

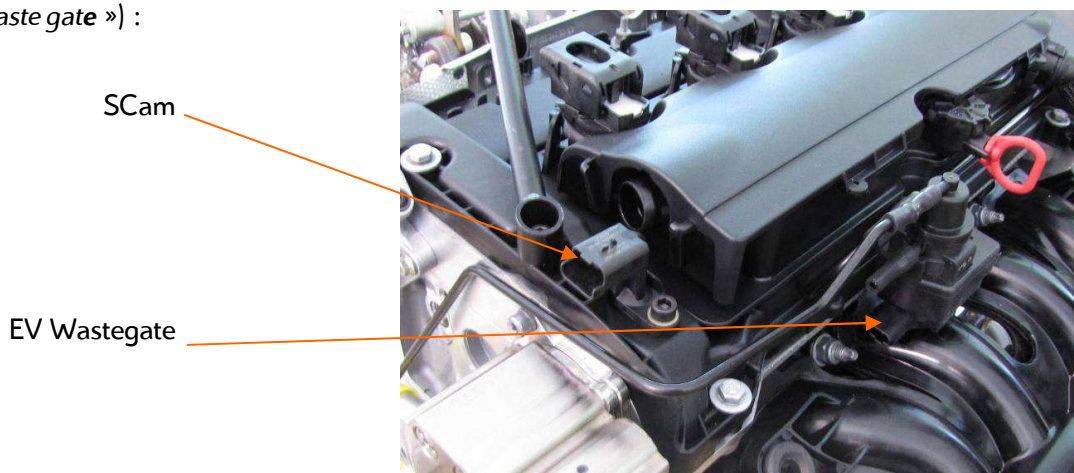
Checklist and starting procedure DS3 R3

The progress in the assembly of your DS3 R3 is now sufficient to allow you to start the engine and, even if it remains on jack stands, also check that the electrical and mechanical systems of your new Citroën are working properly.

To do so, we propose you to follow the different steps described below:

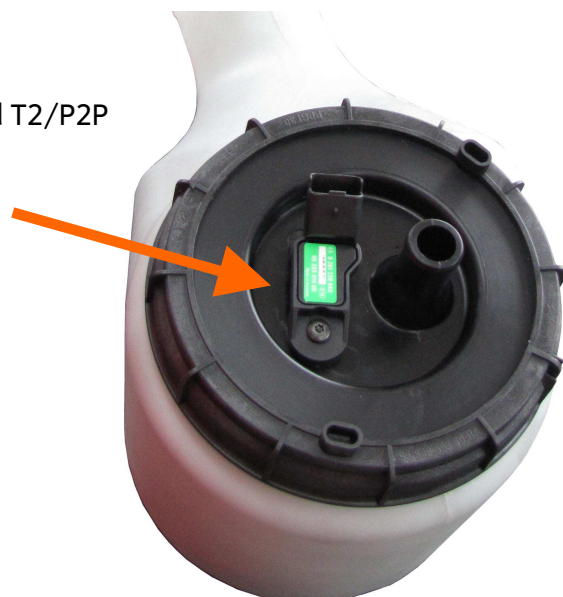
A. Main mistakes and pitfalls to be avoided:

- Inversion of the connectors for the Scam sensor and the Wastegate electrovalve (« EV Turbo – Waste gate ») :

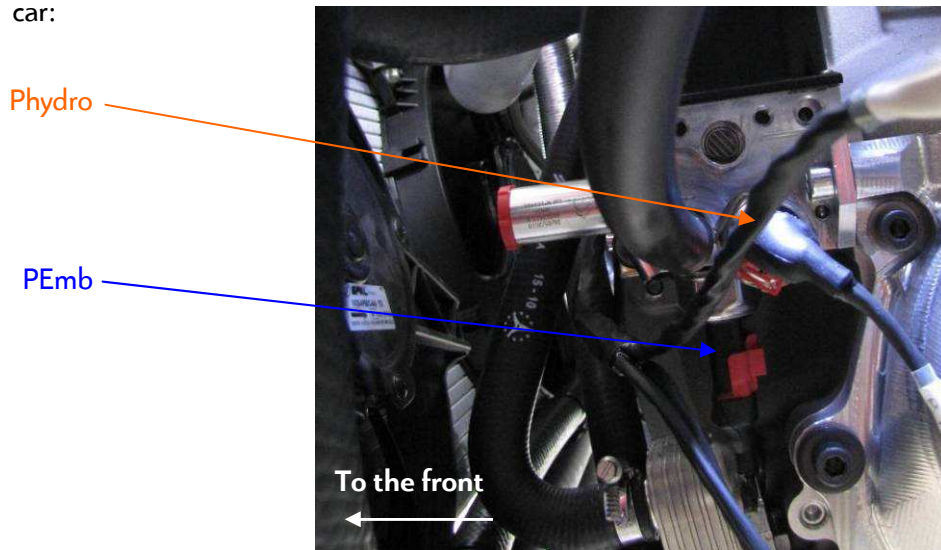


- Inversion of the connectors for the T0/P0 and T2/P2P sensors:

The T0/P0 sensor is on the air intake box.



