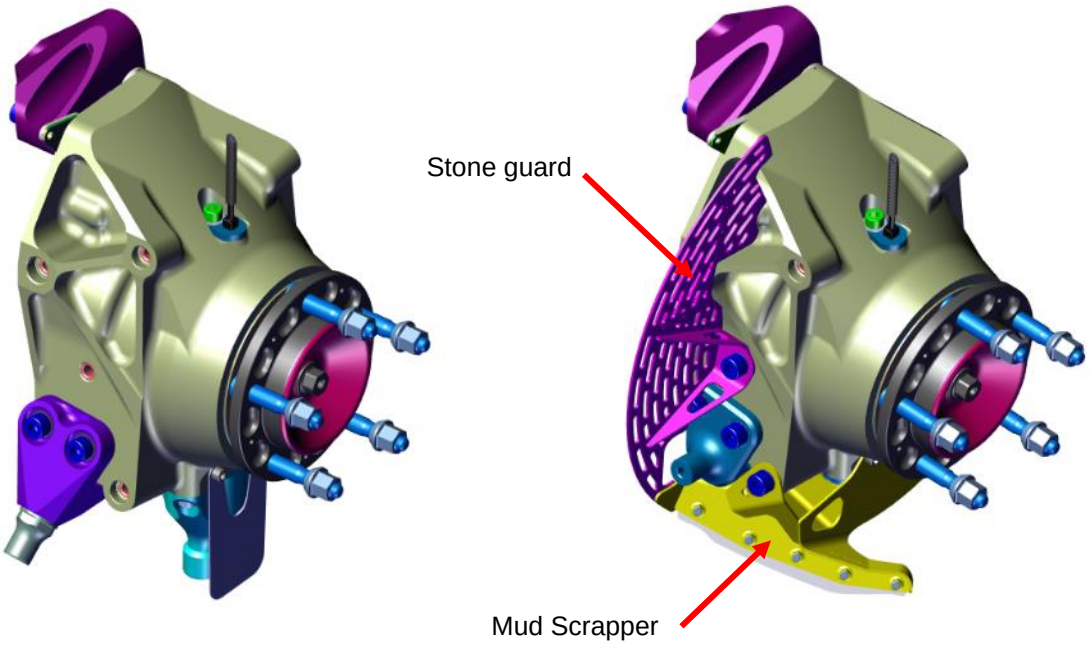
Gravel



No change in point C, E1, E2 and N.

CBBs stay same between the 2 configurations. (type 2 for the left side and type 1 for the right side)





8.4 DAMPERS

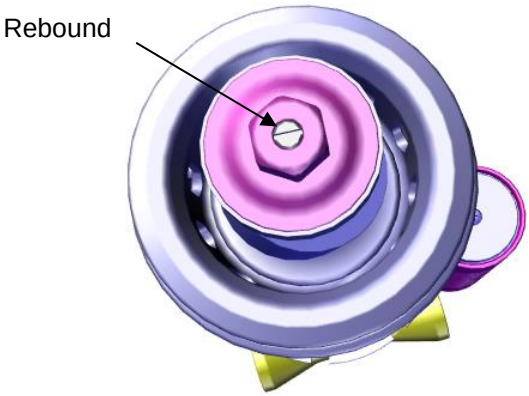
C3Rally2 is fitted Reiger dampers, 3 ways adjustable: rebound, low and high speed bump.

- Rebound: 60 clics max with 24 clics/turn
- Low speed bump: 20 clics
- High speed bump: 16 clics

8.4.1 Settings

8.4.1.1 Rebound

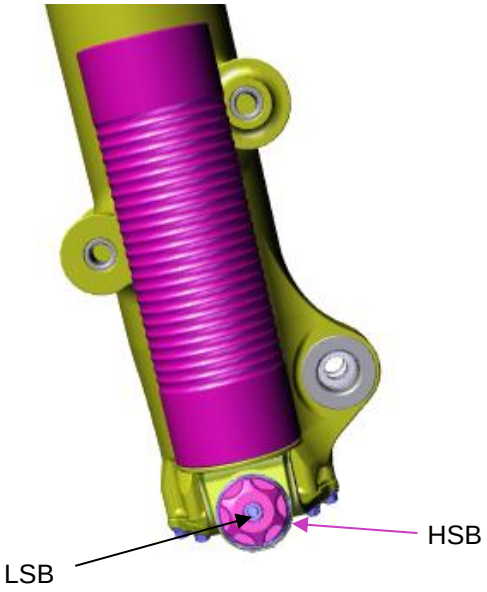
Rebound setting is done with a flat screwdriver at the top of the damper.



8.4.1.2 Bump

Bump setting adjustor are located at the bottom of the damper.
For low speed bump (LSB), use a flat screwdriver and for the high speed bump (HSB), you can turn the knob by hand.

For a stiffer setting, close/screw the corresponding setting and for a softer setting, open/unscrew it.



Be very carefull not to force on the low speed bump adjuster when reaching the limits as it can damage it.

8.4.1.3 Position 0

Position 0 is the fully closed position. To achieve it, totally screw the setting (do not use excessive force) and come back to the first clic you feel. This is your 0 position.
Then to achieve the desired setting, unscrew of the corresponding number of clics.

So the 0 position is the stiffest one and the fully open is the softest one.

CAUTION:
To do the 0 position for the rebound, the car must be on its wheels!
It's also advised to redo the 0 position each time the top eye (red knuckle) is removed from the damper.

8.4.2 Bumpstop

Following the dampers spec, they can be fitted with rubber or hydraulic bump stop. These are internal elements and are not adjustable externally.

8.4.3 Rebound Control Valve

A Rebound Control Valve (RCV) is fitted to your dampers. This allow the wheel to drop quickly when off the ground to improve traction.

RCV blockers (904638358A) are available to lock the RCV.

8.4.4 Damper strut oil changing

To change the damper oil, proceed as follow (operation to do over a drain pan):

- remove the 10 nuts from the bottom plate,
- separate the bottom plate from the strut,
- let the damper oil flow by the bottom of the damper,
- clean and put back together the strut and bottom plate, (be careful with the seal)
- tighten the 10nuts at 5 Nm
- slide the damper up to get enough space to fill oil

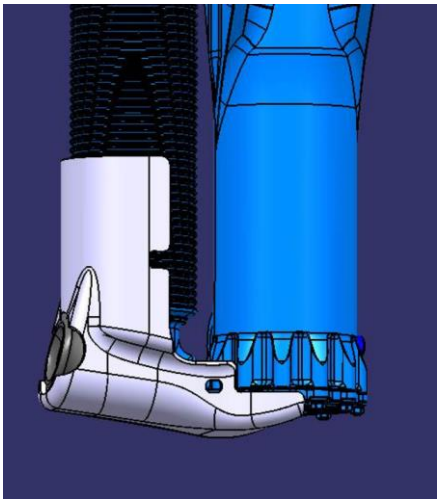
- put the correct oil quantity (see §16.1)

- slide the damper down (be careful with the indexation to put back the clips)

NB: you can transform a right to a left damper (and vice-versa) by turning the damper regarding to the strut.

8.4.5 Protection

In gravel, we strongly recommend the use of protections (904663028C) for the rear dampers.



8.4.6 Misc

Valving naming: Surface (T Tarmac, G Gravel) - N° - Position (F Front, R Rear), example T22F.

Actually, the last official damper settings are:

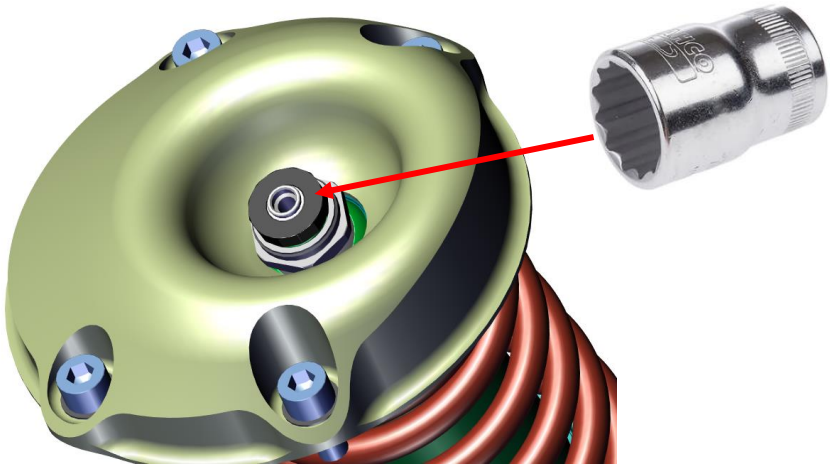
Tarmac:

- T30F / T30R

Gravel:

- G20F / G17R

For the point C nut (to fit the damper to the C point), we advise you to use a 23mm socket 12pts.



8.5 SPRINGS

8.5.1 Tarmac

FRONT		REAR	
Reference	**Stiffness**	**Reference**	**Stiffness**
904481128B	60 N/mm	904481178B	60 N/mm
904481138B	55 N/mm	904481188B	55 N/mm
904481148B	50 N/mm	904481198B	50 N/mm
904672718A	45 N/mm	904481208B	45 N/mm
904672708A	40 N/mm	904672738A	40 N/mm
		904672728A	35 N/mm

The front springs are black painted and the rear ones are yellow painted.

8.5.2 Gravel

FRONT		REAR	
Reference	**Stiffness**	**Reference**	**Stiffness**
904481298B	30 N/mm	904481368B	27,5 N/mm
904481308B	27.5 N/mm	904481378B	25 N/mm
904481318B	25 N/mm	904481388B	22.5 N/mm
904481328B	22.5 N/mm	904658018A	20 N/mm
904657998A	20 N/mm	904658008A	17.5 N/mm
904657988A	17.5 N/mm		

The front springs are red painted and the rear ones are green painted.

When swapping springs, it's not necessary to adjust the spring platform. Free length of the springs are calculated to not modify the ride height when changing springs.

8.6 RIDE HEIGHT

Ride height is changed through the cup height.

1 turn = 2mm cup height = 2mm ride height

When changing height platform height to adapt to ground condition or driver style, to keep the same balance do the following steps:

Tarmac: Front +3mm / Rear +4mm

Gravel: Front +10mm / Rear +15mm

8.7 ANTIROLL BARS (ARB)

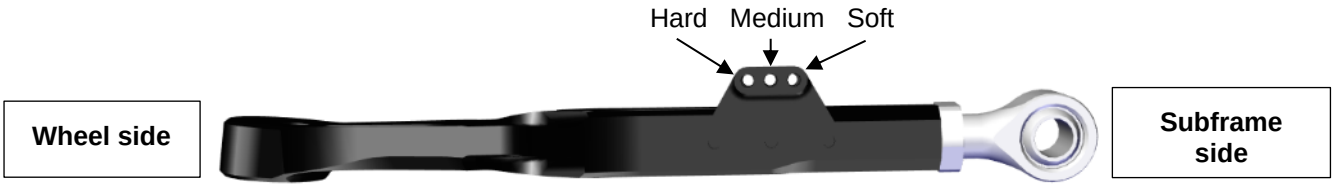
3 antiroll bars are homologated for each axle.

We recommend to check the weldings regularly (every 1000km)

8.7.1 Front

- Ø 13.6 mm
- Ø 15.3 mm
- Ø 17.6 mm

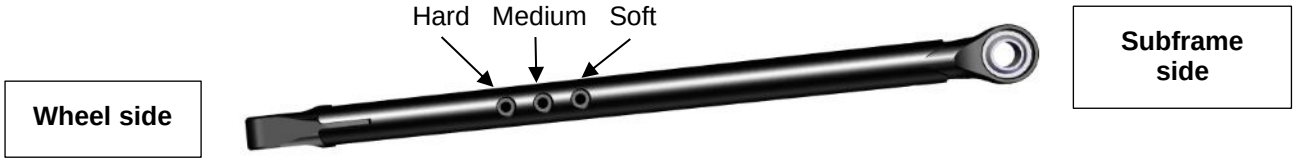
For fine tuning, there are 3 different positions on the lower arm. This allows to increase/decrease progressively the antiroll stiffness between 2 following diameters of ARB.



8.7.2 Rear

- Ø 19 mm
- Ø 21.6 mm
- Ø 24.5 mm

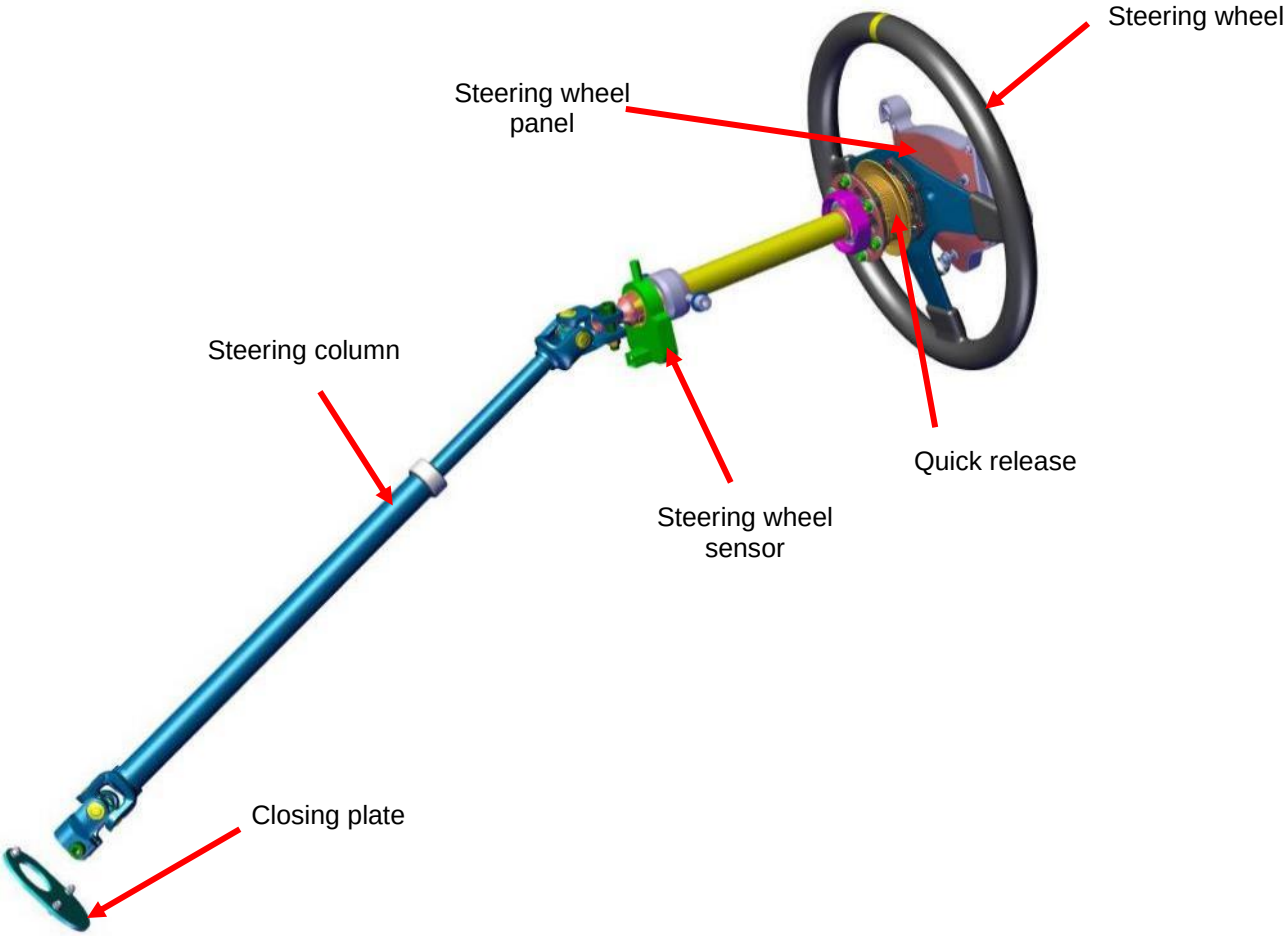
For fine tuning, there are 3 different positions on the lower arm. This allows to increase/decrease progressively the antiroll stiffness between 2 following diameters of ARB.



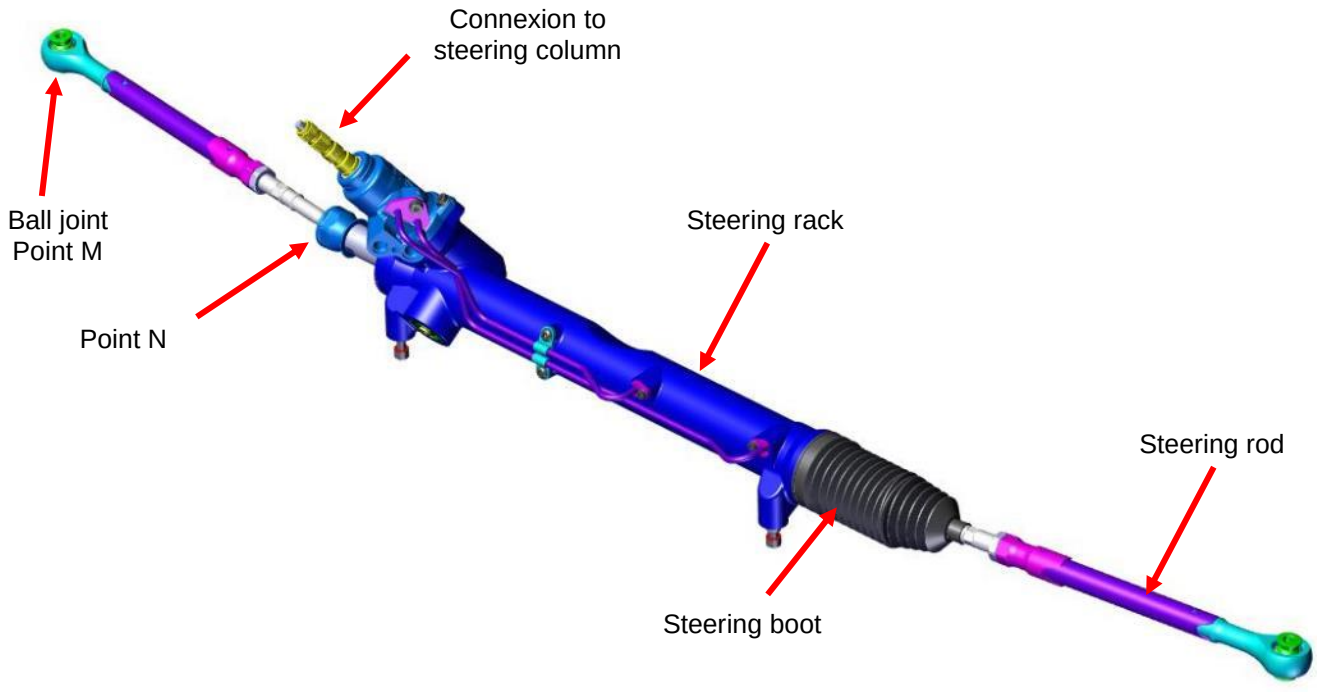
8.8 STEERING

8.8.1 Presentation

8.8.2 Steering column



8.8.3 Steering Rack



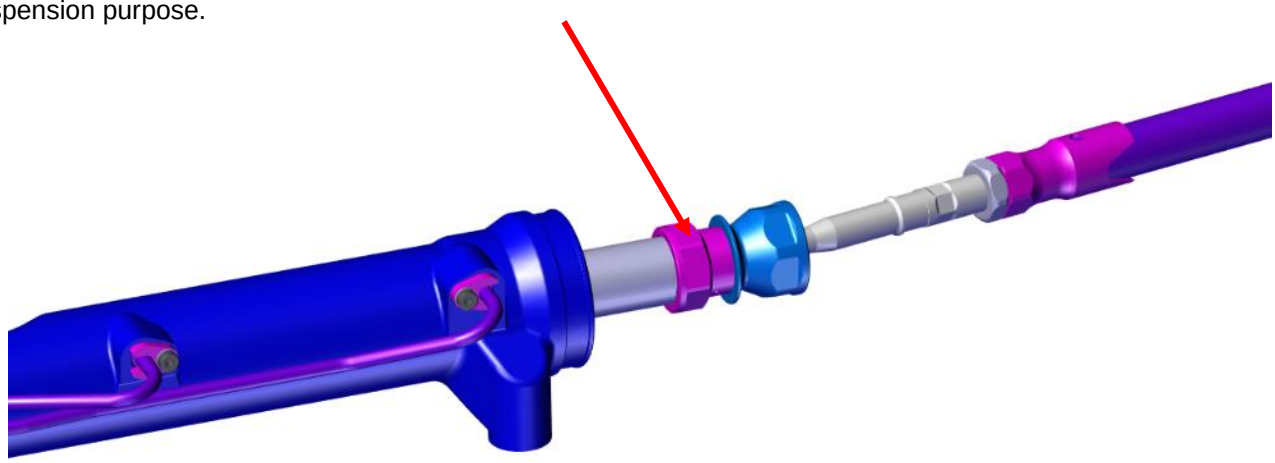
8.8.3.1 Tarmac spec

When using the new steering brackets (homologated since April 1st 2023, ref 904920518B), the use of spacers (ref 904921388B) to avoid wheel to wheelarch contact is mandatory.

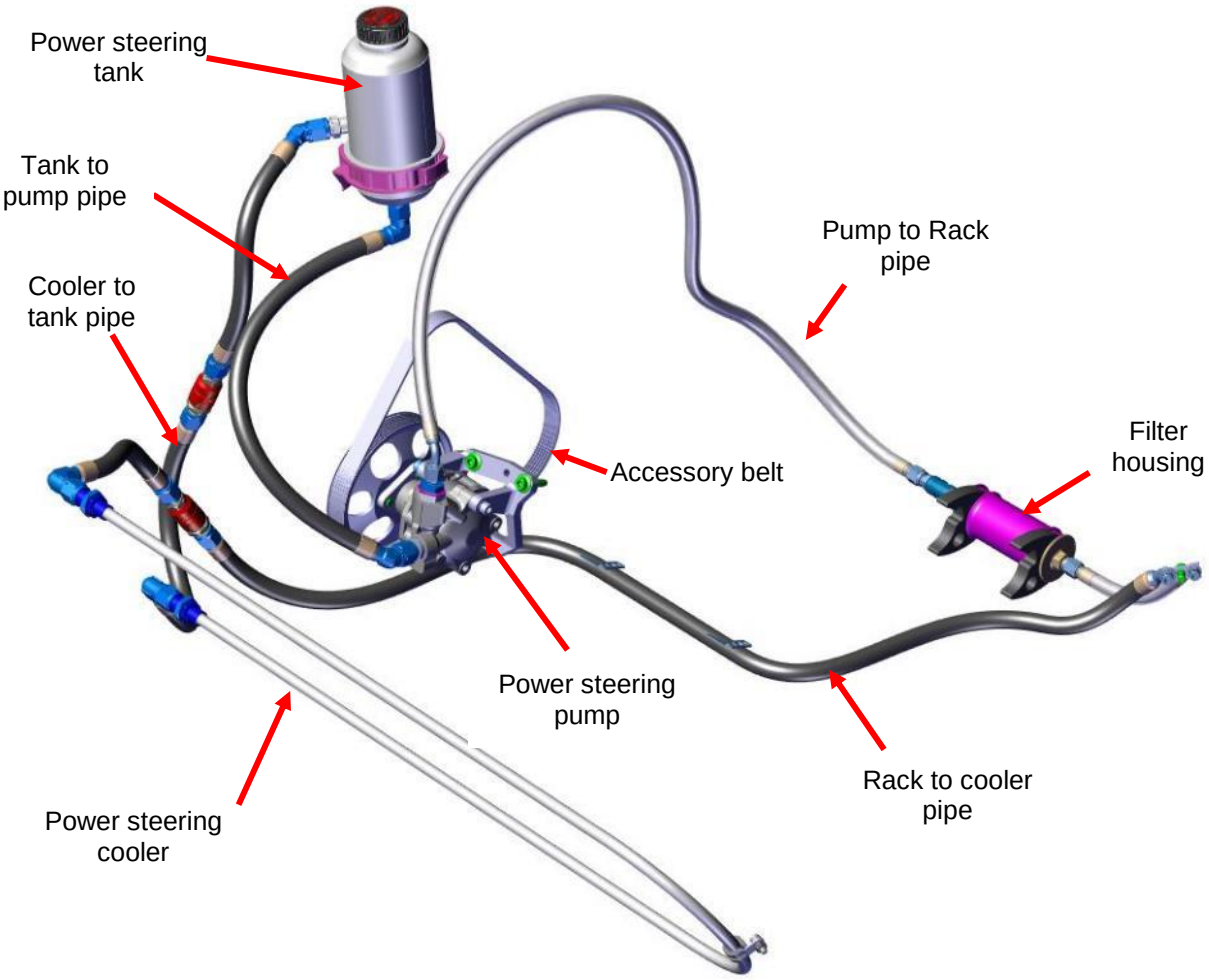
See infotech 23-02 on this purpose.

8.8.3.2 Gravel spec:

Only for gravel use, a spacer (904496178B) is needed at the end of each steering rod to limit the steering travel for suspension purpose.



8.8.4 Power steering & cooling



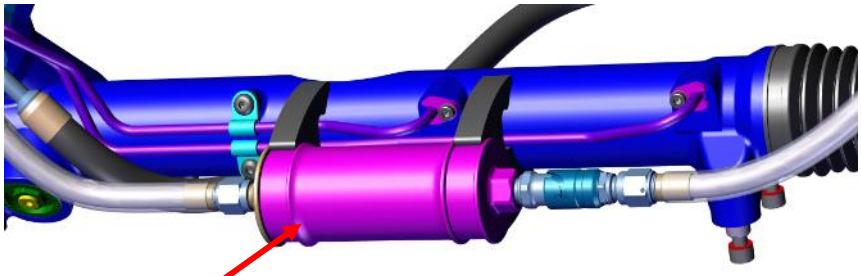
In case of an issue with the cooler, you can continue to run by shunting it using the 2 couplings available.

8.8.5 Specification

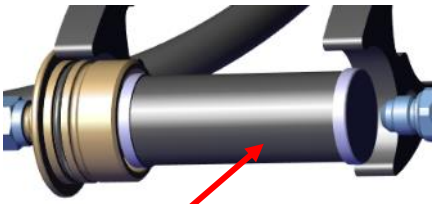
For tarmac use, a PS pump (904600278A) with a flow of 11 L/mn at 130 bar is used.

For gravel use, a PS (904600288A) pump with a flow of 13 L/mn at 130 bar is used. Only for gravel, a non-return valve must be used.

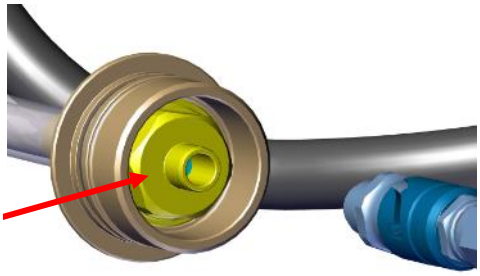
In both case, the use of the filter is mandatory. This filter should be cleaned or changed before each event.



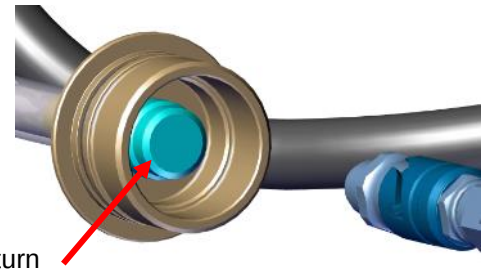
Filter housing



Filter



Valve support



Non return valve

We advise you to stick a Thermax B at the bottom of the tank

to monitor the t° of the steering fluid.

The max t° advised is 130°C.

A filter is present at the entry of the tank. Always keep it in place and clean.

8.8.6 Circuit bleeding / draining

Circuit bleeding: during engine oil pressure rising, steer left to right several times, check the fluid flow into the tank. Ensure, fluid level is high enough not to introduce air into the circuit.

Carry on this procedure (circuit bleeding) by turning the wheels left to right several times when engine is running at idle with the car on stands, and do the same with the car on the ground.

Circuit draining: to change the fluid, we advise you to keep the circuit closed and to remove the fluid from the tank (with a syringe for example) and then to put new fluid back in.

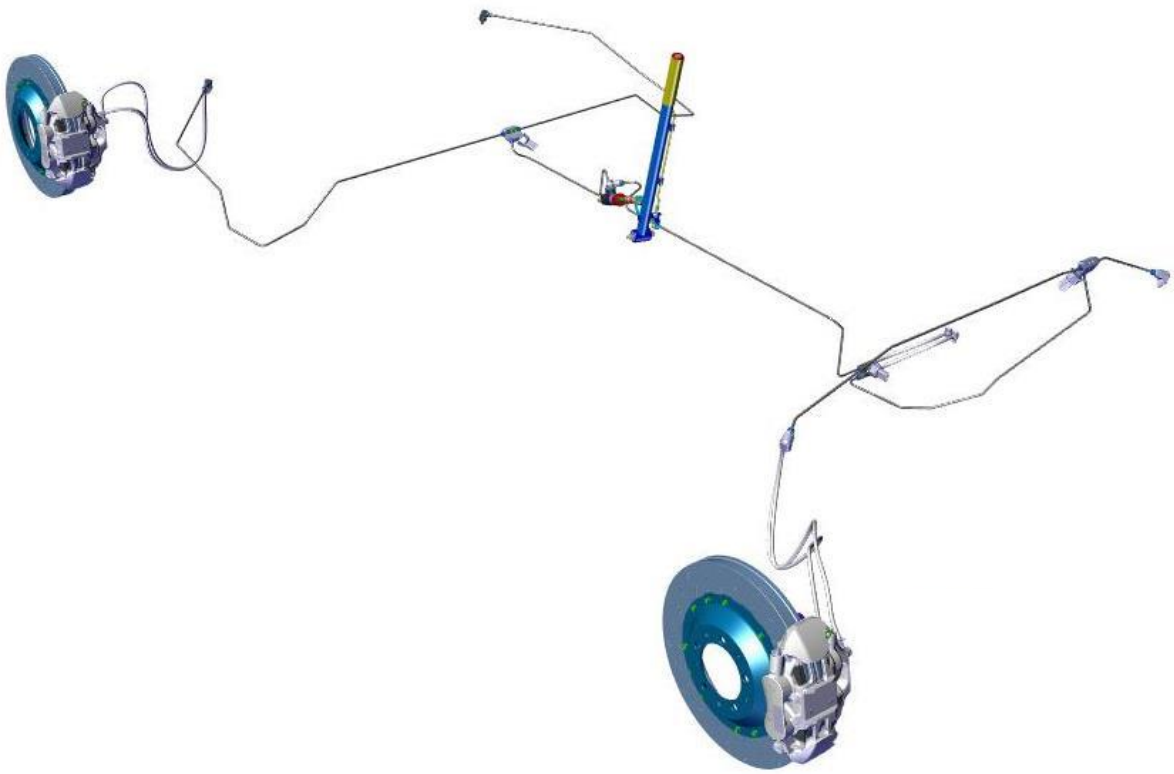
9 F00 BRAKING

C3Rally2 is fitted with Alcon callipers and disks.

Here are the main characteristics:

	Front	Rear
Calipers	38,1 / 41,3	
Brake Disks	355 x 32 (Tarmac)	
	300 x 33 (Gravel, EVO)	
Brake Pads	Endless N105SP (Tarmac)	
	Alcon JJ1 (Tarmac option)	
	Endless N103SP (Tarmac option)	
	Alcon JJ9 (Gravel)	
	Endless N35S (Gravel option)	
Brake Fluid	Brembo HTC 64 T	

9.1 PRESENTATION



The brake ratio is done through the tandem master cylinder diameters (that is the reason why there is no balance bar) or with the balance bar with the car fitted with the double brake master cylinders.

Thus, with the tandem MC, the ratio is given with the front brake pressure = 30b and rear brake pressure is at 19b (ratio = 61% Front)

With the double MC, you can set the ratio as desired. Check the setup sheets for the base value.

The use of bleeder cap is highly recommended.

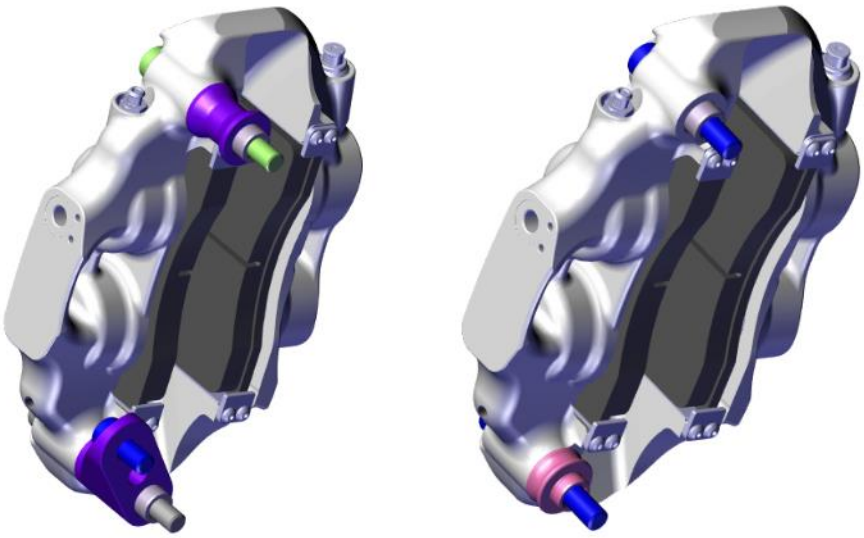
We advise you to use thermax strips on the callipers to monitor the working t° (max 210°C, if this t° is reached, the calliper should be overhauled. See mileage recommendations).

Pay attention to the cooling line to be always in good state.

9.2 TARMAC / GRAVEL SPEC

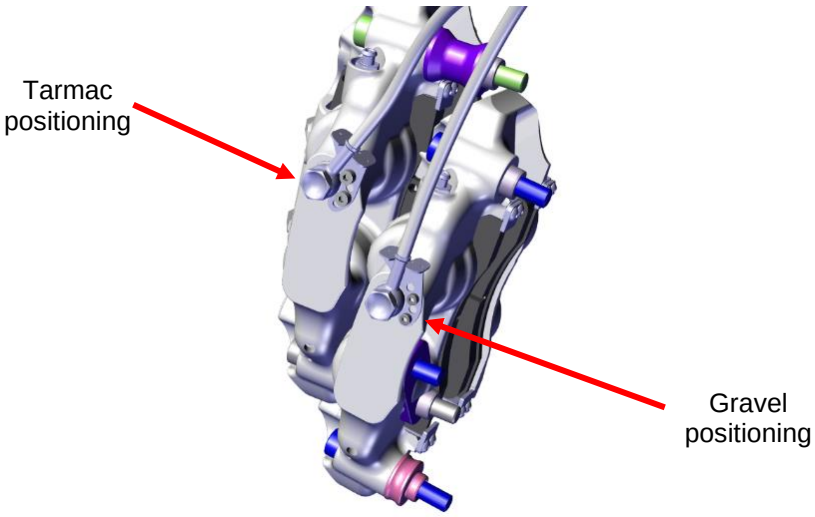
Tarmac discs are 355x32mm and gravel ones 300x33mm (disc bells, ref 904677828A are required with evo gravel discs 33mm thickness).

Callipers are the same between tarmac and gravel. Only the spacers (and bolts) are different.



Tarmac **Gravel**

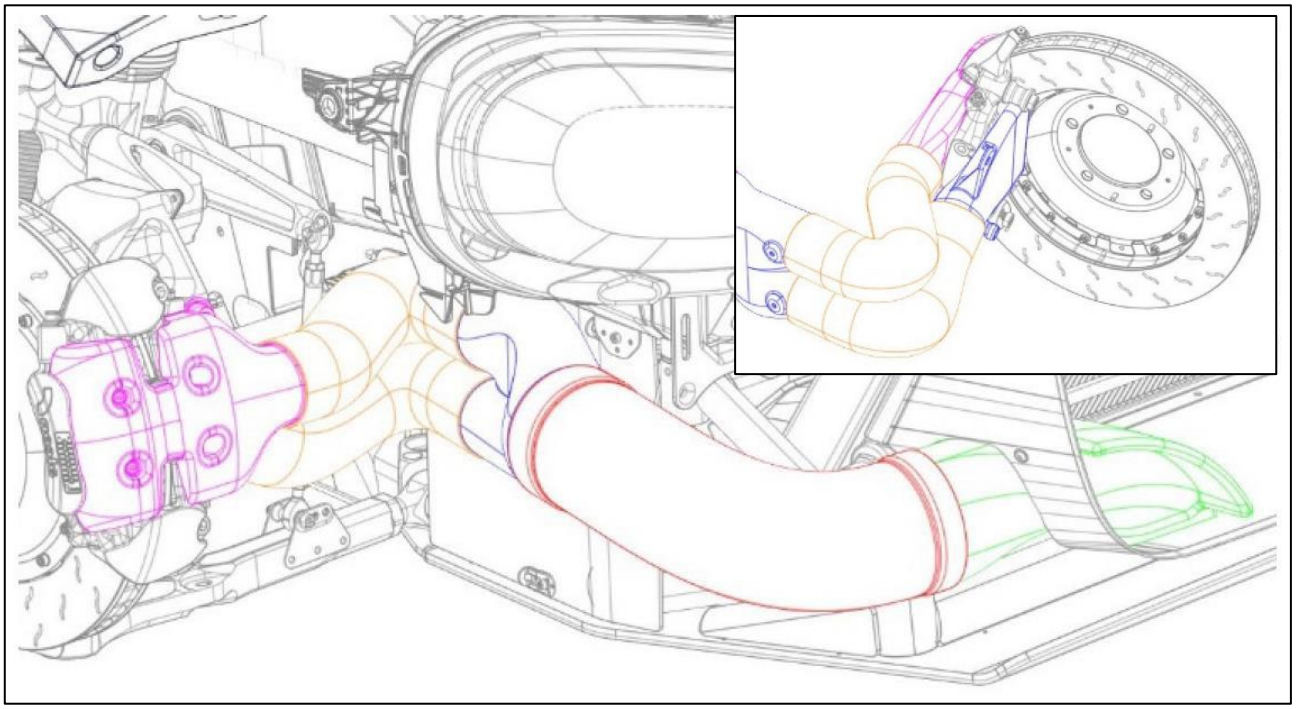
When changing from tarmac to gravel (or vice-versa), the **front** brake hoses on the callipers have to be oriented differently with the anti-rotating parts.



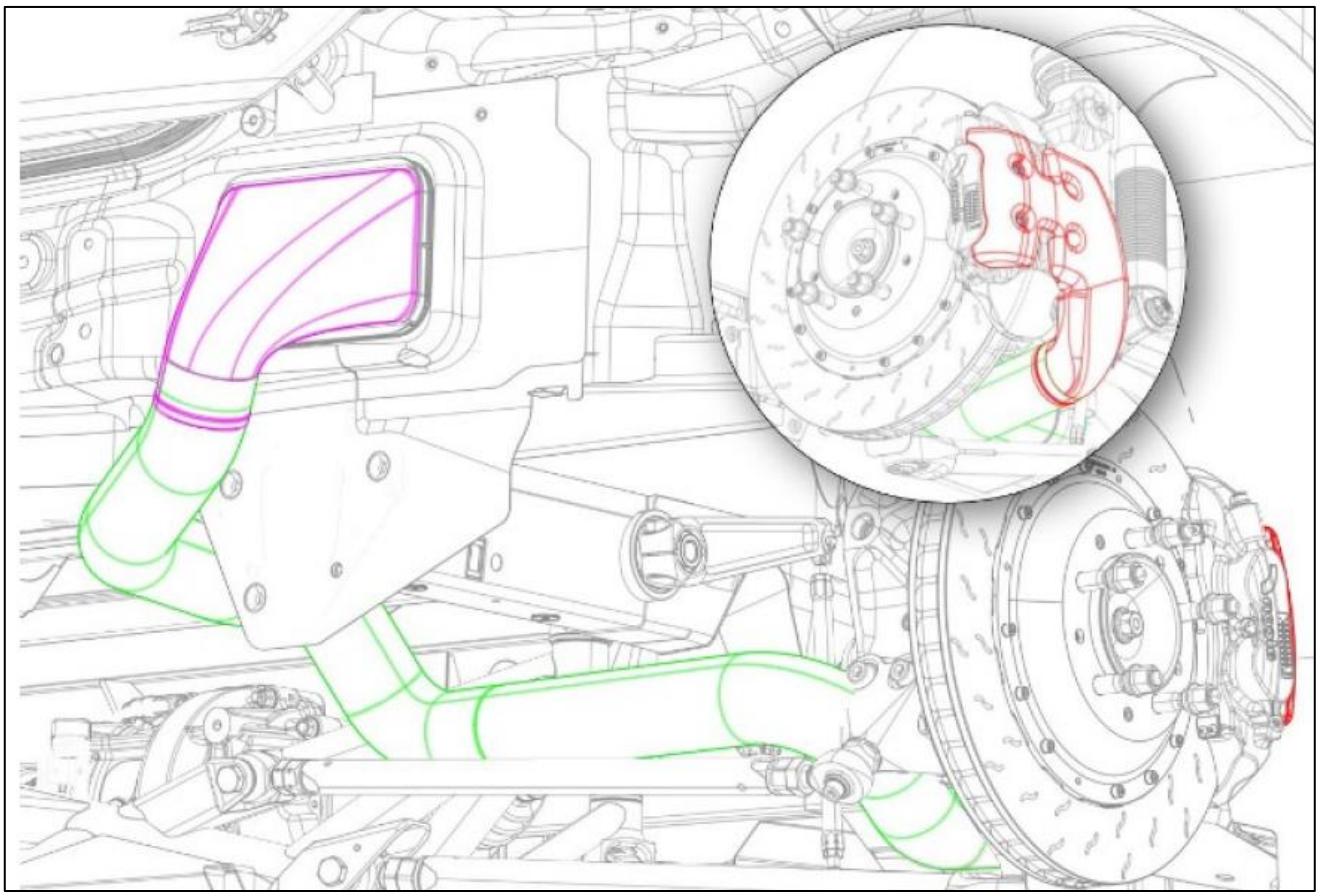
9.3 COOLING

9.3.1 Tarmac

9.3.1.1 Front

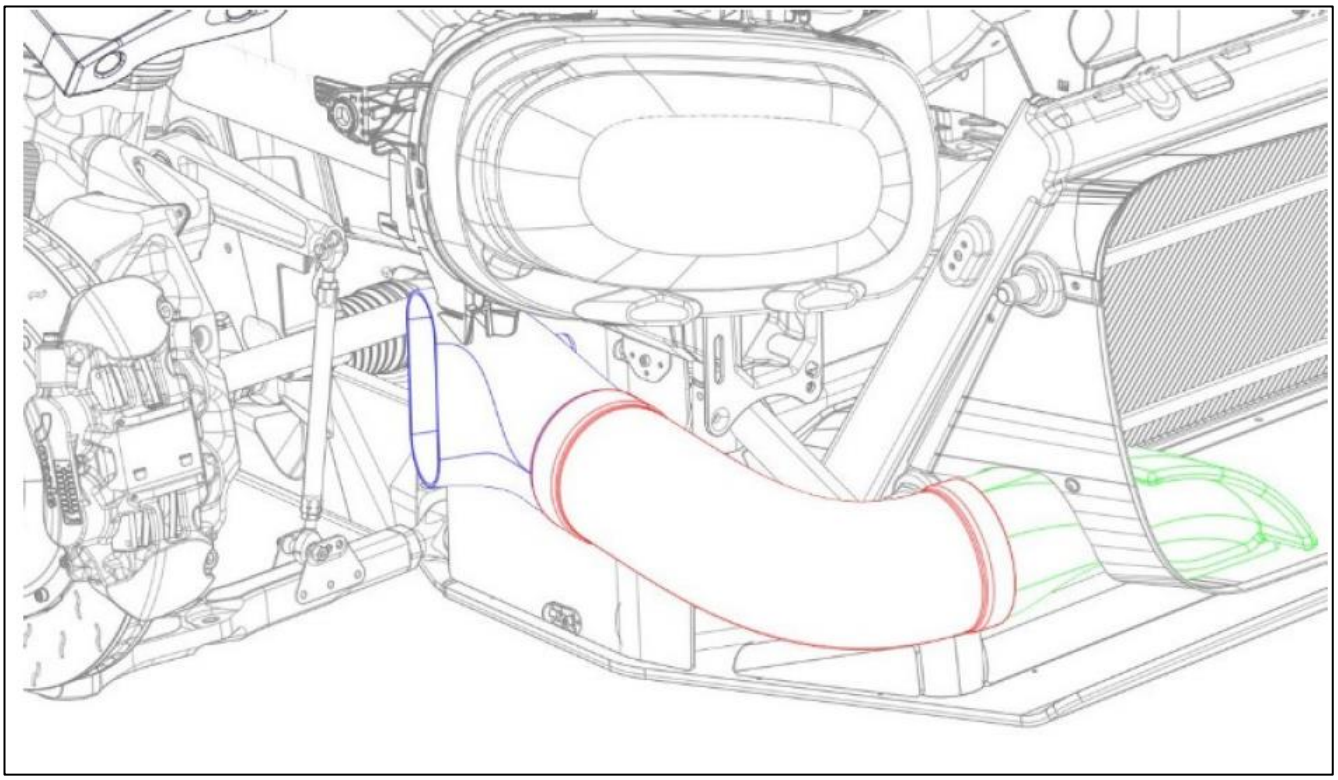


9.3.1.2 Rear

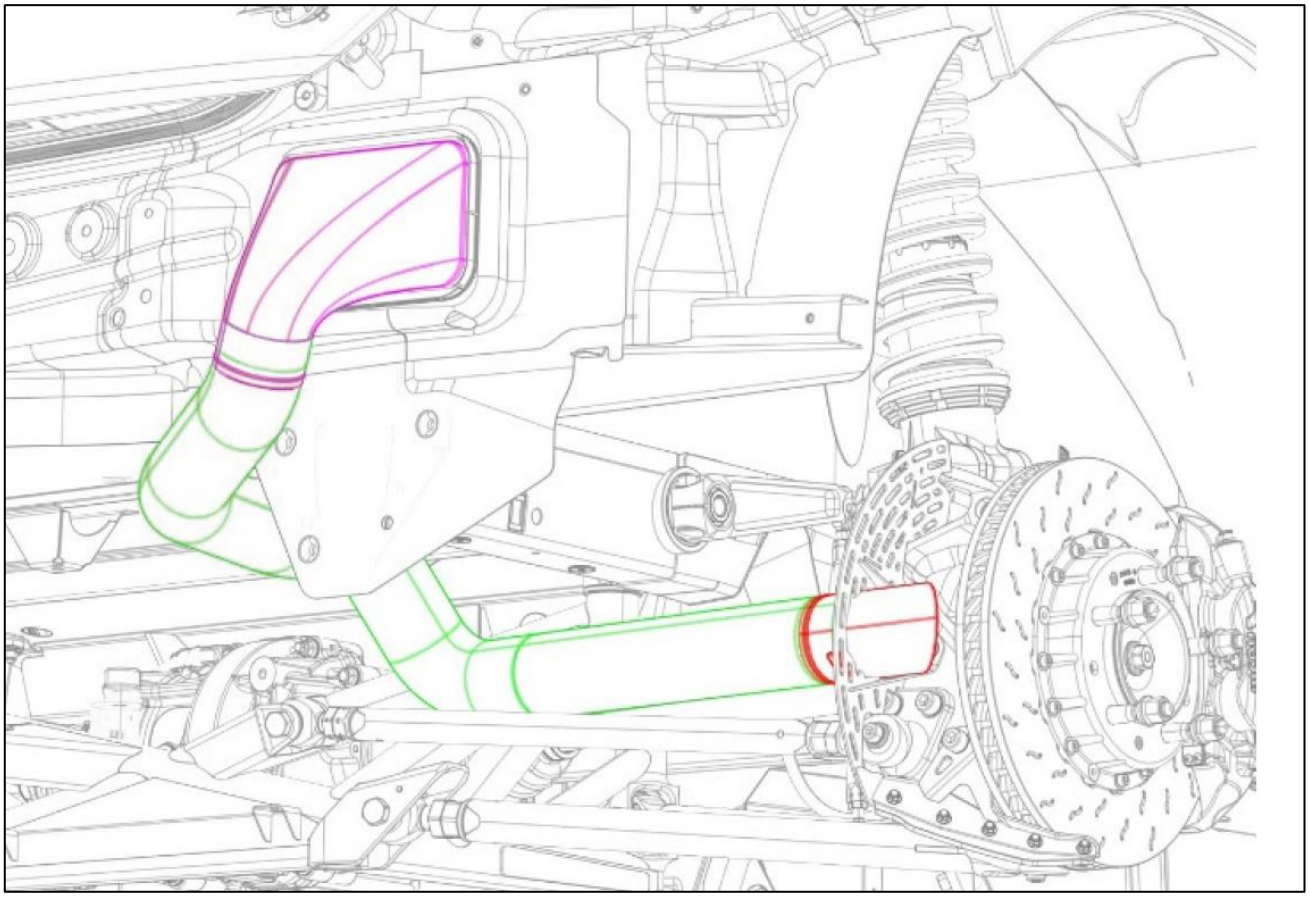


9.3.2 Gravel

9.3.2.1 Front



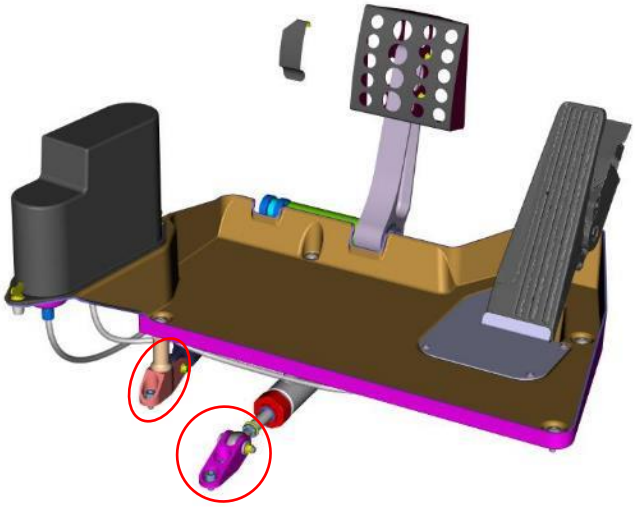
9.3.2.2 Rear

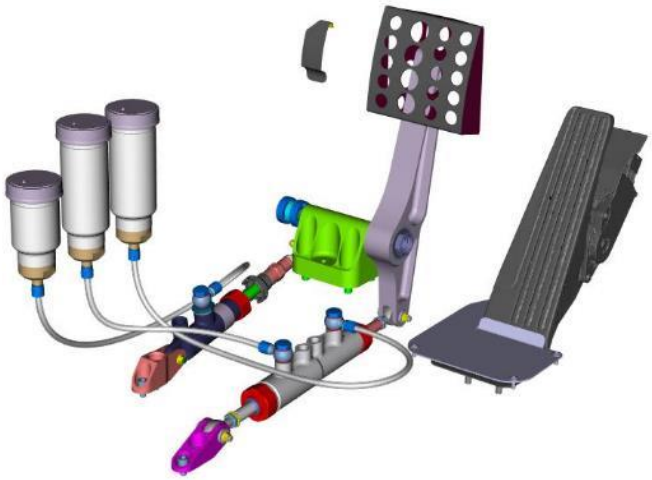


10 G00 COMMANDS

10.1 PEDAL BOX

10.1.1 Standard





There are 2 different tandem brake master cylinders to adapt to the driver effort and to the surface:

- Tarmac (recommended): 19.05 / 23.8 mm (Fr / Rr)
- Gravel (recommended): 17.8 / 22.2 mm (Fr / Rr)

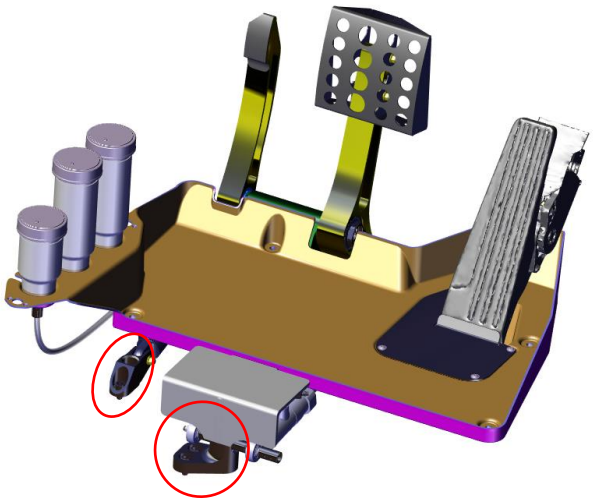
Those 2 combinations give the same brake ratio (30/19). Only the braking force and the brake pedal displacement will change.

