MANTHEY - RACING

Installation instructions ABS M5

Porsche 911 GT3 Cup Gen. II & Cup MR Gen.II (Type 991.2)

MTH355400 & MTH355450

The system may only be operated with the brake pads described in this document (refer to the warning and safety instructions)!

Version_V1_2019/11

Introduction

This document is intended to give you the opportunity to install the system and to become familiar with the features. It provides information about the components and the procedure for installation in your vehicle.

Furthermore, you will learn how to check the system for faultless operation after installation with the necessary software.

Manthey-Racing assumes no liability for compliance with the regulations.

Illustrations, descriptions and schematics serve exclusively to represent the text. Manthey-Racing assumes no liability for the completeness and conformity of the content with the respective valid sports laws.

Due to the constant optimization of our products, there are regular updates of the installation instructions. Please note that only the latest version of the manual is valid.

Please always use these installation instructions in conjunction with the technical documentation (manual, parts catalog and technical information) of the Porsche 911 GT3 Cup Gen.II (type 991.2) of Porsche AG.

If there is no access to the content of the Porsche 911 GT3 Cup Gen II (type 991.2) in the Porsche Motorsport Racing Car Service Information Portal (PMRSI), the company strongly advises to request such access to this portal at https://motorsport.porsche.com.

In order to avoid personal injury and damage to the vehicle's safety or damage to the vehicle as a result of improper work, the warnings and safety instructions must be read carefully and followed without restriction.

It is therefore expressly pointed out that all works of the described work processes are only to be carried out in compliance with the applicable directives and regulations of the locally competent authorities, health, accident and environmental protection or in consideration of the applicable legal provisions.

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Download Area

The installation and operating instructions as well as the technical manuals are available for download at the following link:

http://www.manthey-racing.de/downloads.htm

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Contents

1. Warning and safety instructions

The classification of the warning or safety information is carried out by the respective signal word (danger, warning, caution) next to the warning symbol

DANGER	**Warning of death or serious injury that will occur if not observed.**
WARNING	**Warning of death or serious injury that could result if disregarded.**
ATTENTION	**Warning of minor injuries if not observed.**
NOTE	**Warning of damage to property in case of non-compliance .**
	**Specification: tightening torque in Nm**

1.1 General warning and safety instructions

DANGER

Danger of injury and risk of accident during and after work on the vehicle

- Repairs must only be carried out if access to the technical documentation for the relevant vehicle is also available in the Porsche Motorsport Racing Information Service Portal (PMRSI)
- Observe safety instructions

DANGER

Falling vehicle
Squeezing or crushing
Damage to the vehicle

- Secure the lift against lowering
- Remove rigid objects before lowering
- Only lift the vehicle at the designated pick-up points.
- It is preferable to use the outer pick-up points

WARNING

Improper handling or safety relevant screw connection
Injuries
Torque decrease

- Use new screws or nuts after each removal
- observe the correct tightening torque
- check used parts visually

WARNING

Heavy components
Bruises

- Wear personal protective equipment
- If necessary, call for helpers

WARNING

Flying foreign particles during grinding, drilling and milling

Eye injuries

- Wear safety glasses

WARNING

Always wear personal protective equipment when working with brake fluid. Avoid skin contact. Harmful if swallowed or in contact with eyes.

ATTENTION Observe corrosive properties of brake fluid. Protect painted components against contact. Remove spilled brake fluid immediately.

ATTENTION Sharp objects

Cracks, punctures or cuts

- Wear personal protective equipment

ATTENTION Handling of harmful liquids

Chemical burns and allergic reactions

- Wear personal protective equipment. Gloves and safety goggles are mandatory
- Observe the harmful properties of brake fluid. The country -specific regulations for handling harmful substances must be observed. The environmental health, safety and accident prevention regulations must be observed

NOTE Old or used brake fluid must be disposed of properly. Please inform yourself about the legal regulations for the disposal of brake fluid.

The information provided by Porsche AG about the Porsche 991 GT3 Cup Gen. II (type 991.2) must be observed at all times.

1.2 Special warning and safety instructions

DANGER The included brake master cylinders of the company AP Racing with the Porsche Motorsport part number 991.355.170.8E are mandatory for the operation with ABS. The maximum running time is 90 hours or 15,000 km. A revision after reaching the maximum running time is not allowed. The master cylinder must be replaced.