- Inversion of the connectors for "PEmb" and "PHydro" sensors: "PEmb" sensor is **under** the hydraulic block, while "PHydro" sensor is **on its right side** when looked from the front of the car:



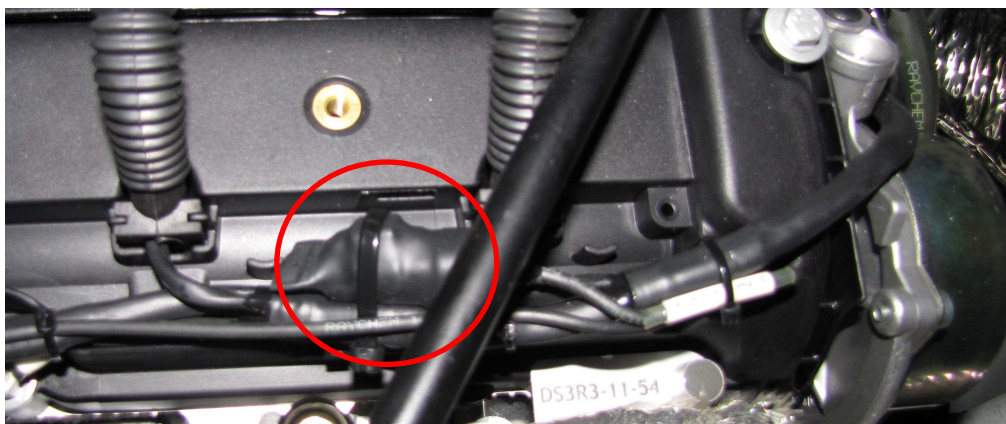
- Turbocharger's screws not drilled (in order to allow the sealing by the scrutineers). The 3 screws have to be drilled as shown on the picture below:



- The red shutter on the cylinder head has to be removed before starting the engine.



- The connector « Excit Alt » must be unplugged on the alternator: the alternator provided in the Citroën Racing DS3R3 kit is from a self-excited type. We advise you to fix it on the coil loom as shown below.



- The fan loom has to be positioned at the top of the fans (or between the radiator and the heat exchanger) but not below the fan.

- Drill a Ø 2mm hole and mark the cap of the hydraulic liquid tank so that it is not possible to be confused with the cap of the power steering fluid tank which has not to be drilled.

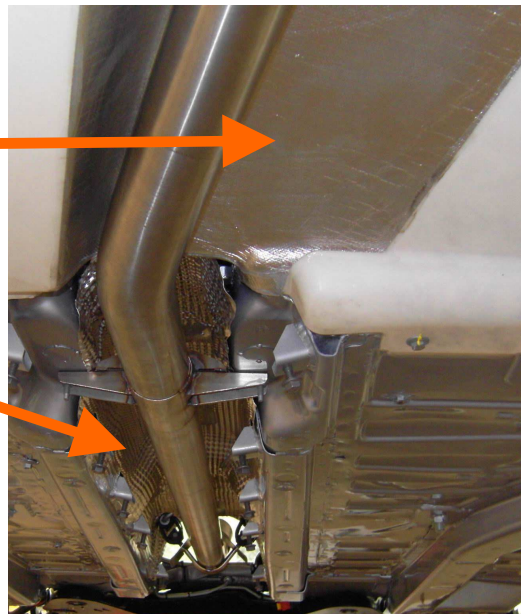


- The high pressure hose connecting the power steering pump to the power steering valve must be positioned alongside the longitudinal beam on the engine side. Take care to protect every rubber hose that could be in contact with this hose.



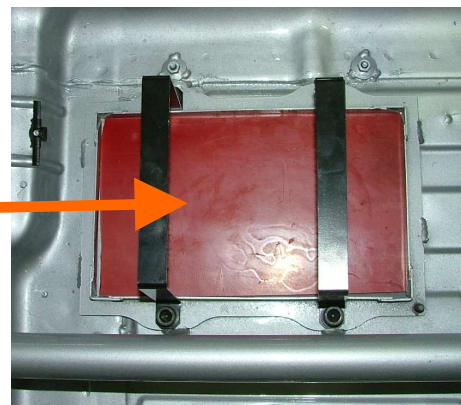
- Protect as much as possible the wiring looms and other hoses (Lambda sensor, fuel hose, water hose...) that can be close to the exhaust line using the appropriate thermal protection.