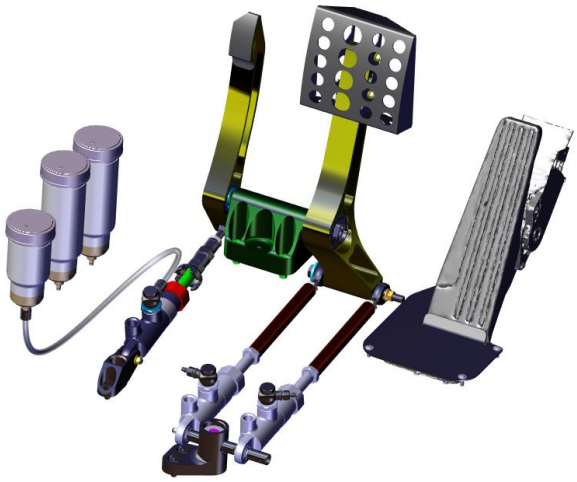
First bleeding with Dual Master Cylinder:

For the very first bleeding (when lines are empty), you need to use a shim (904491051A) to lock the rear master cylinder side to only bleed the front before. Then, remove the shim to bleed the rear side of the brake circuit.

Finish as usual by doing side by side.

10.1.2 EVO

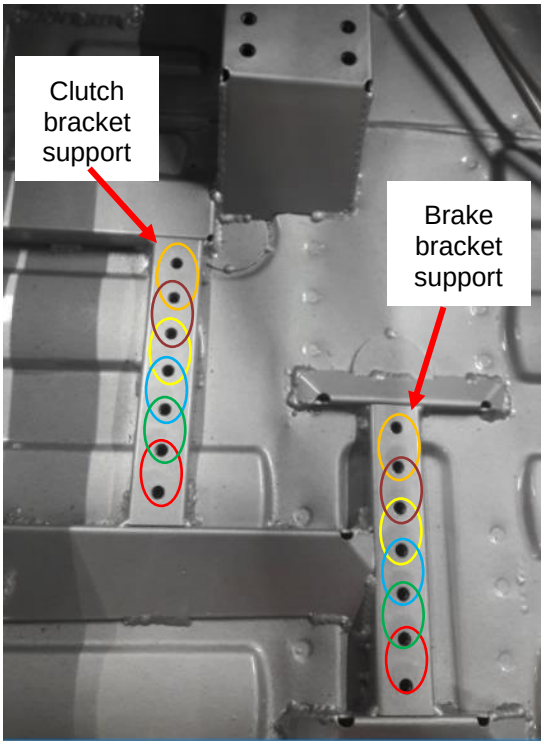




Front MC is the left one.

For both pedal boxes, the master cylinders brackets (brakes and clutch) have to be positioned at the same place on the support.

So when adjusting the pedal box position, both brackets have to be in the same circle colour as shown below.

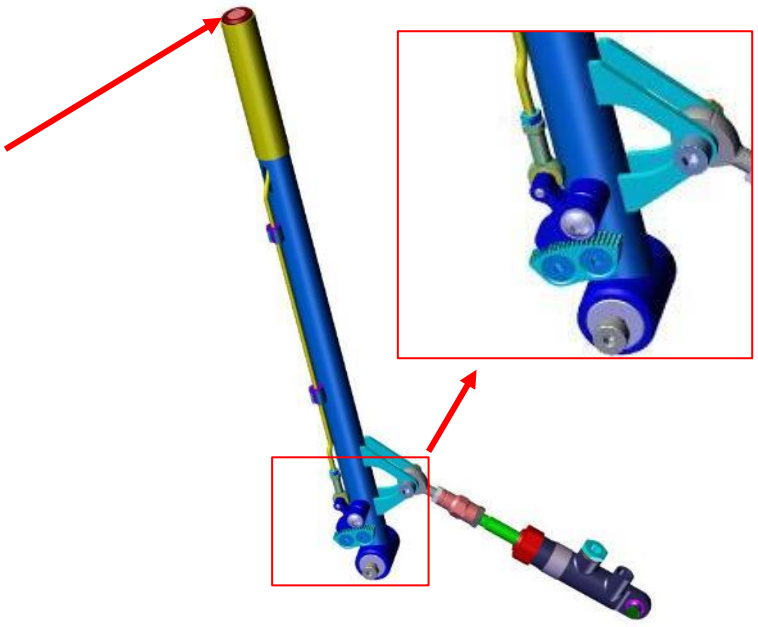


10.2 HANDBRAKE

The handbrake is equipped with a locker.

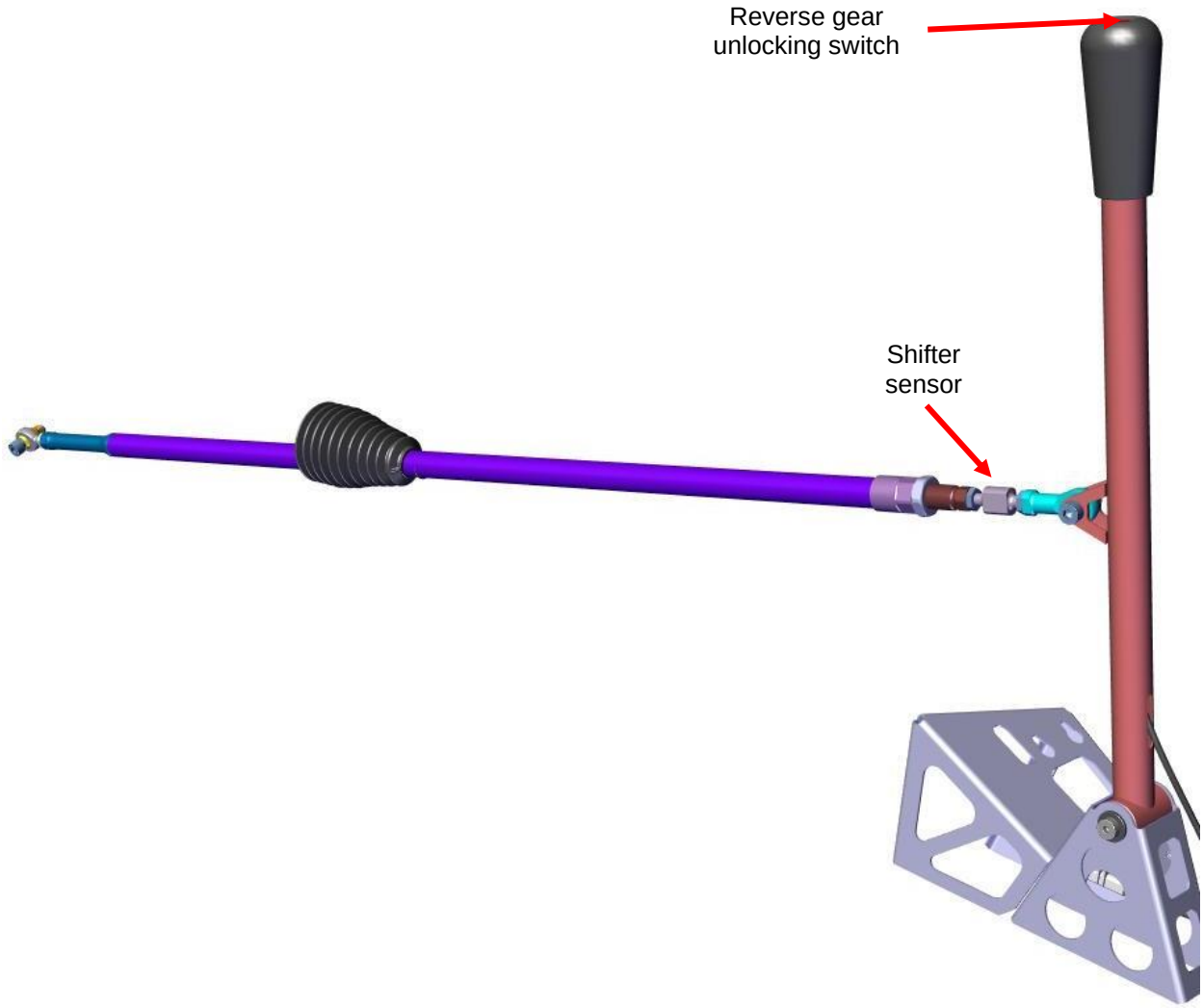
To lock it, you need to pull the handbrake then push on the red button at the top of the stick.

To unlock it, slightly pull the handbrake and the locker will automaticaly disengage.



10.3 GEARBOX ACTUATION

Pull the lever for upshift and push the lever for downshift.



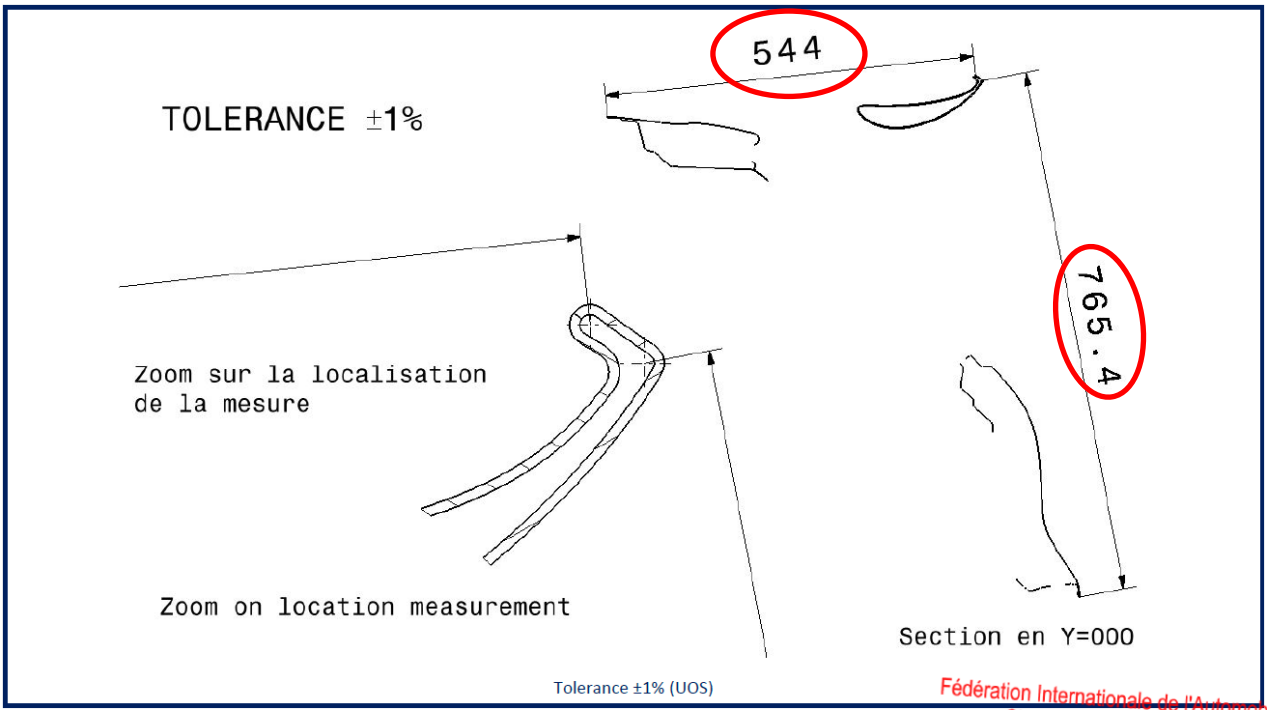
Make sure the ball joints are always in good state as well as the 2 bearings into the lever axle.

The shifter sensor is very important for the gearshift strategy so regularly check its perfect working state.

11 K00 EXTERNAL EQUIPMENT

11.1 REAR WING

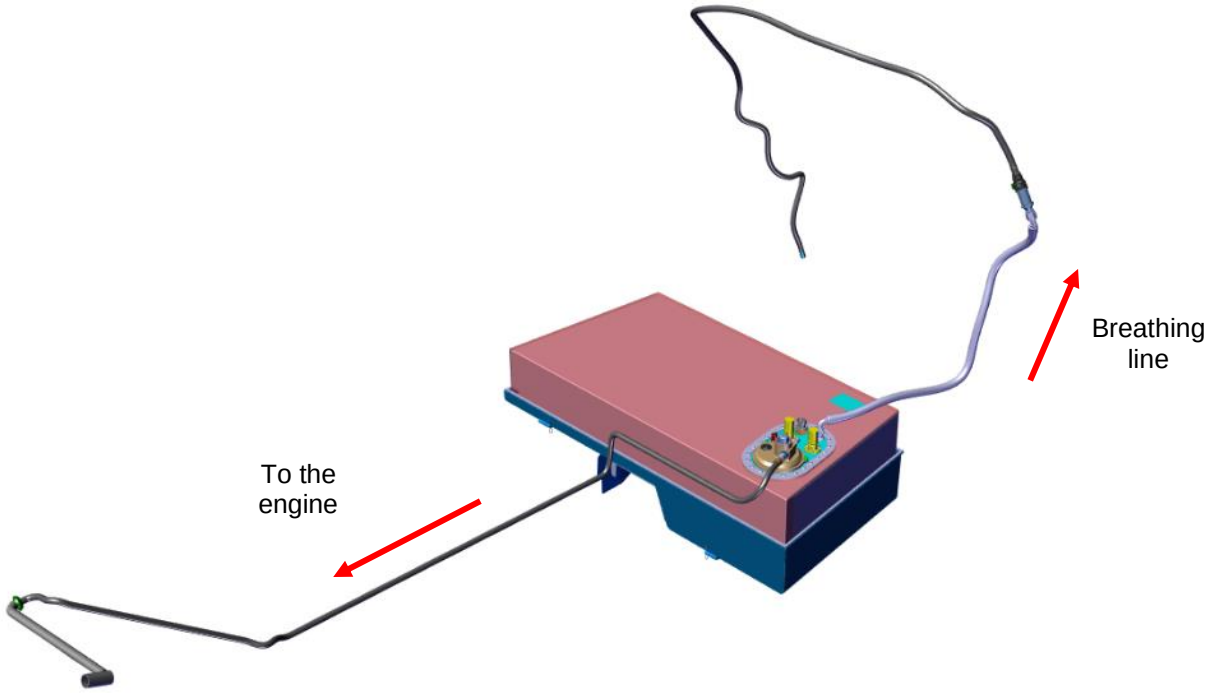
Please regularly check (even recommended during FIA event) that the rear wing is correctly positioned regarding to the FIA measurements (within the tolerance of 1%).



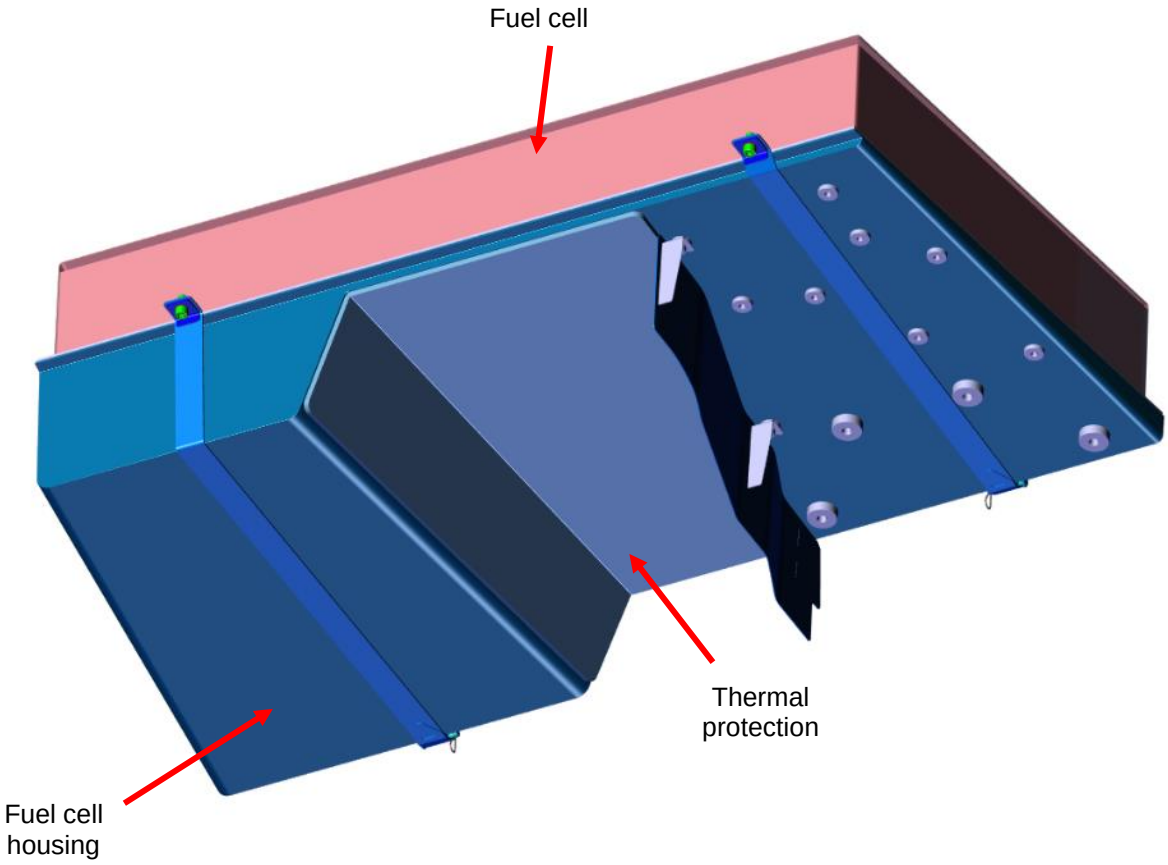
12 T00 INTERIOR EQUIPMENT

12.1 FUEL SYSTEM

12.1.1 Overall view



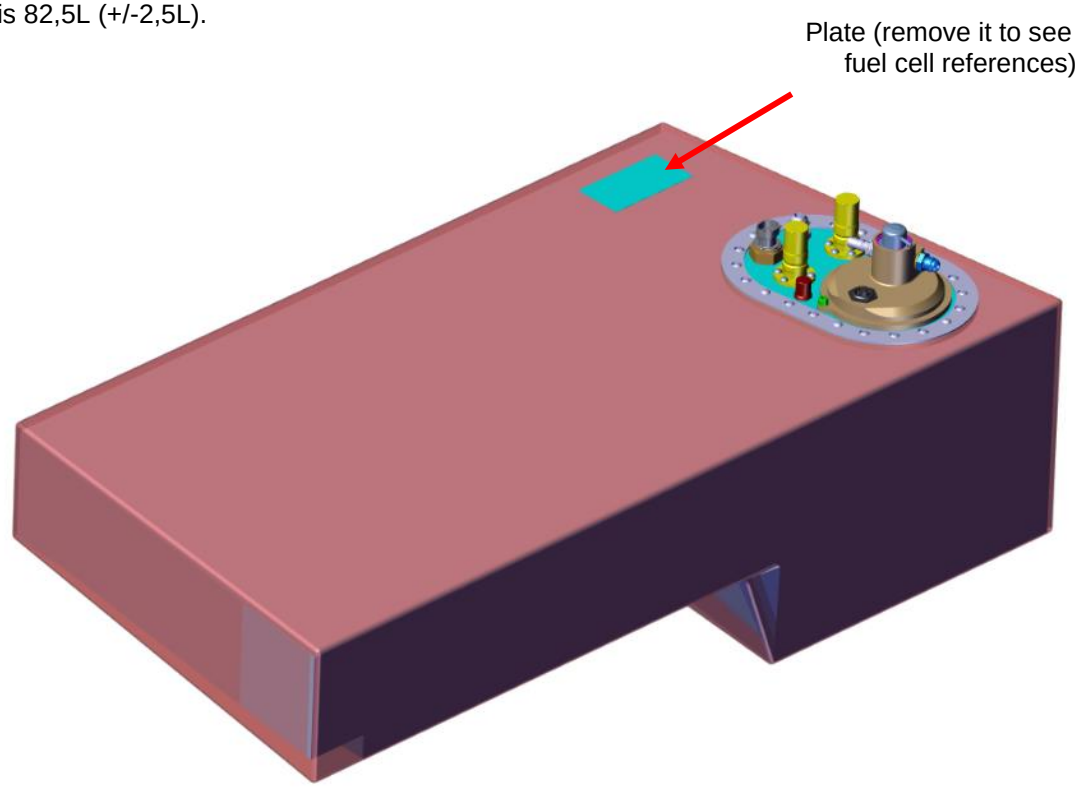
12.1.2 Housing view



12.1.3 Fuel tank

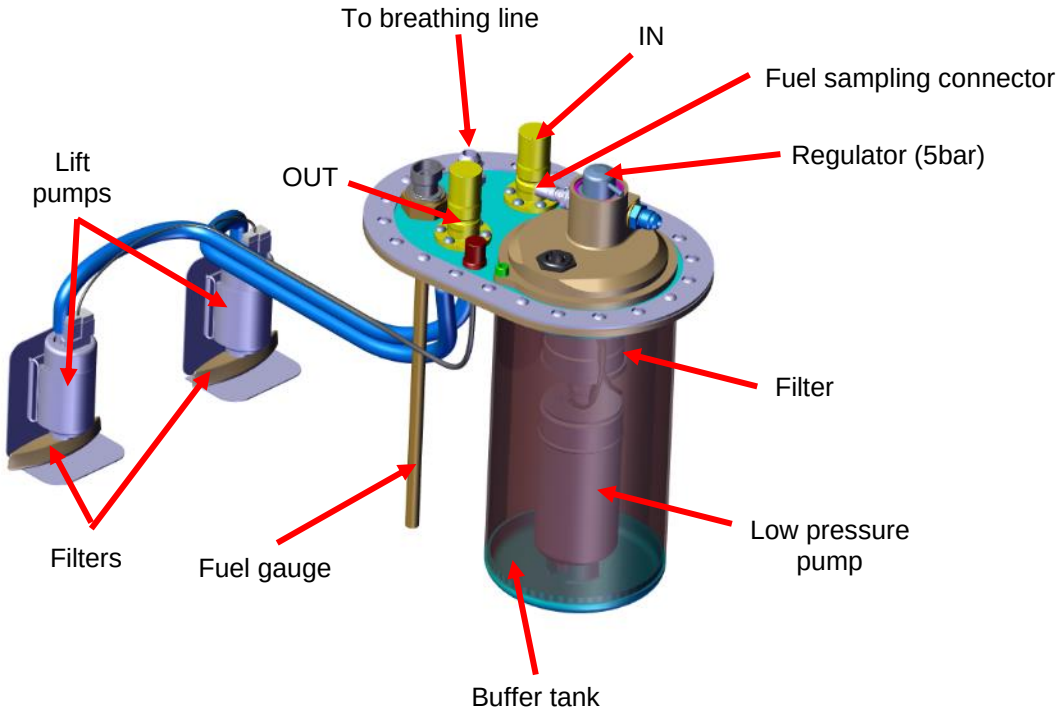
The fuel cell is FT3 homologated.

The volume is 82,5L (+/-2,5L).



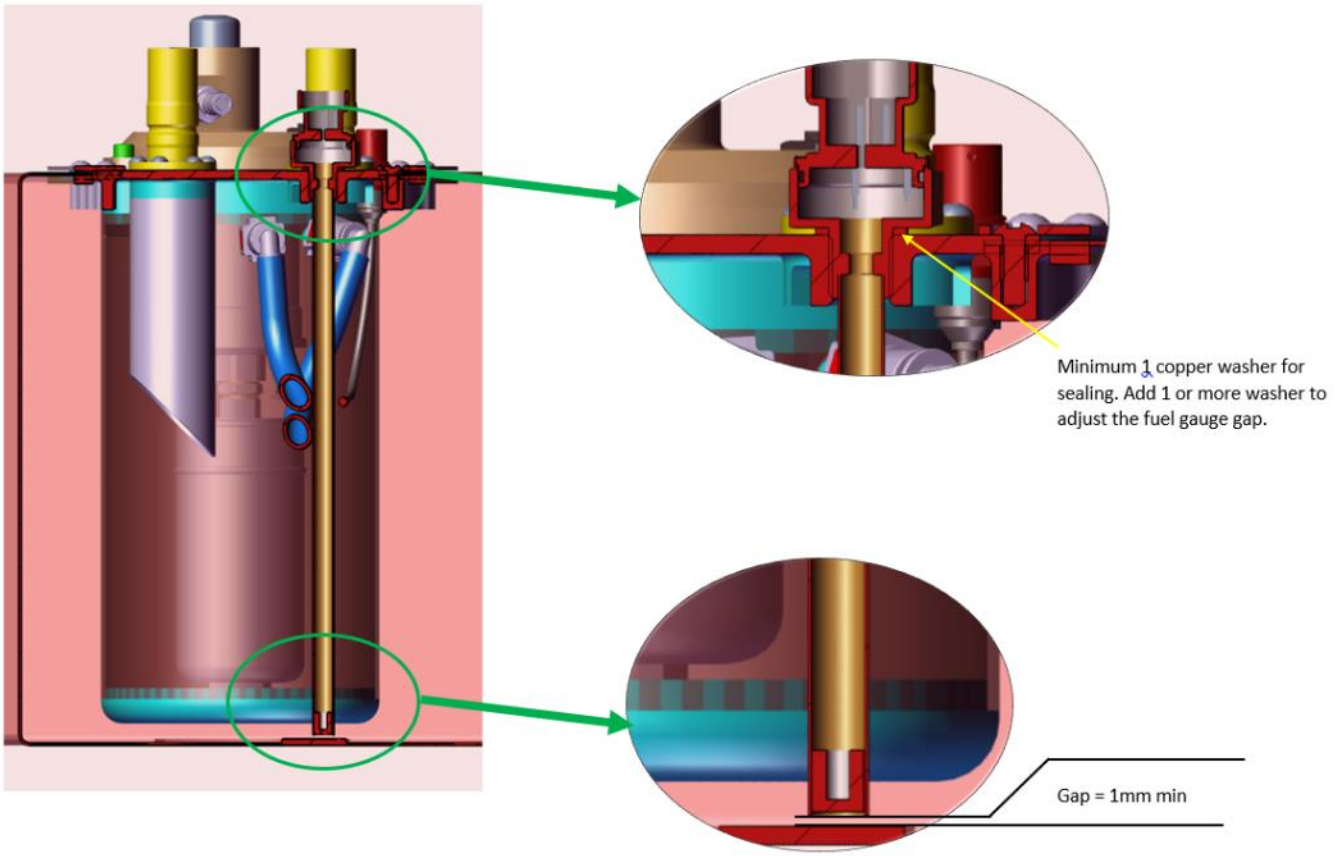
12.1.4 Fuel pumps

The feeding device consists in 2 lift pumps feeding a buffer tank (around 2,3L capacity, with pump and filter) in which a low pressure fuel pump and a filter are fitted.



12.1.5 Fuel Gauge positioning

To not hurt the fuel cell with the extremity of the fuel gauge (to avoid stamping), please follow the instruction below.

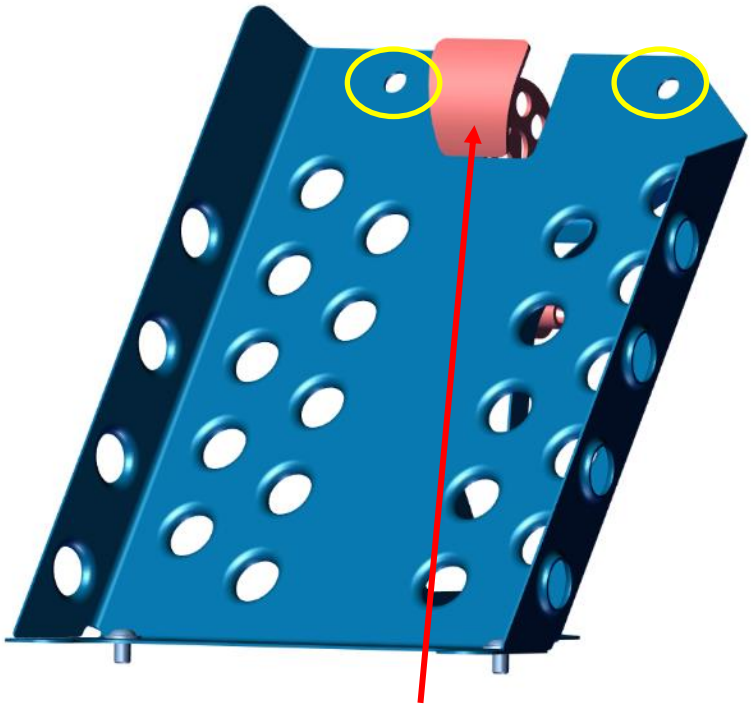


See infotech 20-08 for fuel gauge protection (to avoid hurting the fuel cell).

12.1.6 Co-Driver footrest

The co-driver footrest has 2 holes at its top:

- One for the windscreen washing switch (foreseen to connect to the chassis loom)
- The other one is free but can be used for a trip reset switch for example (foreseen to connect to the chassis loom)



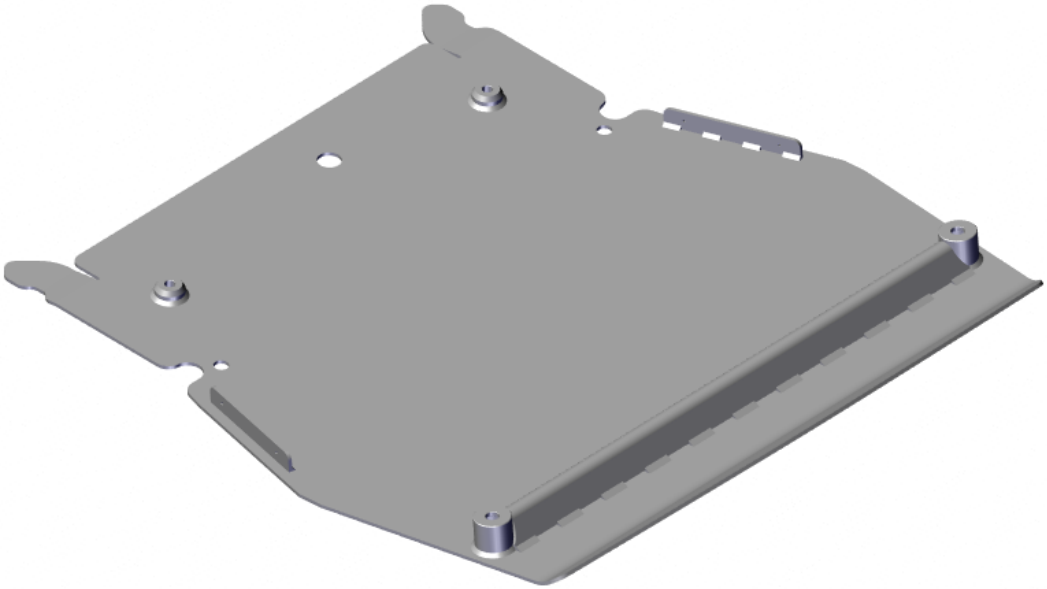
As an option for gravel, the footrest can be fitting with a watersplash pedal linked to the airbox (also to be equipped in consequence) through a cable (see infotech 19-30).

13 R00 PROTECTIONS

13.1 SUMPGUARD EVO

There are 2 models for the sumpguard evo (going with the front subframe evo, see infotech 22-06):

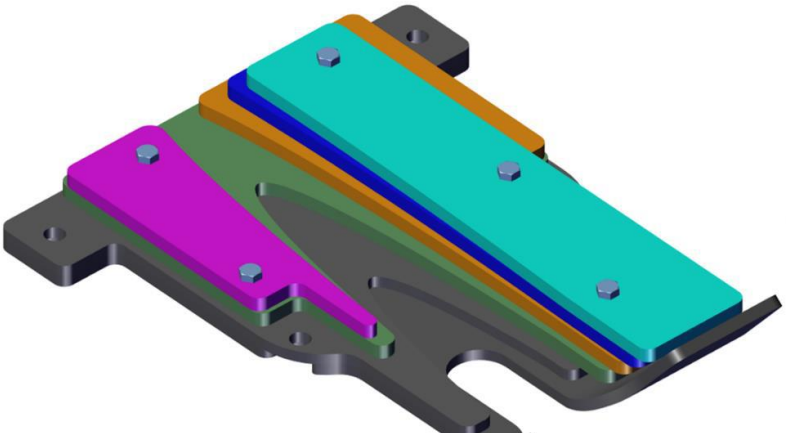
- Gravel :aluminium 8mm, 20,5 kg
- Tarmac : aluminium 5mm, 13,4 kg



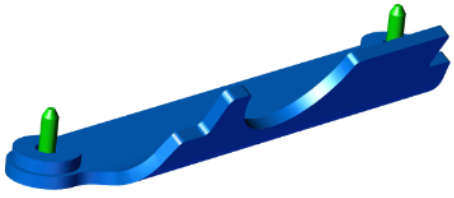
13.2 CENTRAL TUNNEL PROTECTION

2 models are available:

- Gravel: aluminium 8mm, 0.76 kg
- Tarmac: steel, 10,6kg (grey) + 13,2 adjustable ballast with 5 different plates (in color). The ballast fixing bolts have to be welded (regulation).



Tarmac tunnel protection

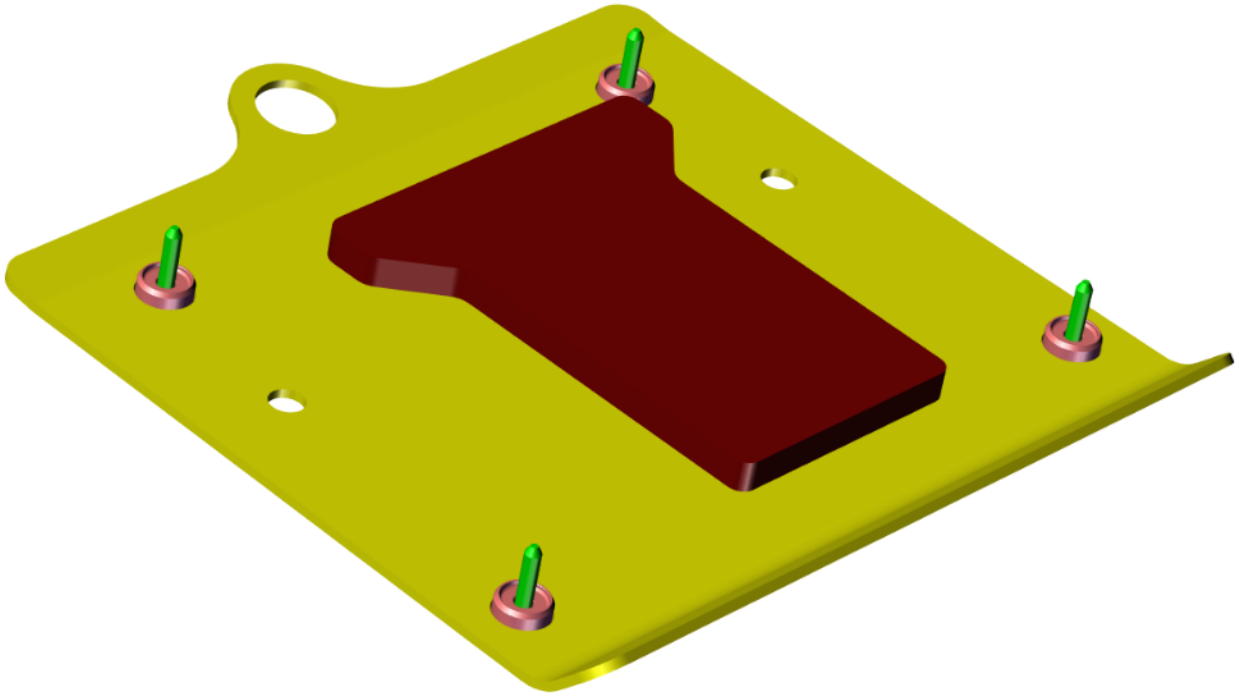


Gravel tunnel protection

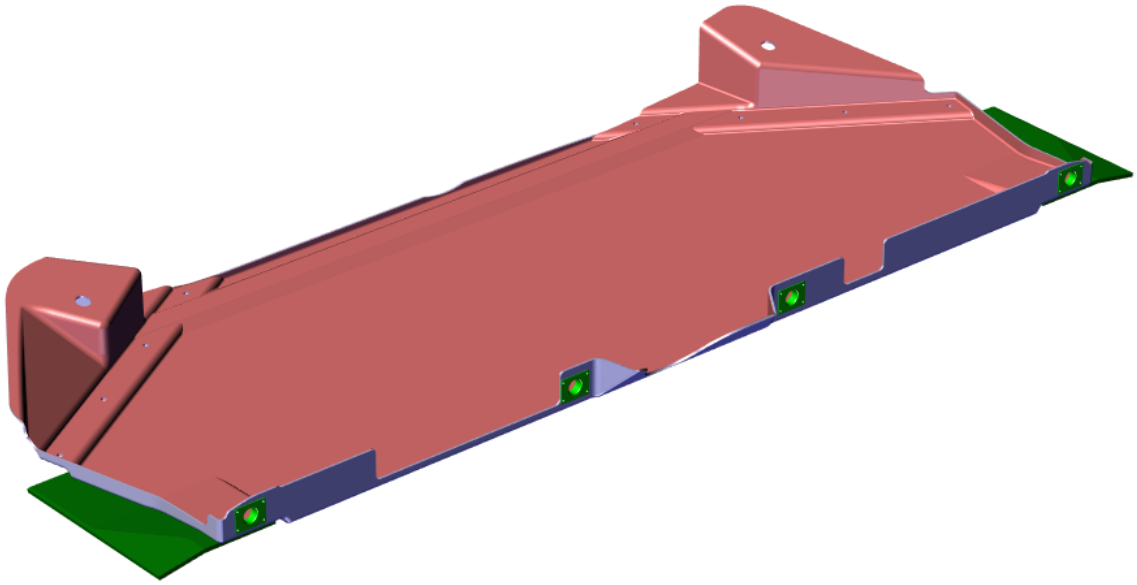
13.3 DIFF GUARD

Only one model available:

- aluminium 6mm, 4.28 kg

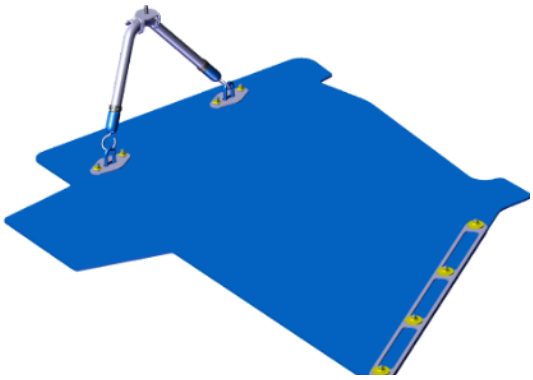


13.4 FUEL TANK PROTECTION



13.5 REAR ARM PROTECTION

2 models are available:

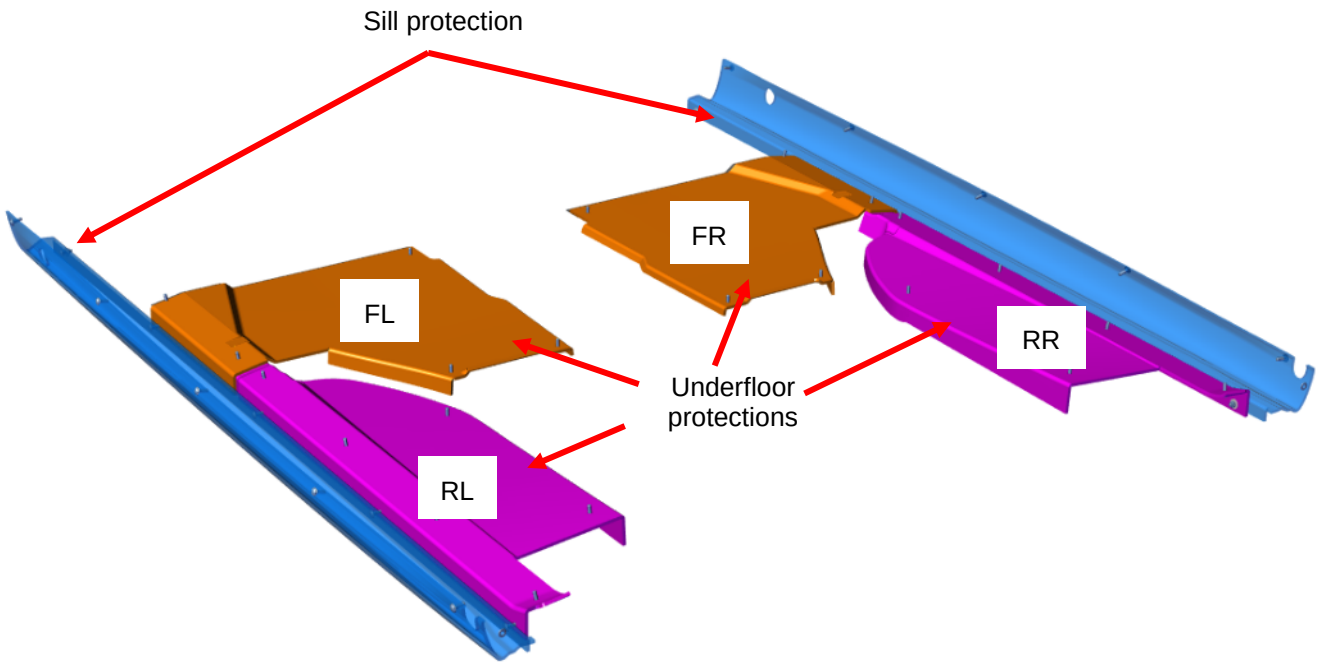


Tarmac rear arm protection
(right side)

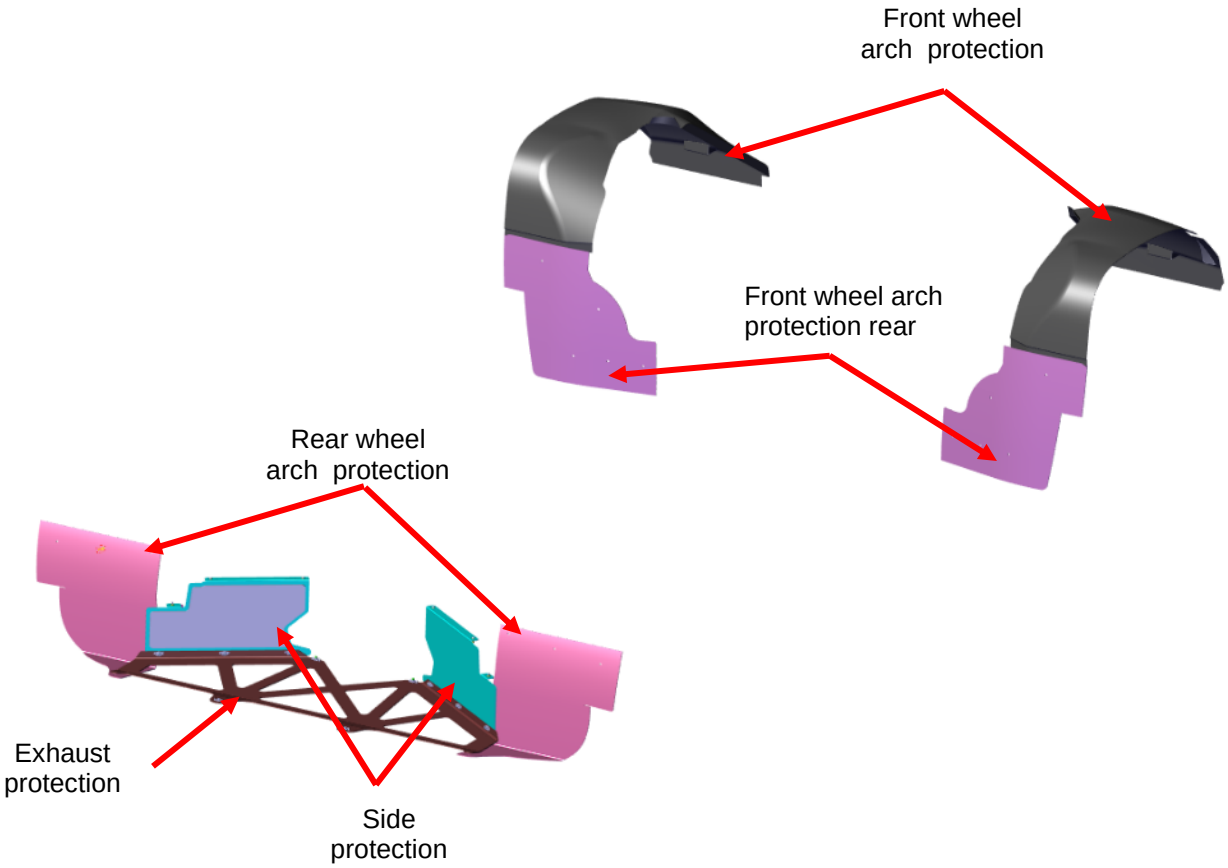
Use screw PS85633A10
and washer 904601778A
to hold the flap onto the strut

Gravel rear arm protection combined with
tarmac one (left side)

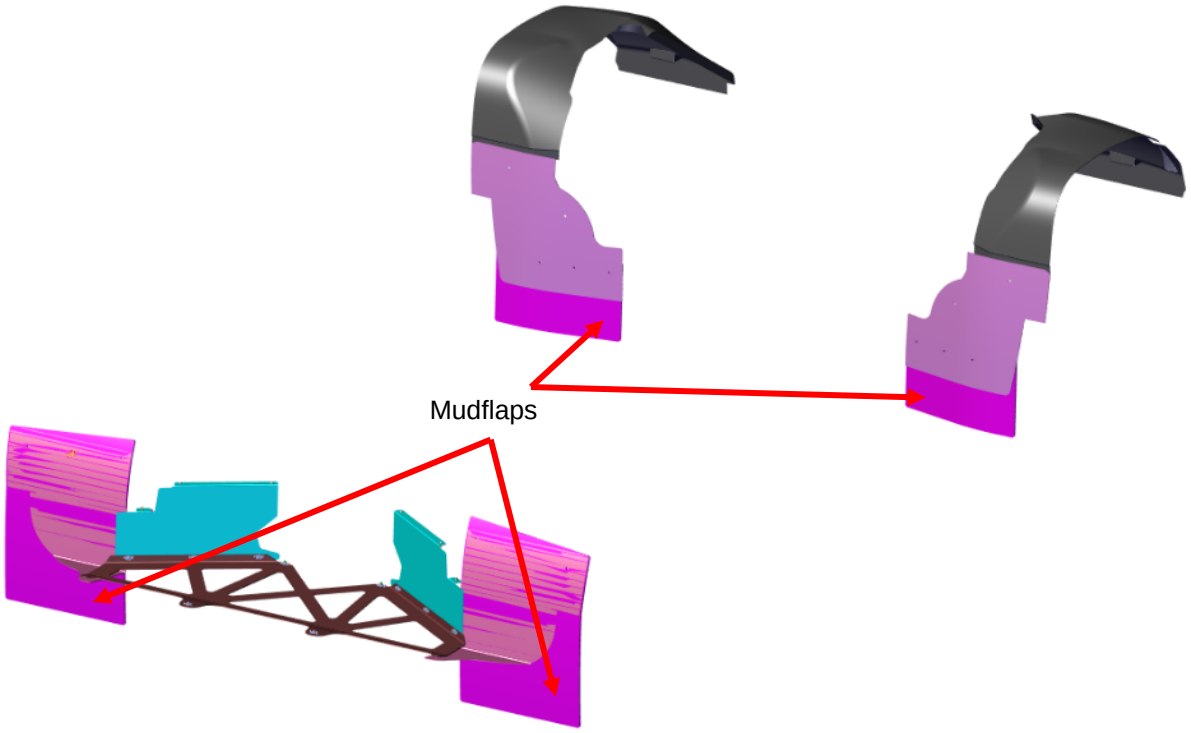
13.6 UNDERFLOOR PROTECTION



13.7 OTHER PROTECTIONS



Mudflaps for front and rear are also available.