- In the same way, take care to position properly the thermal protections on the fuel tank's cover.
- Position properly the embossed thermal protections into the tunnel.



- Do not block the locations of fog lamps on the front bumper.
- Cut the unnecessary plastic parts of the front bumper.
- Using aluminium tape, link the intercooler plastic air duct to the intercooler and the radiator plastic air duct to the radiator in order to optimize the airflows.
- To be assembled with silent blocks:
 - the cutout
 - the heating unit
 - the wiper's switch

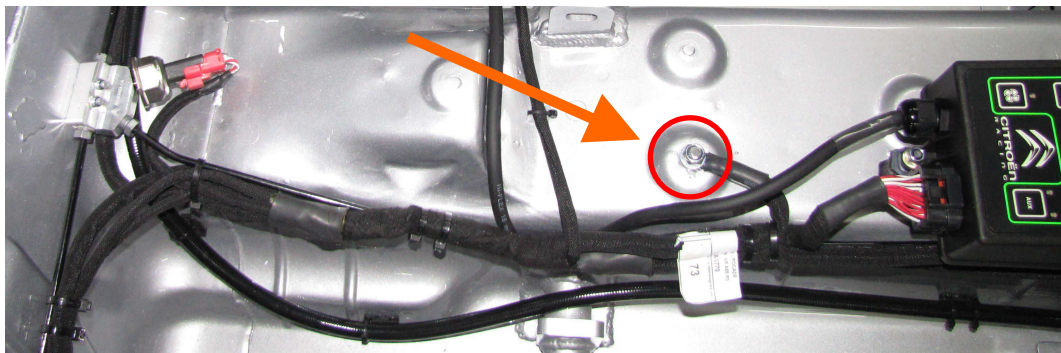
- Put a piece of R900 material under the battery.



- Take a special care about the wire routing of your inside loom and follow the assembling manuals concerning the positions of the different electrical units (ECU, DIM...).
- Put the CAN cap on the "CAN 2" connector and the cap on the unused connector of the DIM unit. This cap must be impervious to moisture and dust.
- Check the assembly of the power loom.

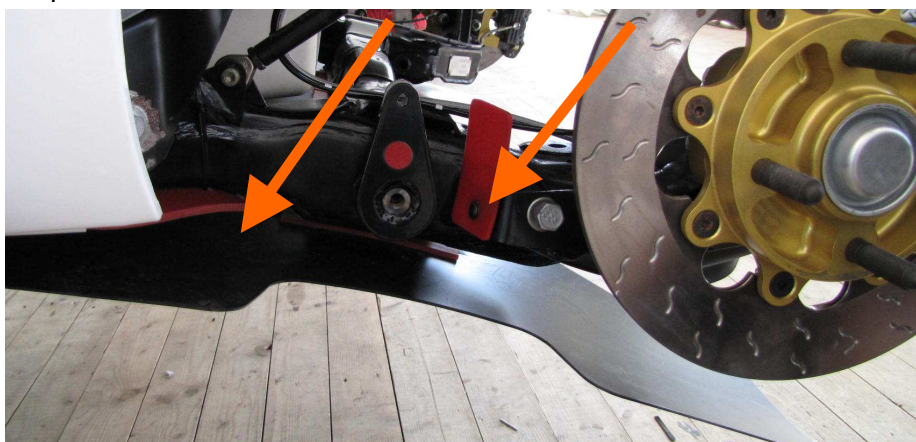
- Check the assembly and fixation of the grounds (3 around the engine and 3 inside the car). The paint must absolutely be removed from the grounds' contact surfaces.

- Cut the ground screw on the tunnel once the loom is assembled.



- Cut the windscreen support protection so that you can remove the front shock absorbers without removing this protection.

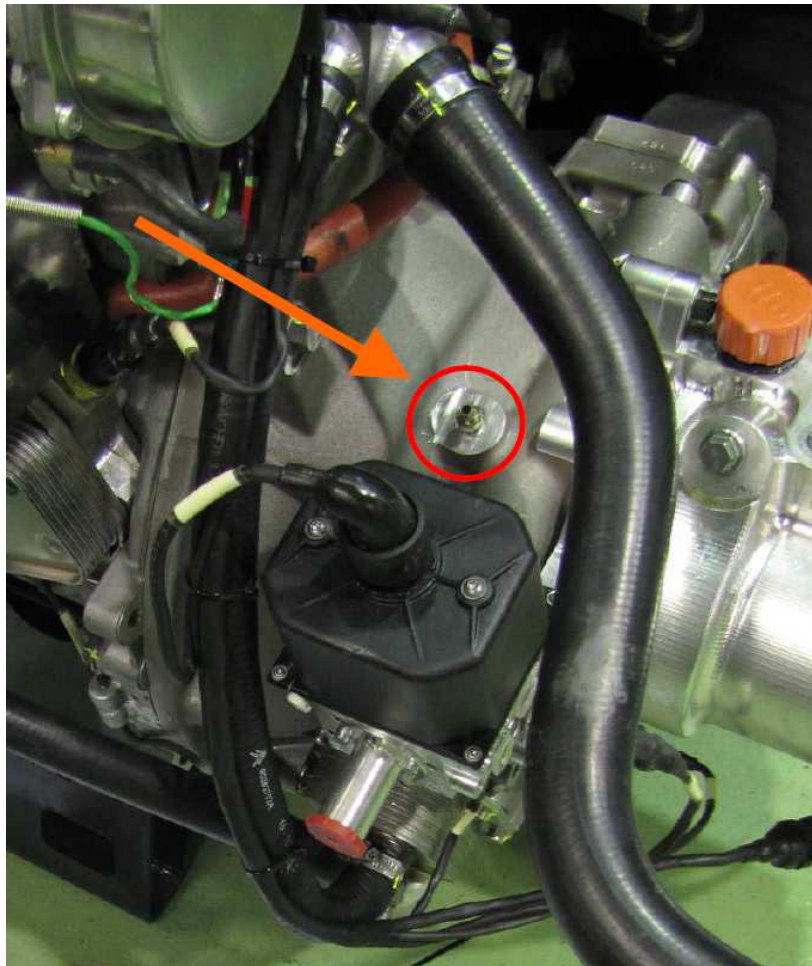
- Put the protections of the rear cross member and rear shock absorbers before the first run.



B. Fluids:

- Put the oil in the engine (3,5L to 3,7L).
- Put the cooling fluid in the engine (bleeding by the "TEau" sensor).
- Put the oil in the gearbox (1,4L).
- Put the fuel in the tank.
- Fulfil the brake fluid tanks.
 - ⇒ Bleed the brake circuit.
- Fulfil the hydraulic fluid tank ("LDS" fluid mandatory).
 - ⇒ After having initiated your clutch circuit, make a classic bleed of the clutch circuit by pressing the clutch pedal.

The bleeding screw is on the gearbox.



- Fulfil the power steering fluid tank ("LDS" fluid mandatory).

C. Checks before engine start:

Nota: from this step, the document concerning all the systems of your DS3R3 should be read in order to ease the next steps.

Connect the battery.

Turn the "MAIN" switch on.

Check that the sensors are working and are giving consistent values thanks to all the information available on the dashboard:

- P0/T0 (on the air intake box)
- P2 (on the air intake manifold)
- P2P/T2 (on the air intake circuit, before the throttle body)
- Pess ("Pfuel": on the High Pressure pump)
- PHuile mot ("Poil engine": on the cylinder head, on the water outlet housing side)
- THuile mot ("Toil engine": on the oil intercooler)
- TEau ("Twater": on the water outlet housing)
- Peau ("Pwater": on the oil intercooler)
- THuile BV ("Toil gearbox": on the gearbox)
- T3 (on the exhaust manifold)
- Paccu (on the high pressure block)
- PHydro (on the hydraulic command block)
- PEmb ("Pclutch": on the hydraulic command block, must vary when clutch pedal is pressed)
- Barrel (gearbox barrel voltage – between 0,970V and 1,030V in neutral)
- PFreinAV (Pfront brake)
- PFreinAR (Prear brake)
- PFreinAM (Phand brake)
- Vitesses roue (wheel speed sensor)
- Angle au volant (steering wheel angle sensor)

Make the "zero" calibration of the steering wheel angle sensor having taken care to put the straight line spacer on the left side of the steering rack.

Turn the "POWER" switch on.

Bleed the hydraulic circuit electrically.

The clutch circuit must be bled in order to let the gearbox and the gear changes, UP or DOWN, working properly.

Check for leaks along the fuel circuit.

Make the "min & max" calibration of the throttle pedal and throttle body.