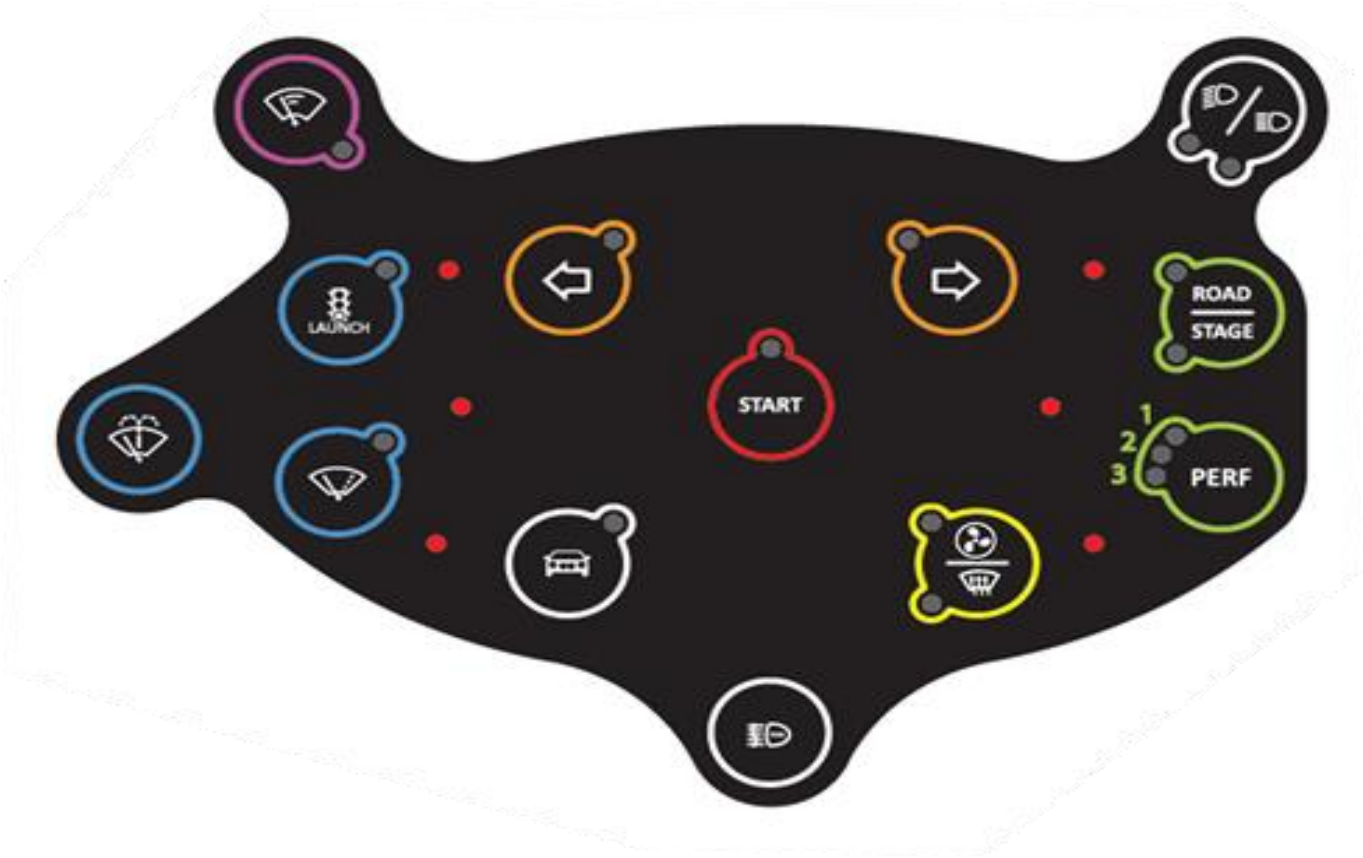


14 SYSTEM

14.1 PRESENTATION

14.1.1 Steering wheel panel (from soft config 14.2.2.22)

The main functions useful for the driver are integrated to the steering wheel panel.



14.1.1.1 Engine Start:

Engine oil pressure rising (to be done after an oil draining):

- MAIN ON
- Power OFF
- Gear in Neutral (no need to depress the clutch)
- Press HORN then START button. The starter will turn during the time you push START button. (max for 3s but you can do several starter activations)
- When pOil reached 1,5bar, you can then start the engine

Engine start:

- MAIN ON
- Power ON
- Gear in Neutral (no need to depress the clutch)
- Short push on START button (starter will turn for 5s maximum)

Since software 14.2.2.53, engine will start when the oil pressure target is reached (see infotech 23-01).

So, no need anymore to prime engine oil after a ''long'' stop period.

14.1.1.2 Launch Procedure (for software 14.2.2.53, see infotech 23-01):

A launch procedure is available on C3R5. This allow the best engine efficiency for the start.

To activate it, please follow the steps below :

- Car speed at 0 kph
- Engine map chosen e)
- Select launch rev by pressing the Launch button when in road mode (7300, 700 & 6500 rpm in tarmac mode and 6500, 6000 & 5500rpm in gravel mode)
- Handbrake pressure > 7bar and select STAGE at -30s,
- Push LAUNCH button at -20s (this will activate the water fan)

→ The orange LED blinks to indicate the procedure is active

- 1st gear at -10s
- 4s before the start → Full Throttle.
  - Launch green LED goes continuously green when conditions are met
  - ''LAUNCH OK '' is displayed at the dashboard when engine is ready

- For starting: release the handbrake and manage the clutch while staying full throttle.

14.1.1.3 Engine Mapping:

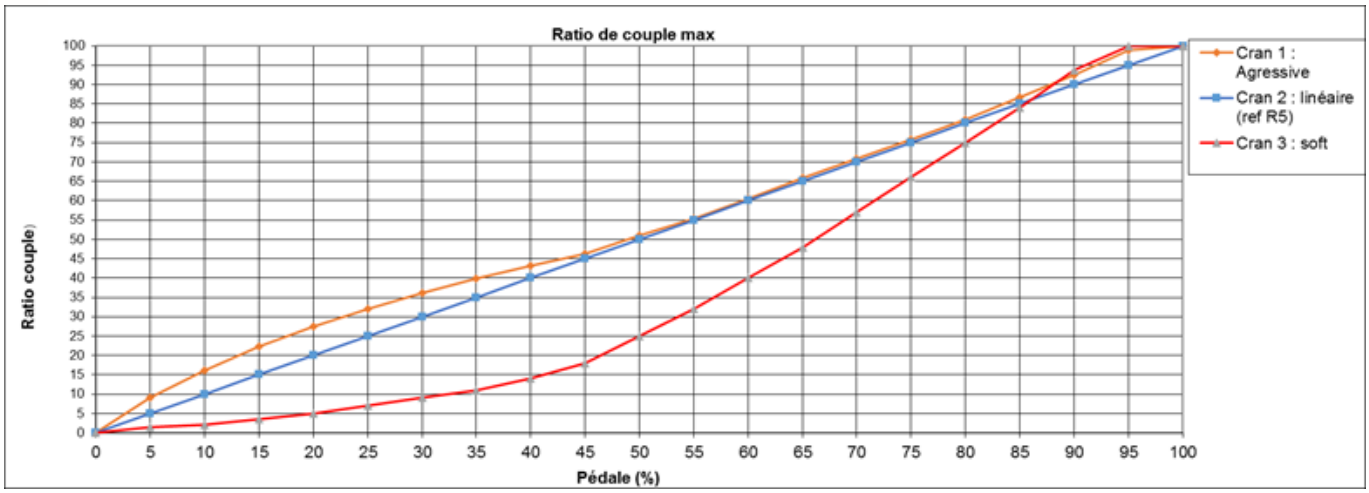
ROAD: Limited torque, no ALS, no boost

STAGE: boost ON, full power/torque

1: pedal law aggressive (in orange)

2: pedal law linear (in blue)

3: soft pedal law (in red)



14.1.1.4 Wipers:

Windscreen water spray activation during the push button followed by 5s of wipers.

Short push = one wipers movement

Long push (1s) = active/deactivate intermittent wipers

Short push (activated when button is released) to active/deactivate wipers (max speed)

14.1.1.5 Lights:

As soon as the engine is ON, Day light are automatically switched ON.

Power ON + long push to switch on low beam. The corresponding LED switches on

Short push to swap between low beam and high beam. The corresponding LED switches on

It also switches ON bonnet lights when fitted and if the extralights button is pushed

Long push to switch OFF the lights. The LED is switched OFF.

NB : the DRL are automatically switched OFF in stage with soft 14.2.2.22

14.1.1.6 Internal blower / Heated winscreen:

Short push : If Power is ON -> internal blower is activated

Long push : If Power is ON -> heated windscreen is activated (if engine is ON)

It takes some time for the heated windscreen to be efficient so think about it before the start of the stage if necessary.

MAIN ON & POWER OFF + Long push -> all fans (coolant, rear diff, internal blower) are forced ON.

There is a timeout of 5s after engine stall. So, if the engine is stopped for more than 5s, the heater must be switched on again after engine restart.

14.1.1.7 Indicators:

One push = 10s blinking

Push once the same to deactivate

Short Push on both for hazard lights

14.1.1.8 Bonnet lights

Used to switch ON bonnet lights. The final activation of bonnet lights is done through the steering wheel panel with the light button (easier for the driver to switch ON/OFF in case of fog for example)

Main ON + POWER OFF + long push = all lights ON included extra lights (for check)

14.1.1.9 Corner lights / Anti-fog light:

For corner lights and rear antifog lights

Main ON + POWER OFF + long push = PEAL is activated to unlock front axle to the rear axle to help workshop manoeuvres.

14.1.2 Dashboard MPDU Magneti Marelli

The dashboard has several functions:

- Display useful informations through 2 modes
- Shows LED alarms/warning
- Fuel consumption reset
- Steering wheel sensor reset
- Brightness management

NB: shiftlights LED at the top of the unit are not used

Ensure the grommet at the back of the unit (MPDU Magneti Marelli) is always correctly placed.

NOTE : since may 2023, there are 2 clx files, one for the MPDU and one for the Tremondi, available in the Sysma project.
So in case of a MPDU dashboard, use the highlighted clx below.

14.1.2.1 Dashboard buttons

1 – Fuel Reset (long push):

Conso value is set to 0 and Level ECU at 399.

2 – Brightness:

In day mode (low beam and high beam are OFF), each push decreases brightness.

It automatically swaps to night mode when low or high beam are switched ON.

A push swaps to day mode and vice/versa.

A long push will reset the Stage Distance value

3 – Steering wheel sensor reset (2 x long push)

4 – Pages change

Short push to change page into the same mode

Long push to swap between modes

Any buttons can be used to acknowledge a message or alarm.

14.1.2.2 Shiftlights & LED alarms

Shiftlights:

- The shiftlights at the top of the dashboard are not used. Instead of that, the background of the gear ratio lights yellow when the optimum rpm is approaching and turns to green (all dashboard background) when it's time to upshift

- Upshift rev (yellow and green background) by default

  - N : **3000** / **3300**
  - 1st : **5775** / **6175**
  - 2nd : **5600** / **6000**
  - 3rd : **5500** / **5800**
  - 4th : **5450** / **5650**
  - 5th : **8000** / **8000**

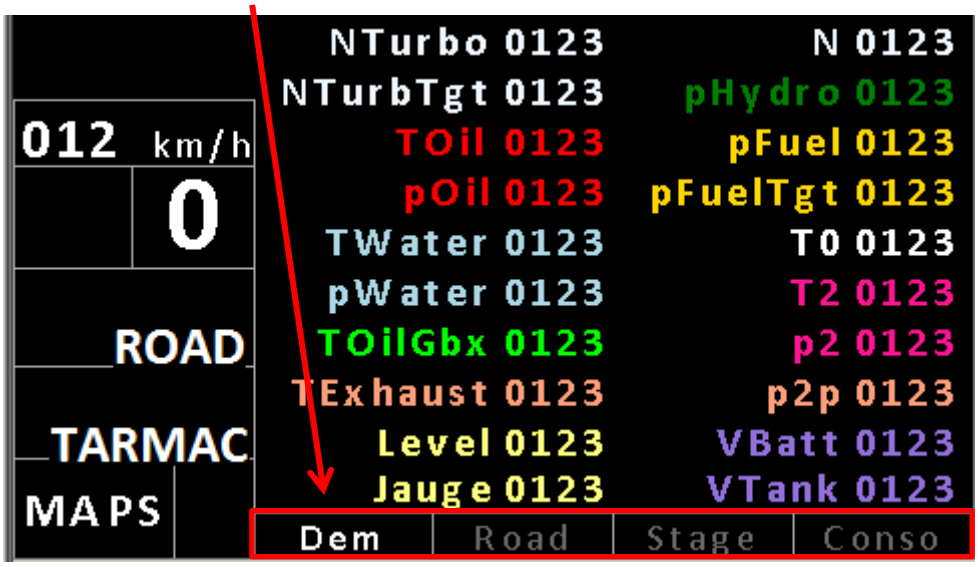
LED Alarms:

See alarms in §14.1.2.5

14.1.2.3 '' Driver '' mode

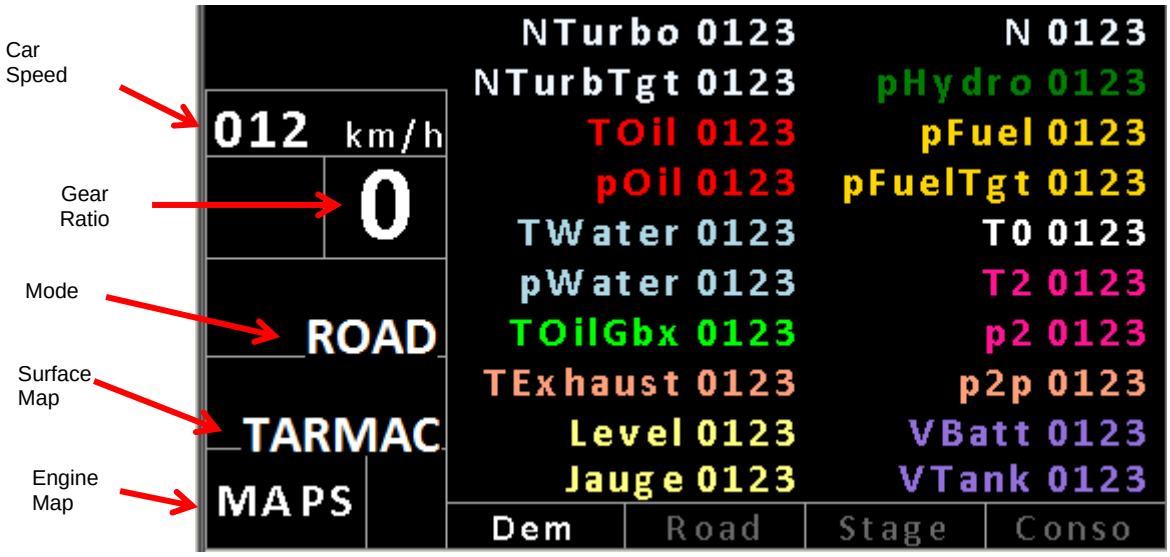
The driver mode is composed from 4 pages: Dem / ROAD / STAGE / CONSO.

The page name is highlighted at the bottom of the screen.

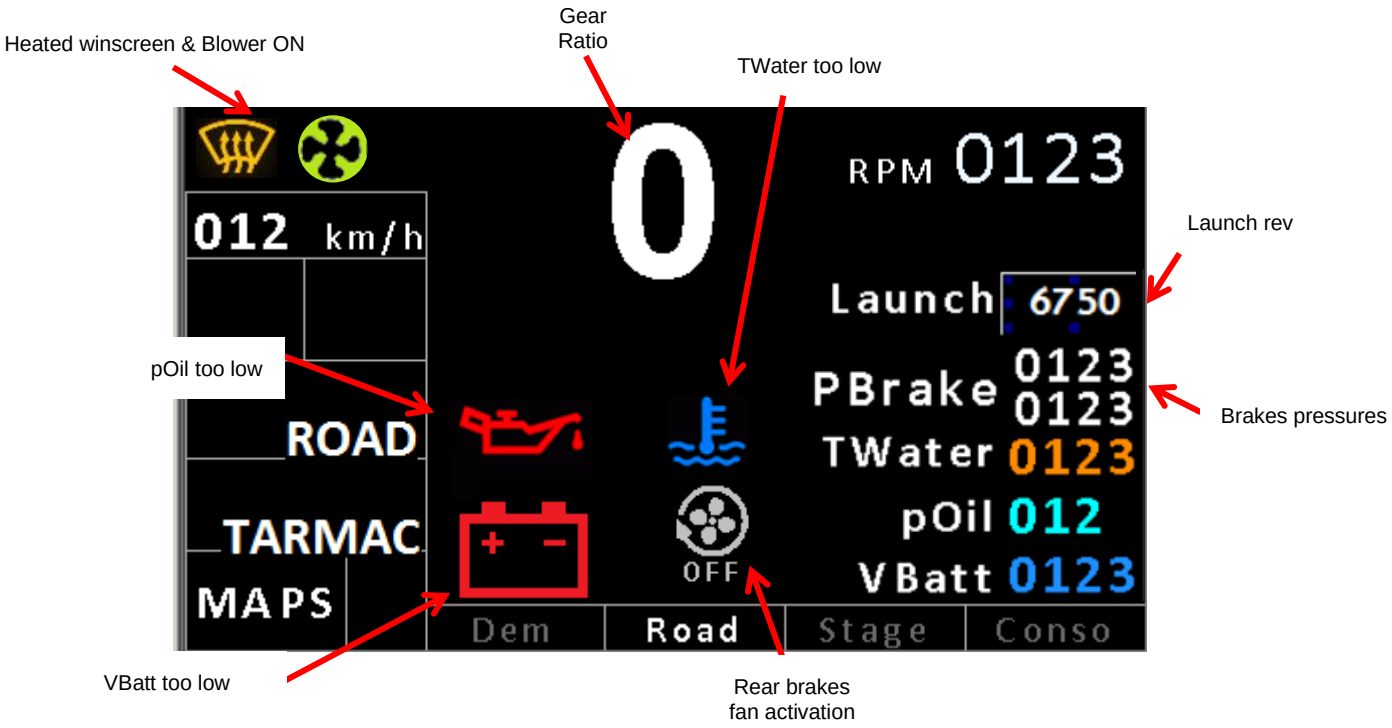


It automatically swaps to the Stage page when the boost is activated.

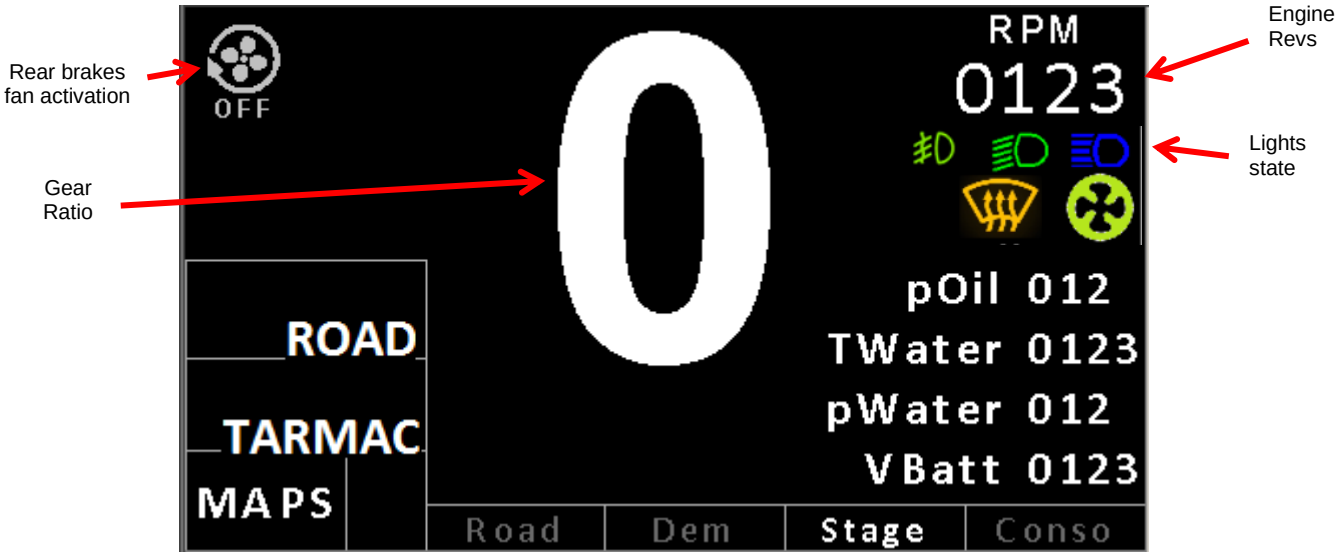
Page1 : Dem (= Start)



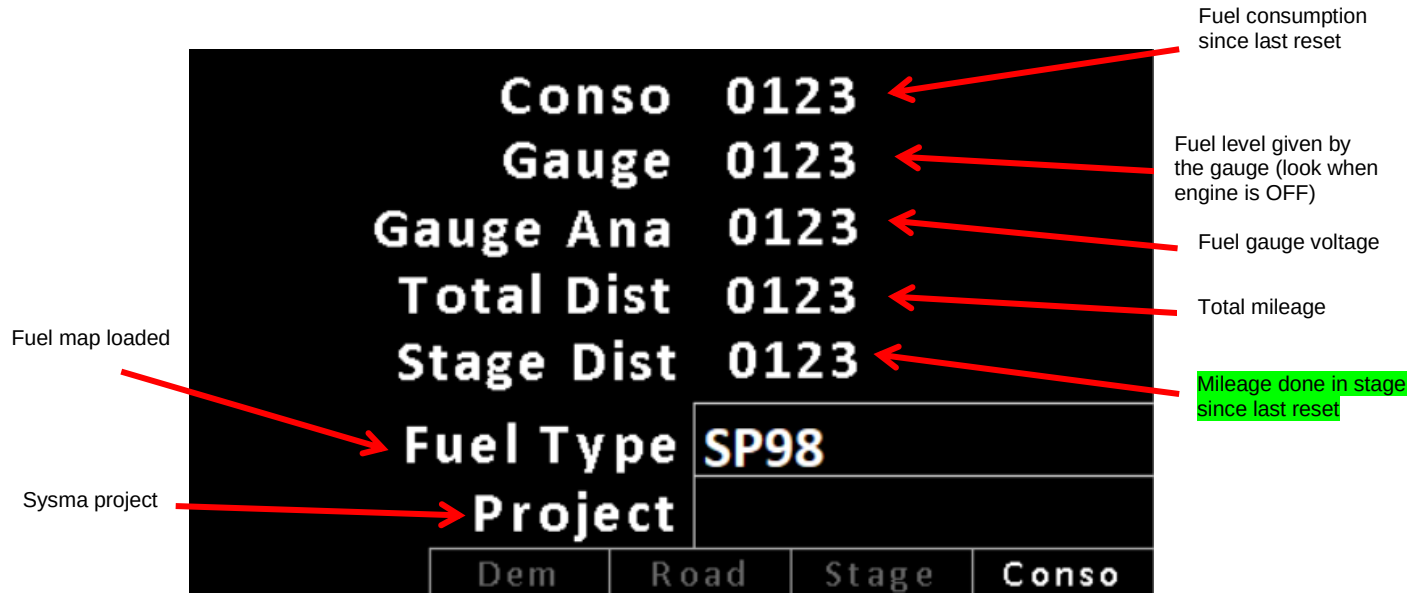
Page2 : ROAD



Page3 : STAGE



Page4 : CONSO



Parameters description:

NTurbo	Turbo RPM
NTurbTgt	Turbo RPM Target
TOil	Engine oil t°
pOil	Engine oil pressure
TWater	Coolant t°
pWater	Coolant circuit pressure
TOilGbx	Gearbox oil t°
TExhaust	Exhaust t°
Level	Fuel level calculated by ECU
Jauge	Fuel level given by the gauge

N	Engine RPM
pHydro	PEAL hydraulic pressure
pFuel	Fuel high pressure
pFuelTgt	Fuel high pressure target
T0	Ambient t°
T2	Intake air t°
P2	Intake air pressure
P2p	Boost pressure
VBatt	Battery voltage
VTank	Injectors voltage supply

14.1.2.4 ‘’Mechanic’’ mode

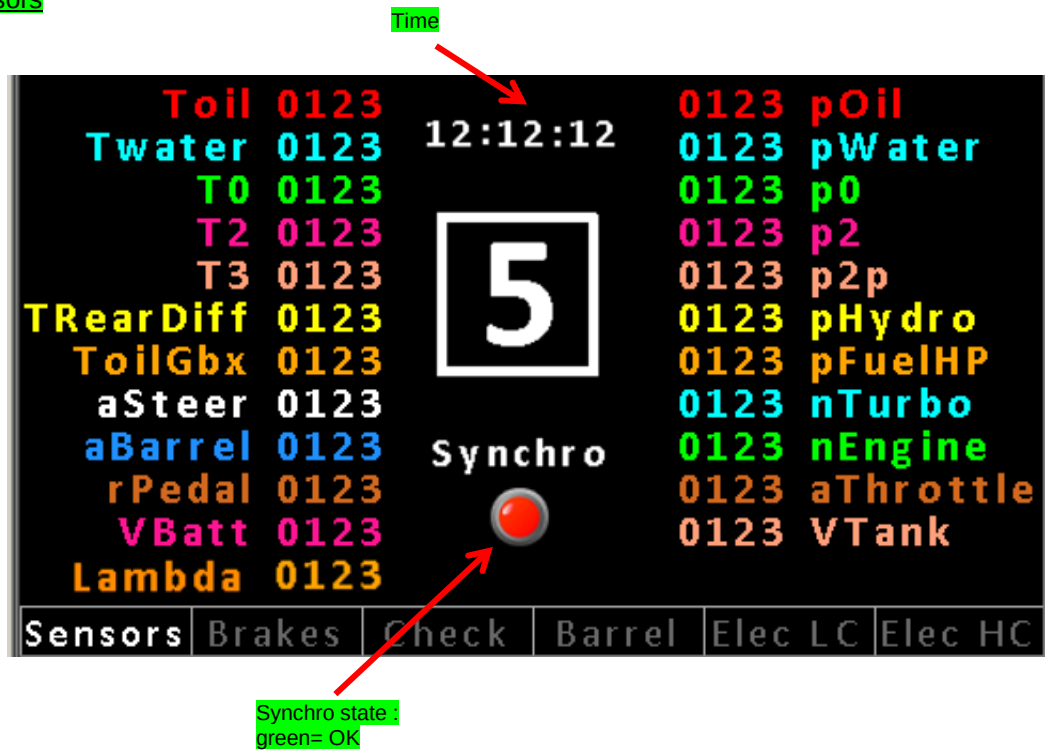
The ‘’Mechanic’’ mode is composed from 6 pages for diagnostic and one for the Alarms.

Do a long press to swap between the 2 modes.

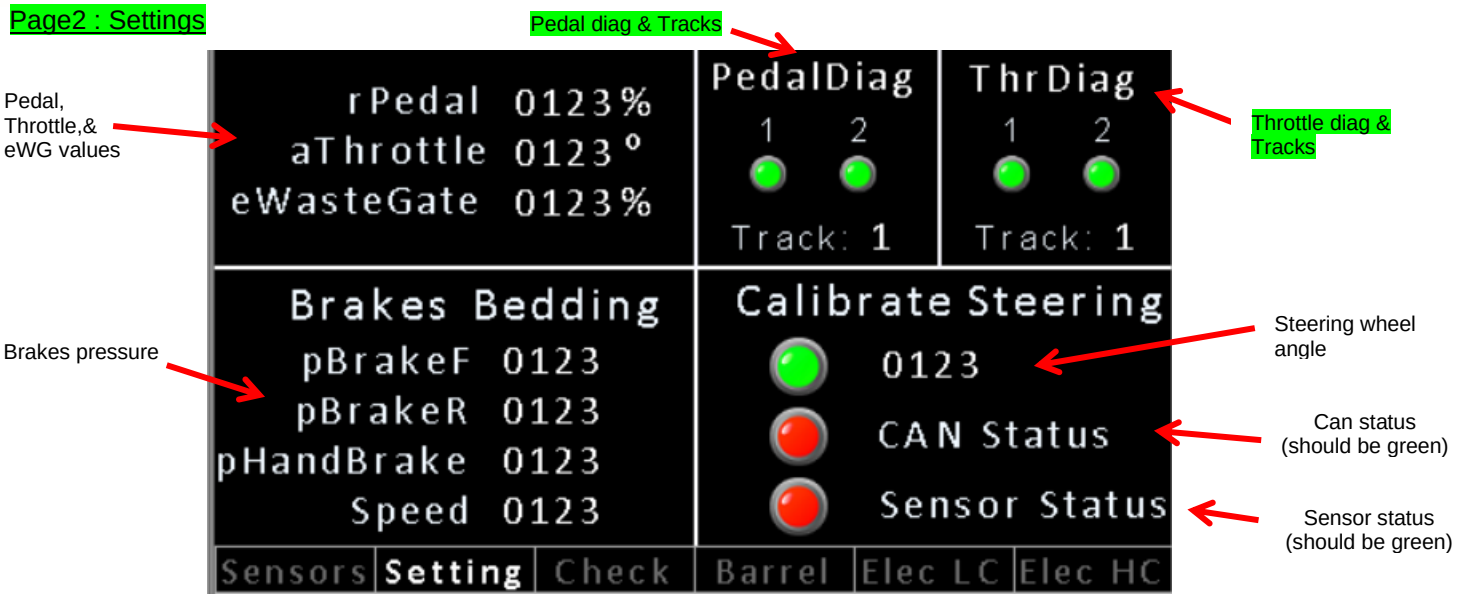
Do a short press to scroll between pages.

Welcome page:

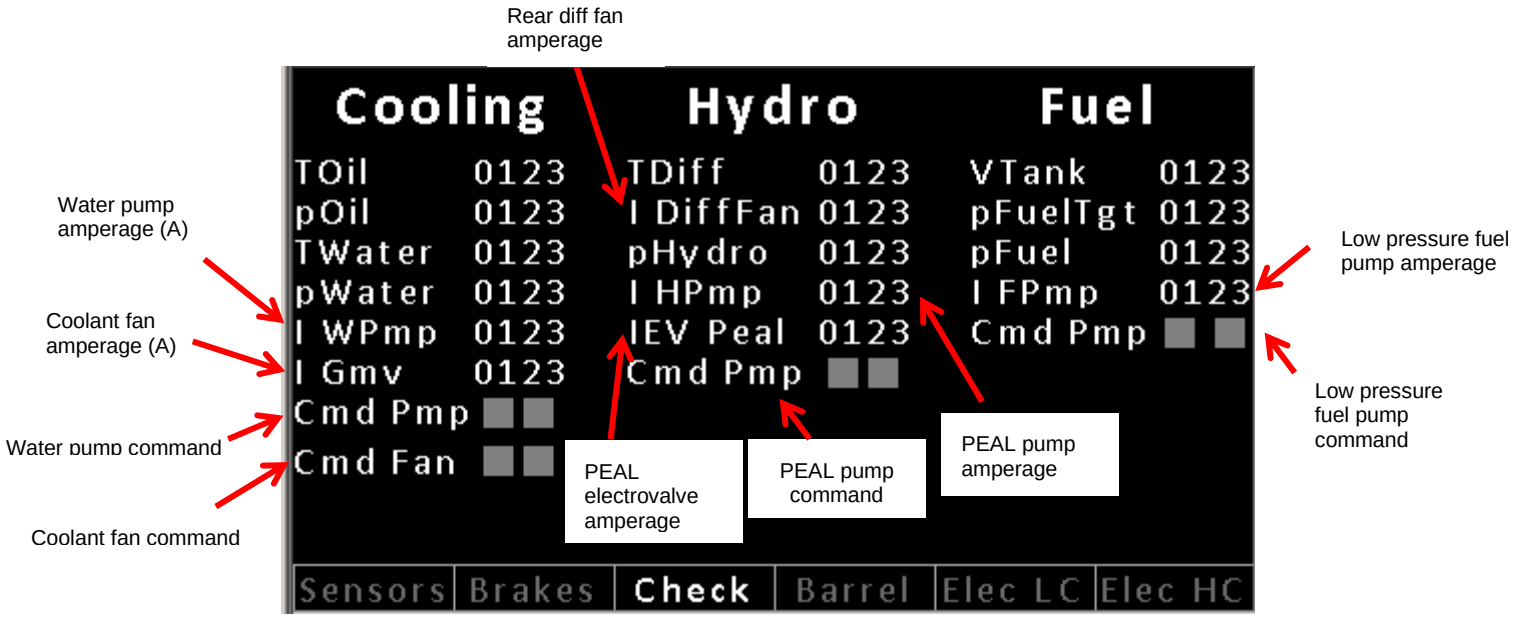
Page1 : Sensors



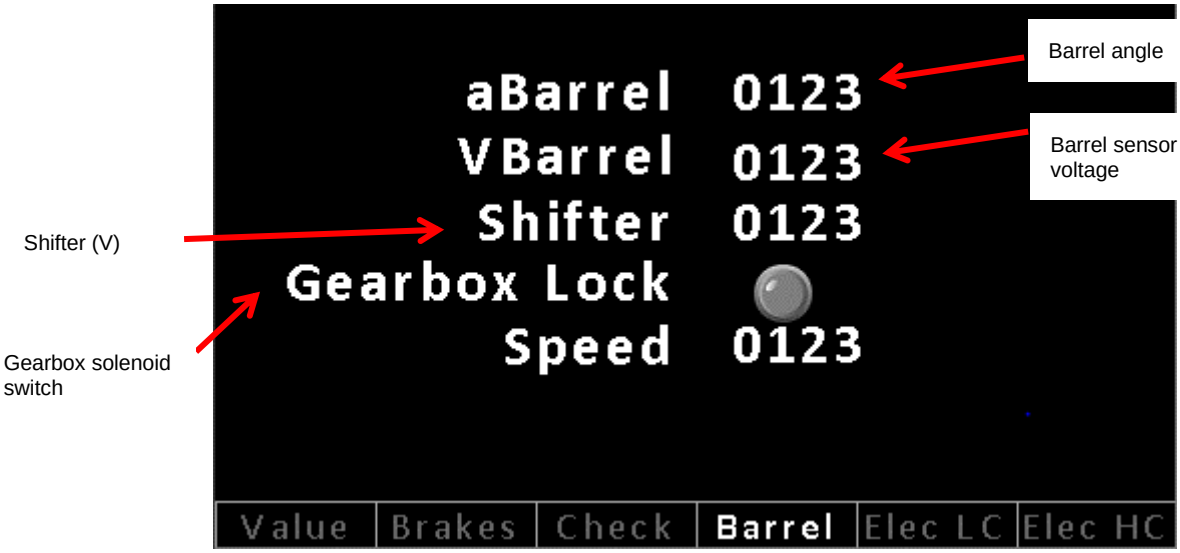
Page2 : Settings



Page 3: Cooling / Hydraulic / Fuel

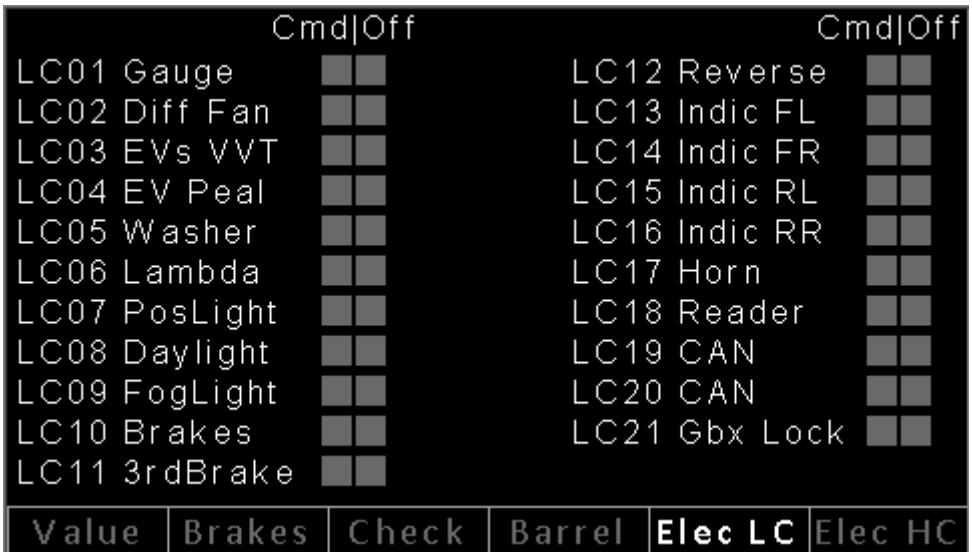


Page 4: Barrel (Gearbox)



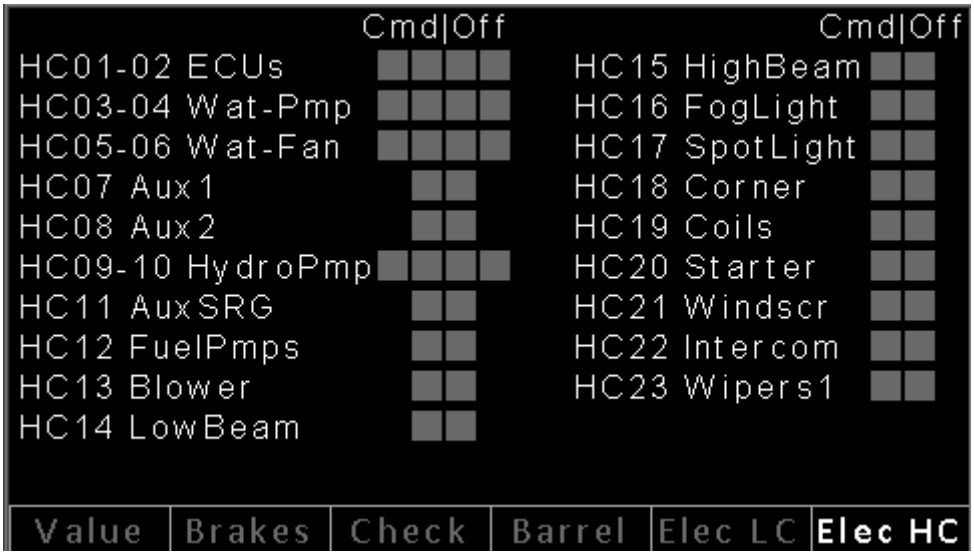
Page 5: Low current outputs

These values are given by the powerbox.

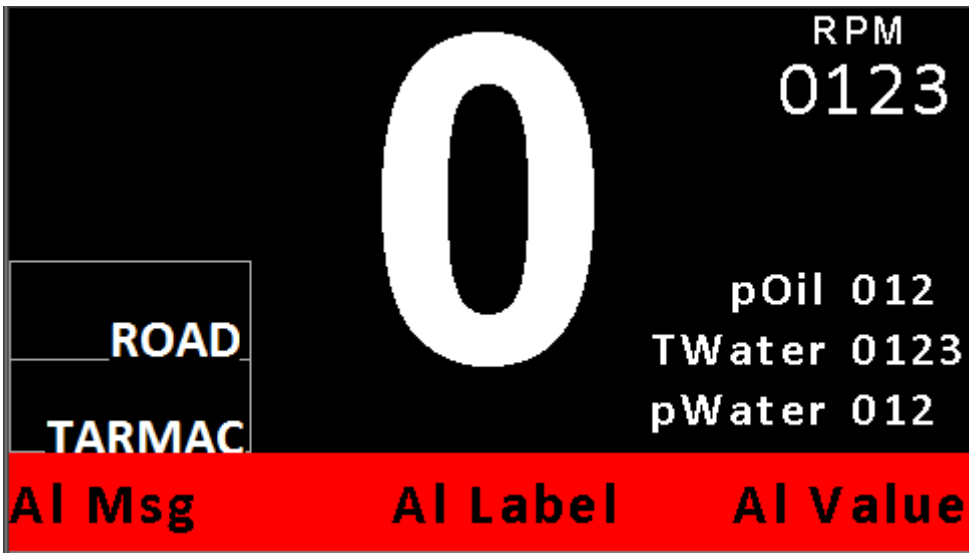


Page 6: High current outputs

These values are given by the powerbox.



Page 7: Alarms



This pages automatically appears if an alarm is activated.

In this case, the driver as to stop immediately the car to prevent for further damages.

14.1.2.5 Alarms and messages definitions:

ALARM				
Parameter	**Condition 1**	**Condition 2**	**Message**	**LED**
Low Engine Oil Pressure	pOil <= 2	-	OIL P	#1 blinking
Low Battery Voltage	Vbatt <= 11,5	-	BATTERY	#3 fixed
High Cooling System Temperature	TWater >= 115	-	WATER T	#2 fixed
High Engine Oil temperature	TOil >= 140	-	OIL T	#1 fixed
Cooling System Pressure out of range	pWater <= 1 OR pWater >=2.5	Teau >= 90	WATER P	#2 blinking
High T3	T3 >= 1250	-	T3 HS	-
Low Fuel Pressure	pFuelHP <= 50	nEngine >0	-	-
Water pump KO	Iwatpump < 5	nEngine >1000	PUMP KO	#3 blinking
MESSAGE				
Parameter	**Condition 1**	**Condition 2**	**Message**	**LED**
Launch System Ready	Nturbo >= 130	LAUNCH ON	TURBO OK	-
Do not switch Off Engine	T3 >= 650	vCar <=0 & tWater>30, nTurbo < 100	TURBO !	-
p0T0 sensor not plugged	Road mode	-	p0T0 KO	

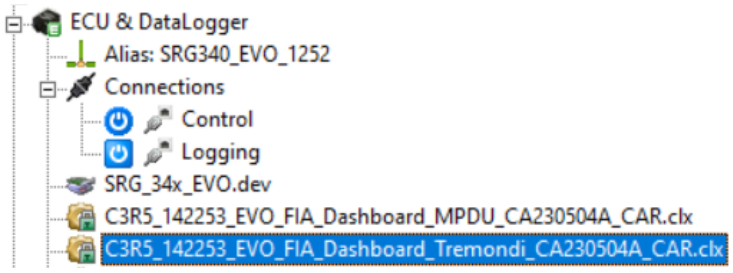
14.1.3 Tremondi dashboard

The dashboard has several functions:

- Display useful informations through 2 modes
- Shows LED alarms/warnings
- Fuel consumption and stage distance reset
- Steering wheel sensor reset
- Brightness management

NB: the LED at the top of the unit are not used as shiftlights but for message (bleu and green), warning (orange), alarm (red) purpose

NOTE : since may 2023, there are 2 clx files, one for the MPDU and one for the Tremondi, available in the Sysma project.
So in case of a Tremondi dashboard, use the highlighted clx below.



14.1.3.1 Dashboard buttons

1 – Fuel Reset (long push):

Conso value is set to 0 and Level ECU at 399.

2 – Brightness:

In day mode (low beam and high beam are OFF), each push decreases brightness.

It automatically swaps to night mode when low or high beam are switched ON.

A long push reset the ‘’*StageTripDist”* channel.

Message/Warning acknowledgment : allows the text displayed to be removed

(not valid for the following : ‘’Launch’’, ‘’Oil P’’, ‘’Water Pump KO’’ & ‘’Water T’’)

3 – Steering wheel sensor reset (long push)

4 – Pages change

Short push to change page into the same mode

Long push to swap between modes (mode is changed when button is released)

14.1.3.2 Shiftlights & LED alarms

Shiftlights:

- The shiftlights at the top of the dashboard are not used. Instead of that, the background of the gear ratio lights yellow when the optimum rpm is approaching and turns to green (all dashboard background) when it’s time to upshift
- Upshift rev (yellow and green background) by default
  - N : **3000** / **3300**
  - 1st : **5775** / **6175**
  - 2nd : **5600** / **6000**
  - 3rd : **5500** / **5800**
  - 4th : **5450** / **5650**
  - 5th : **8000** / **8000**

LED Alarms:

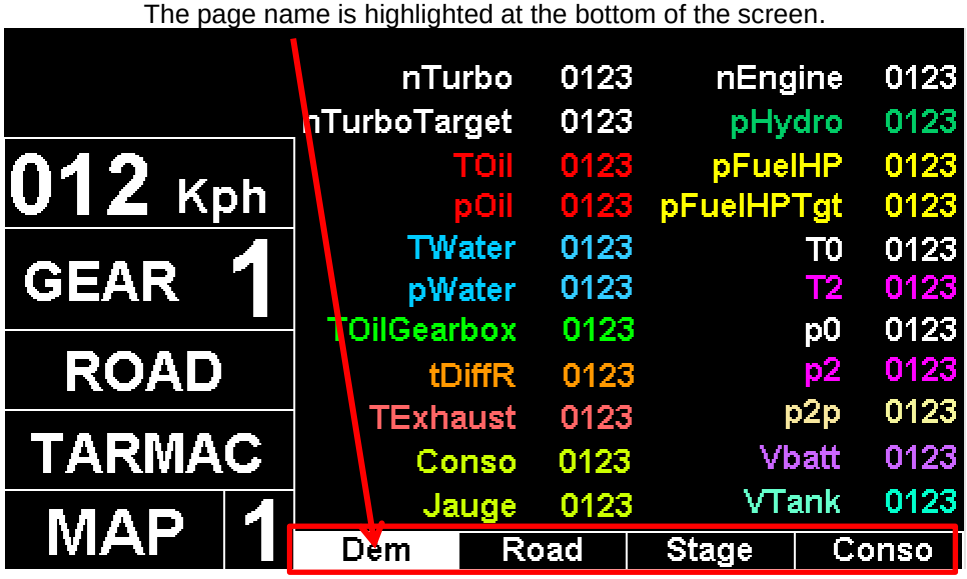
See alarms in §14.1.3.6

14.1.3.3 ‘’Welcome’’ page

14.1.3.4 ‘’ Driver ’’ mode

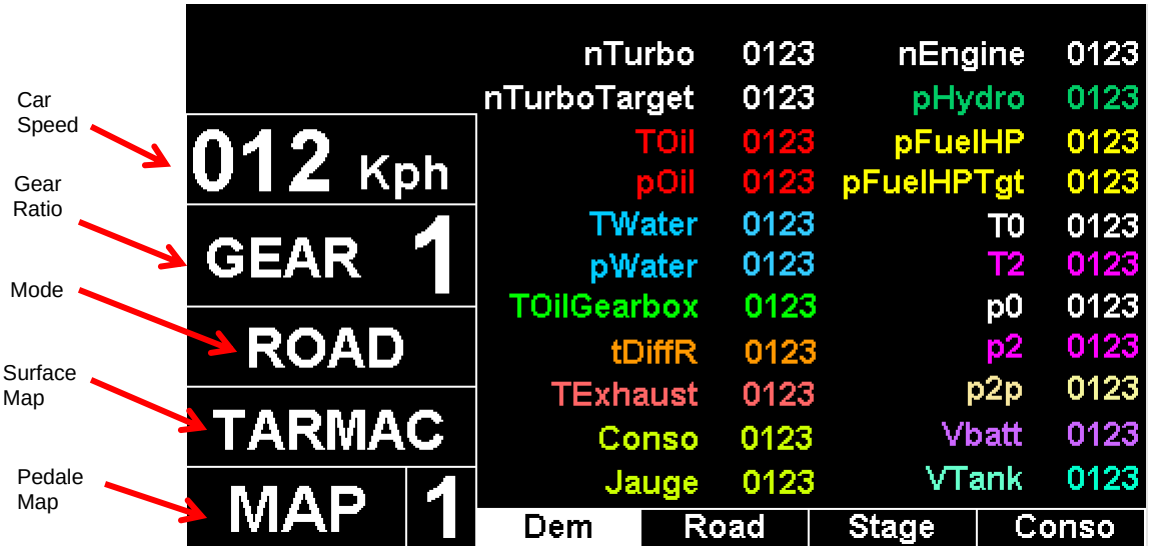
The driver mode is composed from 4 pages: Dem / Road / Stage / Conso.

The page name is highlighted at the bottom of the screen.

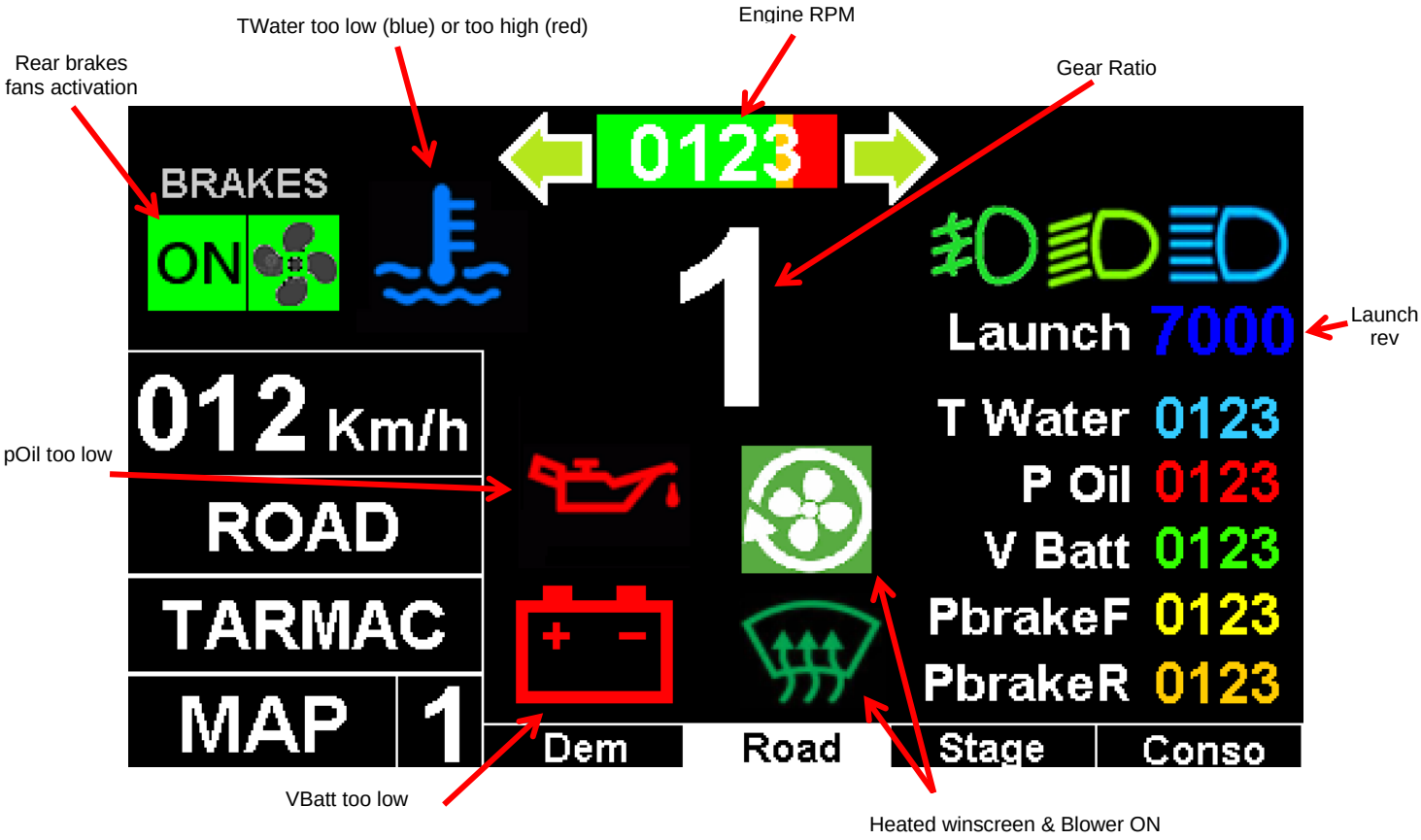


It automatically swaps to the Stage page when the boost (stage mode) is activated.

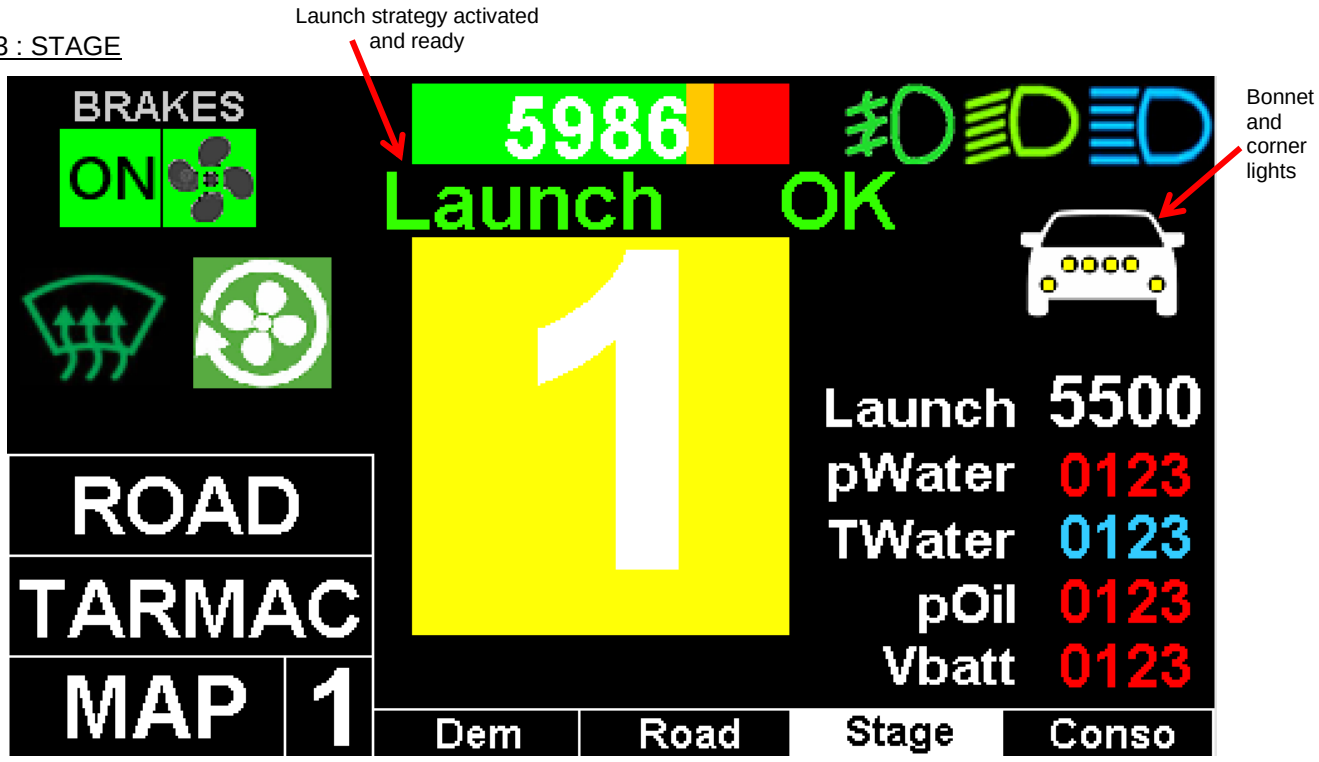
Page1 : Dem (= Start)



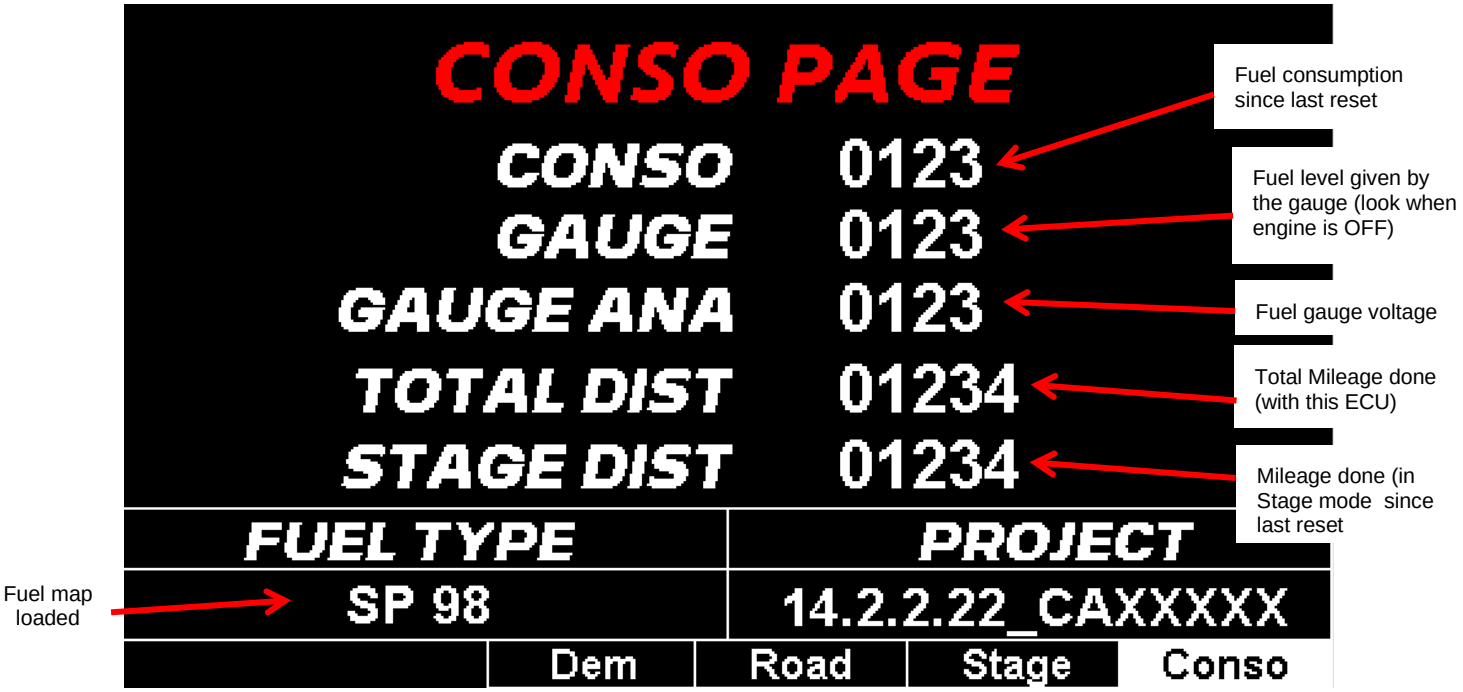
Page2 : ROAD



Page3 : STAGE



Page4 : CONSO



Parameters description:

nTurbo	Turbo RPM
nTurboTarget	Turbo RPM Target
TOil	Engine oil t°
pOil	Engine oil pressure
TWater	Coolant t°
pWater	Coolant circuit pressure
TOilGearbox	Gearbox oil t°
tDiffR	Rear diff oil t°
TExhaust	Exhaust t°
Conso	Fuel level calculated by ECU
Jauge	Fuel level given by the gauge

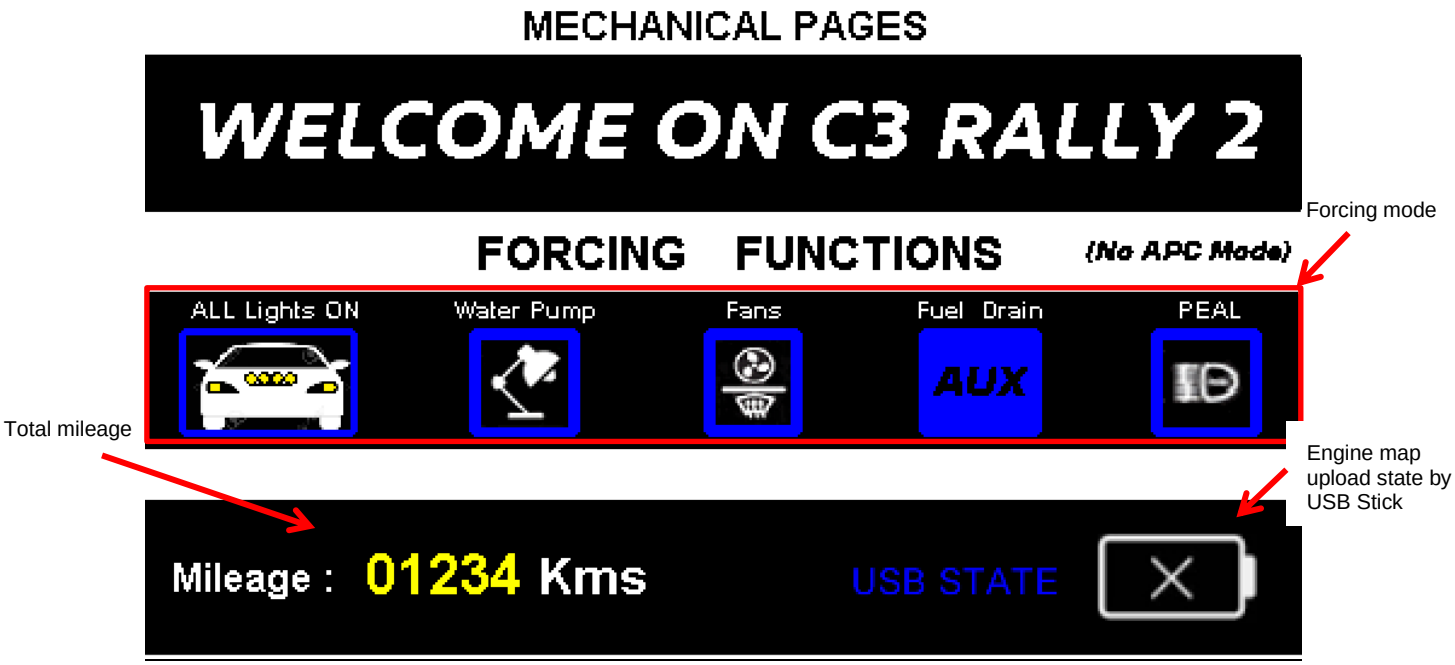
nEngine	Engine RPM
pHydro	PEAL hydraulic pressure
pFuelHP	Fuel high pressure
pFuelHPTgt	Fuel high pressure target
T0	Ambient t°
T2	Intake air t°
p0	Barometric pressure
p2	Intake air pressure
p2p	Boost pressure
Vbatt	Battery voltage
VTank	Injectors voltage supply

14.1.3.5 ''Mechanic'' mode

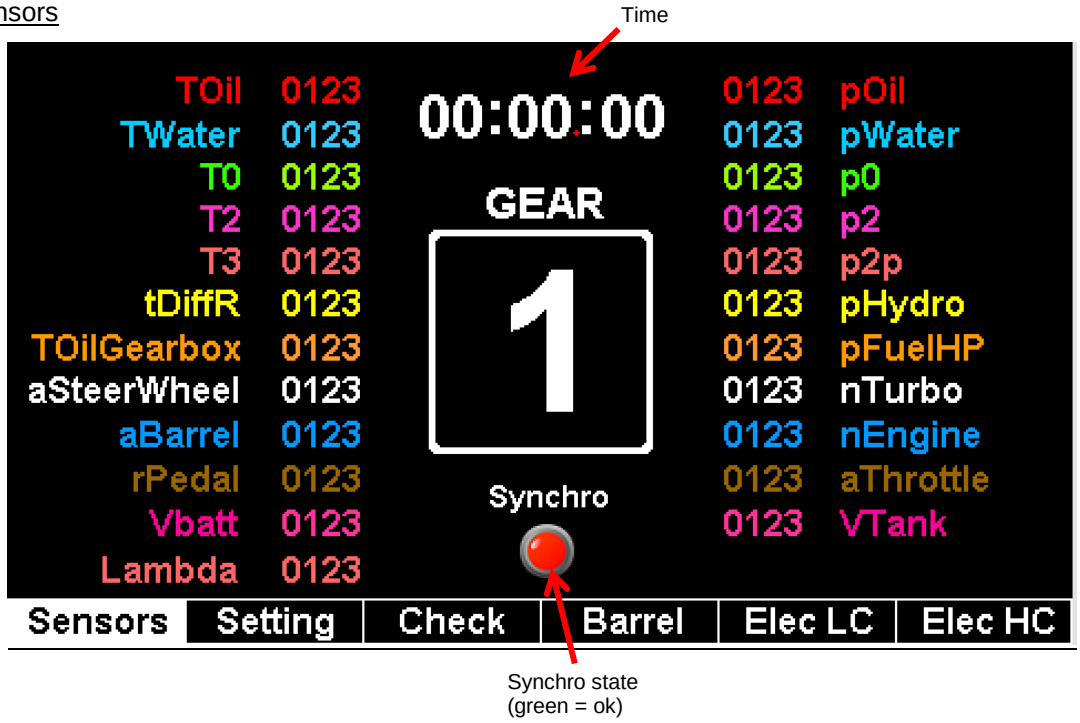
The ''Mechanic'' mode is composed from 6 pages for diagnostic and one for the Alarms.

Do a long press (button #4) to swap between the 2 modes (mode changes when button is released).
Do a short press (button #4) to scroll between pages.

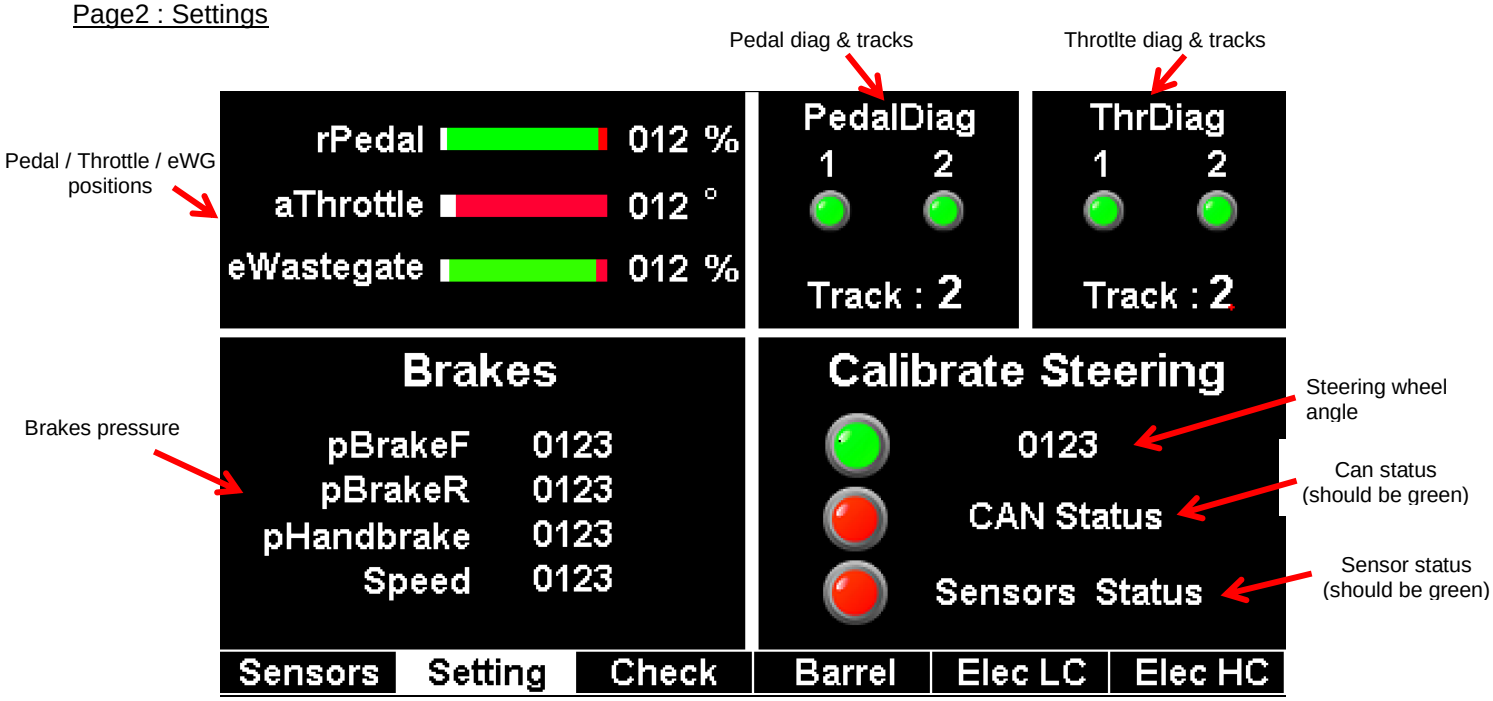
Welcome page:



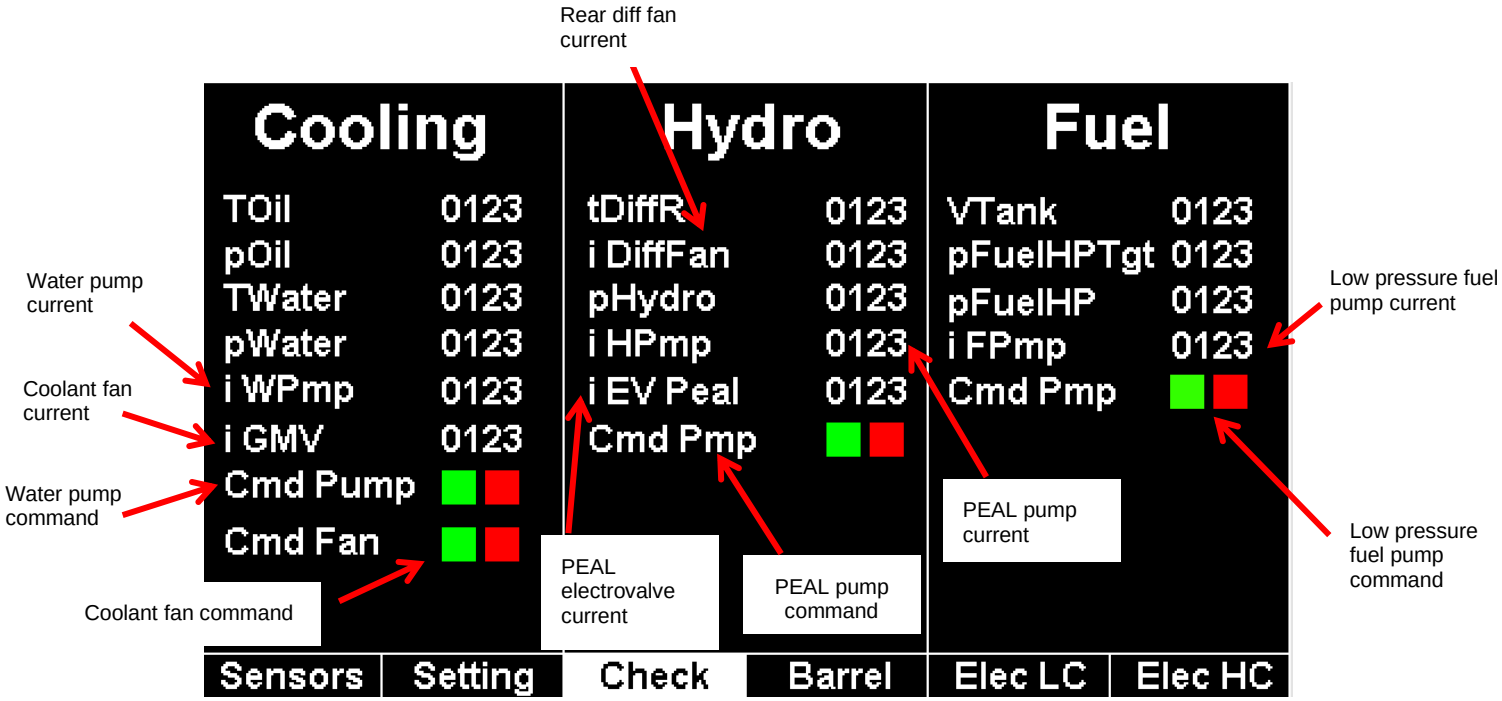
Page1 : Sensors



Page2 : Settings



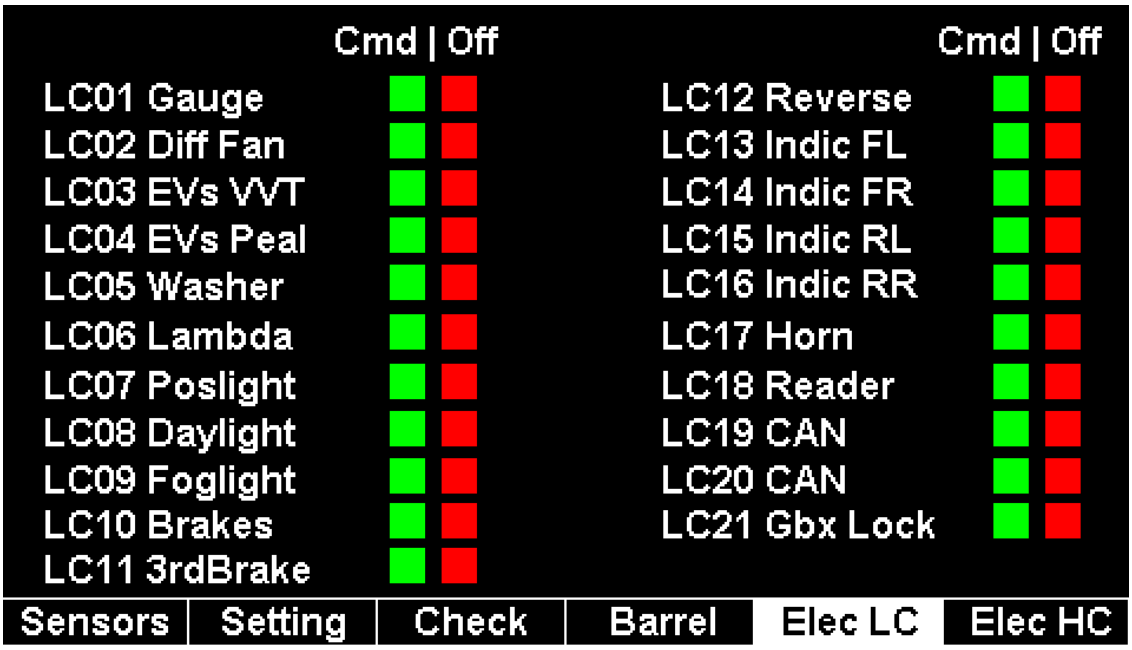
Page 3: Cooling / Hydraulic / Fuel



Page 4: Barrel (Gearbox)

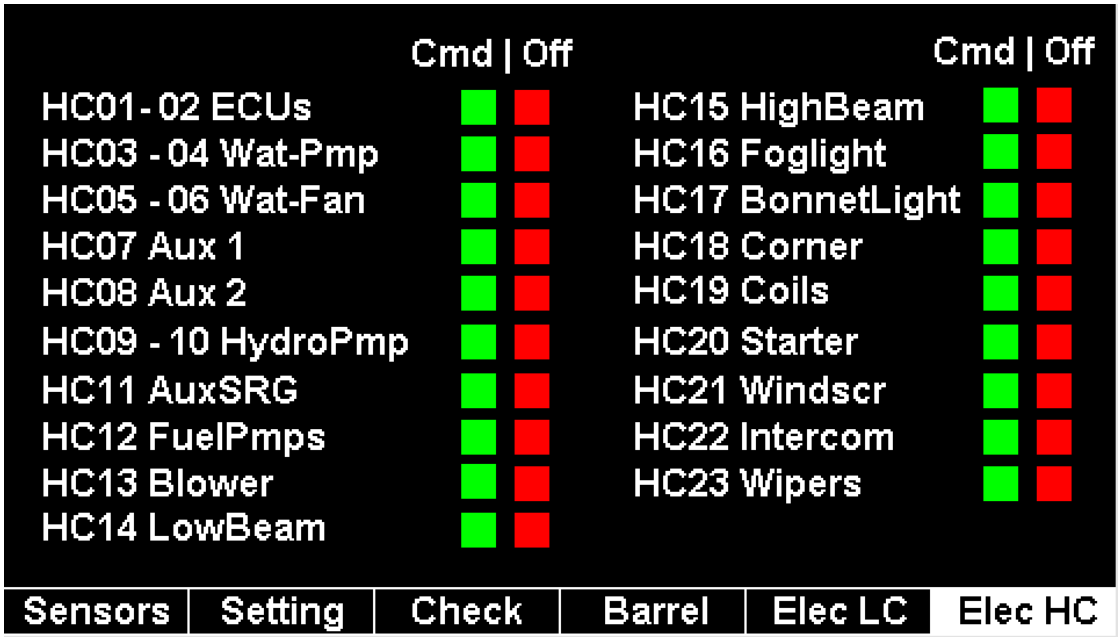
Page 5: Low current outputs

These values are given by the powerbox.

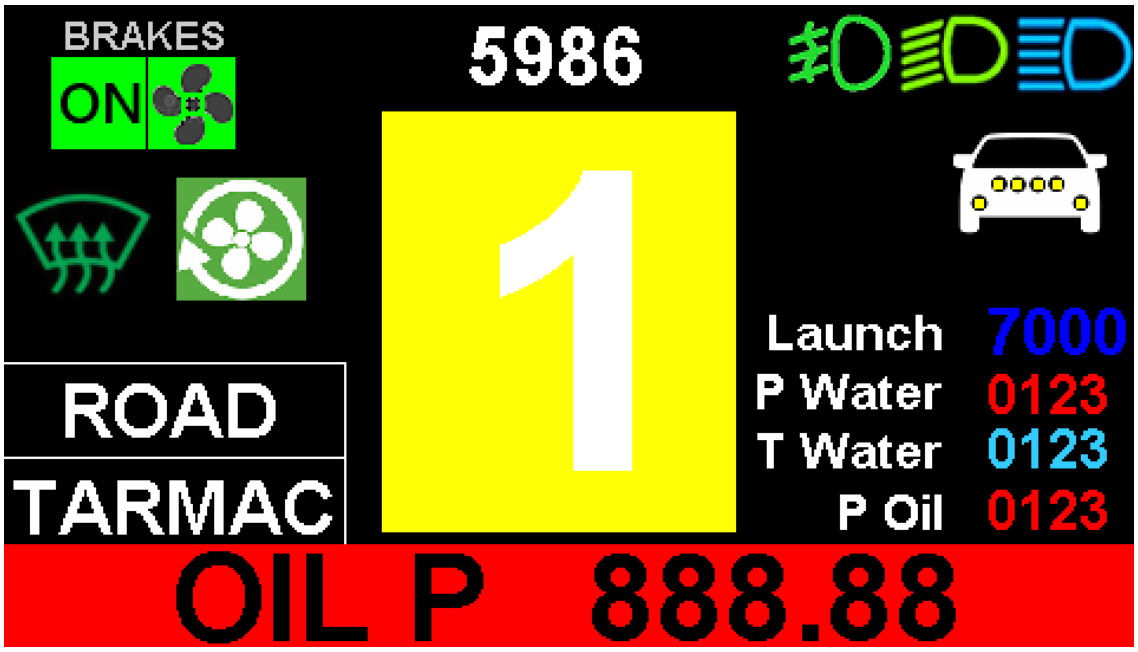


Page 6: High current outputs

These values are given by the powerbox.



The message will be displayed at the bottom of the screen.



14.1.3.6 Alarms and warning definitions:

The coloured LEDs at the top of the dashboard are used to show the type of message.

- **RED :** alarm, **driver need to stop the car immediately and investigate**
- **ORANGE :** warning, driver can carry on by monitoring the value and investigate asap. This warning can be acknowledged by pressing the 2nd button from the top next to the dashboard
- **GREEN :** for launch message
- **BLUE :** for turbo cooling message

			LEDS									
ALARM	CONDITIONS	MESSAGE	1	2	3	4	5	6	7	8	9	FLASHING ?
LAUNCH OK	- nTurbo > 129 000 AND - NLaunchModelNew > 2	LAUNCH OK										ON
STARTER PROTECTION	- StarterAlarm = 1	! STARTER !										ON
OIL PRESSURE	- pOil < 2 AND RPM > 1000 OR - pOil > 7 AND RPM > 1000	OIL P #VALUE#										FLASHING
WATER PUMP KO	- PBE_Log_3_I < 4 AND - RPM > 1000	WATER PUMP KO										FLASHING
BATTERY VOLTAGE	- vBatt < 11,5	LOW BATT #VALUE#										FLASHING
WATER TEMPERATURE	- tWater > 115 AND - RPM > 1000	WATER T #VALUE#										FLASHING
OIL TEMPERATURE	- tOil > 140 AND - RPM > 1000	OIL T #VALUE#										FLASHING
EXHAUST TEMPERATURE	- 985 < Texhaust < 1240 AND - RPM > 1000	EXHAUST T #VALUE#										FLASHING
WATER PRESSURE	- pWater < 1 AND tWater > 80 AND RPM > 1000 OR - pWater > 3 AND tWater > 80 AND RPM > 1000	WATER P #VALUE#										FLASHING
RAIL FUEL PRESSURE	- pRail < 50 AND - RPM > 0	FUEL P #VALUE										FLASHING
TURBO COOLING	- Texhaust > 650 AND - CarSpeed = 0 AND - nTurbo < 100 000 AND - RPM > 1000 AND - tWater > 30	! TURBBO COOLING !										FLASHING
T3 KO	- tExhaust = 935 AND - Bboost = 0	T3 KO										FLASHING
P0T0 KO	- DiagAna 1 (bit 8) Positif AND - Bboost = 0 - RPM < 1000	P0T0 KO										FLASHING

14.1.4 Channels description and frequencies

aRegulAdvanceIdleAngle	°Crk	Advance correction in idle	20Hz	10Hz
aSteerWheel	°	Bosch steering module angle	5Hz	50Hz
aThrottle	°Thr	Throttle position elaborated value	10Hz	100Hz
aThrottle1	°Thr	Throttle track 1 elaborated value	10Hz	50Hz
aThrottle2	°Thr	Throttle track 2 elaborated value	10Hz	50Hz
aThrottleTarget	°Thr	Throttle position target	10Hz	100Hz
aVvt1Error	°Crk	VVT1 error	10Hz	100Hz
aVvt2Error	°Crk	VVT2 error	10Hz	100Hz
BBoost		Boost status	5Hz	5Hz
BDownshiftReq		Downshift request status	10Hz	100Hz
BForcedWaterPumpState		EWP_Forced	5Hz	1Hz
BKickStatus		Kick status	10Hz	20Hz
BKnMild		Knock mild level detected	20Hz	50Hz
BKnStrong		Knock strong level detected	20Hz	50Hz
BPealCmd		Peal Cmd	10Hz	100Hz
BShiftStatus		Shift status	10Hz	100Hz
BStartNoTeeth		Start without teeth status	10Hz	10Hz
BSwAuxOutputsState		Auxiliary outputs switch state	5Hz	5Hz
BSwBlowerState		Blower switch state	5Hz	5Hz
BSwDashPageState		Dashboard page selection switch state	5Hz	5Hz
BSwForceFuelPumpState		Force Fuel pump switch state	5Hz	5Hz
BSwForceLightsState		Force lights switch state	5Hz	5Hz
BSwForceWaterPumpState		Force water pump switch state	5Hz	5Hz
BSwFrontFogState		Front fog light switch state	5Hz	5Hz
BSwGravelState		Gravel (Asphalt) switch state	5Hz	5Hz
BSwHandBrakeState		HandBrake switch state	10Hz	20Hz
BSwHornState		Horn switch state	5Hz	5Hz
BSwHydrPurgeState		Hydraulic purge switch state	5Hz	5Hz
BSwIgnPowerState		Ignition power switch state	5Hz	5Hz
BSwIntWipersState		Intermittent wipers switch state	5Hz	5Hz
BSwKillState		Engine kill switch state	5Hz	5Hz
BSwLaunch		Launch button status	1Hz	20Hz
BSwLaunchActive		Launch switch active status	1Hz	20Hz
BSwManGbxLockState		GbxLock switch state	5Hz	5Hz
BSwRoadState		Road (Stage) switch state	5Hz	5Hz
BSwStarterState		Starter switch state	5Hz	5Hz
BWaterPmpPowerState		Water pump power state	5Hz	5Hz
BWaterPumpCmdState		Water Pump LIN function active	5Hz	5Hz
CANstatus		CAN lines status	20Hz	20Hz
CanToCutDiagStatus	-	CanToCutDiagStatus	20Hz	20Hz
CdFpI	°crk	Fuel pump (CDFP) integral term	20Hz	20Hz
CrankState		Crank synchronization state	20Hz	20Hz
DashTbox	°C	Dashboard internal temperature	1Hz	1Hz
eWGpos	%	Electrical Wastegate Position elaborated value	10Hz	100Hz
eWGTarget	%	Electrical Wastegate applicative command target	10Hz	100Hz
IElvPeal	A	Proportional Elv 6 sense hw compensated	10Hz	10Hz
IPbeHC01HC02Ecus	Amps	PBE Logical 1 current ECUs	10Hz	10Hz
IPbeHC03HC04PaE	Amps	PBE Logical 3 current	10Hz	10Hz
IpbeHC05HC06GMV	Amps	PBE Logical 5 current	10Hz	10Hz
IPbeHC07Aux1	Amps	PBE Logical 7 current	10Hz	10Hz
IPbeHC08Aux2	Amps	PBE Logical 8 current	10Hz	10Hz
IPbeHC09HC10HydroPump1	Amps	PBE Logical 9 current Pompe Hydro 1	10Hz	10Hz
IPbeHC11HC19AuxSrgHbInjCoils	Amps	PBE Logical 11 current Aux SRG Moteur	10Hz	10Hz
IPbeHC12FuelPumps	Amps	PBE Logical 12 current Fuel Pumps	10Hz	10Hz
IPbeHC13Blower	Amps	PBE Logical 13 current Blower	10Hz	10Hz
IPbeHC14HC07LowBeamPosLights	Amps	PBE Logical 14 current LowBeam	10Hz	10Hz
IPbeHC15HighBeam	Amps	PBE Logical 15 current HighBeam	10Hz	10Hz
IPbeHC16FogLights	Amps	PBE Logical 16 current FogLights	10Hz	10Hz
IPbeHC17HC18Rampe	Amps	PBE Logical 17 current HeadLights	10Hz	10Hz
IPbeHC20Starter	Amps	PBE Logical 20 current Starter	10Hz	10Hz
IPbeHC21Windscreen	Amps	PBE Logical 21 current Windscreen	10Hz	10Hz
IPbeHC22Intercom	Amps	PBE Logical 22 current	10Hz	10Hz
IPbeHC23Wipers	Amps	PBE Logical 23 current	10Hz	10Hz
IPbeHC24Wipers2	Amps	PBE Logical 24 current	10Hz	10Hz
IPbeLC01Jauge	Amps	PBE Logical 25 current Water Pump	10Hz	10Hz
IPbeLC02DiffFan	Amps	PBE Logical 26 current Rear Diff Fan	10Hz	10Hz
IPbeLC03EvMoteur	Amps	PBE Logical 27 current	10Hz	10Hz
IPbeLC04EvChassis	Amps	PBE Logical 28 current	10Hz	10Hz
IPbeLC05Washer	Amps	PBE Logical 29 current Washer	10Hz	10Hz
IPbeLC06Lambda	Amps	PBE Logical 30 current Lambda Heating	10Hz	10Hz
IPbeLC08DRL	Amps	PBE Logical 32 current	10Hz	10Hz
IPbeLC09RearFogLights	Amps	PBE Logical 33 current	10Hz	10Hz
IPbeLC10LC11Stop	Amps	PBE Logical 34 current	10Hz	10Hz
IPbeLC12ReverseLights	Amps	PBE Logical 36 current	10Hz	10Hz
IPbeLC13LC15LIndic	Amps	PBE Logical 37 current	10Hz	10Hz
IPbeLC14LC16RIndic	Amps	PBE Logical 38 current	10Hz	10Hz
IPbeLC17Horn	Amps	PBE Logical 41 current	10Hz	10Hz
IPbeLC18Beacon	Amps	PBE Logical 42 current	10Hz	10Hz
IPbeLC19LC20LC22CanReader	Amps	PBE Logical 43 current	10Hz	10Hz
IPbeLC21GbxLock	Amps	PBE Logical 45 current	10Hz	10Hz
IPbeTotal	Amps	PBE total current	10Hz	10Hz
IPbeWiperStop	Amps	PBE Logical 48 current	10Hz	10Hz
IPelvVVT1	A	Proportional Elv 3 sense hw compensated	20Hz	20Hz
IPelvVVT2	A	Proportional Elv 4 sense hw compensated	20Hz	20Hz
IPelvWaterPump	A	Proportional Elv 5 sense hw compensated	20Hz	20Hz
KinjLambda		Lambda compensation on mInj	10Hz	50Hz
KnCorrAdv1	°crk	Knock final advance compensation cylinder 1	10Hz	100Hz
KnCorrAdv2	°crk	Knock final advance compensation cylinder 2	10Hz	100Hz
KnCorrAdv3	°crk	Knock final advance compensation cylinder 3	10Hz	100Hz
KnCorrAdv4	°crk	Knock final advance compensation cylinder 4	10Hz	100Hz
KnDeton1	mV	Knock raw level cylinder 1	10Hz	100Hz
KnDeton2	mV	Knock raw level cylinder 2	10Hz	100Hz

KnCorrAdv1	°crk	Knock final advance compensation cylinder 1	10Hz	100Hz
KnCorrAdv2	°crk	Knock final advance compensation cylinder 2	10Hz	100Hz
KnCorrAdv3	°crk	Knock final advance compensation cylinder 3	10Hz	100Hz
KnCorrAdv4	°crk	Knock final advance compensation cylinder 4	10Hz	100Hz
KnDeton1	mV	Knock raw level cylinder 1	10Hz	100Hz
KnDeton2	mV	Knock raw level cylinder 2	10Hz	100Hz
KnDeton3	mV	Knock raw level cylinder 3	10Hz	100Hz
KnDeton4	mV	Knock raw level cylinder 4	10Hz	100Hz
NALSMode		ALS selection	5Hz	5Hz
NCombinedSwMap		CombinedSwMap	10Hz	10Hz
NDashAlarmLed		Dashboard alarm leds	10Hz	50Hz
NDashBrightnessDay	-	DDU Day Brightness index	1Hz	1Hz
NDashBrightnessNight	-	DDU Night Brightness index	1Hz	1Hz
NDashPage		Dashboard displayed page	5Hz	5Hz
NDiagAna1		Analog inputs diagnostic flags 1	50Hz	50Hz
NDiagAna2		Analog inputs diagnostic flags 2	50Hz	50Hz
NDiagAna3		Analog inputs diagnostic flags 3	50Hz	50Hz
NDiagAna4		Analog inputs diagnostic flags 4	50Hz	50Hz
NDiagIgnOC		Coils open circuit diagnostic	50Hz	50Hz
NDiagIgnSC		Coils short circuit diagnostic	50Hz	50Hz
NDiagInjA		Jedi Inj Bank A diagnostics	10Hz	10Hz
NDiagInjB		Jedi Inj Bank B diagnostics	10Hz	10Hz
NDiagInjG		Jedi Generic diagnostics	10Hz	10Hz
NDiagTeam		Team Analog inputs diagnostic flags 1	20Hz	20Hz
nEngine	rpm	Engine speed	200Hz	200Hz
NExtLaunchSelection		External LAUNCH selection	10Hz	20Hz
NFlagBgnd		NFlagBgnd	200Hz	1000Hz
NFlagInjOC		Act Injectors open circuit flags	100Hz	100Hz
NFlagInjSC		Act Injectors short circuit flags	100Hz	100Hz
NFlagOutOC		Act Outputs open circuit flags	100Hz	100Hz
NFlagOutSC		Act Outputs short circuit flags	100Hz	100Hz
NGDUGear		GDU gear outputs	1Hz	5Hz
NGDUOutLed		GDU leds outputs	10Hz	20Hz
NGear		Gear position from -1 (reverse) to max gear	5Hz	20Hz
NGearDisplay		ASCII Gear position	10Hz	10Hz
nKnockMild1		Mild knock occurences counter cylinder 1	10Hz	100Hz
nKnockMild2		Mild knock occurences counter cylinder 2	10Hz	100Hz
nKnockMild3		Mild knock occurences counter cylinder 3	10Hz	100Hz
nKnockMild4		Mild knock occurences counter cylinder 4	10Hz	100Hz
nKnockStrong1		Stong knock occurences counter cylinder 1	10Hz	100Hz
nKnockStrong2		Stong knock occurences counter cylinder 2	10Hz	100Hz
nKnockStrong3		Stong knock occurences counter cylinder 3	10Hz	100Hz
nKnockStrong4		Stong knock occurences counter cylinder 4	10Hz	100Hz
NLaunchModeNew		Launch mode state (new control)	1Hz	100Hz
NLedConsole		Switch panel 1, leds CAN word 1	20Hz	20Hz
NLedVolant		Switch panel 4, leds CAN word 1	20Hz	20Hz
NMapSelection		External map selection	10Hz	20Hz
NPbeCanSts		PBE status	20Hz	20Hz
nSteerWheel	°/s	Bosch steering module speed	5Hz	50Hz
NSwConsole		Switch panel 1, switches CAN word 1	20Hz	20Hz
NSwpStatus		Switch panels status	10Hz	50Hz
NSwVolant		Switch panel 4, switches CAN word 1	20Hz	20Hz
NSyncState		Synchronization state	20Hz	20Hz
nTurbo	krpm	Turbo speed elaborated value	20Hz	200Hz
nTurboTarget	krpm	Turbo speed target	20Hz	200Hz
p0	mbar	Barometric pressure elaborated value	2Hz	2Hz
p2	bar	Compressor pressure	10Hz	100Hz
p2p	bar	Intake duct pressure	20Hz	100Hz
p2Target	bar	P2 target	10Hz	100Hz
pBrakeF	bar	Front Brake pressure elaborated value	10Hz	50Hz
pBrakeR	bar	Rear Brake pressure elaborated value	10Hz	50Hz
pFuelHP	bar	Fuel high pressure elaborated value	10Hz	100Hz
pFuelHPTgt	bar	Fuel high pressure target	10Hz	100Hz
pHandBrake	bar	Handbrake pressure elaborated value	10Hz	50Hz
pHydro	bar	Hydraulic pressure elaborated value	10Hz	50Hz
pOil	bar	Engine Oil pressure elaborated value	10Hz	50Hz
pWater	bar	Water pressure elaborated value	10Hz	20Hz
rLambda	f(select)	Lambda 1 value for regulation	10Hz	100Hz
rPedal	%	Pedal position elaborated value	10Hz	100Hz
rThrottleDiag		Throttle position diagnostic	10Hz	20Hz
rWaterPmpTarget	%	LIN Water Pump command target	2Hz	5Hz
sFull	m	Full distance elapsed	5Hz	10Hz
sLap	m	Lap distance	5Hz	10Hz
SwDashBrightInput		Dashboard brightness switch input	20Hz	20Hz
SwDashBrightState		Dashboard brightness switch state	20Hz	20Hz
SwDashPageInput		Dashboard page selection switch input	20Hz	20Hz
SwIntWipersInput		Intermittent wipers switch input	20Hz	20Hz
SwLaunch2Input		Launch 2 switch input	20Hz	20Hz
SwLaunch2State		Launch 2 switch state	20Hz	20Hz
SwLaunch_Input		Launch switch input input	20Hz	20Hz
SwLaunch_State		Launch switch input state	20Hz	20Hz
SwNightMode		Night mode	1Hz	1Hz
SwWasher2State		Washer switch state	20Hz	20Hz
SwWasherState		Washer switch state	20Hz	20Hz
SwWipersInput		Wipers switch input	20Hz	20Hz
SwWipersState		Wipers switch state	20Hz	20Hz
T0	°C	Ambient Air temperature (t0) elaborated value	2Hz	2Hz
T2	°C	Air Inlet temperature (t2.2) elaborated value	10Hz	10Hz
T3	°C	Exhaust temperature elaborated value	10Hz	50Hz
tDiffR	°C	Rear diff temperature elaborated value	2Hz	5Hz
TOil	°C	Oil temperature elaborated value	5Hz	10Hz
TOilGearbox	°C	Gearbox Oil temperature elaborated value	2Hz	5Hz
TPowerSupply	°C	Power supply temperature hw compensated	2Hz	5Hz

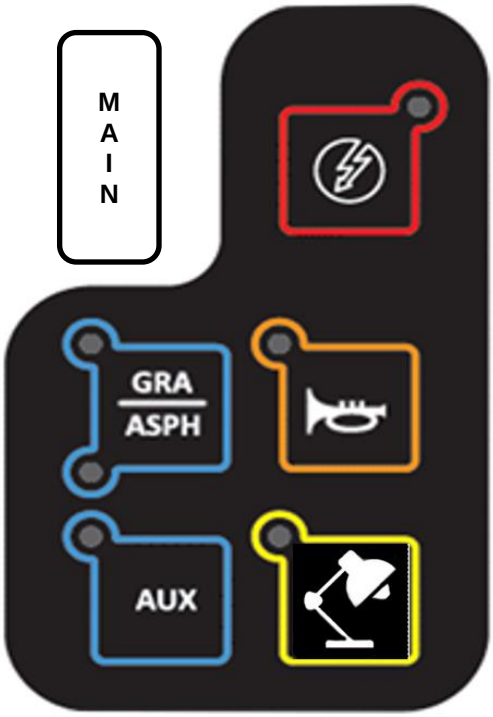
TWater	°C	Water temperature elaborated value	5Hz	10Hz
VBarrel	V	Gear barrel elaborated value	10Hz	100Hz
Vbatt	V	Battery voltage hw compensated	10Hz	200Hz
Vbinj	V	PFI ramp voltage hw compensated	10Hz	100Hz
vCar	Km/h	Car speed	5Hz	100Hz
VFuelCons	L	Fuel volume consumption from last tank fill up.	2Hz	2Hz
VFuelEstimated	L	Estimated remaining Fuel volume in tank.	10Hz	20Hz
VFuelTank1	L	Fuel tank 1 level elaborated value	2Hz	2Hz
VRef1	V	Reference voltage 1 hw compensated	10Hz	20Hz
VRef2	V	Reference voltage 2 hw compensated	10Hz	20Hz
VRef3	V	Reference voltage 3 hw compensated	10Hz	20Hz
VRef4	V	Reference voltage 4 hw compensated	10Hz	20Hz
VRefi	V	Internal reference voltage hw compensated	10Hz	20Hz
VTankCorr	V	GDI power supply hw compensated	50Hz	50Hz
Washer		Screen washer	1Hz	5Hz
WipersBrakeRly		Wipers fast state	1Hz	5Hz
WipersFast		Wipers fast state	1Hz	5Hz
WipersSlow		Wipers slow state	1Hz	5Hz
WiperSwState		WiperSwState	1Hz	5Hz

14.1.5 Turbo cooling

After racing, please let the turbo to cool down (till T3 < 650°C) before switching off the engine.
A message will appear at the dashboard as a reminder for that purpose.
If by mistake, the engine is shut down before the message disappears, re-start the engine immediately.