Check the different electrical systems:

1. Turn signals
2. Warning
3. Lights (sidelight → low beam → high beam)
4. Inside ventilation
5. Horn
6. Wipers
7. Brake lights

Put the engine oil circuit under pressure:

1. "POWER" off, unplug the DIM unit (this will allow the engine not to start).
2. "POWER" on, activate the starter in order to raise the oil pressure. Activate the starter during 5s at maximum. Repeat this until you reach a value of oil pressure higher than 3 bar.
3. "POWER" off, plug the DIM unit.

D. Start

After having started the engine:

1. Check for leaks along the power steering circuit.
2. Make sure there is still enough LDS fluid in the power steering fluid tank so that your pump does not run without fluid.
3. Bleed the power steering circuit while the engine is warming.
4. Check that the gearbox is working properly by shifting up, until the 6th gear, then down, until the reverse gear is reached.
5. When the water temperature reaches 60°C, cut the engine and check for leaks and other defects.

Start the engine again

1. Shift up and down the gears 2 or 3 times, and increasingly rapidly.
2. Check that the fresh air system is working properly by selecting the "Stage" mode, loading the engine (throttle pedal @ around 15% and engine speed @ around 3000 RPM), then fully release the throttle pedal.
3. Start a running in process of the drive shafts.

Once that all these steps are done, cut the engine ("POWER" off) and then switch the "MAIN" off only when the hydraulic pressure accumulator is unloaded.

Download the data and check that all the actuators are working properly while the engine is running: gearbox, engine, Lambda sensor...

Serial numbers

Chassis N°:	Engine N°:	Gearbox N°:	
SRT N°:	DIM N°:	BRK N°:	DDU N°:

Electrical connections

MAIN and POWER switches OFF	Starter/ alt power loom	Chassis groundings	Crossing connectors
Connect the battery	Extinguisher connected?	Engine groundings	Units SRT - DIM - BRK - DDU
Bonnet Main Switch ON	Engine sensors connectors	Coil grounding	Fuel pump

Sensor check

Gbx/ engine sensors	Engine pressure sensor	Temperature sensors	Control panel - BRK	Fuel tank
P_Hydr c	P0 (atm) c	T0	Gravel c	Gauge
P_Accu c	P2 c	T2 c	Tarmac c	
P_CL c	P2P c	T3 c	Road	
P_RrBRK	P_Oil	T_Oil	Stage (with Power ON!)	
P_FrBRK	HP_fuel c	T_WAT c	S0 Sel c	
P_HdBRK c	P_WAT	T_GBOX	S1 Sel c	
Barrel1_Pos c		T_BRK	S2 Sel c	
Barrel2_Pos c			Switches	
Steering Angle Pos			Sw Fuellnit (DDU)	
Wspeed_FL c			Sw Up & Down	
Wspeed_FR c			Sw Lock Reverse gear	
Wspeed_RR c			Sw BRK	
Wspeed_RL c			Sw Horn	

C: vital sensor for the system

Learn sensors

Gbox barrel	Mechanic Page N°1	Check that Barrel 1 & 2 values are between 0.980 and 1.020V in neutral.
Steering angle	Driver Page N°3	Place the straight line spacer on the steering rack and simultaneously press "Aux" & "Pulsair".
Pedal/ throttle positions	Main ON, Power ON, Main OFF, full pedal and then Main ON and read the dashboard messages.	

Purges et vérifications du système hydraulique

Manual clutch bleed	Bleed the clutch system by using the clutch pedal
Hydraulic circuit bleed	Mechanic Page n°7 Fill the level up to the Max level, open the bleeding screw and run the bleed strategy: hold the unlabelled button during 5s and then POWER ON
P_Hydr check	47 < P_Hydr < 53 bars
Brake circuit bleed	Bleed the brakes by bleeding simultaneously front and rear circuit.

System parameters initialisation

Reset the level of the fuel consumption by using the bottom left hand side dashboard button
Check the brake balance: 30 bars on the front for 25 bars on the rear as a basic setup

Check before start

Engine oil	Engine water	Gbox oil	Pow. steering oil	Hydraulic oil
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Start

Raise the engine oil pressure (disconnect the DIM and starter up to see Poil > 4,5bars)	Gears up then down slowly
Power steering circuit bleed	Gears up then down quickly rpm > 3000 rpm
Engine fan (working if T_WAT > 80°C)	Check Reverse gear
Alternator charging Vbatt > 13.5V	

Test Fresh Air (T3 < 600°C, T_WAT - Toil > 70°C, RPM > 1200 rpm) Select Stage mode then push shortly the throttle pedal

Check after start

Zero Pressure sensors	Check datas (Gbox parameters during up and down shifts)	P_Hydr dropping when engine stopped
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Test accessoires

Lights	Wippers	Map light	Engine fan strategy
Indicators/ Warning	Washer	Horn	