14.1.6 Central panel (since software 14.2.2.22)

The central panel is located on the central tunnel.



14.1.6.1 Power 

Power supply of actuators (PEAL is building pressure and fuel pumps run for 2s to prime fuel pressure) and allow ignition.

14.1.6.2 AUX 

AUX1 is constantly supplied with 12v

AUX2 (use for rear brakes cooling) is automatically switch ON when stage is ON then stays ON for 500s when stage is OFF.

Used to force the low pressure fuel pumps, see §14.1.8.3.

14.1.6.3 GRA / ASPH 

GRAvel / **ASPH**alte (=tarmac): Used to select the right tyre diameter for the vehicle speed.

The launch strategy is also different. For gravel, the engine torque is limited during the launch phase.

14.1.6.4 Horn: 

Horn is activated during the push time

14.1.6.5 Map light 

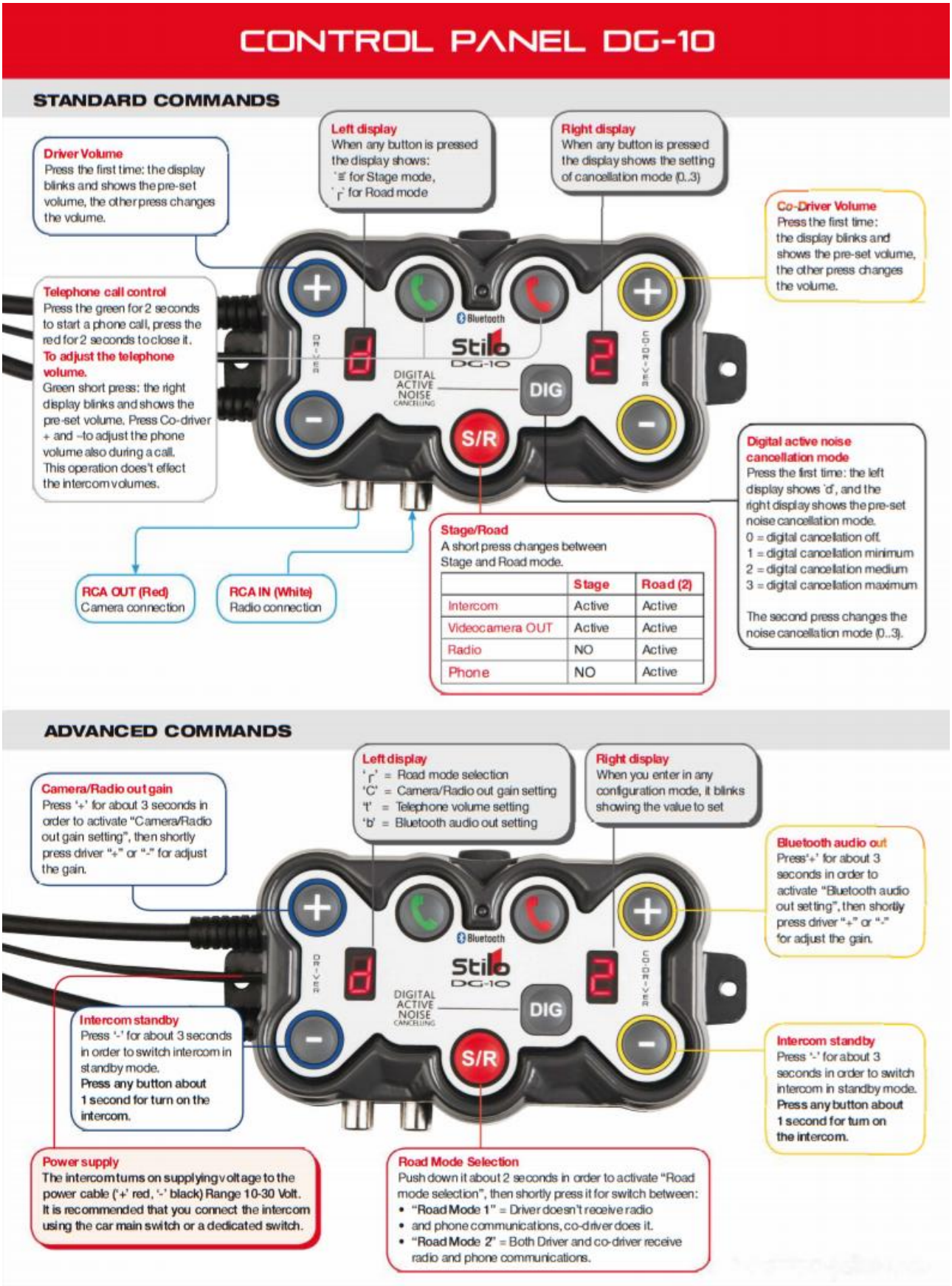
To switch on co-driver map light

Used to force the water pump, see §14.1.8.2.

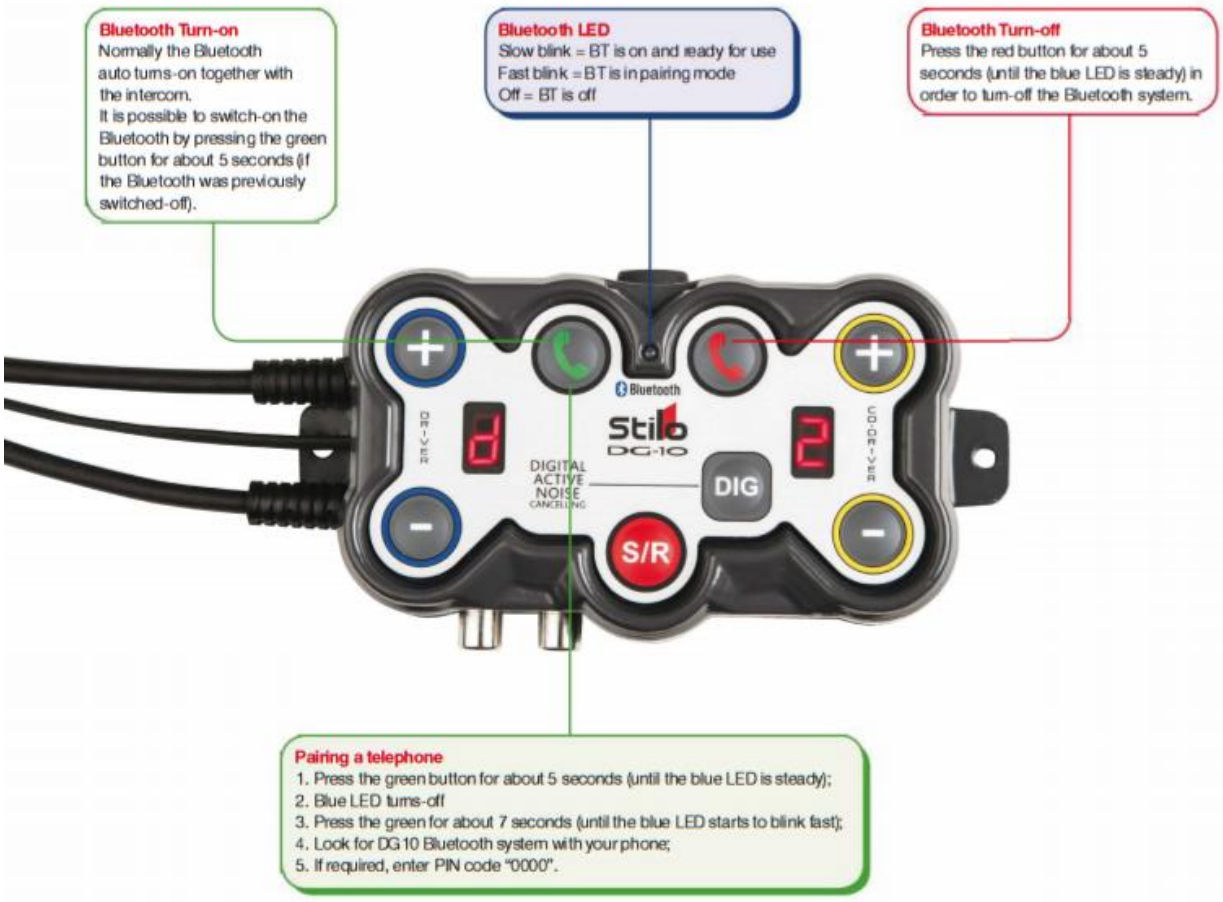
IMPORTANT:
In a general way, before starting engine, please wait at least 5s between MAIN ON and Power ON (dash should be always on before starting).
Always stop the engine with the Power button and wait 10s before switching OFF the car for the system do shutdown properly and for the different actuators to discharge.

14.1.7 Intercom

Your C3Rally2 is equipped with a Stilo DG-10 intercom.



BLUETOOTH COMMANDS



14.1.8 ADR

The ADR (Accident Data Recorder) records deceleration level, useful for investigation in case of crash.
It's positioned on the central tunnel between the 2 seats and is independent from the car system.

The ADR must be **always fitted and plugged** to the car in FIA rallies.
Only the FIA has an access to this device.

14.1.9 Automatic extinguisher

C3Rally2 is equipped with a FEV extinguisher FX G-TEC 2900R-D or Lifeline Zero 275 (from chassis #78).

14.1.9.1 FEV G-TEC 2900R-D

F.E.V. CONTROL BOX V2 FIA 8865
INSTRUCTIONS

The control box is supplied with a separate wiring loom with a connector on each end; the longest length of wire has a male 2-pin IP67 rated plug for connection to the female 2 pin IP67 socket in the Remote Charge Cartridge, when connected they are screwed together to make a seal. The other end of the loom is fitted with a male 3 pin IP67 rated waterproof plug, this plug connects to the female 3 pin IP67 socket in the bottom of the control box and when connected they are screwed together to make a seal. . The branch in the loom goes to the internal fire button, make a suitable connection. Using the separate (supplied) cable already attached to the external fire button fit the button externally then route the cable inside the car to attach to the connections of the internal fire button.

Setting up The System
The control box has a 2 position on-on toggle switch to select the function.
The up position is ARM with a red LED and down position TEST with a orange LED.

Test position LED orange
To test the system put the switch into the TEST position and press either of the firing buttons – external or internal. If the TEST is successful, the Orange LED will be on for 10 seconds. If the TEST is unsuccessful the Orange LED will flash for 10 seconds or more, indicating a fault in one of the following items – low battery, electrical discontinuity, button to trigger the system, plug on the remote charge or firing actuator in the remote charge.

Armed Position red LED
Switch to the armed position - whenever the switch is moved from the test to the armed position, the control box will run an automatic test to ascertain that there is no anomaly, only after those checks will the LED start to flash continually indicating the control box is operational. **Only press the fire button if needed, this will activate the system.**

Recommend after use.
Whenever the control box is not in use position the switch into test mode – all the lights are off - this will enable the control box to go into sleep mode and save battery. If the vehicle is not going to be used for a long period, we would recommend you remove the battery from the control box.

Preparation for race
Check all wiring connections and run through the test position procedure before each race to test for any anomaly.

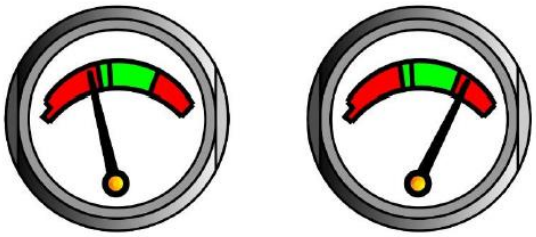
Battery fitment
This control box is IP67 rated. This is why the box has to be removed from fitment and the four screws removed from the back of the box to replace the battery - battery type 9 volt PP3 alkaline.

Fire Extinguisher Valve Co Ltd
Unit 10, Ford Lane Business Park, Ford, Nr Arundel, West Sussex
Tel: +44 (0) 1243 55 55 66 Fax: +44 (0) 1243 555 660
FX G-TEC2900R 31-01-18 VAT Reg No: 737 3307 34 Company Reg No: 4643893

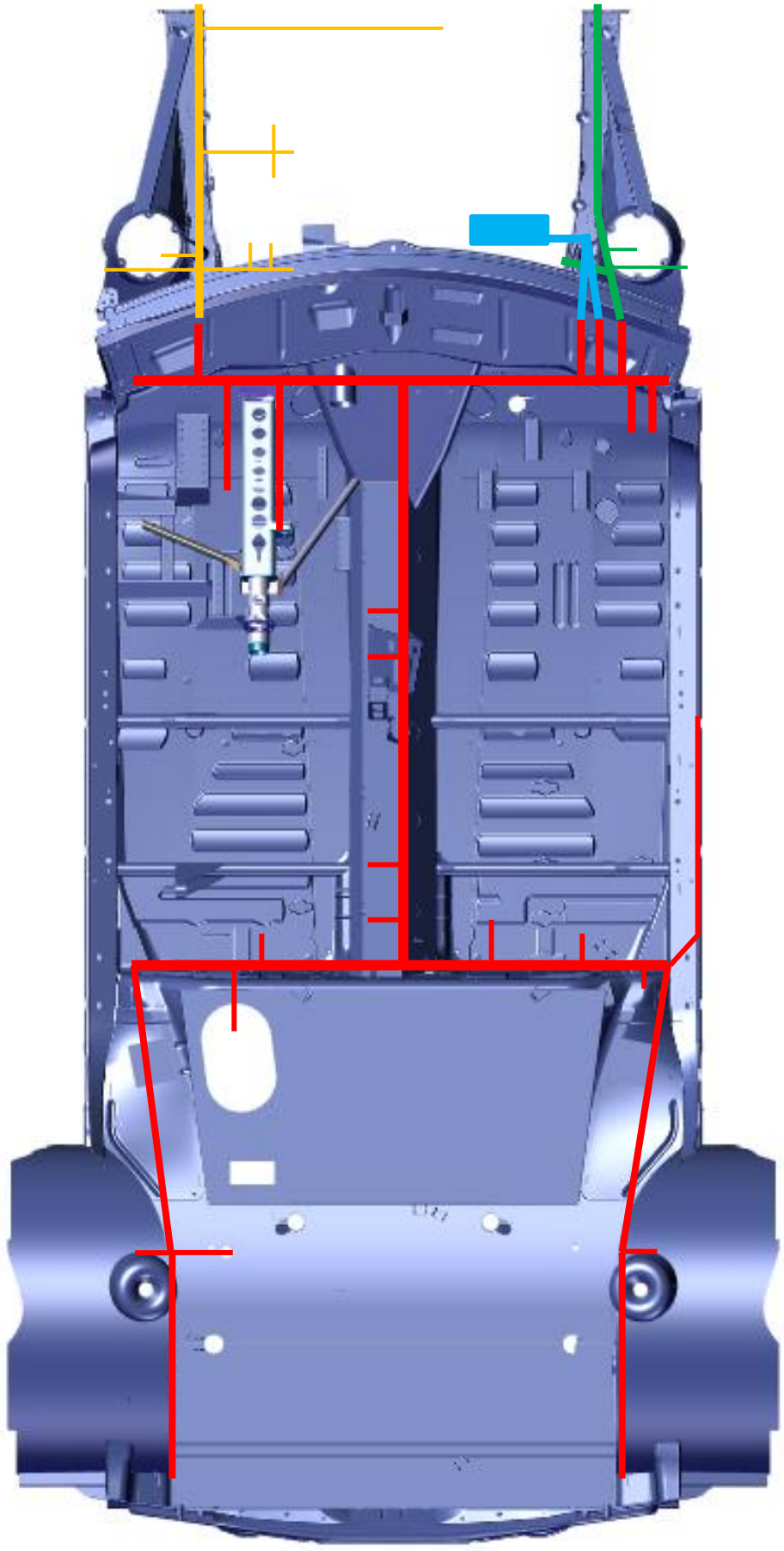
14.1.9.2 **Lifeline Zero 275**

Section 5 – System Checking

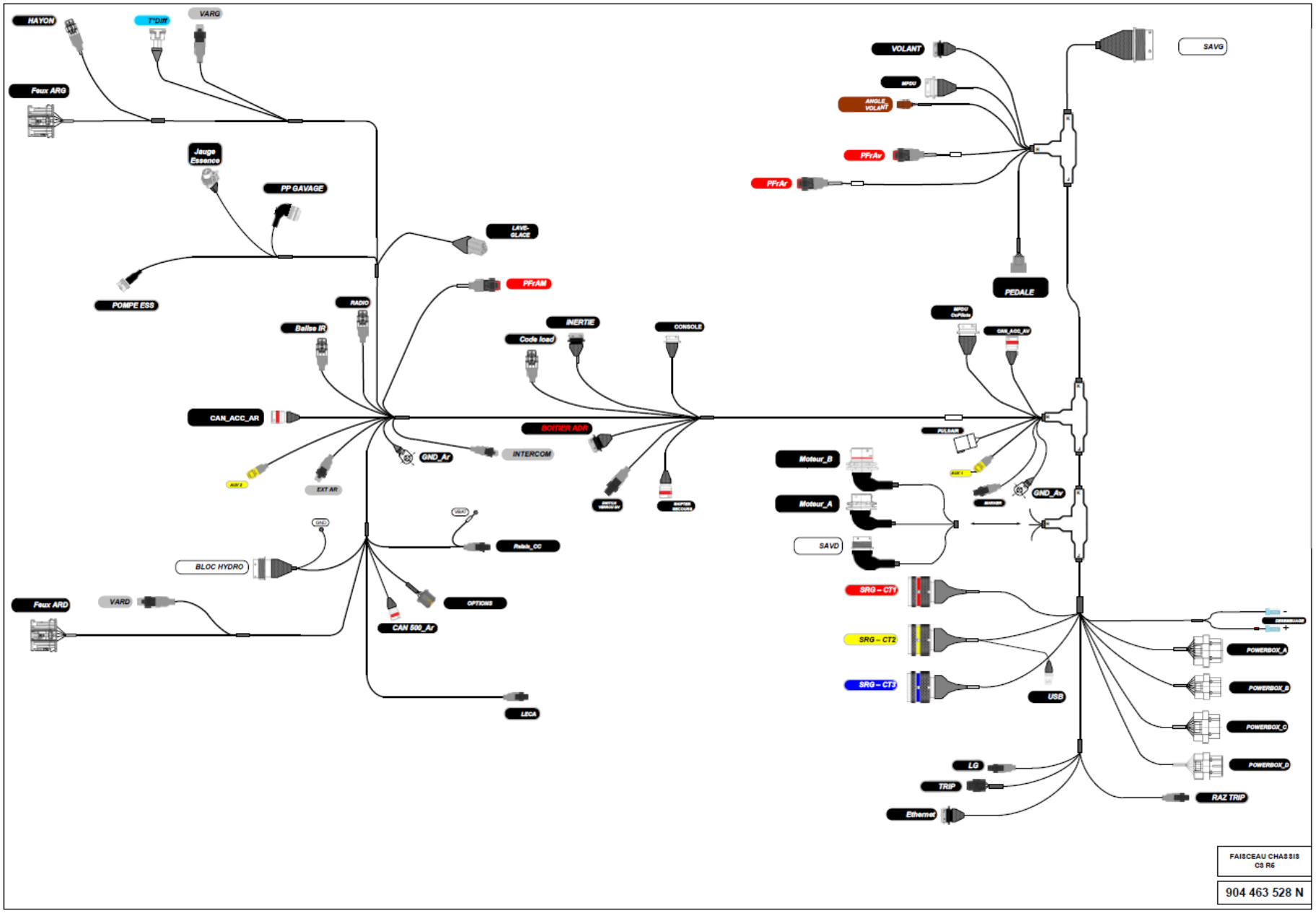
Item	Procedure
Power Pack	1. Fit the supplied Alkaline PP3 battery to the power pack *(Lifeline recommend removing the battery from the power pack in between events)* 2. Connect all plug and leads once they have been fully assembled following the instruction in Section 4. and diagram in Section 6. 3. Ensure the two position toggle switch on the power pack is in the TEST position 4. Press one of the two activation switches. The power pack then performs automatic checks of the battery condition and wiring loom 5. If the system is correctly wired and the battery condition is good, the AMBER LED will illuminate for ~5 seconds and then go out. 6. If the AMBER LED flashes, there is a problem. 7. Error codes are: - a. 2 flashes = Battery problem – replace battery b. 3 flashes = Circuit problem – check plug and lead sets and activation switches 8. Once the system has confirmed that it is working correctly (no error codes), move the switch to the ARMED position. The RED LED will now flash every 3 seconds

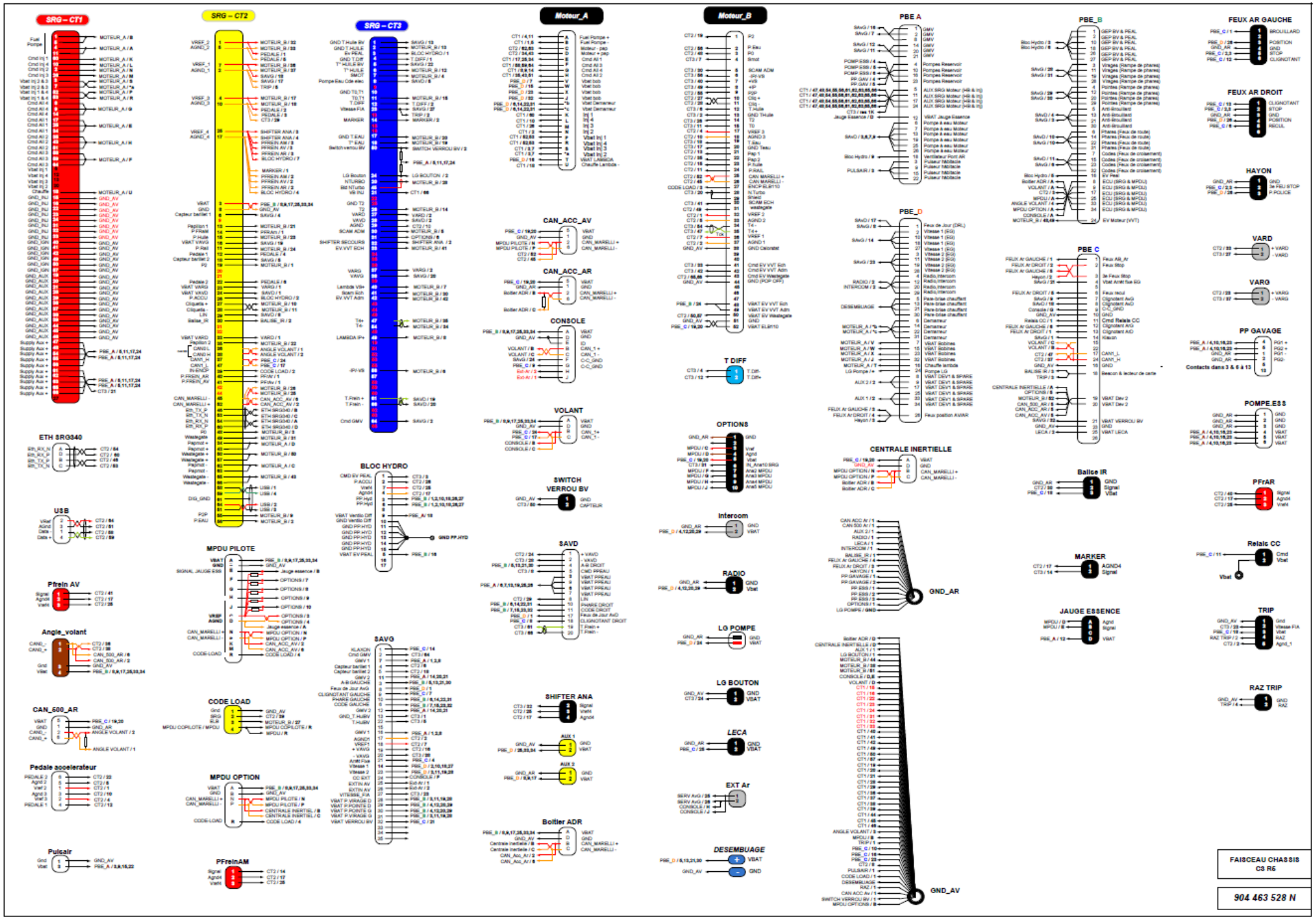
Item	Procedure
	9. The system continuously monitors the battery and circuit, if an error is found the RED LED will cease to flash
Extinguisher	1. Check that the cylinder is in date and has been serviced every two years as required 2. Check the weight of the extinguisher against that shown on the serial label. Lifeline use regularly calibrated highly accurate scales and it can be expected that some variance will be found from the weight as shown when using other equipment 3. Check the pressure gauges are in the green area of the scale. Some fluctuation can be observed in high and low temperatures, this is normal.  Extinguisher systems with a pressure gauge showing the above readings shall be considered OK  Extinguisher systems with a pressure gauge showing the above readings shall be considered NOT OK *(ref FIASDH-17-010)*

14.1.10 Looms

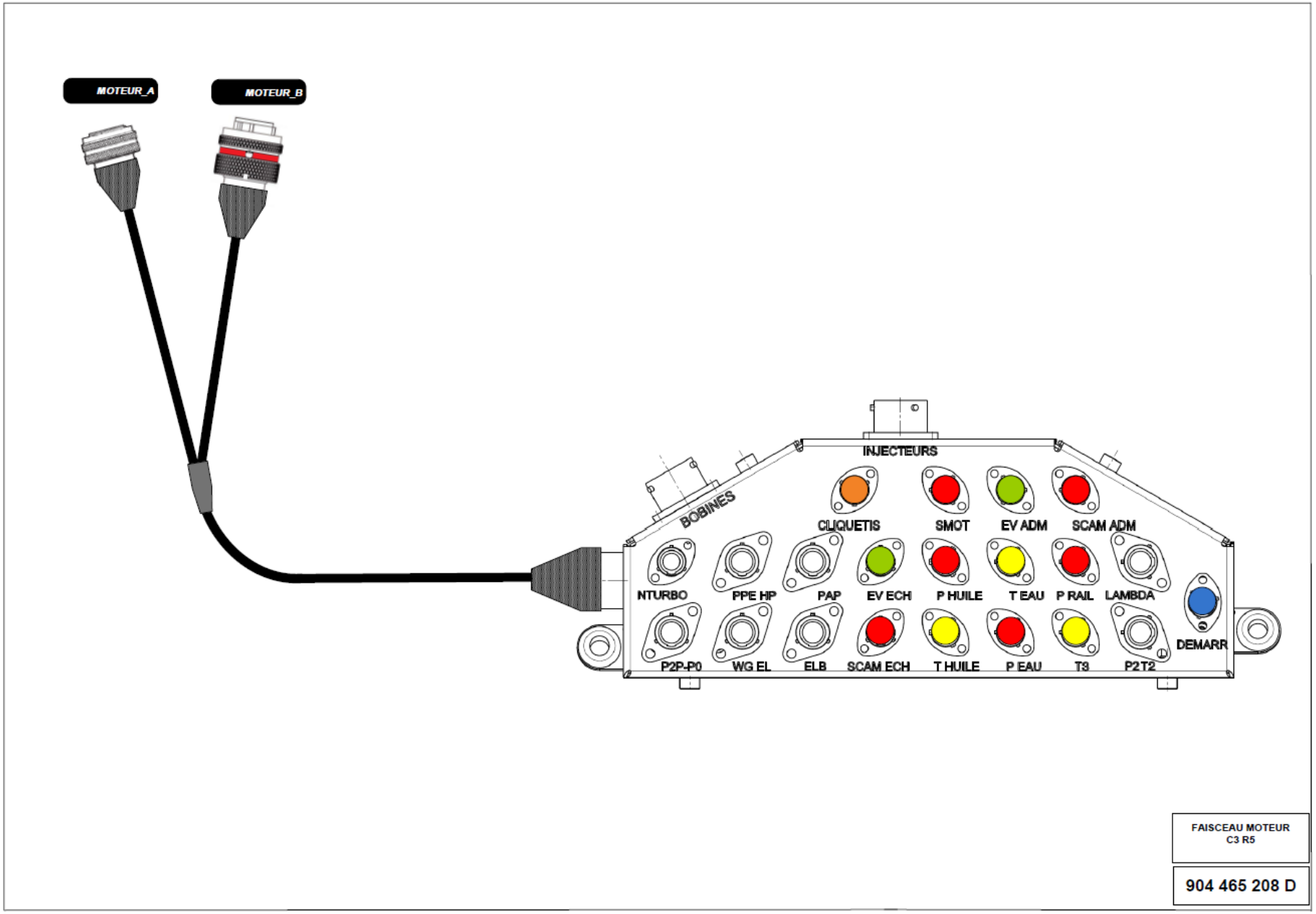


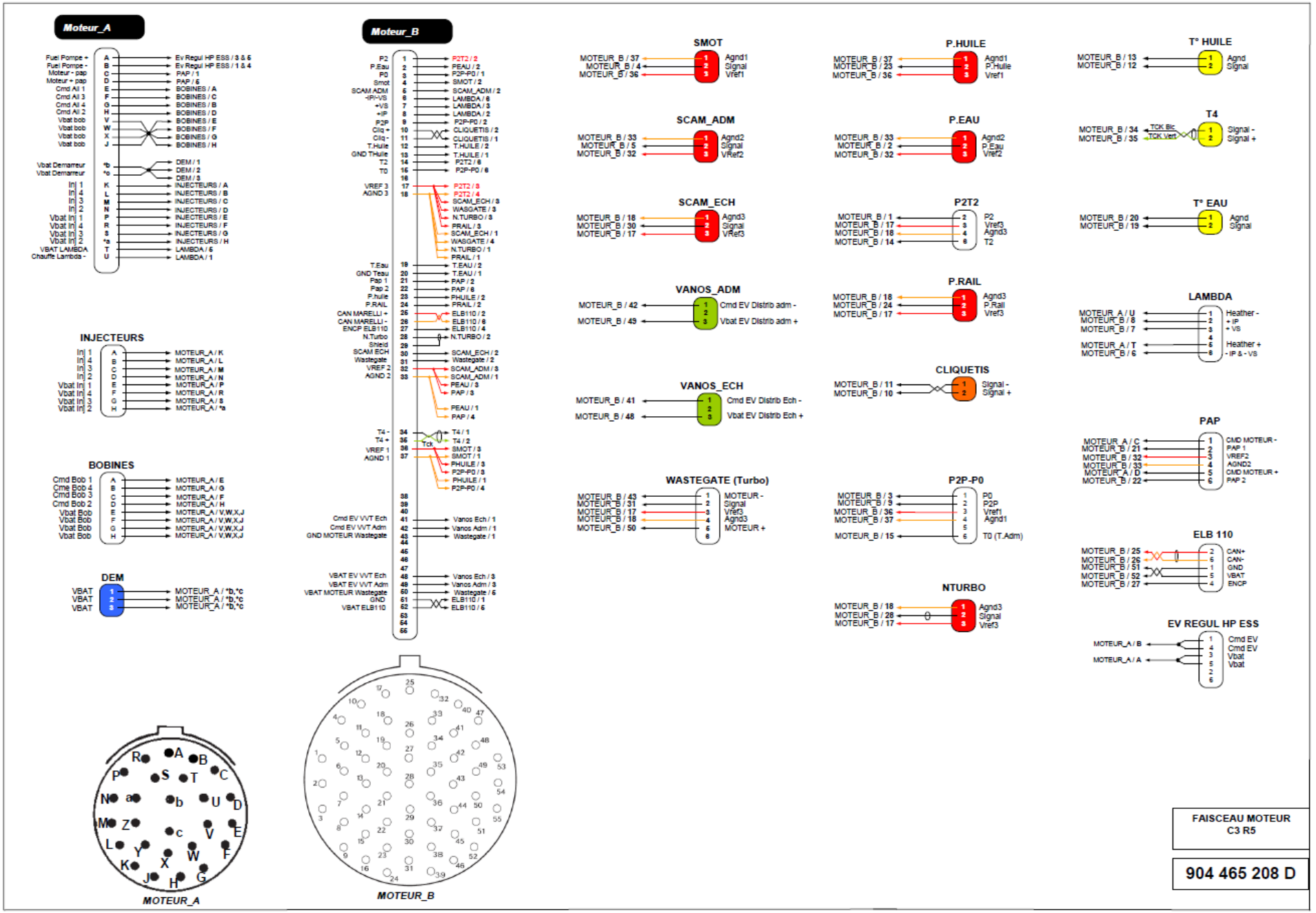
14.1.10.1 Chassis loom:



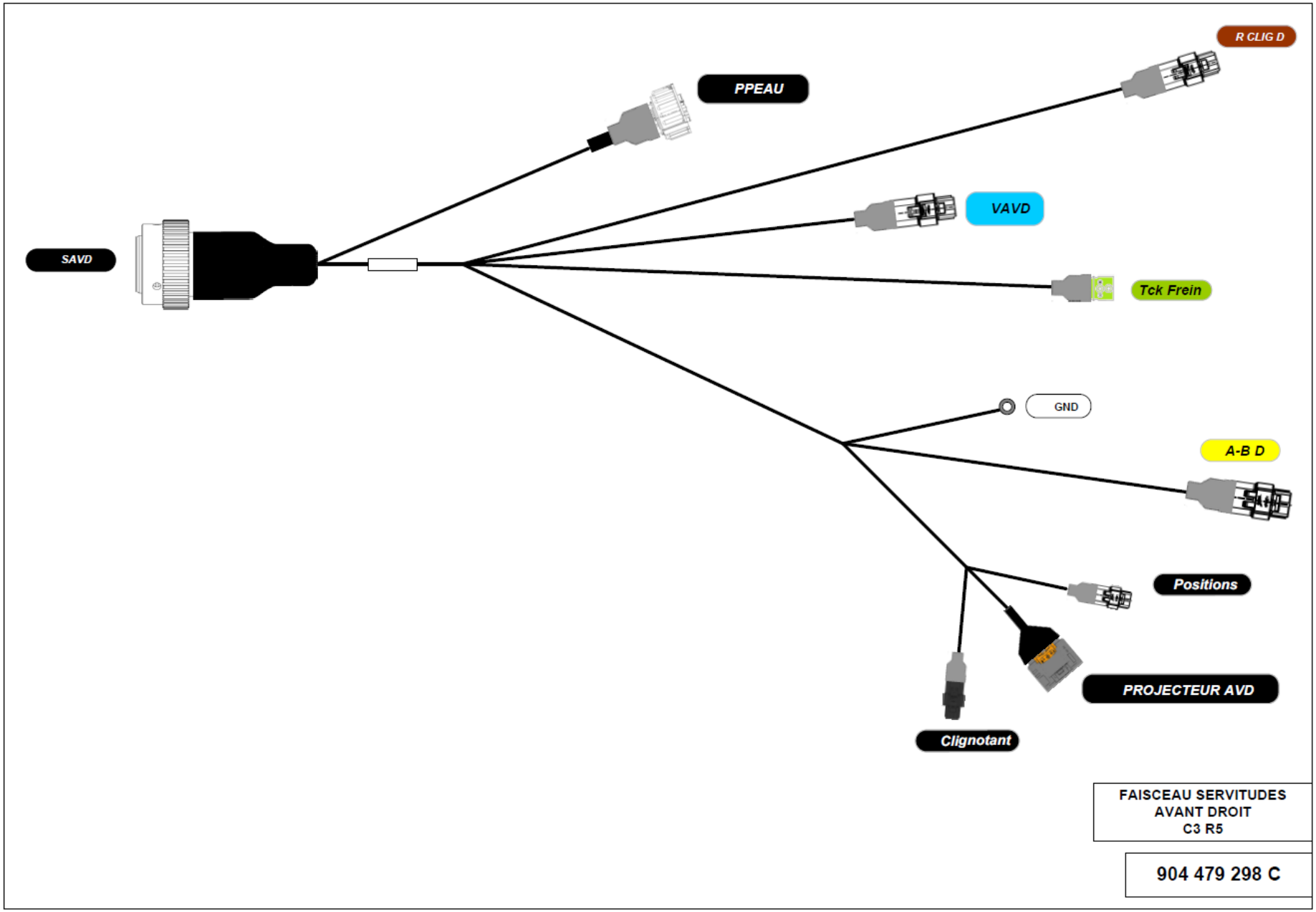

SRG – CT1
SRG – CT2
SRG – CT3
Moteur_A
Moteur_B
PBE A
PBE_B
PBE_D
PBE C
FEUX AR GAUCHE
FEUX AR DROIT
HAYON
VARD
VARG
PP GAVAGE
POMPE ESS
PFrAR
Relais CC
TRIP
RAZ TRIP
ETH SRG340
USB
Pfrein AV
Angle_volant
CAN_600_AR
Pedale accelerateur
Pulsair
MPDU PILOTE
MPDU OPTION
CODE LOAD
PFreinAM
BLOC HYDRO
SAVD
CAN_ACC_AV
CAN_ACC_AR
CONSOLE
VOLANT
SWITCH VERROU BV
SHIFTER ANA
Boitier ADR
T DIFF
OPTIONS
Interoom
RADIO
LG POMPE
LG BOUTON
LECA
EXT Ar
DESEMBUAGE
CENTRALE INERTIELLE
Balise IR
MARKER
JAUGE ESSENCE
GND_AR
GND_AV
FAISCEAU CHASSIS C3 R5
904 463 528 N

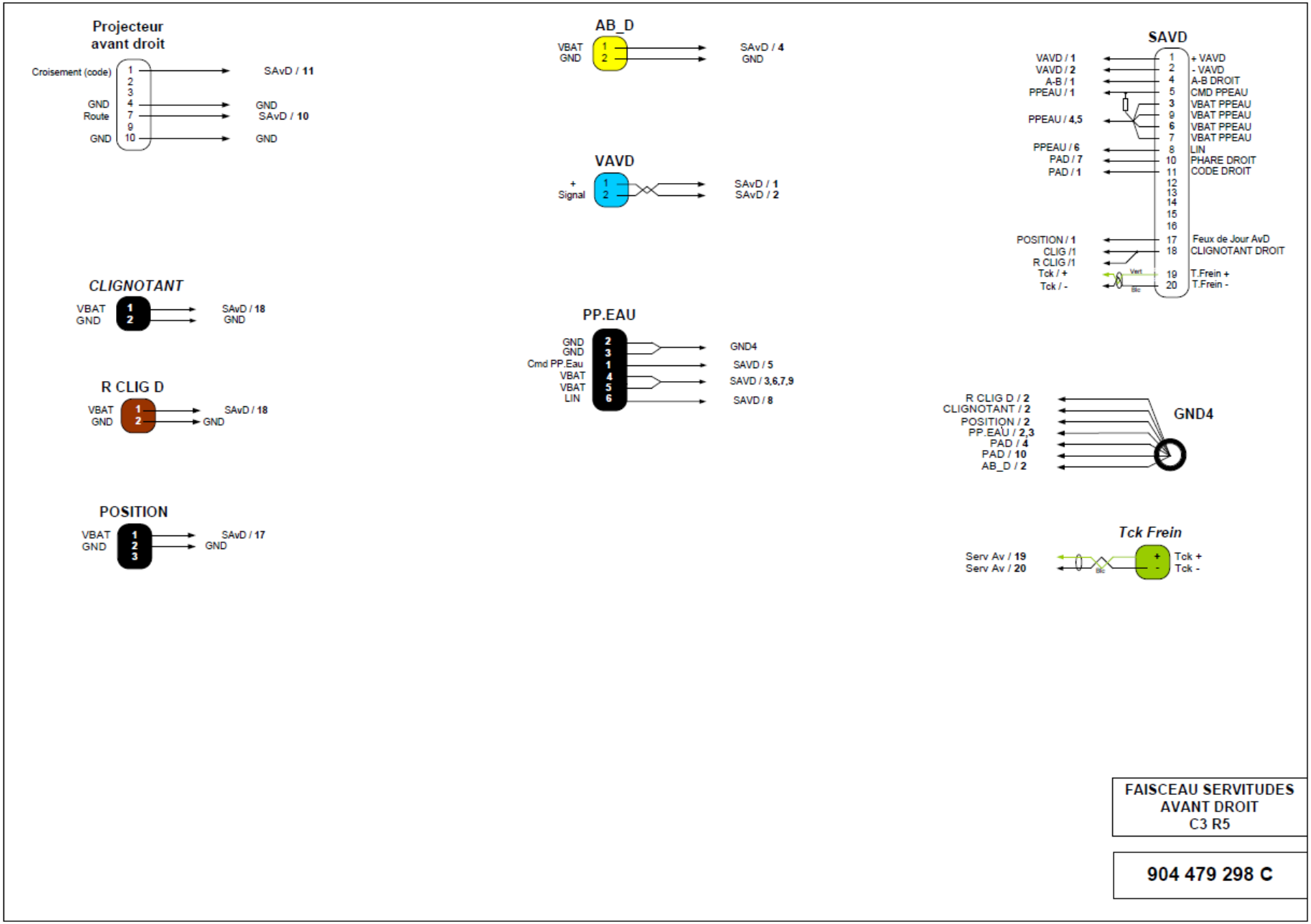
14.1.10.2 Engine loom:



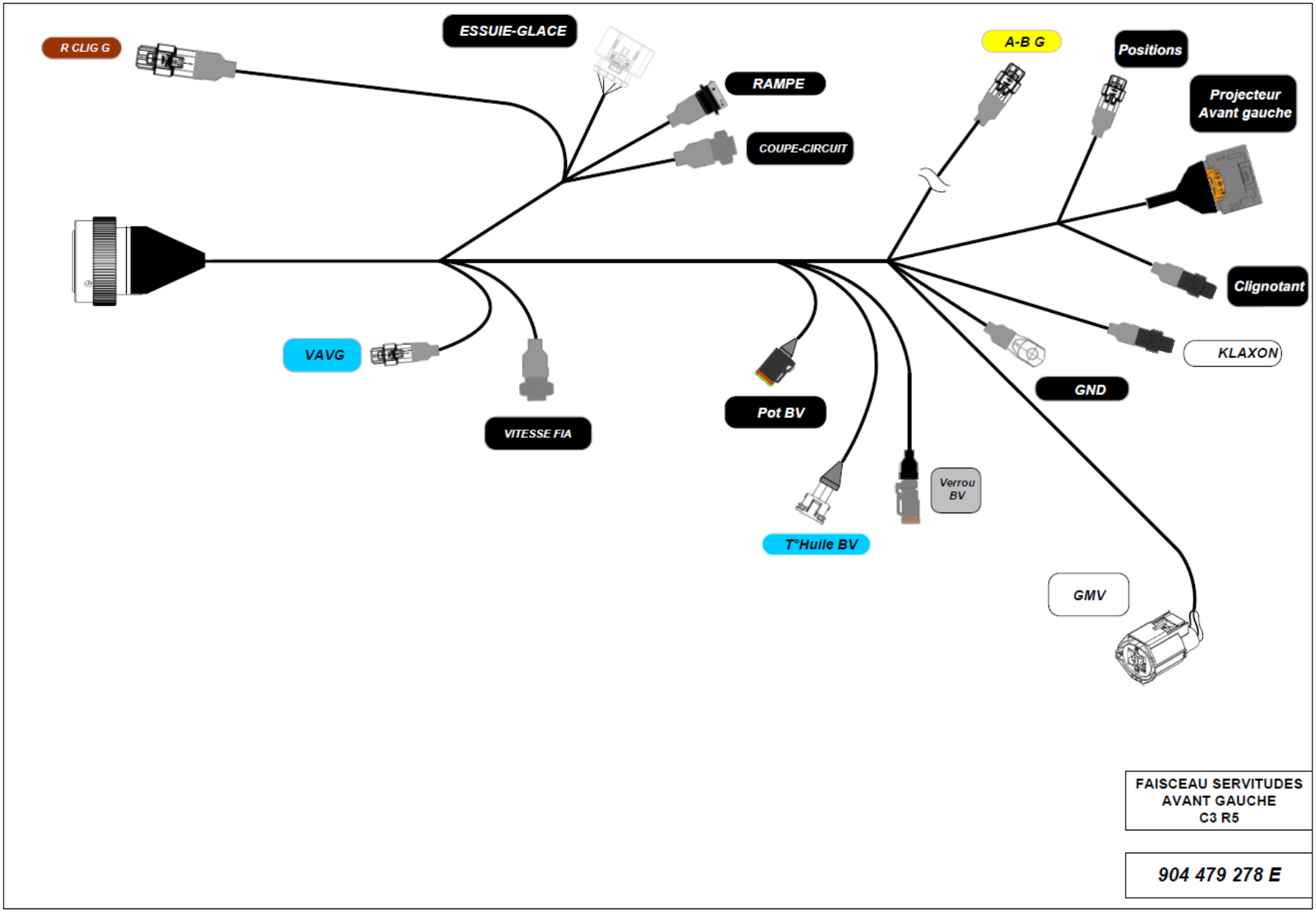

Moteur_A
Moteur_B
INJECTEURS
BOBINES
DEM
SMOT
SCAM_ADM
SCAM_ECH
VANOS_ADM
VANOS_ECH
WASTEGATE (Turbo)
P.HUILE
P.EAU
P2T2
P.RAIL
CLIQUETIS
P2P-P0
NTURBO
T° HUILE
T4
T° EAU
LAMBDA
PAP
ELB 110
EV REGUL HP ESS
MOTEUR_A
MOTEUR_B
FAISCEAU MOTEUR
C3 R5
904 465 208 D

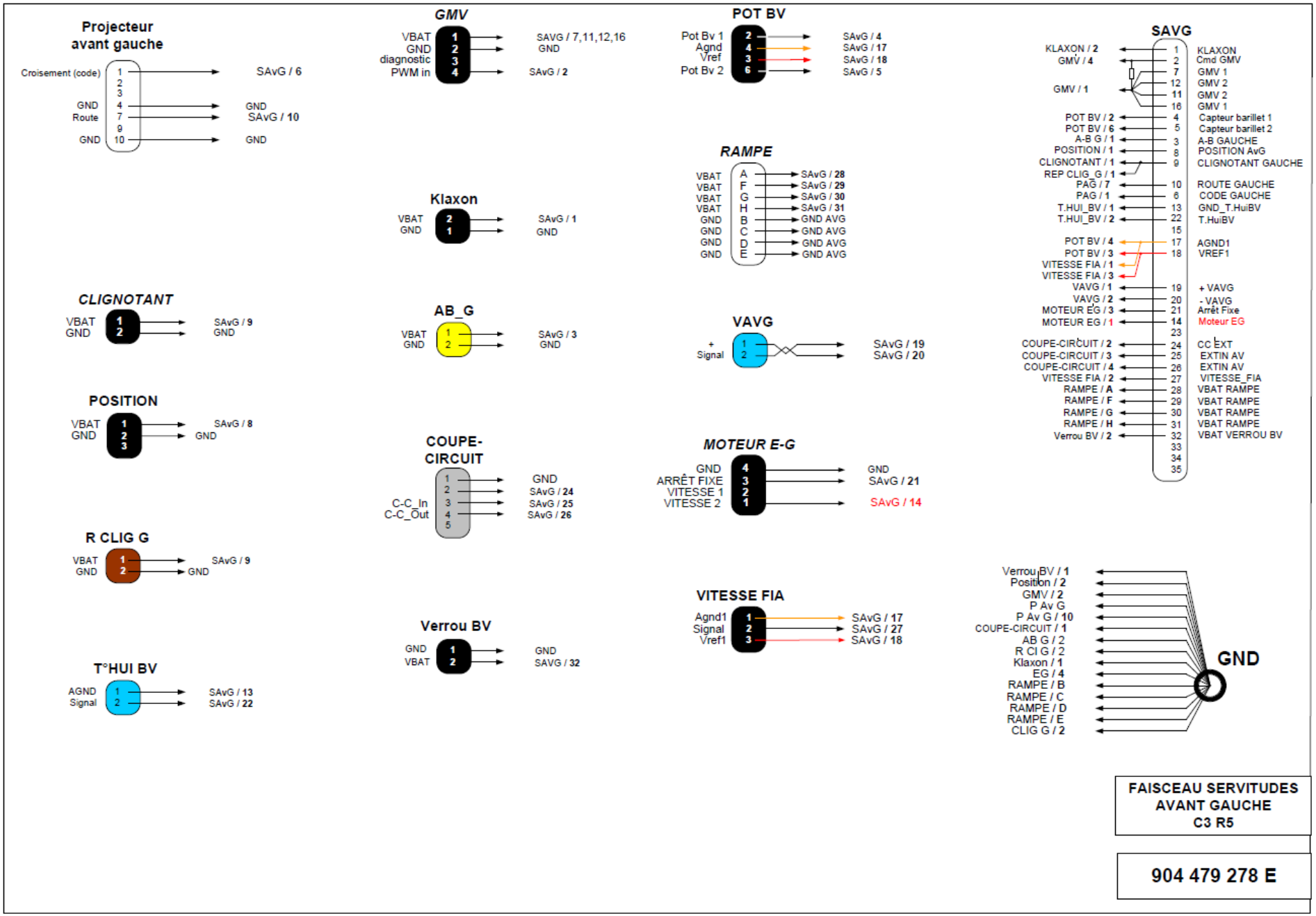
14.1.10.3 Front right loom:




Projecteur avant droit
Croisement (code) 1
2
3
GND 4
Route 7
9
GND 10
SAvD / 11
GND
SAvD / 10
GND
AB_D
VBAT 1
GND 2
SAvD / 4
GND
VAVD
+ 1
Signal 2
SAvD / 1
SAvD / 2
SAVD
VAVD / 1
VAVD / 2
A-B / 1
PPEAU / 1
PPEAU / 4,5
PPEAU / 6
PAD / 7
PAD / 1
POSITION / 1
CLIG /1
R CLIG /1
Tck / +
Tck / -
1 + VAVD
2 - VAVD
4 A-B DROIT
5 CMD PPEAU
3 VBAT PPEAU
9 VBAT PPEAU
6 VBAT PPEAU
7 VBAT PPEAU
8 LIN
10 PHARE DROIT
11 CODE DROIT
12
13
14
15
16
17 Feux de Jour AvD
18 CLIGNOTANT DROIT
19 T.Frein +
20 T.Frein -
Vert
Blc
CLIGNOTANT
VBAT 1
GND 2
SAvD / 18
GND
PP.EAU
GND 2
GND 3
Cmd PP.Eau 1
VBAT 4
VBAT 5
LIN 6
GND4
SAVD / 5
SAVD / 3,6,7,9
SAVD / 8
R CLIG D
VBAT 1
GND 2
SAvD / 18
GND
R CLIG D / 2
CLIGNOTANT / 2
POSITION / 2
PP.EAU / 2,3
PAD / 4
PAD / 10
AB_D / 2
GND4
POSITION
VBAT 1
GND 2
3
SAvD / 17
GND
Tck Frein
Serv Av / 19
Serv Av / 20
+
-
Blc
Tck +
Tck -
FAISCEAU SERVITUDES
AVANT DROIT
C3 R5
904 479 298 C

14.1.10.4 Front left loom




Projecteur avant gauche
Croisement (code) 1 → SAvG / 6
2
3
GND 4 → GND
Route 7 → SAvG / 10
9
GND 10 → GND
GMV
VBAT 1 → SAVG / 7,11,12,16
GND 2 → GND
diagnostic 3
PWM in 4 → SAvG / 2
POT BV
Pot Bv 1 2 → SAvG / 4
Agnd 4 → SAvG / 17
Vref 3 → SAvG / 18
Pot Bv 2 6 → SAvG / 5
SAVG
KLAXON / 2 → 1 KLAXON
GMV / 4 → 2 Cmd GMV
7 GMV 1
GMV / 1 → 12 GMV 2
11 GMV 2
16 GMV 1
POT BV / 2 → 4 Capteur barillet 1
POT BV / 6 → 5 Capteur barillet 2
A-B G / 1 → 3 A-B GAUCHE
POSITION / 1 → 8 POSITION AvG
CLIGNOTANT / 1 → 9 CLIGNOTANT GAUCHE
REP CLIG_G / 1
PAG / 7 → 10 ROUTE GAUCHE
PAG / 1 → 6 CODE GAUCHE
T.HUI_BV / 1 → 13 GND_T.HuiBV
T.HUI_BV / 2 → 22 T.HuiBV
15
POT BV / 4 → 17 AGND1
POT BV / 3 → 18 VREF1
VITESSE FIA / 1
VITESSE FIA / 3
VAVG / 1 → 19 + VAVG
VAVG / 2 → 20 - VAVG
MOTEUR EG / 3 → 21 Arrêt Fixe
MOTEUR EG / 1 → 14 Moteur EG
23
COUPE-CIRCUIT / 2 → 24 CC EXT
COUPE-CIRCUIT / 3 → 25 EXTIN AV
COUPE-CIRCUIT / 4 → 26 EXTIN AV
VITESSE FIA / 2 → 27 VITESSE_FIA
RAMPE / A → 28 VBAT RAMPE
RAMPE / F → 29 VBAT RAMPE
RAMPE / G → 30 VBAT RAMPE
RAMPE / H → 31 VBAT RAMPE
Verrou BV / 2 → 32 VBAT VERROU BV
33
34
35
Klaxon
VBAT 2 → SAvG / 1
GND 1 → GND
RAMPE
VBAT A → SAvG / 28
VBAT F → SAvG / 29
VBAT G → SAvG / 30
VBAT H → SAvG / 31
GND B → GND AVG
GND C → GND AVG
GND D → GND AVG
GND E → GND AVG
CLIGNOTANT
VBAT 1 → SAvG / 9
GND 2 → GND
AB_G
VBAT 1 → SAvG / 3
GND 2 → GND
VAVG
+ 1 → SAvG / 19
Signal 2 → SAvG / 20
POSITION
VBAT 1 → SAvG / 8
GND 2 → GND
3
COUPE-CIRCUIT
1 → GND
2 → SAvG / 24
C-C_In 3 → SAvG / 25
C-C_Out 4 → SAvG / 26
5
MOTEUR E-G
GND 4 → GND
ARRÊT FIXE 3 → SAvG / 21
VITESSE 1 2
VITESSE 2 1 → SAvG / 14
R CLIG G
VBAT 1 → SAvG / 9
GND 2 → GND
VITESSE FIA
Agnd1 1 → SAvG / 17
Signal 2 → SAvG / 27
Vref1 3 → SAvG / 18
Verrou BV
GND 1 → GND
VBAT 2 → SAVG / 32
T°HUI BV
AGND 1 → SAvG / 13
Signal 2 → SAvG / 22
Verrou BV / 1
Position / 2
GMV / 2
P Av G
P Av G / 10
COUPE-CIRCUIT / 1
AB G / 2
R Cl G / 2
Klaxon / 1
EG / 4
RAMPE / B
RAMPE / C
RAMPE / D
RAMPE / E
CLIG G / 2
GND
FAISCEAU SERVITUDES AVANT GAUCHE C3 R5
904 479 278 E

14.1.11 Auxiliary functions

14.1.11.1 Pedal, throttle and eWastegate learning

- MAIN & Power OFF
- Full Throttle and stay pressed
- MAIN ON
- Follow instruction on display and let the e-WasteGate finishes its learning before powercycling
- Conclude by a power cycle before starting the car

This learning must be done after each change for: Engine, ECU (or fuel mapping), pedal, throttle, turbo and eWastegate.

Check after calibration at idle than when eWGTarget is at 100% then eWGpos is around 96% (but not 100%). If eWGpos is at 100%, redo the calibration procedure.

14.1.11.2 VVT learning

For a better timing set, a VVT learning can be done.

For this purpose, after having done a pedal/thrtottle/eWG learning, **without doing a reset**, crank the engine during 5s.

This has to be done after each engine fitting or after change of crank/cam sensor or VVT electrovalve.

14.1.11.3 Water pump

To force water pump, for coolant circuit bleeding for example:

1 – MAIN ON & Power OFF

2 – Long push on Map Light button (check Water pump amperage), another long push to deactivate

After engine stops, the water pump continues to turn for around 30s (if MAIN stays ON).

14.1.11.4 Fuel pump (low pressure):

To force the fuel pump (to drain for example)

1 – MAIN ON & Power OFF

2 - Long push on AUX button (check Fuel pump amperage), another long push to deactivate

14.1.11.5 PEAL bleeding:

For a PEAL hydraulic bleeding, please follow instruction as below:

1 – Main ON & power ON

2 – Wait the pHydro to rise then pull handbrake to open the electrovalve.

3 – check fluid level

14.1.11.6 Steering wheel sensor reset:

1 – **Engine must be OFF**

2 – Steering rack locked

3 – MAIN ON & Power OFF

4 – Push on the dash button (button n°3).

5 – MAIN OFF

6 – Unlock steering rack

Steering wheel sensor reset must done after: sensor change, ECU change, any work on steering system.

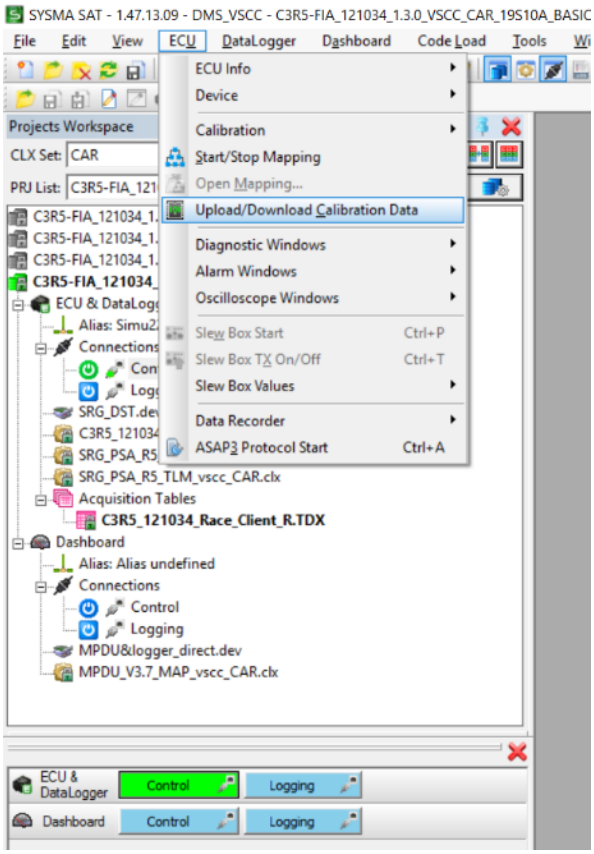
14.1.12 Engine map upload

The C3R5 system enables you to change the mapping of the ECU with the Magneti Marelli software Sysma.

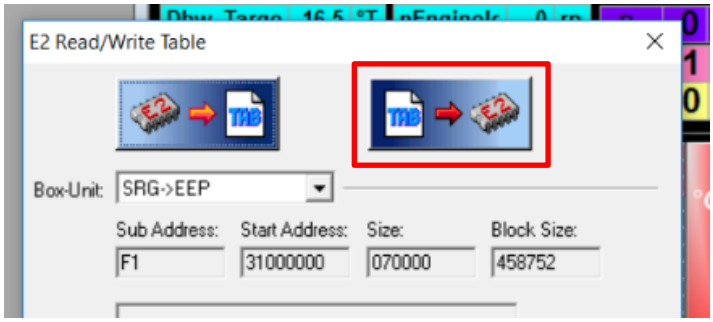
In the following pages, we describe the procedure to update the mapping of your ECU (do not forget to change the IP Adress, see §15.2). Insert the dongle supplied.

Download sysma software from FTP server and install it. It will ask for the dongle at some point during the installation phase.

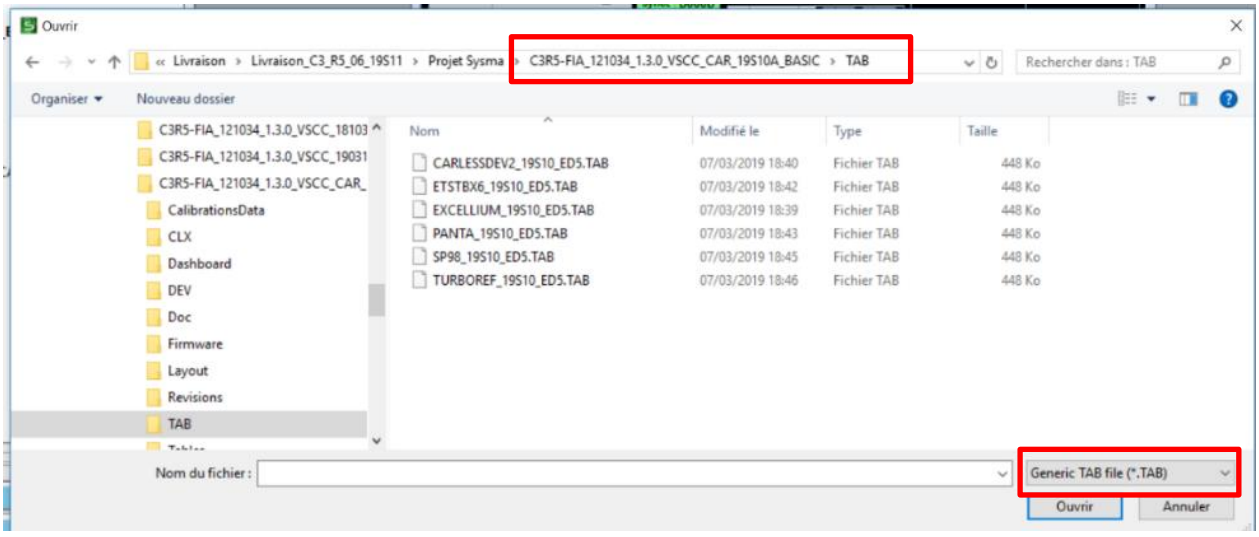
1 Open sysma and load (open) project C3R5-FIA_142222_xxxxxxxx_BASIC_CAR,
2 Ctrl + F8 to get the connection status,
3 Click on ECU & Datalogger > Control. It must switch to green (you will be ask to choose your ECU number),
4 The ECU > Upload/Download Calibration Data,



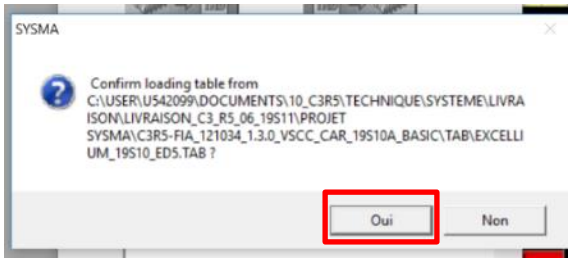
5 Click on TAB to E2,



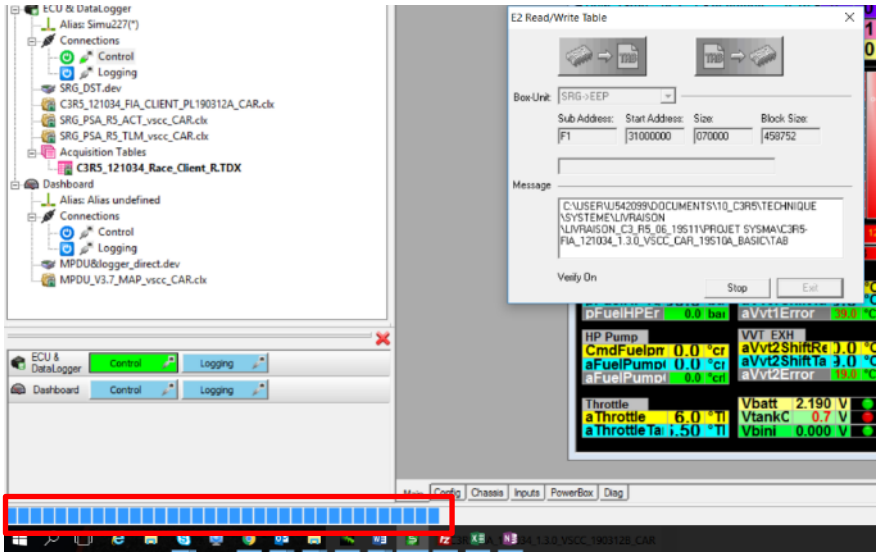
6 Go to TAB or CalibrationData directory and change for Generic TAB File,



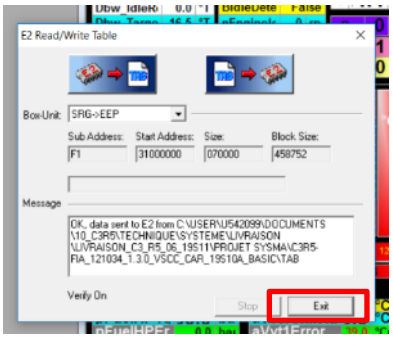
7 clics Yes



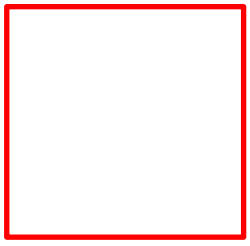
8 the state of the upload is displayed,



9 Once down, click on Exit



10 You can then check on the Config tab that the fuel map is correctly upload by matching the fuel number,

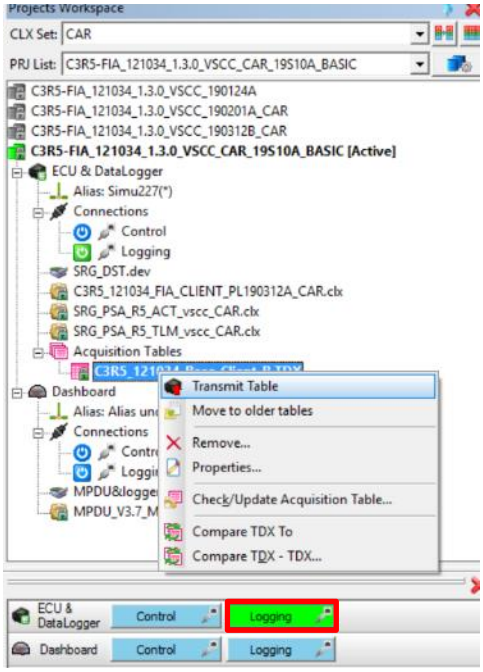


11 Click on ECU & Datalogger > Control to close the connexion. It must turn to blue,

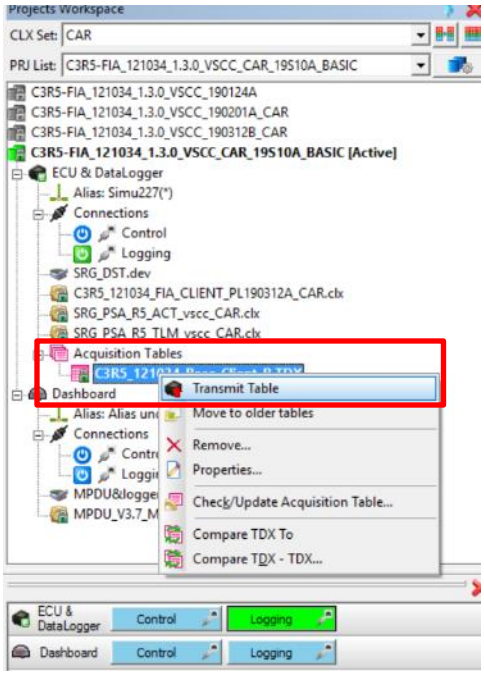
12 Finish by doing a learning procedure,

14.1.13 Logging table upload

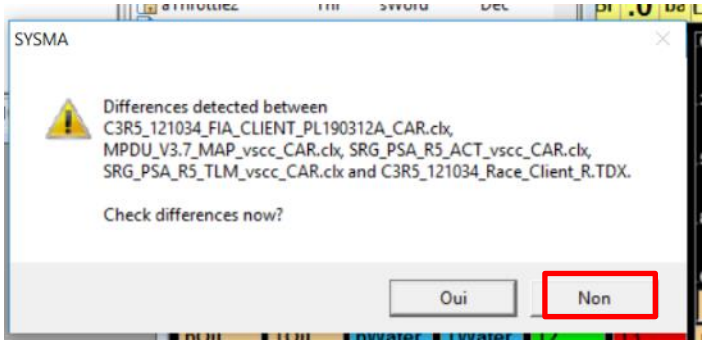
1 Once is Sysma and project open, click on ECU & Datalogger > Logging,



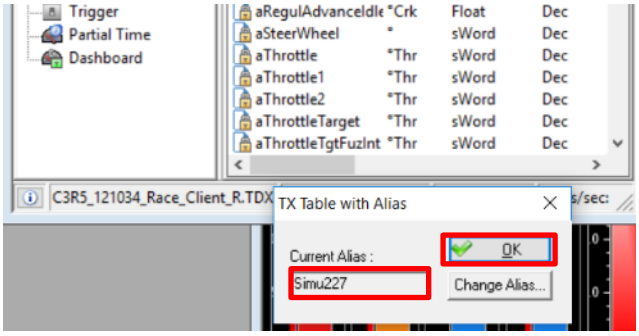
2 Right click on C3R5_121034_Race_Client_X.TDX > Transmit Table,



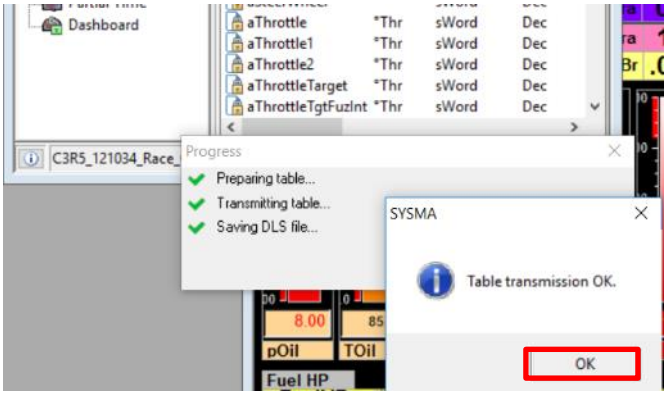
3 Click on NO,



4 Change the Alias (to select your ECU number) and click OK,



5 When finished, a ‘’Table transmission OK’’ message appears. Then click OK and disconnect the ECU on Logging,



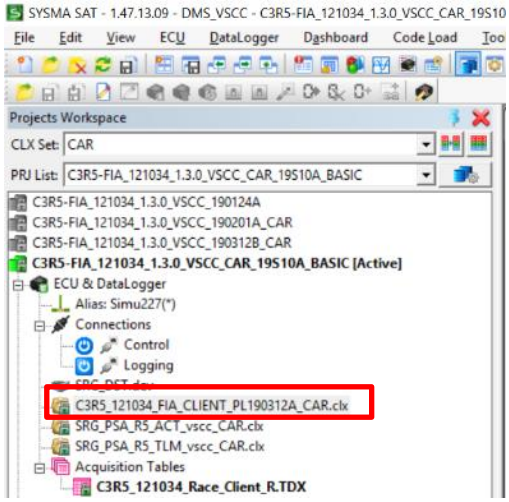
14.1.14 System customisation

The electronical system embedded in C3Rally2 allows you several personalisation, such as:

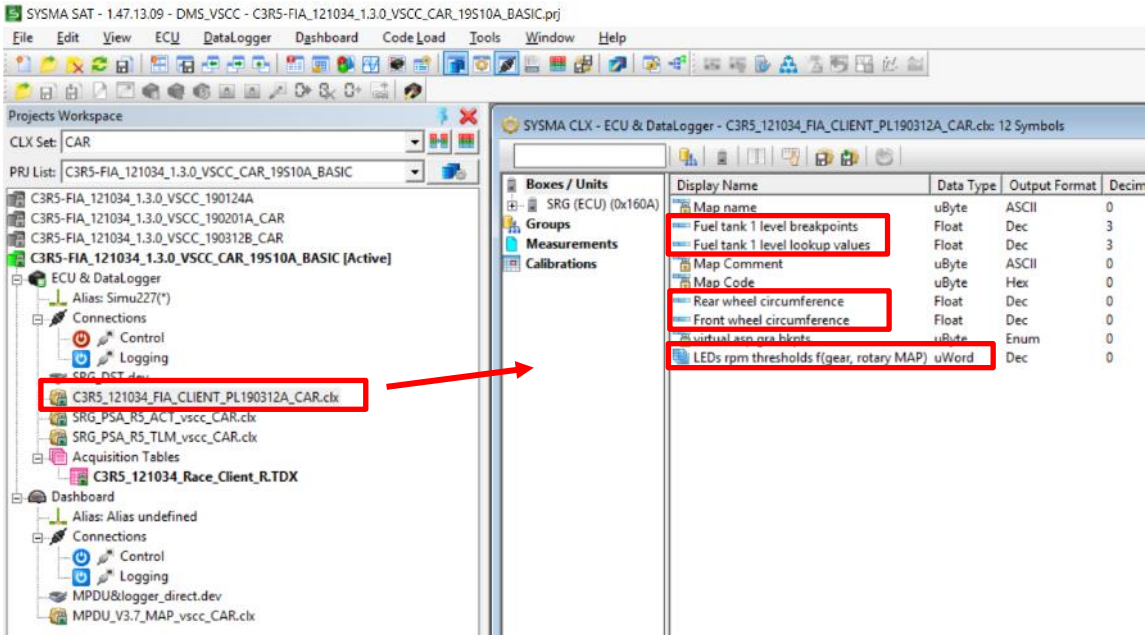
- Fuel gauge sampling (different following the fuel used)
- Shiftlights change (we advise you to keep the actual configuration)
- Tyre diameter change (to adapt different tyre types and manufacturers)

These 3 parameters are accessible through Sysma and a ‘’customer’’ map you can modify.

1 The customer map is called ‘’ C3R5_142222_FIA_xxxxxxxxx.clx ’’



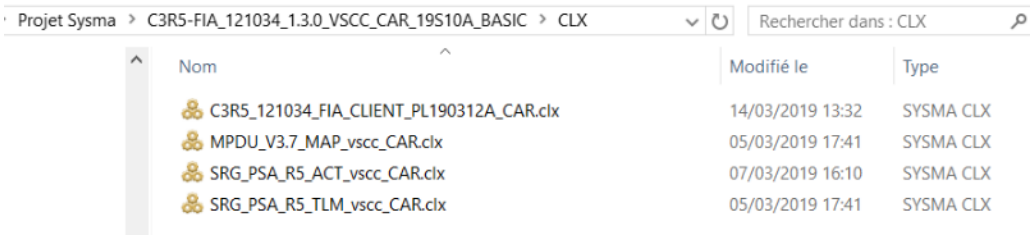
2 Double click on the map to open it. A windows opens with access to the tuneable parameters,



When your modifications are done, save the clx file under a specific name you will choose.

Note: you can only have one clx file in the project. So you need to work with all your clx file in an other folder and then copy the one needed into the clx folder in the project.

The file MPDU_xxxxx.clx and the 2 files SRG_PSAxxxxx.clx must remain there and not be modified.



Then to upload the clx file you want in the ECU, proceed as follow:

- Connect the laptop as if you want to change the ECU map (so connected to ECU),
- Right click on the clx file then click on ‘’Write Calibs to ECU’’ to upload the map,
- Check the uploading is done correctly,
- Finish by a power cycle (main OFF, wait 10s, main ON),

So, when you need to change the engine map, first write the engine map ‘’.TAB’’ and then the customer map ‘’.clx’’ (previously saved or read, by ‘’Read Calibs from ECU’’, before uploading the new engine map).

14.1.14.1 Fuel gauge sampling

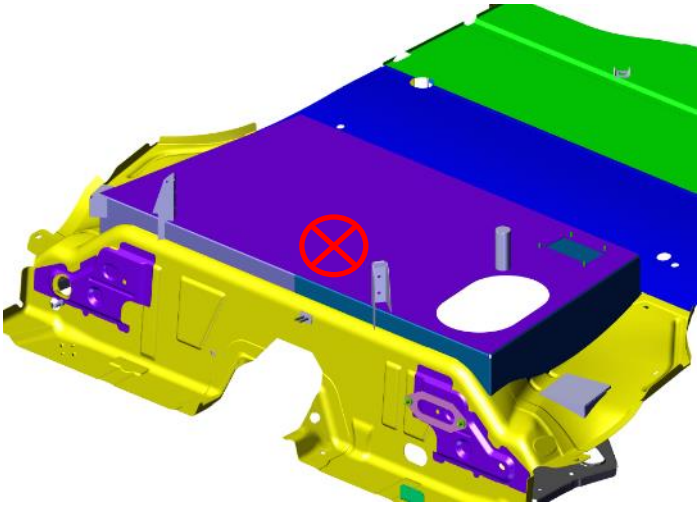
As seen previously, the fuel tank is equipped with a fuel gauge. This gauge is precise if the sampling is correctly done and if the value is read is good condition (engine OFF & flat area).

The sampling has to be (re)done for several cases:

- Gauge change
- Doubt (deviation) in value accuracy
- Fuel change
- Fuel cell change

The gap between the bottom of the gauge and the fuel cell must be (minimum) 1mm. Washers (PS81052A10) are available do adjust this gap (usually 2 or 3 washers).

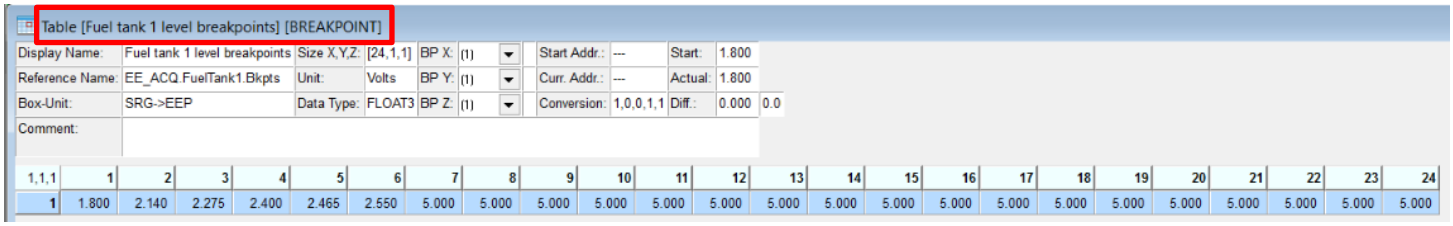
For the sampling procedure, ensure the car is as flat as possible. You can use the rear floor over the fuel cell for reference (see picture below).



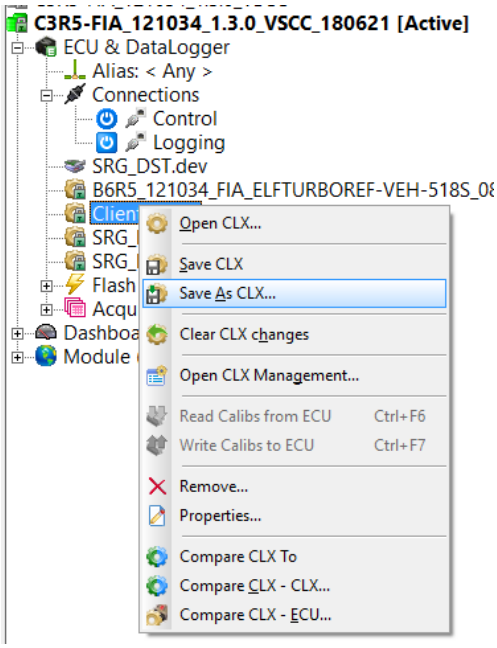
You can use till 24 samples. We advise you to care especially about the sampling between 0 and 20L.

In sysma, open the following parameters and modify according to your sampling.

Then for each fuel value, note the corresponding GaugeAna value in the



When finished, close the windows and right click on '' C3R5_142222_FIA_xxxxxxxxx.clx '', then Save_As CLX… to register the modifications under a specific file name.



14.1.14.2 Shiftlights change

The shiftlights (gear ratio background) in C3Rally2 are programmed to use the engine at its best.

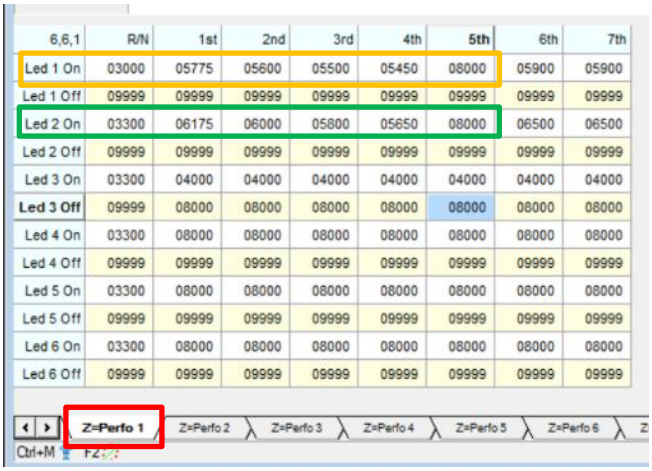
However, if you need to change them to adapt to the driver or the surface, it is possible to do so.

In Sysma, open the clx file then ''LEDs rpm threshold f(gear, rotary Map)'' parameter. Adjust the value in Perfo 1, 2 & 3.

Only change in **Led 1 On** and **Led 2 On** (rpm at which the dashboard will change its background)

Yellow background

Green Background



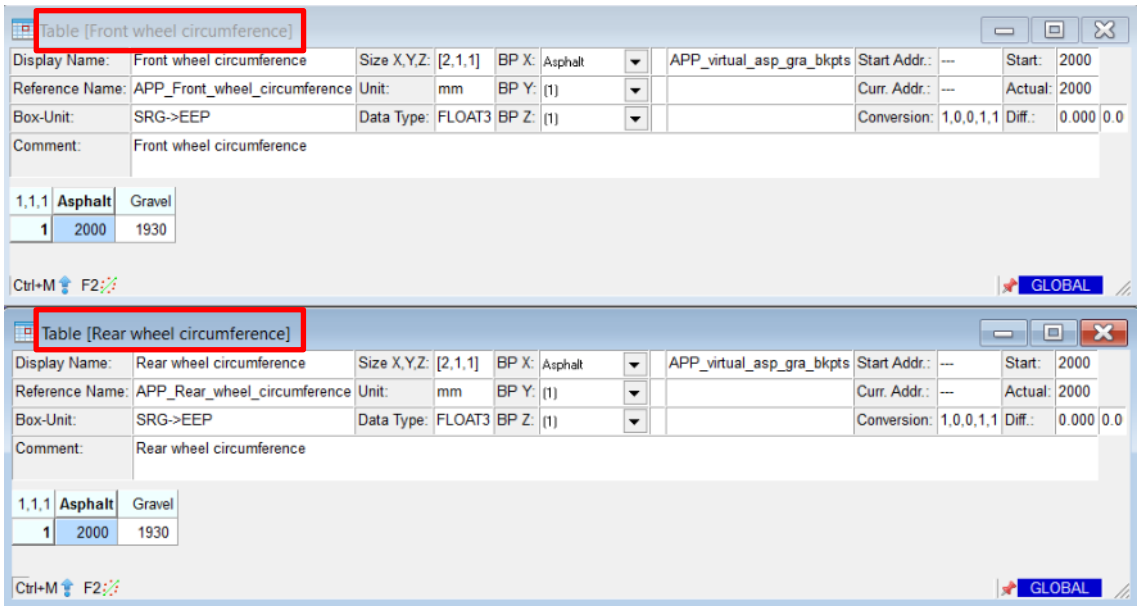
Do not forget to save your modifications !

14.1.14.3 Tyre diameter change

The tyre diameter is automatically changed according to the surface map selected at the steering wheel (initially based on Michelin tyres)

To get the correct vehicle speed following different tyre diameters, it is possible to change the circumference value in Sysma.

To proceed, open the following parameter and modify the value in mm according to your tire.



Do not forget to save your modification!

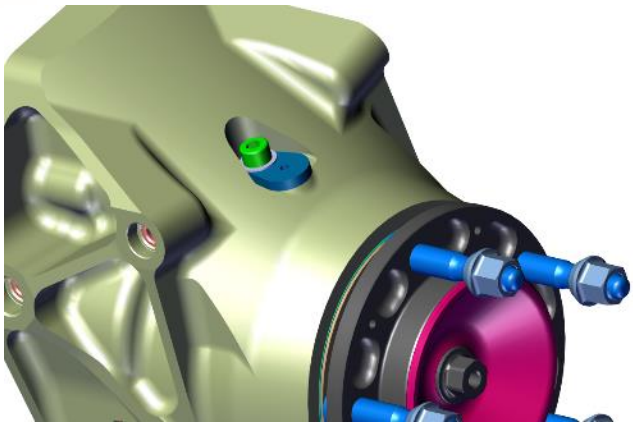
This can also be used to adapt from kph to mph (although ‘’km/h’’ are always displayed at the dashboard). To convert the speed in kph to mph, you have to multiply the diameter value by 0,621.

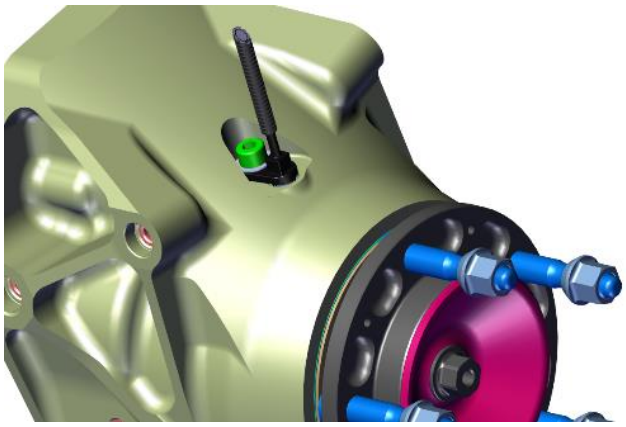
14.1.14.4 Wheel speed sensors

The loom of C3Rally2 is foreseen to allow the wheel speed sensors (ref 904267758) for the 4 wheels (those sensors are forbidden by FIA regulation during official race). The hub is already fitted with a magnetic target.

To fit the sensors, remove the cap (ref 904266798) and replace it by the sensor. Be careful to keep the O-ring in place between the cap/sensor and the upright to prevent dust or mud to enter into the upright to avoid damage to the wheel bearings.

We advise you to fit the 4 speed sensors all the time it is not forbidden (workshop start & shakedown, test, etc). This will give informations about how differentials are working.





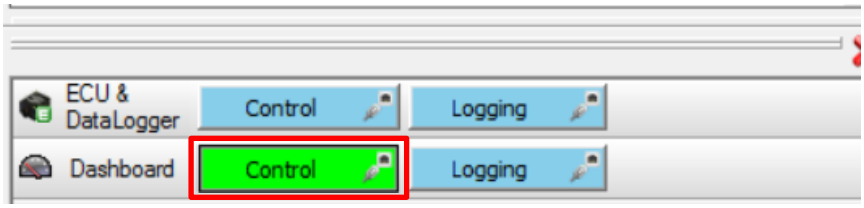
The data acquisition system is ready to accept the sensors. The channels for wheel speeds are called:

vFrontLeft, vFrontRight, vRearLeft, vRearRight

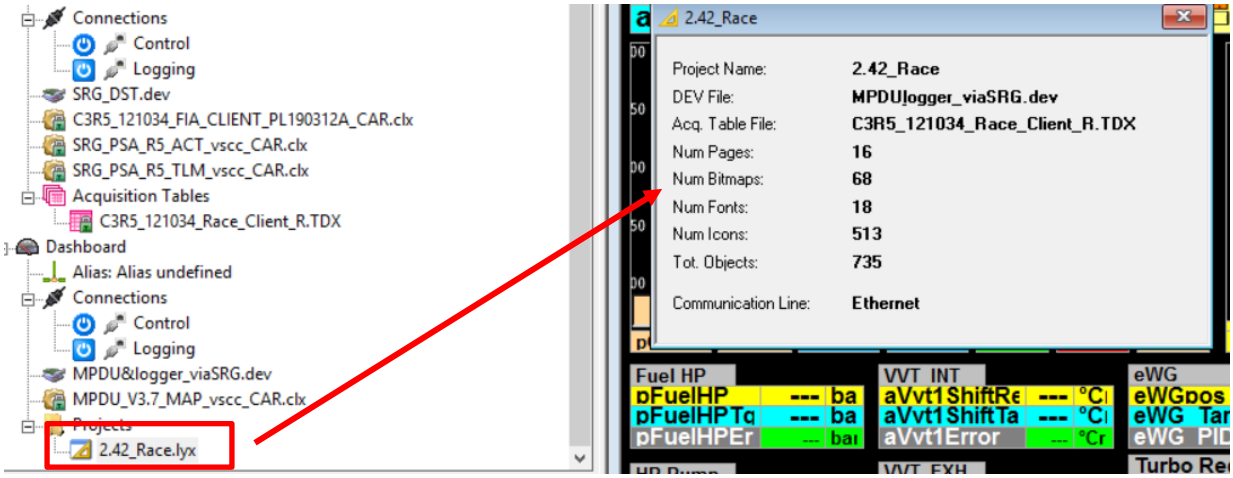
14.1.15 Dashboard configuration upload (only for MPDU Magneti Marelli)

In case a new dashboard configuration is available, you will be able to upload it to the dashboard.
To do so, proceed as follow:

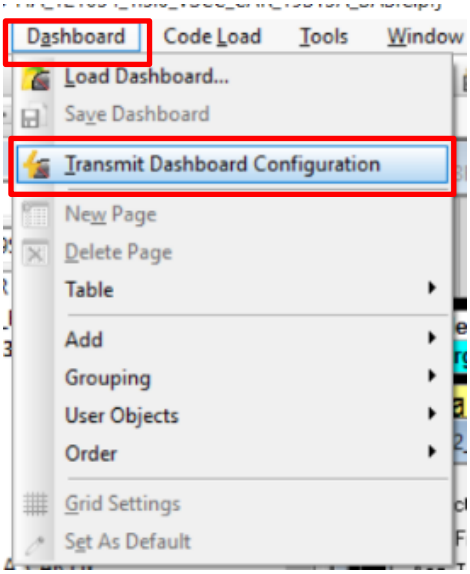
1 Click on Dashboard Control tab to connect to the dashboard (the tab should switch to green),



2 Double click on 3.xx_Race.lyx in the Dashboard section to open the file,



3 Go to Dashboard > Transmit Dashboard Configuration,



4 Check the upload is correctly done,

5 Then right click on MPDU_V3.8_MAP_vscc_CARxxxxx.clx -> Write Calibration

6 Do a power cycle and check during dashboard initializing phase that the dashboard configuration is the right one (you should see the x.xx.lyx displayed)

14.1.16 Data logging:

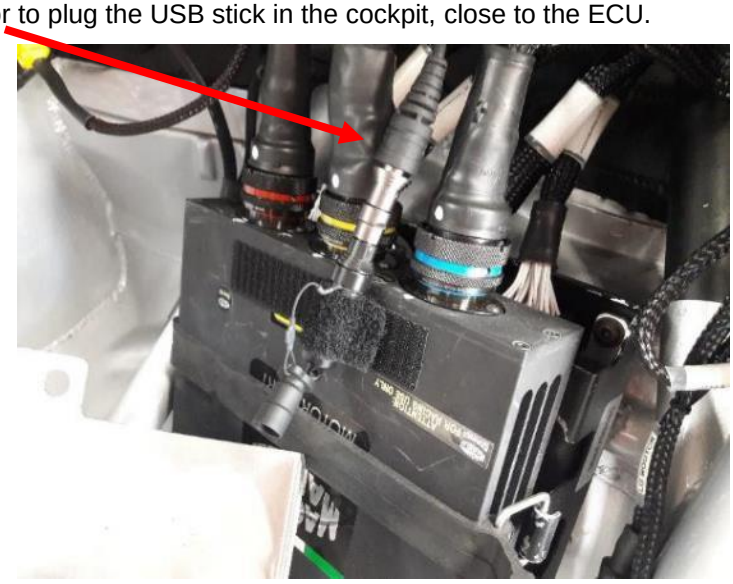
C3Rally2 is delivered with a data logging USB stick. You will need the USB loom to use it connect it to your laptop.

You can also download the data with a data loom (ref 90389529A)

14.1.16.1 USB Stick

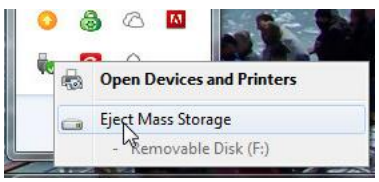
The USB stick has a capacity of 4 GB. That's more than enough for a whole WRC event.

You can find the connector to plug the USB stick in the cockpit, close to the ECU.

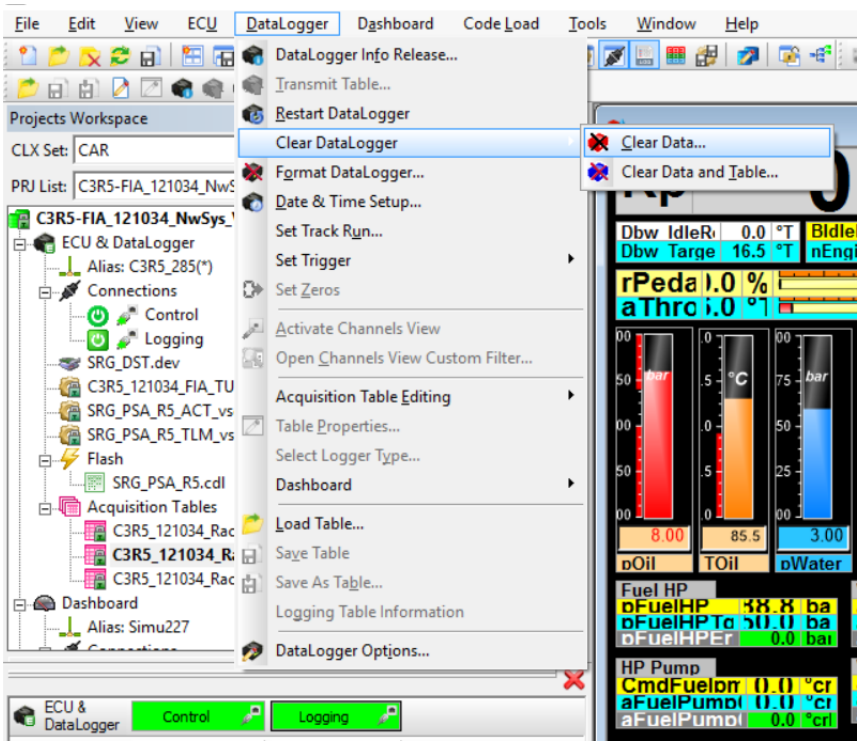


Advices for a good USB stick use:

- Never unplug the stick when engine is running and wait 10s after engine stops to remove the stick,
- Clear data from the USB stick after each downloading with a quick formatting (see ''Formatting''),
- Eject the stick properly by using the function ''Eject'' (see below) before disconnecting it from the computer,

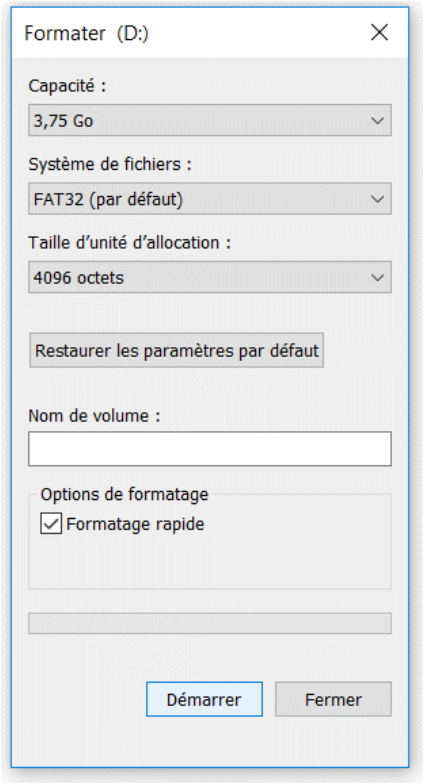


- Remove the adaptator loom (3Z9S25577A) from the computer first, then the stick from the adaptator loom,
- We also recommend you to clear the datalogger memory (with Sysma) before each event
  Datalogger -> Clear DataLogger -> Clear Data



<u>Formatting:</u>

Follow the instructions below to format the USB stick.



15 DATA ACQUISITION

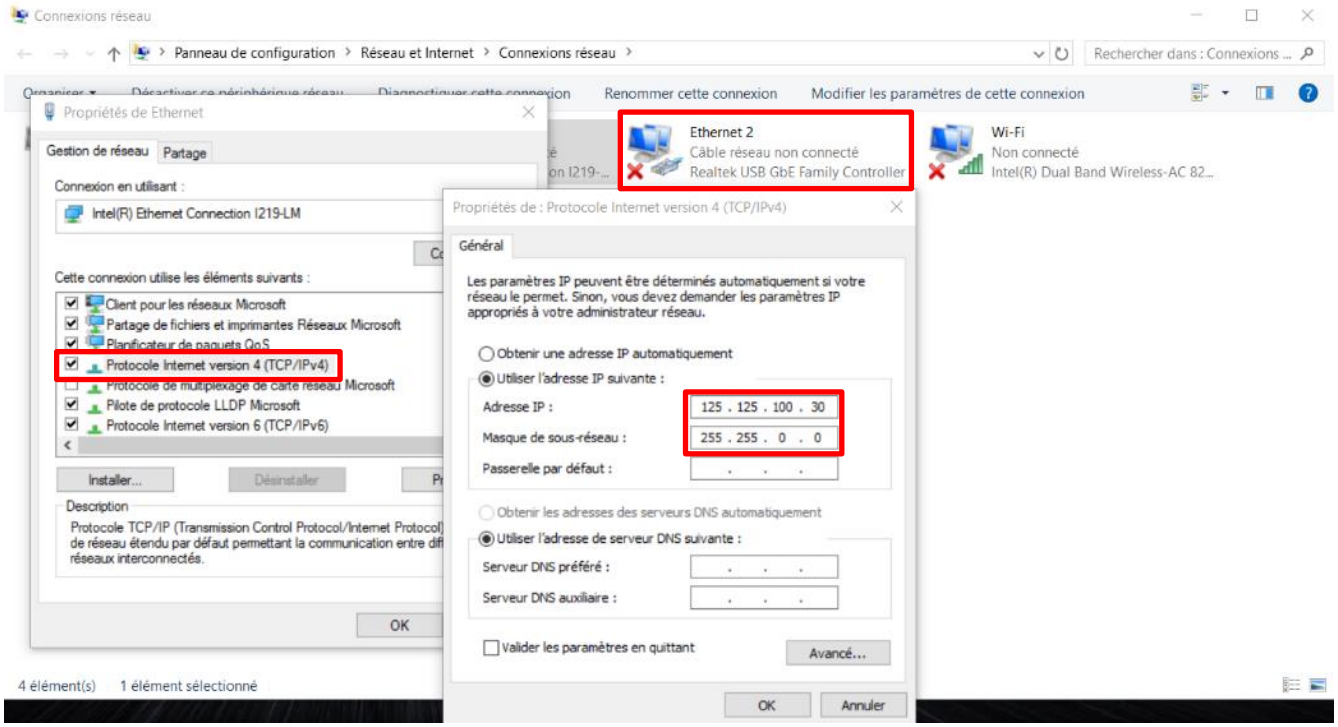
15.1 WINTAX

First of all, download the file on the FTP server and unzip it.

Launch Setup.exe to install Wintax 4.76 and follow the wizard.

15.2 NETWORK SETTINGS

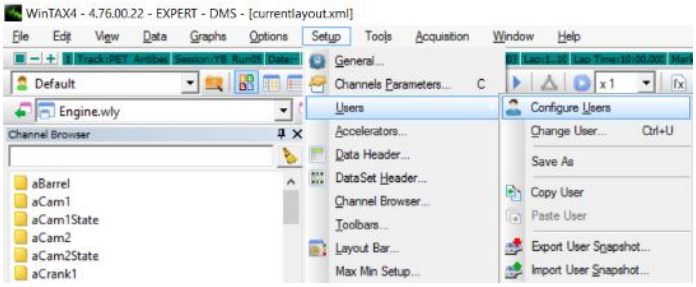
To be able to connect to the car, you need to set your IP address as below:



15.3 USER PROFILE

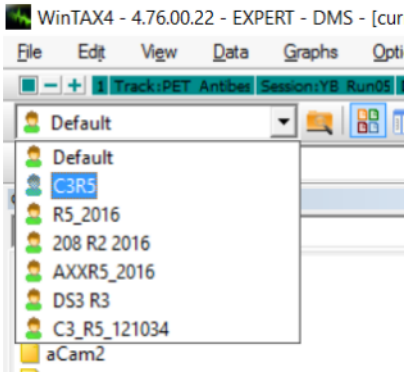
In the previous unzipped folder, the contents of the folders *Docs*, *Libraries*, *System* and *Users* need to be copied to the corresponding folders in C://Wintax4

Launch Wintax and open the windows Configure Users by *Setup/Users/Configure Users*



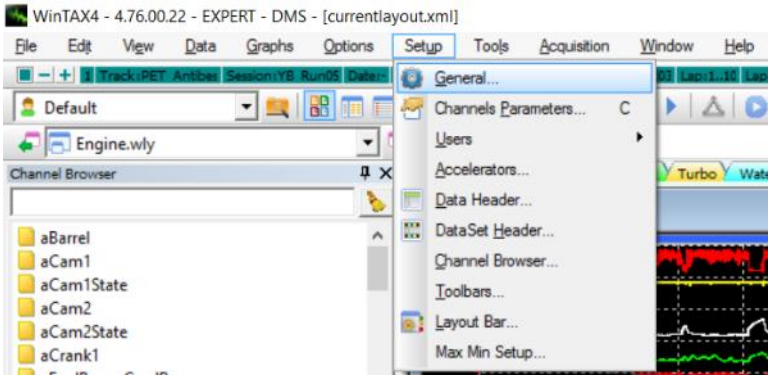
Click on the refresh icon, the C3R5 user will appear in the users list. Select the *C3R5* user and changes its level to *Super* and validate with the green tips.

Then, select the C3R5_2018 user in the main Toolbar.

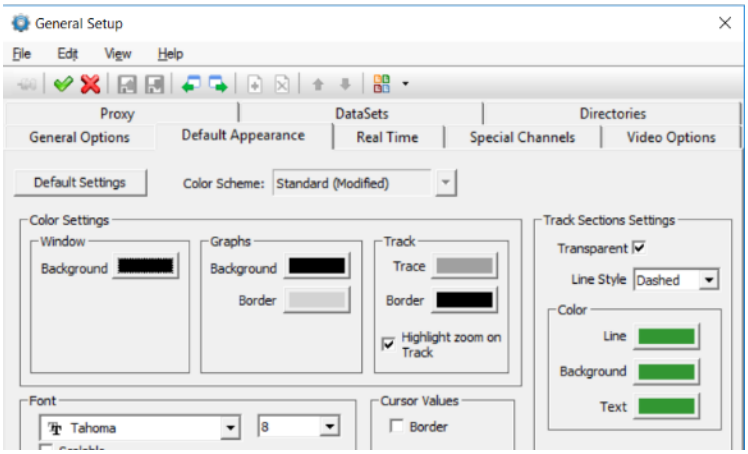


15.3.1 General setup

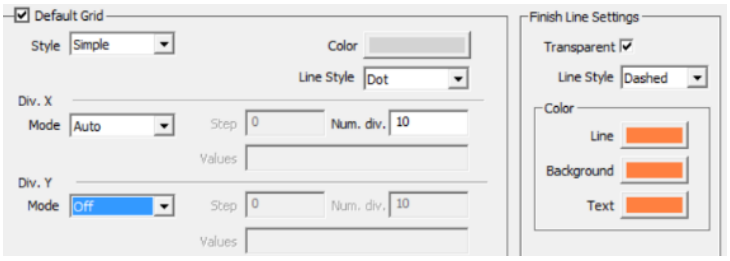
To change the general settings, open the General Setup,



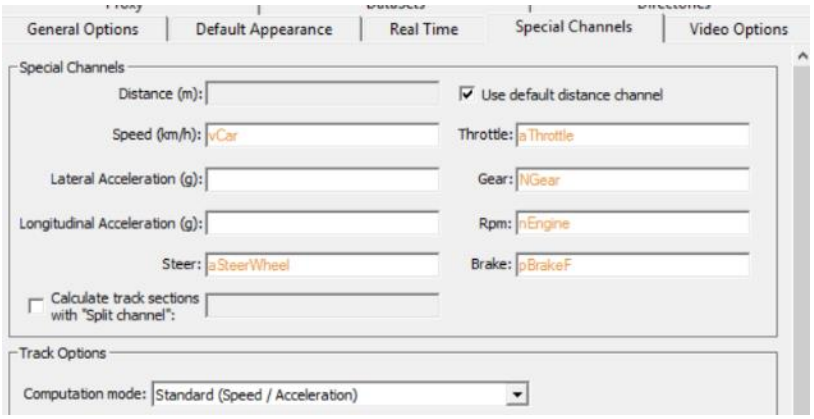
For more contrast of the display, in the *Default Appearance* tab, modify the window and graphs background to black colour,



In the same tab, switch to off the div Y grid

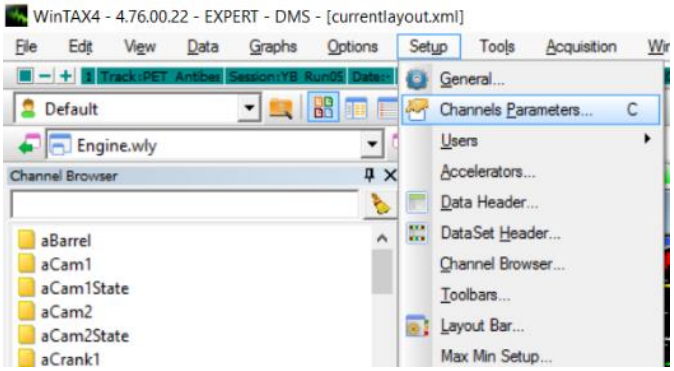


In the *Special Channels* tab, complete the special channels as shown below and validate with the green icon.

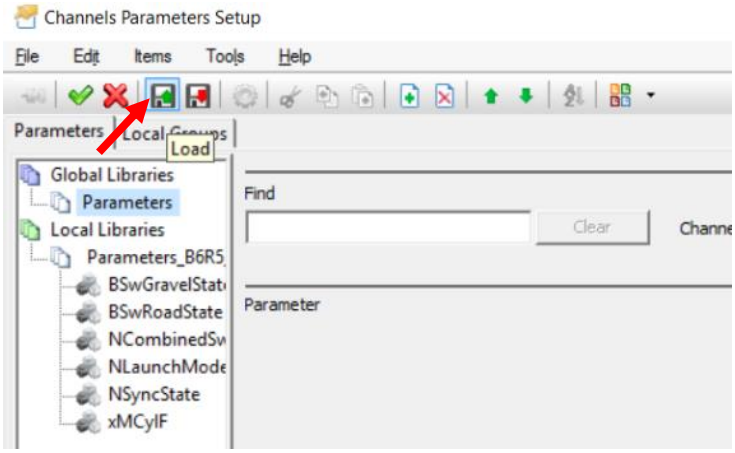


15.3.2 Channels parameters configuration

Open the Channels Parameters window



Load the file Parameters_B6R5_V1 and validate with the green icon



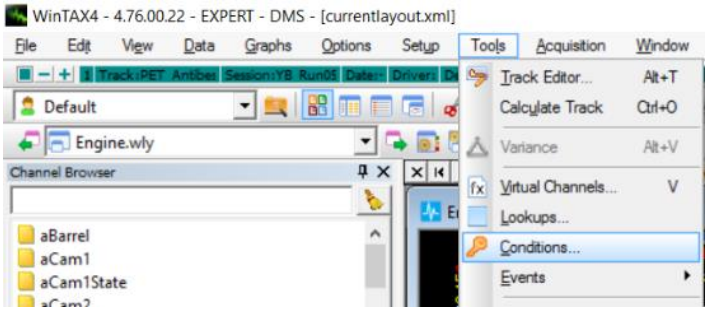
15.3.3 Virtual channels loading

To load the virtual channel libraries, open the *Virtual Channel* window

Load the ‘’vch’’ files and validate with the green icon.

15.3.4 Conditions loading Default

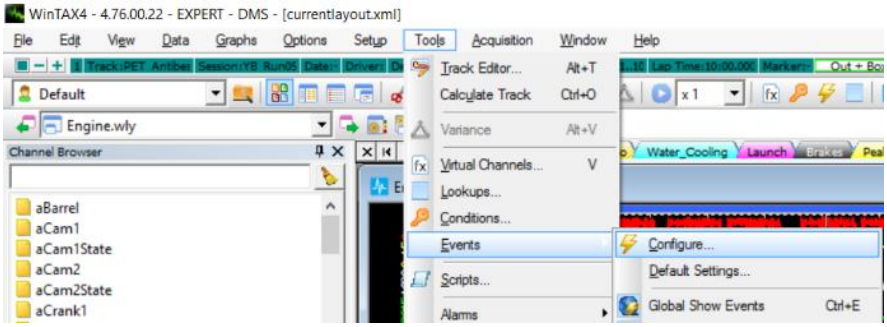
Open the Conditions window



Load the file ‘’cnd’’ file and validate with the green icon

15.3.5 Events loading

Open the Event window

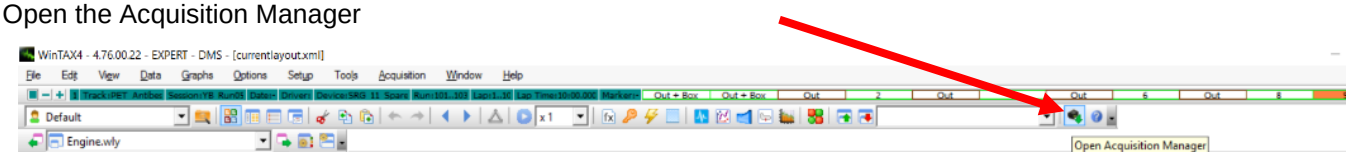


Load the ‘’evn’’ files and validate with the green icon

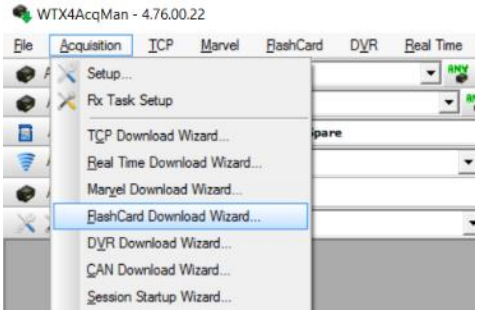
15.4 DATA ACQUISITION

15.4.1 Download data from a USB stick

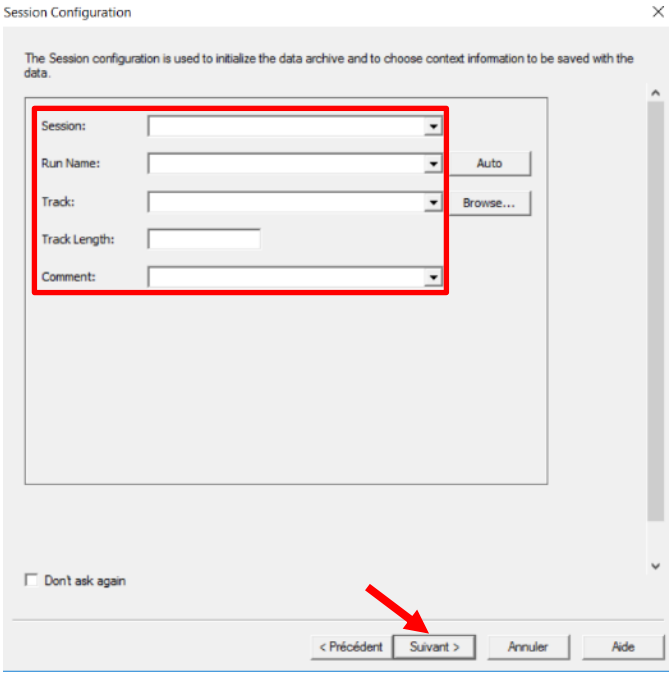
Open the Acquisition Manager



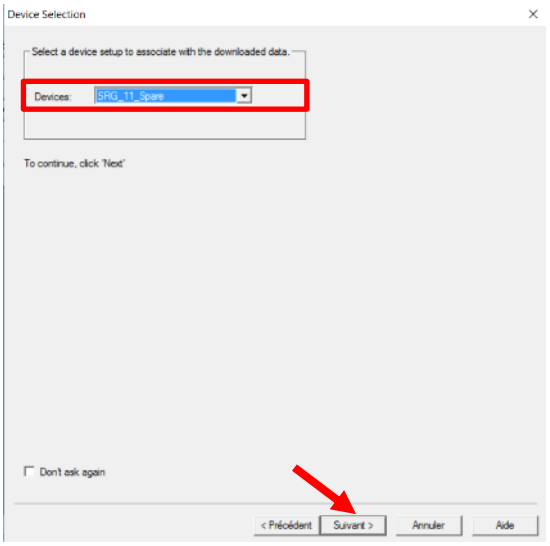
Connect the USB key to one USB port with the usb loom. Then only for the first time you download from the USB key, launch the *FlashCard Download Wizard*.



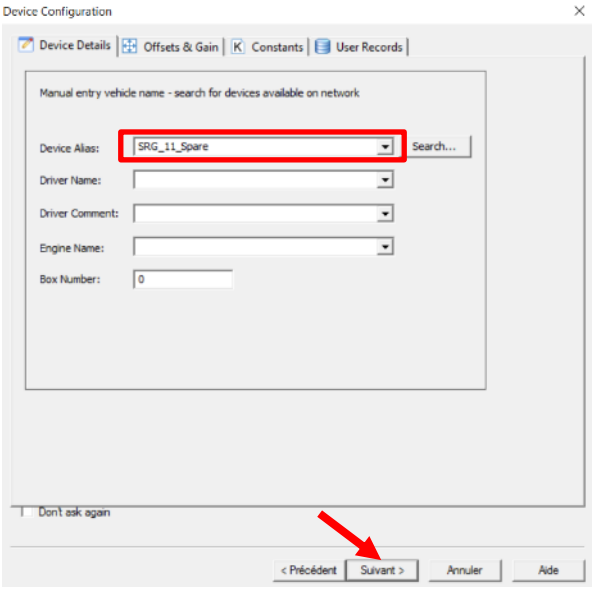
Complete information Session, Run Name Track and eventually Comments. Then click on Next,



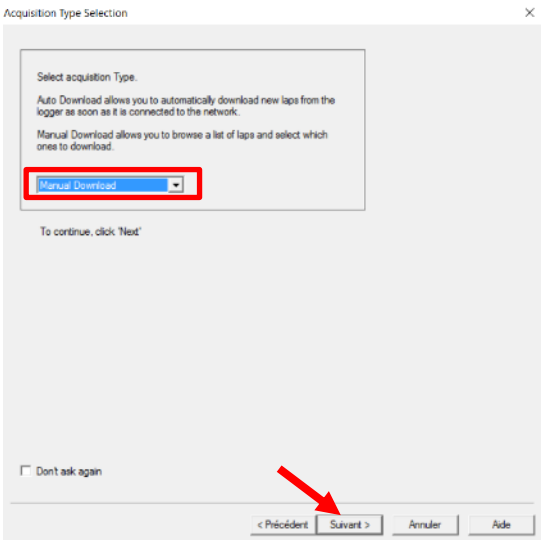
Select the device (serial number of the USB Key) connected and click on Next,



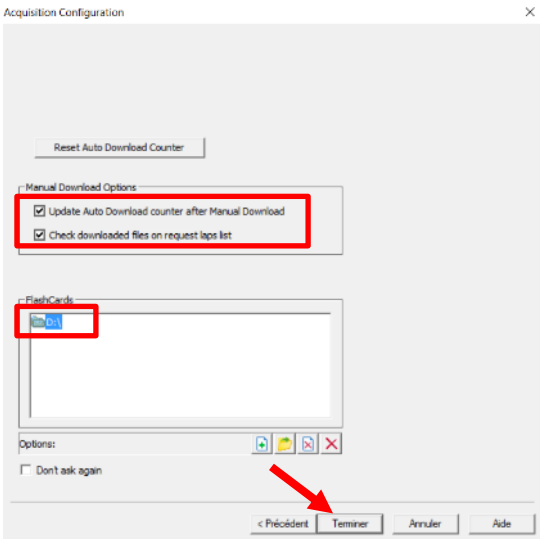
Complete the information if necessary but do not change the Device Alias. Then click on Next,



Choose Manual Download, then click on Next,



Tick both manual options then click on the Add icon. Choose the drive of the USB key then click on OK. Select the drive you have chosen (must be highlighted) in the FlashCards frame, then click on End.

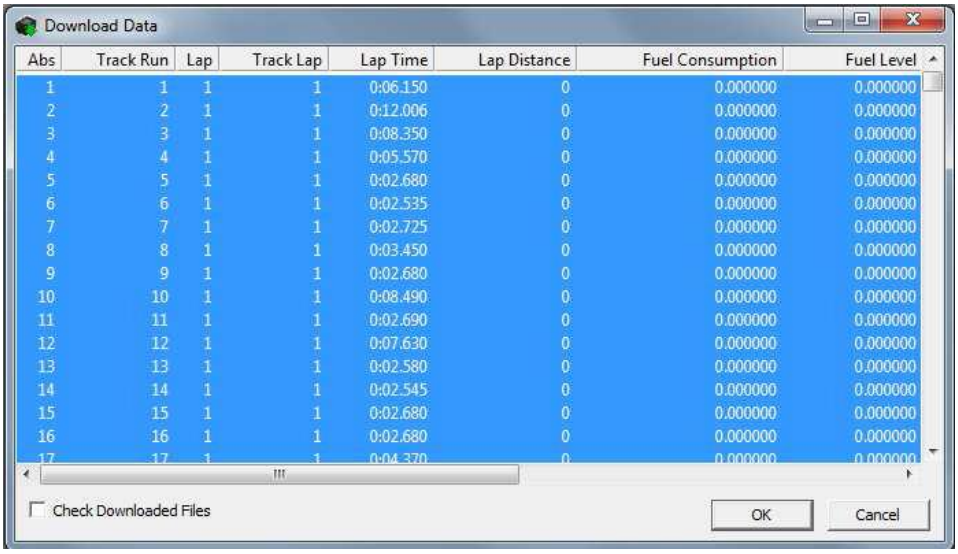


When done, you can properly download data as follow:

Select the device you want to download the data from and then click on *Activate Flashcard* icon

Wait the *Activate Flashcard* icon turns to green, then click on *Download Data from Datalogger FlashCard*

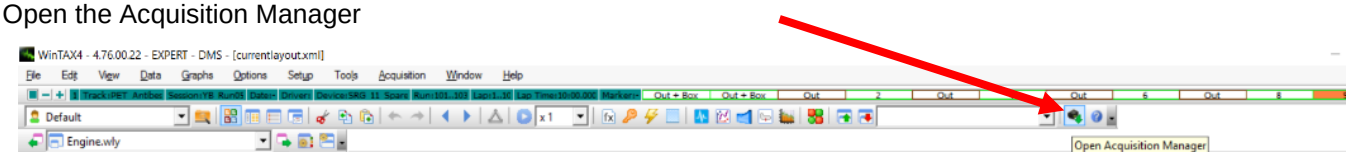
Then select the laps you want to download and click OK.



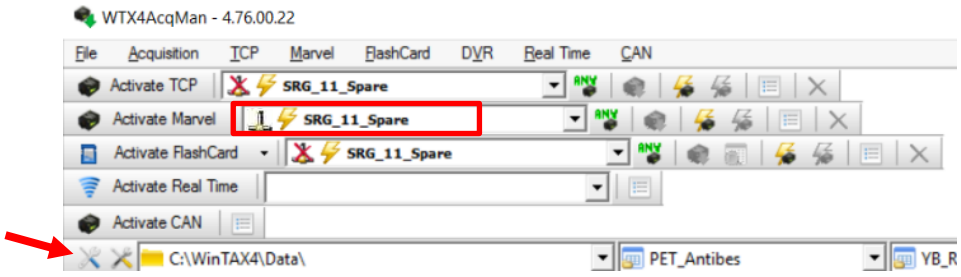
After the end of downloading, you can erase the data by clicking on the *Clear Data FlashCard* icon (but if you prefer, you can format the stick as explained earlier).

15.4.2 Download data with an Ethernet cable

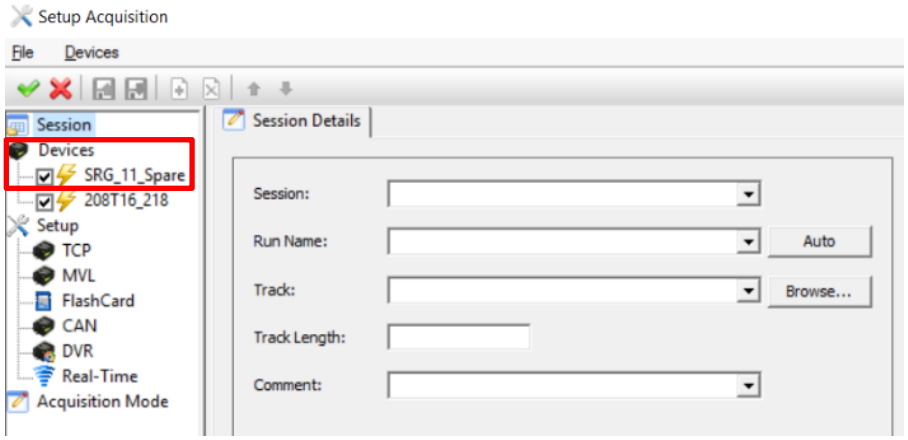
Open the Acquisition Manager



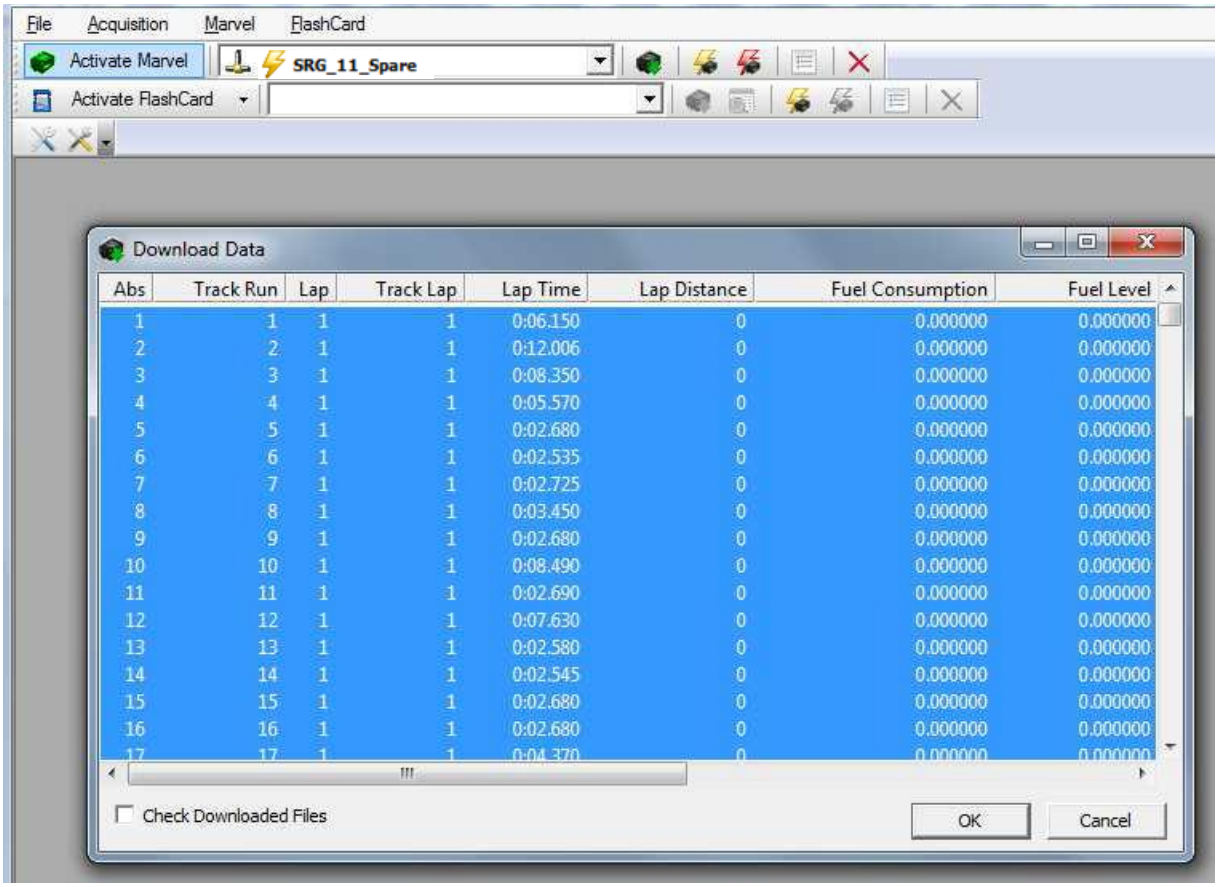
Connect the Ethernet cable between the laptop and the car. Main switch must be ON. If the connection is ok, then you should see the Alias name of the ECU in the *Activate Marvel* frame. Then click on the Setup Acquisition icon.



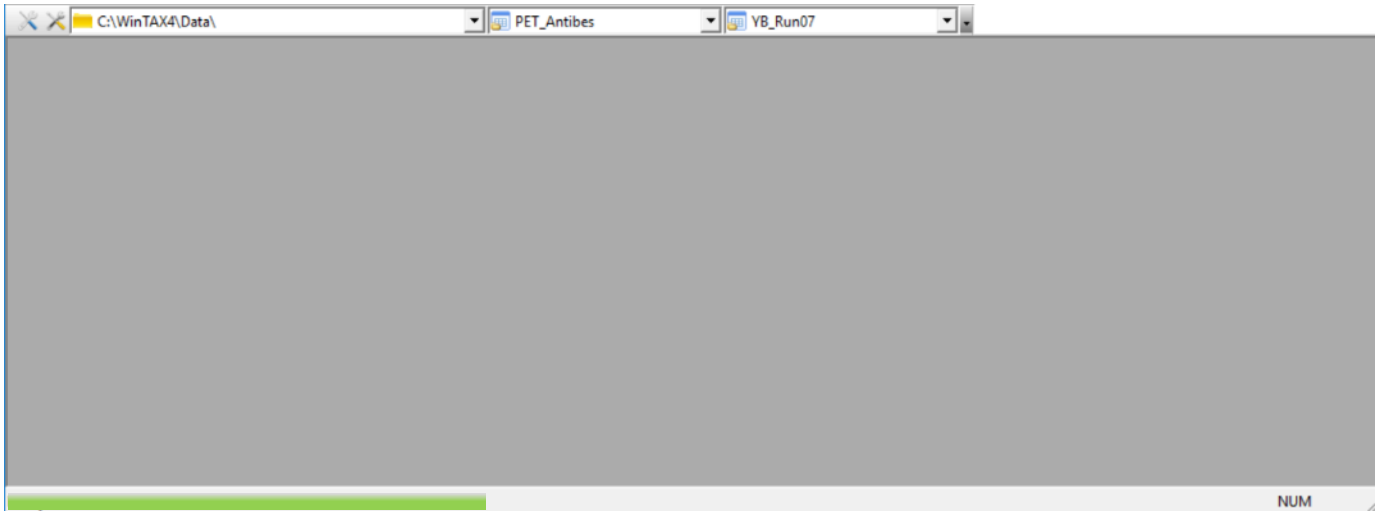
Complete information Session, Run Name Track and eventually Comments. Then click on the green V icon to validate,



Click on Activate Marvel and wait the icon to turn green. Then click on *Download Data for datalogger Marvel*. A windows appears showing the laps available. Select those you want to download and click on OK,

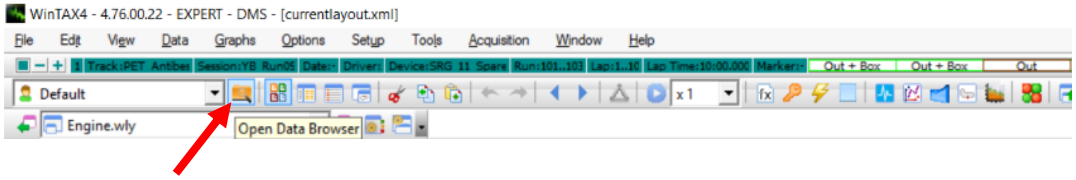


The green bar at the bottom gives you information about the downloading progress. Then you can remove the data by clicking on the Clear Data Marvel icon.

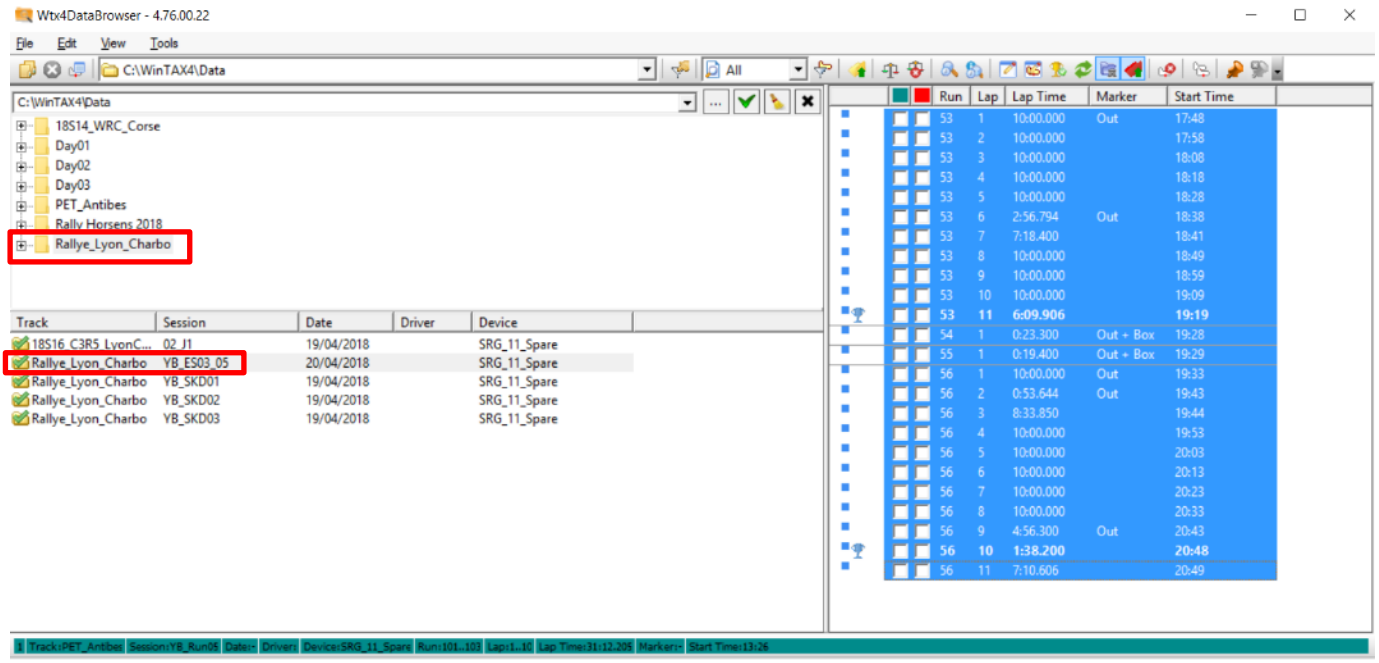


15.4.3 Opening Data

Open the data browser,



In the top left frame, select the folder where are the data. Then select on the left frame, the session then the laps on the right frame and press enter,



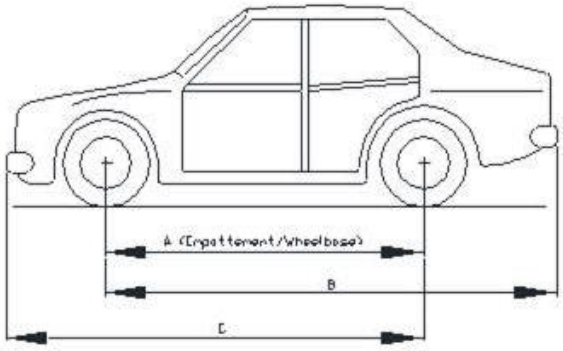
16 APPENDIX

16.1 CAR FLUIDS AND GREASES LIST

	What	Reference	Quantity
Engine	Engine oil	TOTAL Quartz INEO FIRST 0W30 Reference PS97727A10 (1L) TOTAL Quartz Racing 10W50 for P1WRC fuel use, Reference 903587078A (1L)	4,5L (ajust for max at dipstick)
	Engine coolant	Reference 9735K0	see §5.1
Transmission	Gearbox oil	ELF HTX750 Reference 904895438A (1L)	1,5L (if draining) 1,7L (if cooling lines are empty)
	Rear Differential		1,0L (if draining) 1,3L (if cooling lines are empty)
	Driveshaft outer joint	N32186 Reference 9647654780 (50g)	160g
	Driveshaft inner joint		130g
	Clutch fluid	Brembo HTC 64 advised	
	Hydraulic fluid for PEAL	LDS (ref 1615099680)	
Steering	Power steering fluid	LDS (ref 1615099680)	
Brakes	Brake fluid	Brembo HTC 64 advised	
	Caliper - Piston seals grease	Optitemp 8ml - 904620538A	(for 4 calipers)
Damper	Strut oil	Reiger Damper Oil RRS.70.1503	Tarmac : Front 60mL / Rear 80mL Gravel : Front 80mL /Rear 100mL

16.2 BASIC DIMENSIONS

	Min	Basic dimensions (mm) Homologation form A - 5773	Max
Overall length	3956,0	**3996**	4036,0
Overall width	1801,8	**1820**	1820
Front width of the bodywork	1801,8	**1820**	1820
Rear width of the bodywork	1801,8	**1820**	1820
Wheelbase	2517,6	**2543**	2568,4
Front overhang	*797,9*	***806***	*814,1*
Rear overhang	*640,5*	***647***	*653,5*
C	3315,5	**3349**	3382,5
B	3158,1	**3190**	3221,9
Rear wing X position	538,6	**544**	549,4
Rear wing Z position	757,7	**765,4**	765,4



La tolérance de +/−1% s'applique à A, B, C
The tolerance of +/−1% applies to A, B, C
Exemple :
Empattement = 2580 mm / Porte à faux avant = 780 mm
Wheebase = 2580 mm / Front overhang = 780 mm
C doit être compris entre les valeurs suivantes :
C must be between the following figures :
(2580+780)−1% < C < (2580+780)+1%
3326,4 mm < C < 3393,6 mm

255A-1

16.3 TIGHTENING TORQUES

See media server for tightening torques sheet.

16.4 MILEAGE RECOMMENDATIONS

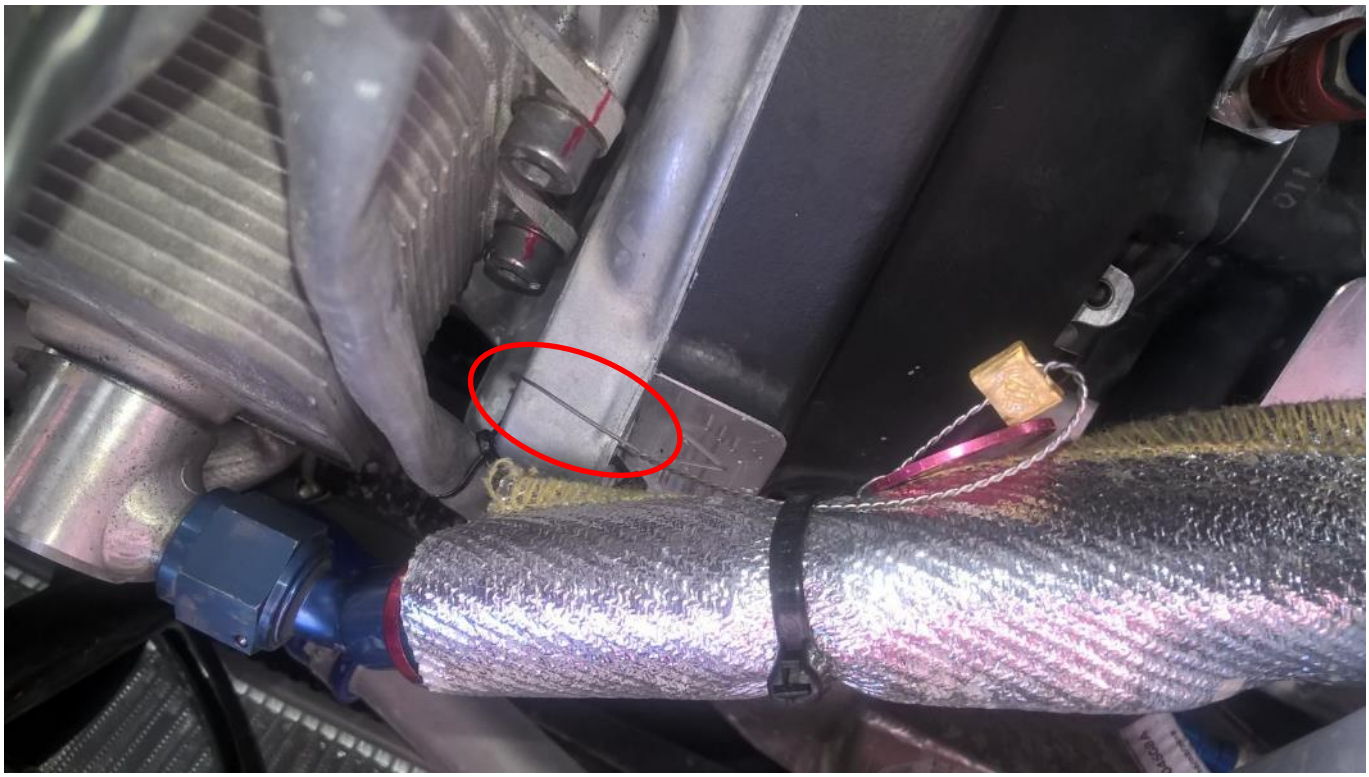
See media server for mileage recommendations sheet.

16.4.1 Bodyshell sealing

16.4.2 Engine block

Wirelock through the non used front top hole for gearbox fixing (close to the oil/water heat exchanger)


ENGINE



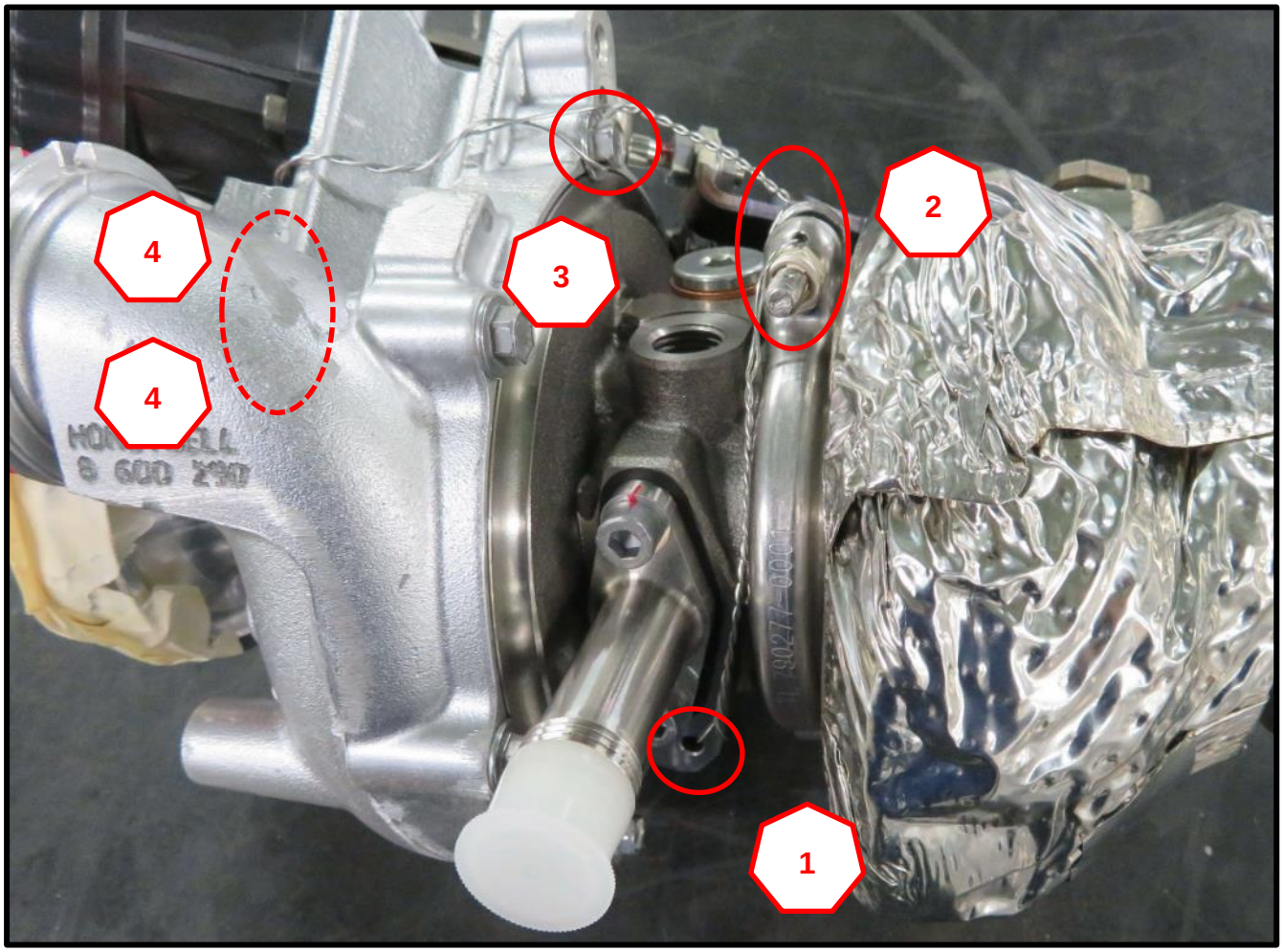
16.4.3 Turbo

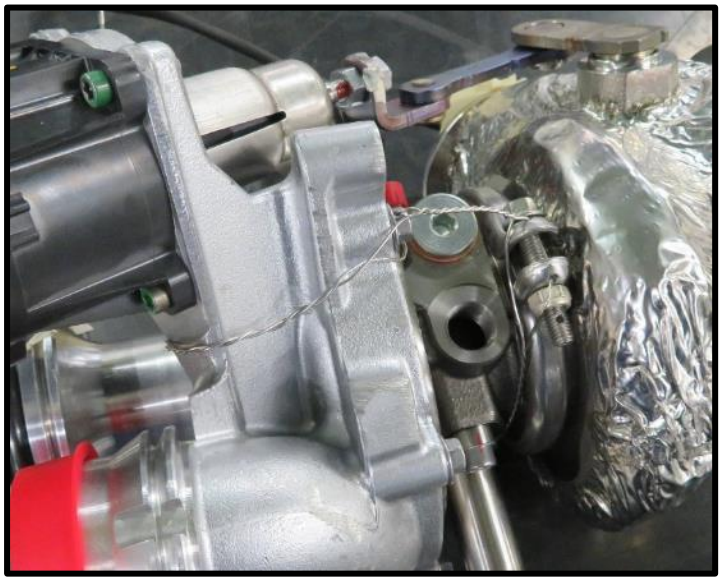
1 - Start with hole close to the oil return pipe,

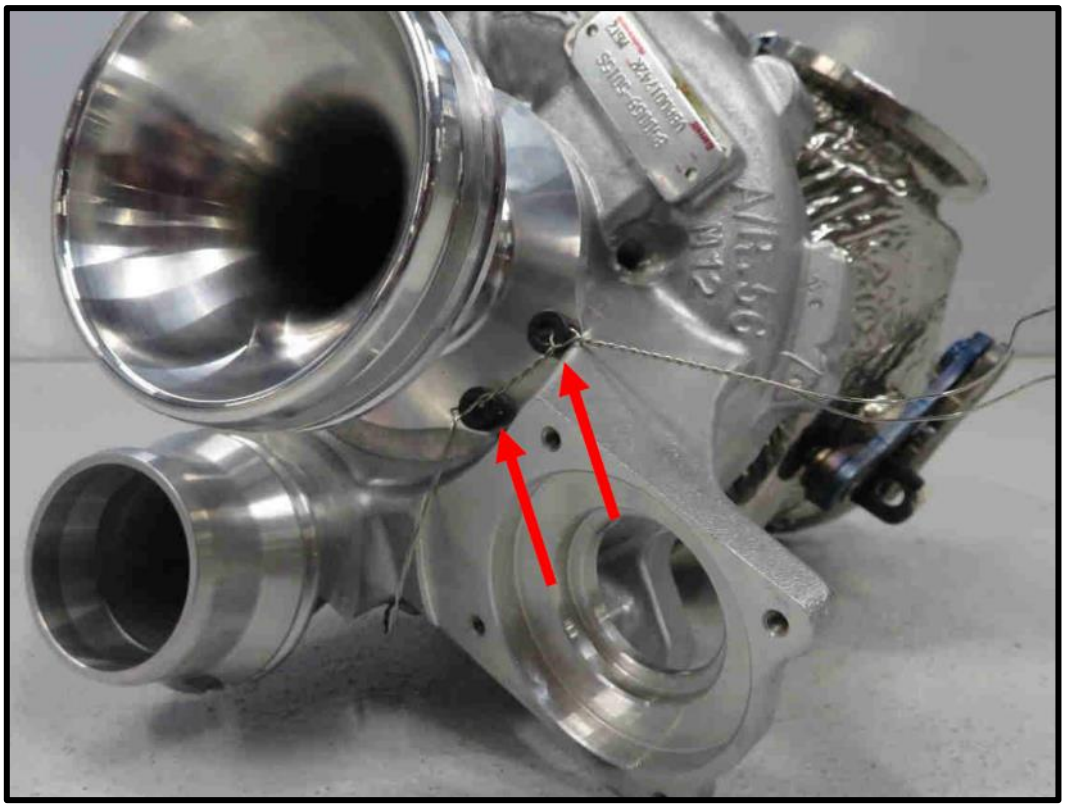
2 - Pass through collar,

3 - Pass through the compressor housing bolt,

4 - End with the 2 restrictor bolts,

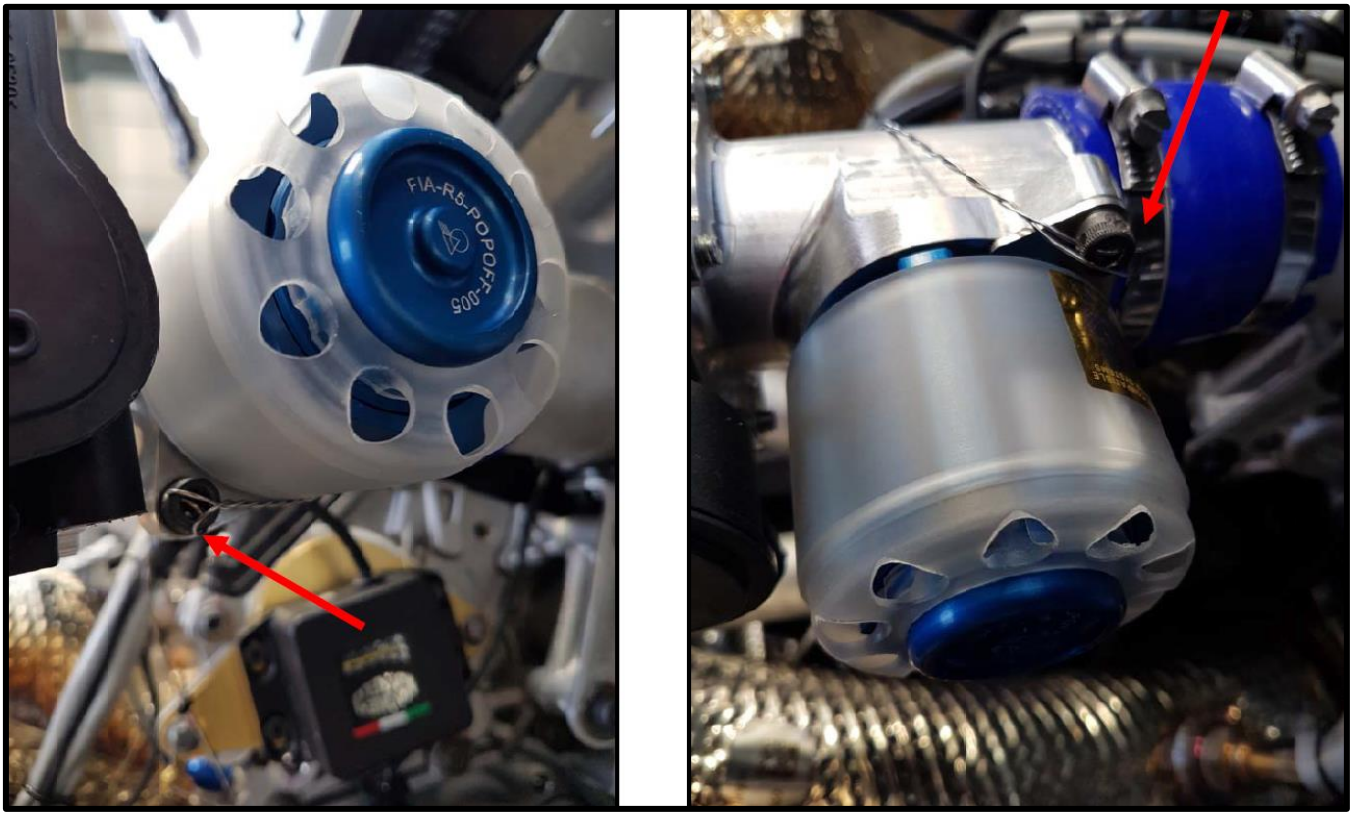


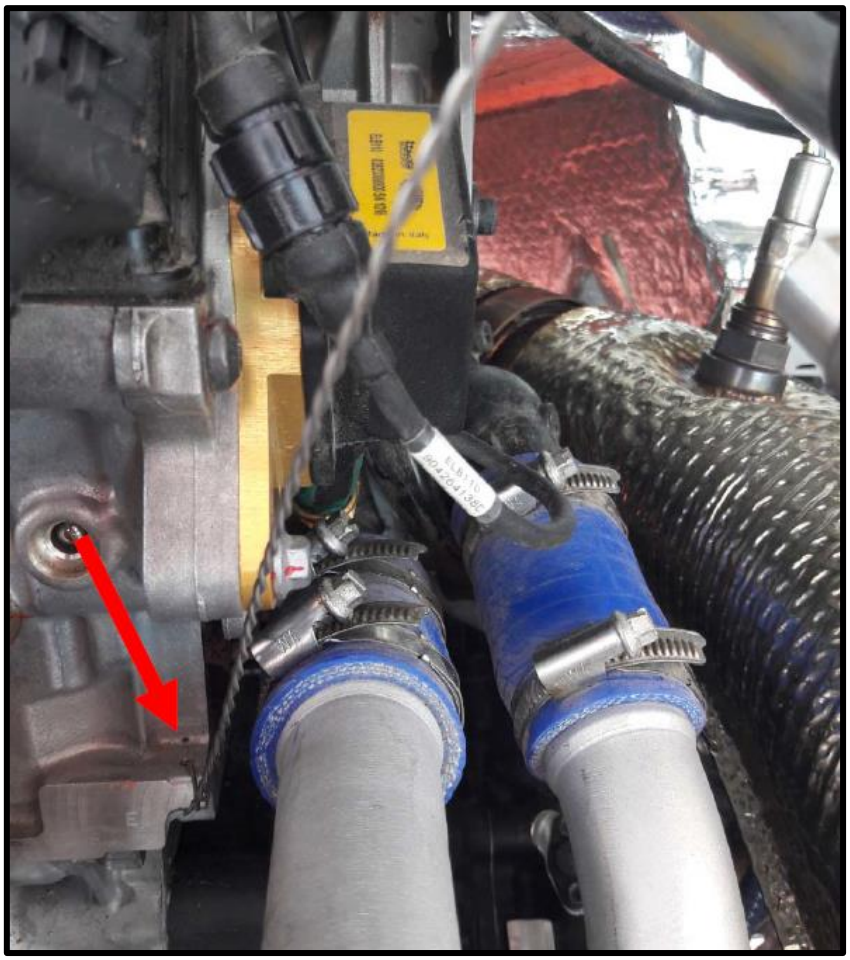




16.4.4 Popoff

Wirelock between the 2 fixing bolts of the popoff valve (lower one first then upper one), then end with the hole into the cylinder head.

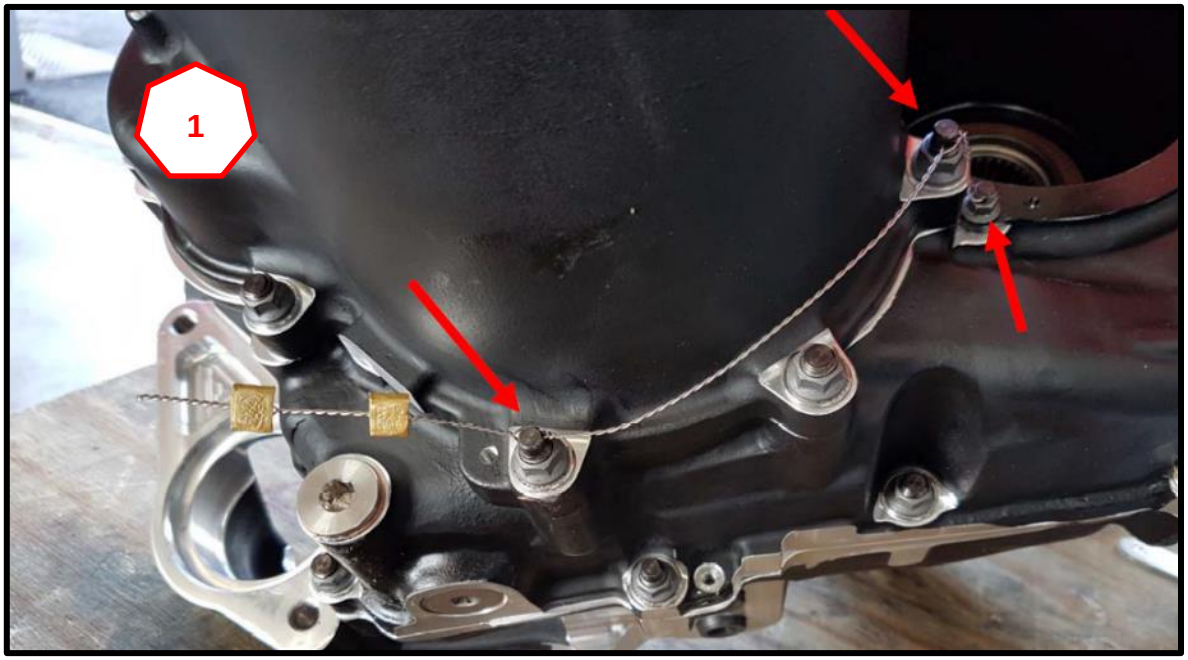




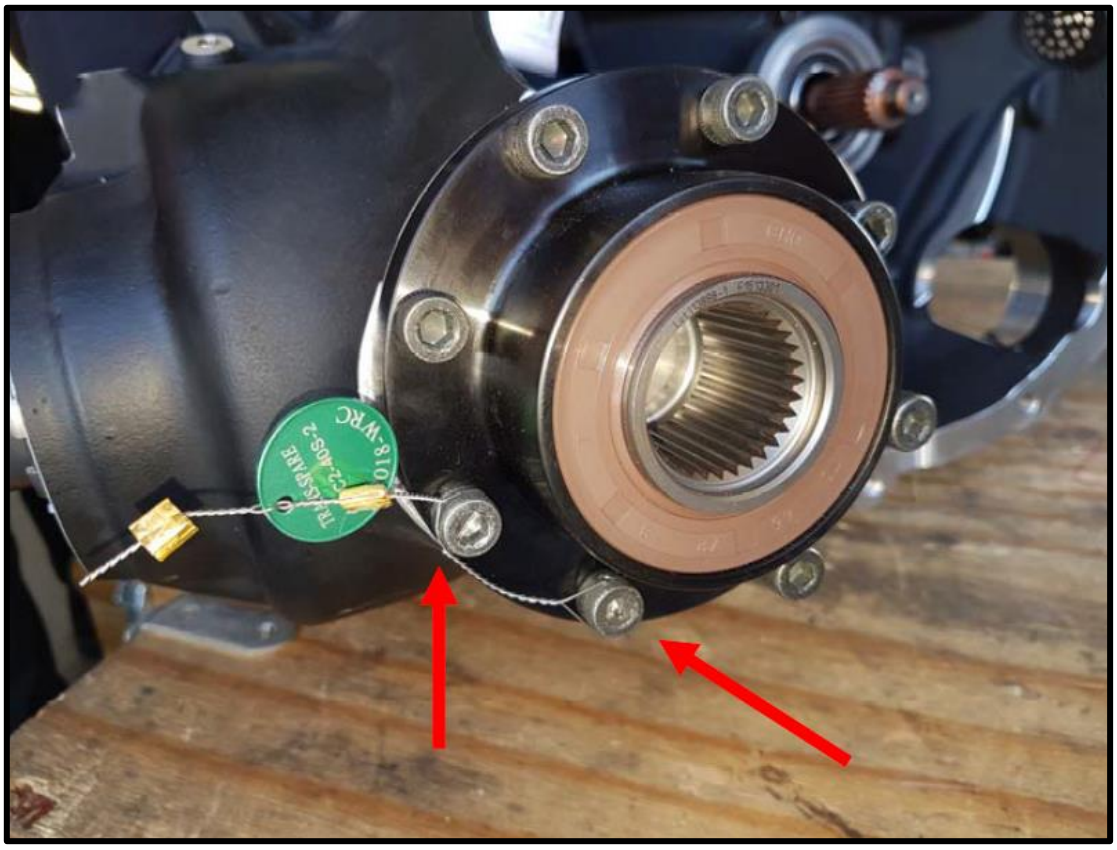
16.4.5 Gearbox

<u>3 wirelock paths:</u>

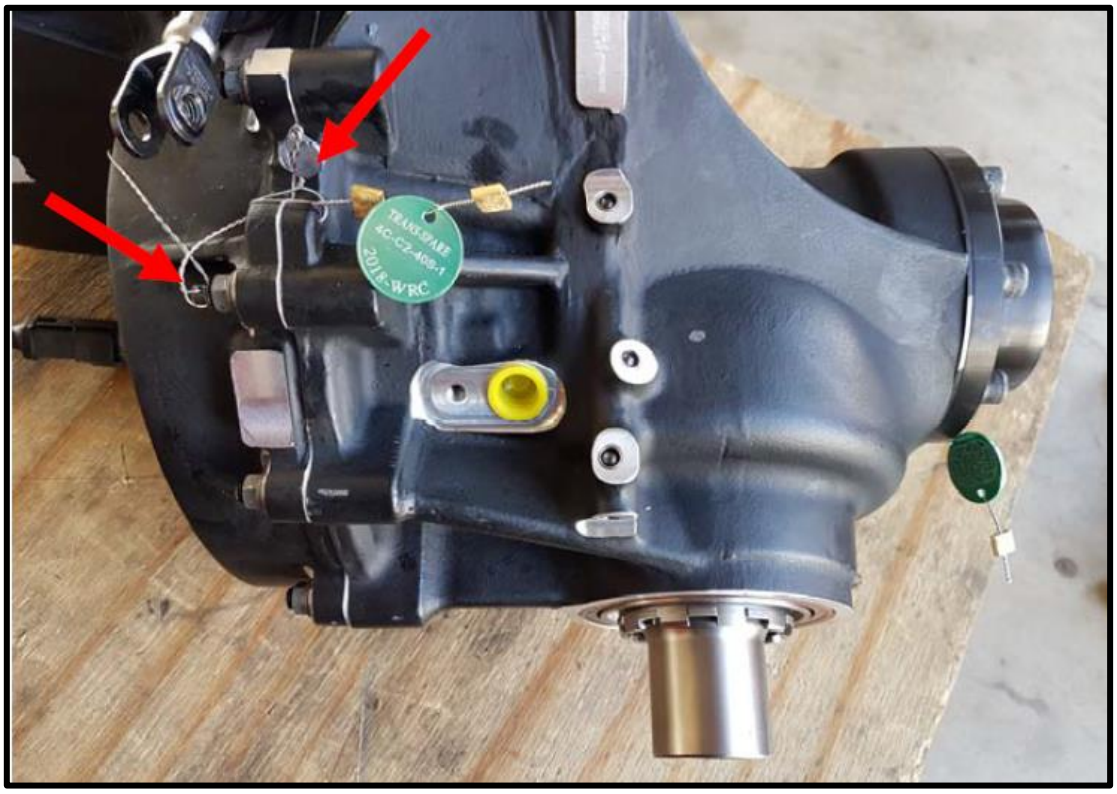
First path: under the gearbox and without medallion

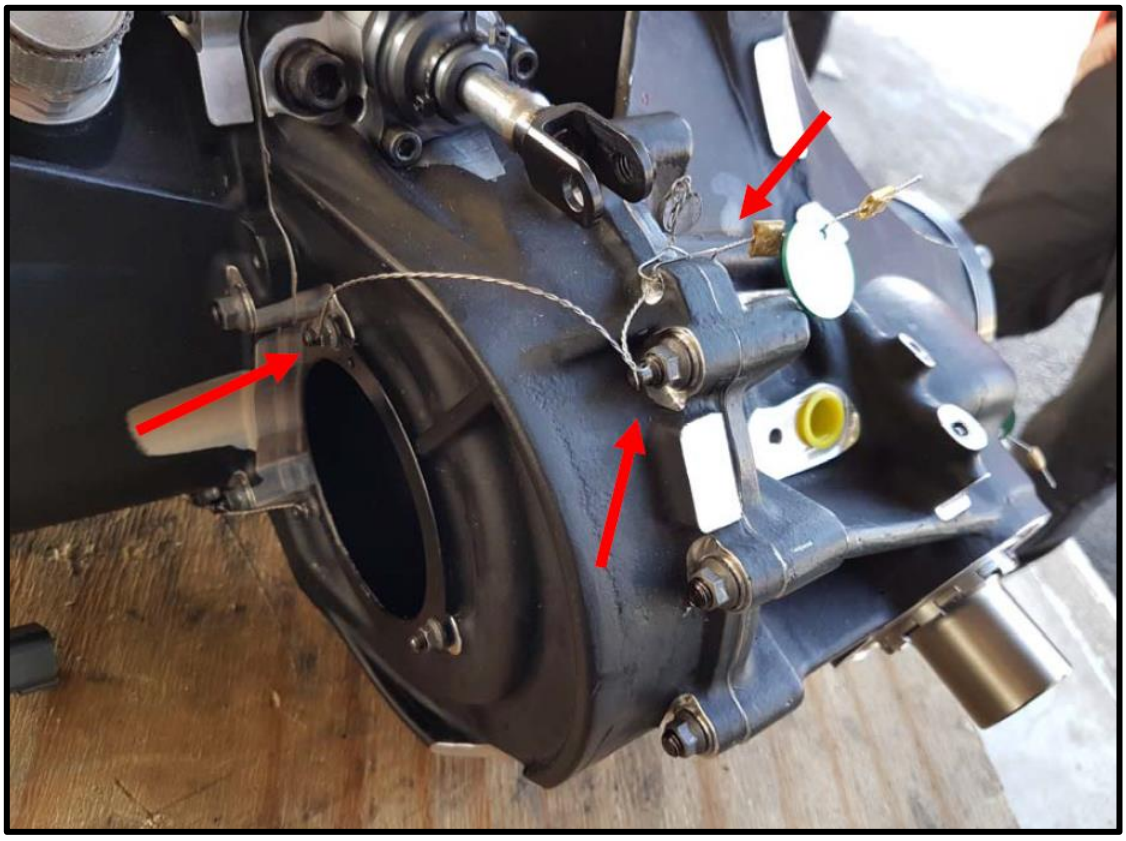


Second path : under the right driveshaft side



3rd path : left driveshaft side to main and intermediary housings

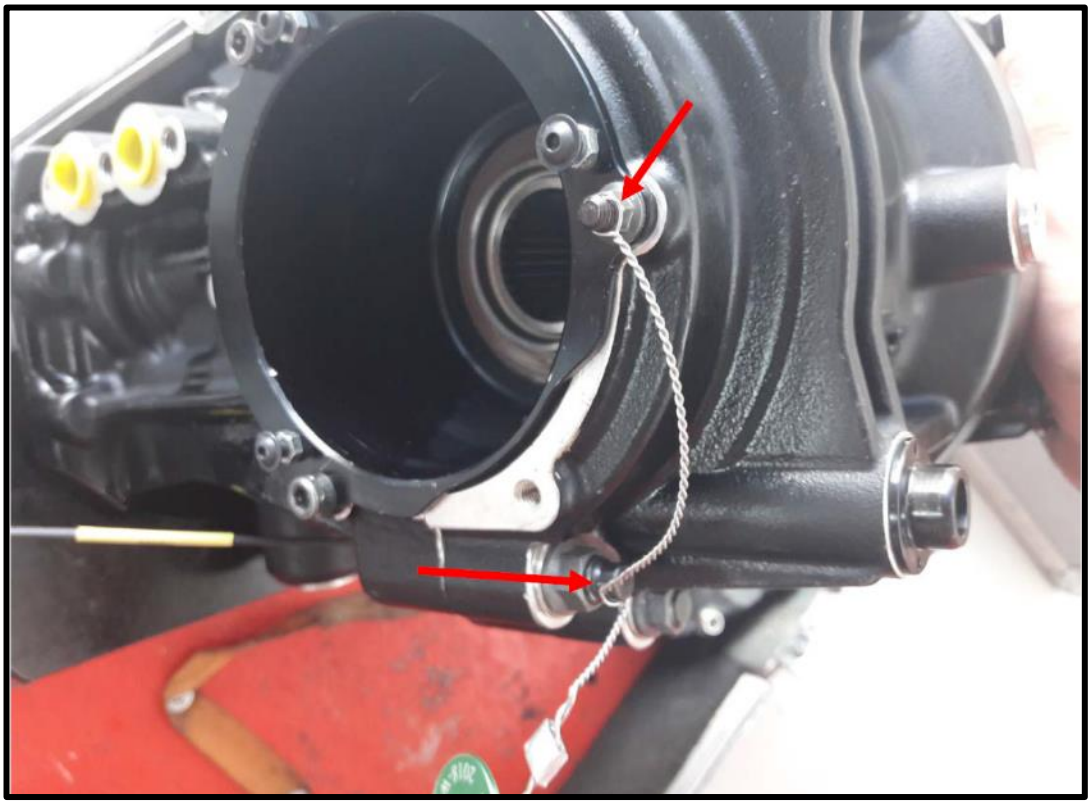




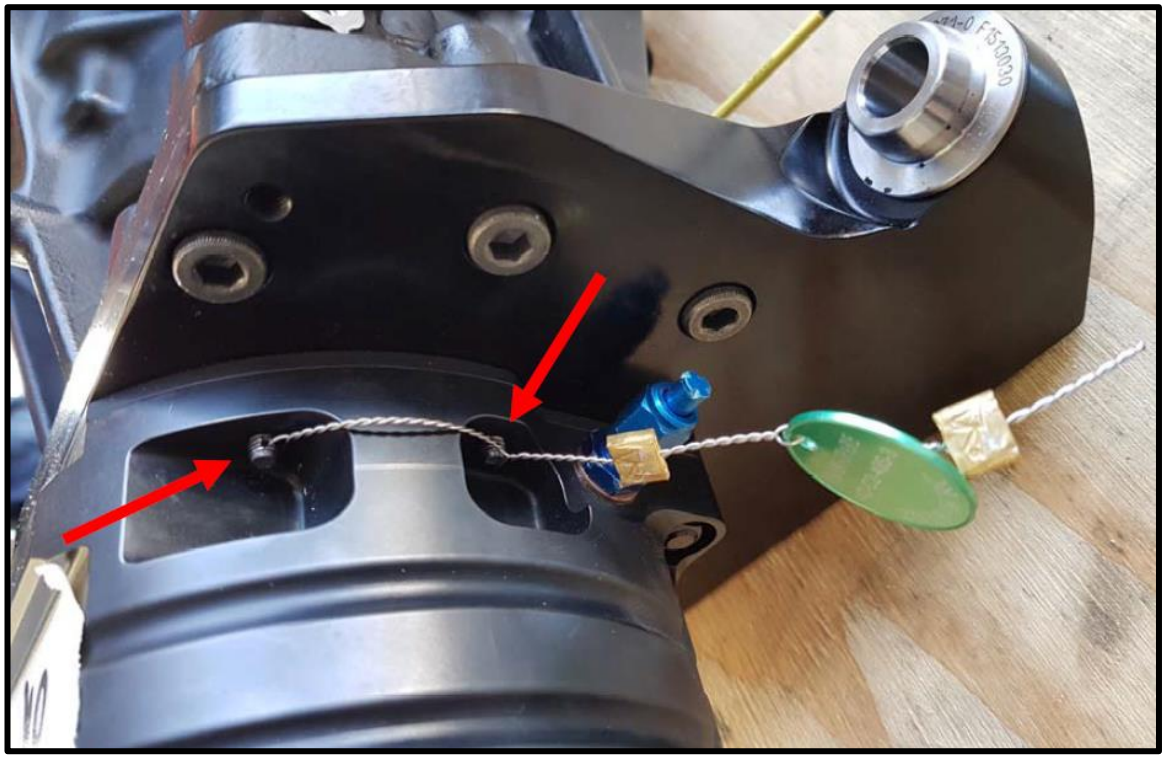
16.4.6 Rear Differential

2 wirelock paths.

First path: under the left driveshaft side



Second path: PEAL side



16.5 BASE SETUP

~~**16.5.1 Tarmac**~~

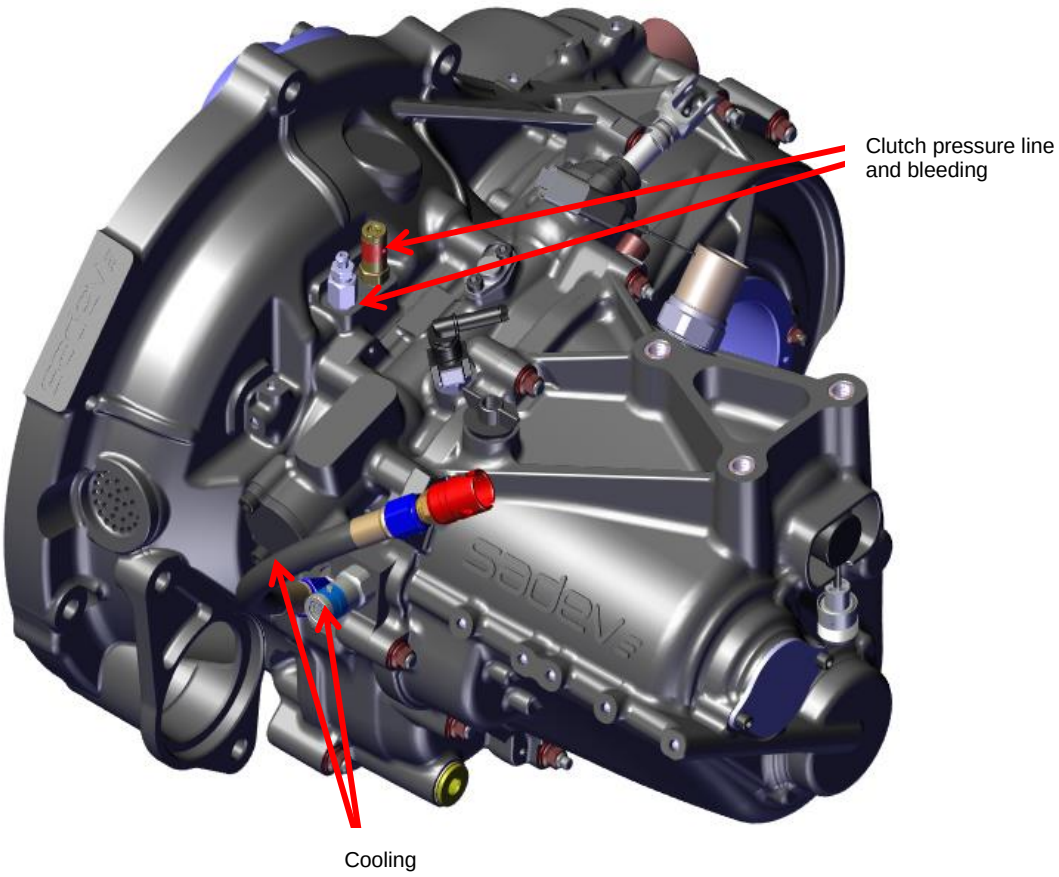
~~**16.5.2 Gravel**~~

See media server for standard setups.

16.6 GEARBOX SPARE EQUIPMENT

In order to get your spare gearbox ready to fit, here is a list of the necessary part to equip it.

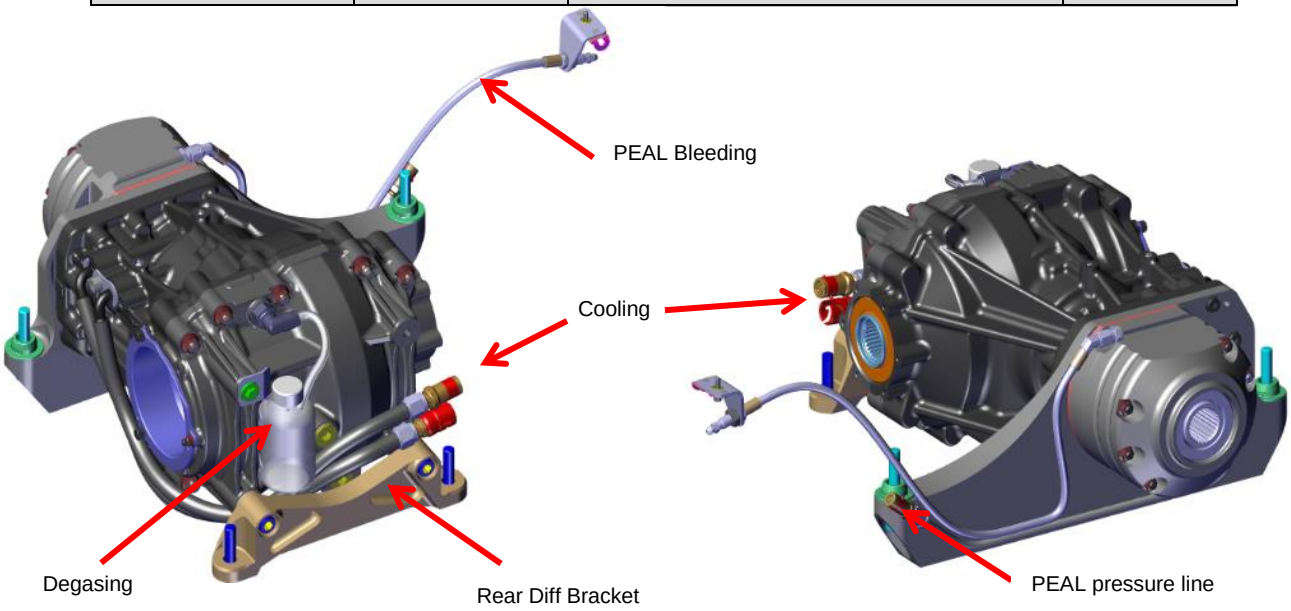
	Ref	Part	Qty
Cooling	904604508A	TUYAU ENTREE HUILE BV	1
	PS73934A10	ADAPT-DASH6-M12X100	1
	PS81613A10	JOINT CUIVRE D12.2X15.9X1.5	2
	PS73356A10	ABOUT SPH05 DASH 6 JV ALU	1
	PS73154A10	RACCORD SPH05 M12X100 JV ALU	1
Clutch pressure line & bleeding	904605928A	ADAPT M10x100/M10x100 CONCAVE	1
	ST04100027	PURGEUR M10x100 INOX	1
	PS81500A10	JOINT CUIVRE 10.2 D13 E1	2
	PS73340A10	RACCORD SPH03 10X100 JE ALU	1



16.7 REAR DIFF SPARE EQUIPMENT

In order to get your spare rear differential ready to fit, here is a list of the necessary part to equip it.

	Ref	Part	Qty
Degasing	904611258A	BOCAL DEGAZAGE	1
	CS160060ST	COLLIER LYRE D:43 A 50	1
	904610968A	TUYAUX DEGAZ 160mm	1
	904610338A	SUP BOCAL	1
	9674988180	VIS HRC M6x100 L16	1
Cooling	904483148B	FOURCHETTE REF PONT	1
	PS82621A10	Vis CHC M8x12 cl12.9	1
	904603708A	Tuyau refroidissement sortie pont	1
	904603718A	Tuyau refroidissement entrée pont	1
	PS77677A10	JOINT TOR A10.82 T1.78 VITON 70SH	4
	PS73356A10	STAUBLI 5.7655/BA/L	1
	PS73352A10	STAUBLI 5.1655/BA/L	1
PEAL bleeding	904606048B	TUYAU PURGE PONT	1
	PS73385A10	GOOD-306-03-31C	1
	CS230069ST	ECROU-3/8X24	1
	PS81500A10	JOINT CUIVRE 10.2 D13 E1	1
	904606028A	EQUERRE PURGE PONT	1
	PS78573A10	TARGETTE LS100A	1
	ST04300002	RIVET TF D3.3x6 INOX	2
Rear Diff bracket	904481898A	SUPPORT PONT AR	1
	PS82095A10	VIS CHC M10x150 L40	2
	PS86538A10	RONDELLE OND D10	2
PEAL Pressure line	PS73319A10	Raccord SPH03 dash3 JV alu	1
	904600168A	TUYAU CMD PEAL A	1
	PS73763A10	VIS BANJO M10X100 L20	1
	PS81500A10	JOINT CUIVRE 10.2 D13 E1	2



16.8 ENGINE SHIPMENT FORM *(AN EDITABLE FORM IS AVAILABLE ON THE MEDIA SERVER)*

version du 230516

STELLANTIS MOTORSPORT

Formulaire d'envoi moteur
Engine shipment form

Envoyer ce formulaire à Racing Shop avant tout envoi
Send this form to Racing Shop prior to any shipment

N° moteur / *Engine Number*	# 00000 PSA MOTORSPORT		
N° Plomb / *Seal Number*	Couvre culasse / *Overhead cover*	Carter d'huile / *Oil sump*	ELB
Date d'envoi / *Shipping date*			

Client / *Customer*

Equipe / *Team*	Contact	Tel / Fax *Phone / Fax*

E-mail	

Moteur / *Engine*

Révision N° *Rebuild N°*	Kilométrage *Mileage*	
	Depuis la dernière révision : *Since the last rebuild :*	km
	Kilométrage total / Total mileage:	km
	Kilométrage turbo / Turbo mileage:	km

Dernier roulage *Last event*	Date de retour souhaitée *Wished return date*	Prochain roulage *Next event*

Utilisation / *Use*

Asphalte / *Tarmac*	Terre / *Gravel*	Autre / *Other* :

Essence utilisée / *Fuel used*

P1 XR5 Evo2	ELF Turbo Ref	P1 WRC	Carless Dev2	Panta Max WRC	ETS TBX7	SP98	VP Racing 5.1

Huile utilisée / *Oil used*

Total Quartz INEO 0W30	Total Quartz 10W50	Autre / *Other* :

Pièces changées / *Changed parts*

Souhaitez vous récupèrer les pièces changées? *Do you wish to get the changed parts back?*	Oui *Yes*	Non *No*

Informations générales / *General informations*

Commentaires / *Comments:*

Pour toute précision / *For any request* :
Racing Shop - Tel : +33 9 68 40 99 95 / Mail : racingshop@stellantis.com

STELLANTIS MOTORSPORT

Formulaire d'envoi moteur
Engine delivery form

version du 230516

Le temps miminum de révision est de 3 semaines minimum à partir de la réception du moteur.
***Minimum** time for rebuilt is 3 weeks from engine reception.*

Merci de respecter les consignes suivantes pour l'envoi de votre moteur
Please respect the following instruction for the shipment of your engine

Veuillez envoyer votre moteur correctement arrimé	*Please send you engine firmly attached*
Moteur propre, vidangé en huile et eau	*Engine cleaned, without any liquids (oil or water)*
Tous les orifices bouchés avec des bouchons ou du scotch	*All holes closed by caps or tape*
Bouchon popoff en place	*Popoff plug fitted*
A garder sur le moteur:	***Keep on engine:***
Faisceau injecteurs	*Injectors loom*
Volant moteur	*Flywheel*
Pompe à essence HP, Rampe d'injection	*HP fuel pump, Injection ramp*
Collecteur d'échappement et turbo avec sa bride	*Exhaust manifold, turbo and air restrictor*
Bougies & bobines	*Spark plugs & coils*
Douille à la place de l'alternateur (si suspente turbo evo)	*Socket in place of alternator (if turbo holder evo)*
Collier V-Clamp de sortie turbo	*Turbo exhaust V-Clamp collar*
Support turbo + biellette	*Turbo holder and its rod*
Bride d'entrée d'eau & boitier de sortie d'eau	*Inlet water pipe and water outlet manifold*
Crochets de levage	*Hanging hooks*
2 caches BV (sur le bloc derriere le volant moteur)	*Lower and upper gearbox covers (on bloc behind flywheel)*
Tous les capteurs moteurs en place	*All sensors fitted on the engine*
Centreurs alternateur (x2) et pompe de DA (x1)	*Alternator (x2) and PS pump (x1) elastic pins*
A retirer du moteur:	***Remove from engine:***
Faisceau moteur et faisceau bobines	*Engine and coils loom*
Tuyau de dégazage radiateur	*Radiator degazing pipe*
Pompe à eau + support + tuyaux et durites	*Water pump + brackets + pipes & hoses*
Support moteur côté moteur	*Engine mount (engine side)*
Prolongateur lamdba et p2P/p0	*Lamdba and p2P/pO extension loom*
Embrayage	*Clutch*
Renfort BV	*Gearbox reinforcemment bracket*
Pompe de DA et son support	*PS pump and its bracket*
Alternateur	*Alternator*

Sanglage moteur / Engine strapping

Si le moteur n'était pas propre ou si des pièces étaient à démonter, un forfait de nettoyage ou démontage vous sera facturé.
If the engine is not cleaned or if parts need to be unfitted, the labour cost will be invoiced.

Si le moteur était livré incomplet, les pièces nécessaires à son passage au banc vous seraient facturées.
If the engine is delivered uncomplete, the necessary parts will be invoiced.

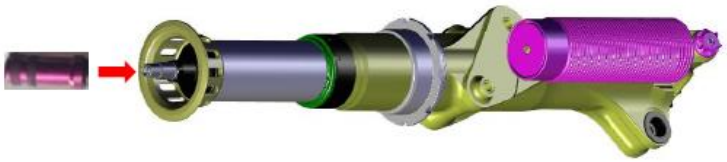
=> l'adresse d'envoi du moteur vous sera préciser par RacingShop,
=> the shipment adress for the engine will be given by RacingShop,

Pour toute précision / For any request :
Racing Shop - Tel : +33 9 68 40 99 95 / Mail : racingshop@stellantis.com

16.9 DAMPER SHIPMENT FORM

dampers service request form

Please send your dampers according to the following picture (without: helper, spring, middle spring seat, filter, RCV, strut centering shim) and without strut oil.



Country of use :

Service center :

Spec : Gravel / Tarmac

Damper numbers (see picture below) :

Reason for service : Normal maintenance / repair / Crash / Different (change of setting)

Note in case of choice is different :

Mileage since last rebuilt :

Date of shipment :

Requested return date :

Customers details

Name :

Address :

Phone nr :

Mail address :

Invoice details

Name :

Company name :

Adress :

Phone nr :

Mail address :

VAT nr :

List of the approved dealers:

Sander Haverkamp **Reiger Suspension BV** Molenenk 5a 7255 AX Hengelo GLD The Netherlands Rally@reigersuspension.com +31 (0)575-462077	Cyril Barbier **Alp Racing Suspension SARL** 15, Route de la Salle FR-74960 CRAN-GEVRIER FRANCE cyril.barbier@alp-racing.fr +33.450440985	Mikael Gustafsson **Tech Professional Sweden AB** Montorsgatan 6 SE-66532 KIL SWEDEN rallymg@hotmail.se +46 705454854
Fabio Lazzerini **RTEC** Zone Industrielle d"Heppignies II B-6220 HEPPIGNIES BELGIUM info@rtec.ws +32 713 77707	Diego Cespedes **Servicio Reiger L.A.** Adem 30, La cumbre 5178 CORDOBA ARGENTINA rservicesuspension@gmail.com +54 9 3548633965	Zoltan Patai Szabo **Reiger Suspension UK LTD.** Stable Yard, Unit 5 MK147RZ MILTON KEYNES UNITED KINGDOM info@reigersuspension.co.uk +44 7903 583 896
Dani Sola **Grup Empresarial Osona S.L.** Era d'en Sola S/N 08522 Malla (Barcelona) SPAIN Sola.flatout@gmail.com +34 639 375 518	Ferenc Novak **JAZZTECH KFT** Siraly u. 18 H-6727 Szeged Hungary info@jazztech.hu +36 205216883	

16.10 STEERING RACK SHIPMENT FORM *(AN EDITABLE FORM IS AVAILABLE ON THE MEDIA SERVER)*

CITROËN RACING — SPORTECH ENGINEERING

C3 R5 STEERING RACK SERVICE FORM

This form has to be sent by email to both
nicolo.bertocco@sportech-engineering.com & racingshop@mpsa.com
A copy has to be joined to the rack to service.

Customer information

Customer name/ customer reference person:	
Customer address:	
Phone : +	Email:

Invoice information

Name of customer to invoice:	
PCRS customer account number:	
Address:	
Phone : +	Email:

Shipment

Requested return date:	
Address where to ship the rack back (if different from customer one):	
Return way (delete as appropriate)	
1. The rack will be collected	
2. Please use the following expedition account	Company:
3. Please charge me the transportation cost	
Shipment mode: Standard | Express	Value to insure:

Technical data

Reference	904474108_
# Serial Number:	

Date of the first use:
Mileage from last service: km
Mileage from first use: km

Surface: Tarmac ☐ Gravel ☐

Servicing reason request/ Circomstances and description of the breakdown and/ or damage (if any)

Please send the rack without oil inside, boots, balljoints, in and out hoses, to:

Sportech Engineering s.r.l.
Via Nino Bixio 83
10042 Nichelino (ITALY)

The rack has to be delivered clean unless an extra cleaning cost will be charged.

Contacts:
Peugeot Citroën Racing Shop: racingshop@mpsa.com, tel: +33 130112700
Sportech Engineering: Nicolò Bertocco, nicolo.bertocco@sportech-engineering.com

16.11 GEARBOX AND REAR DIFF SHIPMENT FORM

For your gearbox and/or rear diff shipment to Sadev, please send your items with the shipment form below to:

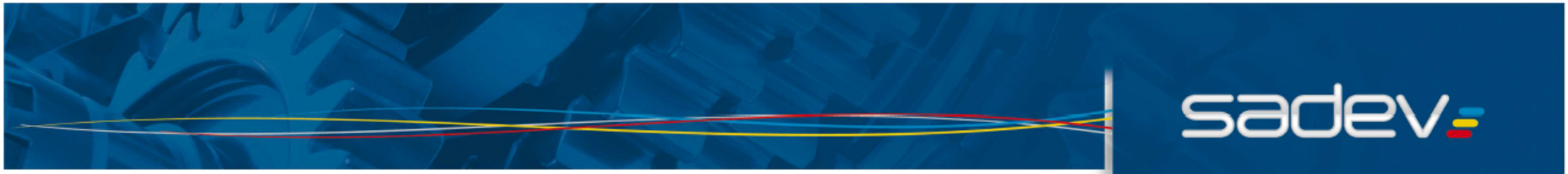
SADEV

Guillaume Brunet

6 Rue Grand'Montains

85110 Saint Prouand / FRANCE

Prior to any shipment, please contact Guillaume Brunet (guillaume.brunet@sadev-tm.com or at +33 2 51 66 50 77) to be aware of the rebuilt schedule.



Fiche navette boîte de vitesses / Card-index technical following

INFORMATIONS	
TEAM	
N° de boîte de vitesses / Gearbox N°	
N° de pont arrière / Rear diff N°	
Date de départ /Starting date	
Date de retour souhaitée / Date required	
Adresse de livraison / Delivery adress	
Adresse de facturation / Invoice adress	
Spécifications demandées / Required specifications Commentaires sur la révision / Comments on review	

Set-up actuel / Current set-up

Rapports / Gear ratio		
Gear	Z1	Z2
1		
2		
3		
4		
5		
Autobloquant BV/ Differential GB		
Accélération / Drive		
Freinage / Brake		
Précharge / Preload (Nm)		
Autobloquant PTAR / Differential RD		
Accélération / Drive		
Freinage / Brake		
Précharge / Preload (Nm)		

Set-up demandé / Requested set-up

Rapports / Gear ratio		
Gear	Z1	Z2
1		
2		
3		
4		
5		
Autobloquant / Differential		
Accélération / Drive		
Freinage / Brake		
Précharge / Preload (Nm)		
Autobloquant PTAR / Differential RD		
Accélération / Drive		
Freinage / Brake		
Précharge / Preload (Nm)		

Km parcourus depuis la dernière révision Usage (km) since last service	
Type d'huile utilisé / Oil type used	
Max temperature	