DANGER The settings for the master cylinder and the balance beam system described in the technical manual for the Porsche 911 GT3 Cup Gen. II (type 991) by Porsche AG must be fully complied with.

DANGER The ABS has been developed and tested on the included brake pads with part number MTH 609501 (Cup) or MTH 609511 (Cup MR) on the front axle and MTH 609503 (Cup) or MTH 609513 (Cup MR) on the rear axle. Only brake pads with the mentioned part numbers may be used.

WARNING Only the brake fluid approved by Porsche Motorsport may be used for the 911 GT3 Cup Gen. II (type 991.2)

WARNING All system components are coordinated and must not be exchanged for similar components without explicit consent. Otherwise a perfect and unrestricted functioning of the system can not be ensured.

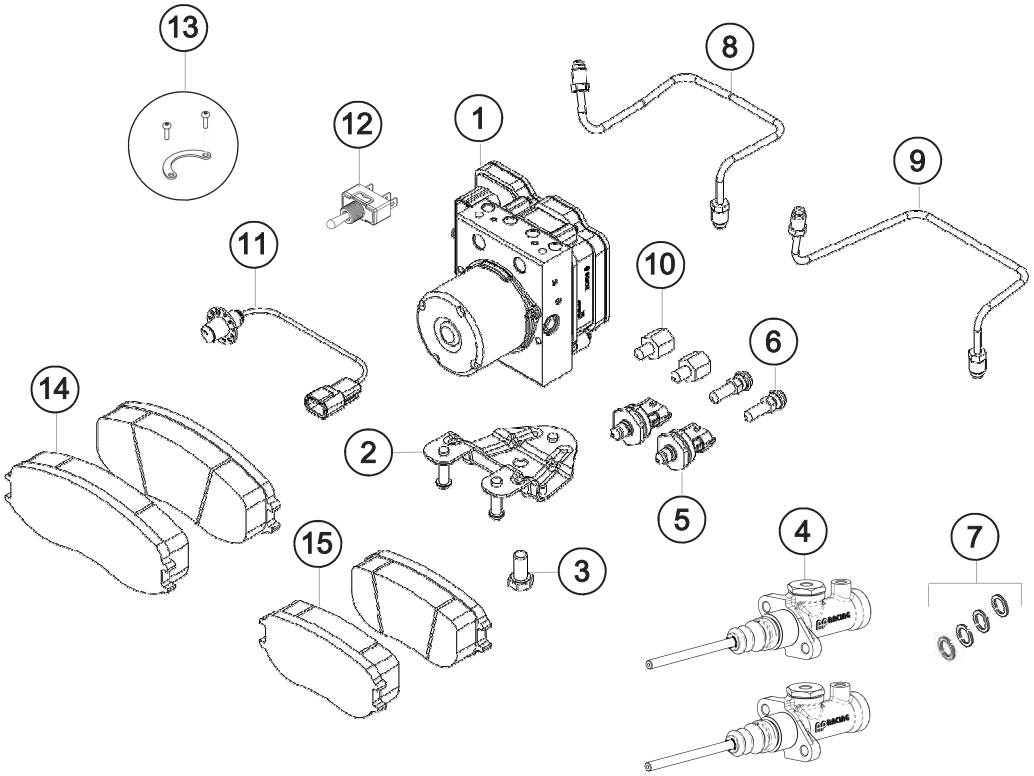
WARNING Compliance with the installation specifications prescribed in this installation manual (tightening torques, mounting positions, etc.) is essential for a faultless system function. This includes the conscientious examination of the system after assembly with the help of the program RaceABS, the activation of the ABS in the engine control unit by means of RaceCon and the loading of the appropriate ABS setup on the ICD by means of Toolset 7.0.

ATTENTION **The connection of an ABS M5 hydraulic unit to an ABS M4 cable harness will destroy the control unit!**

2. Overview: scope of delivery

Below is an overview of the components of the ABS M5 for the 911 GT3 Cup Gen. II and for the Cup MR Gen.II (type 991.2) with part numbers MTH355400 and MTH355450.

Pos.	Description	Part-No	Amount
1	ABS hydraulic unit	F 02U V05 286-01	1
2	Mounting plate hydraulic unit	99135513501	1
3	Fixing screw M10x1	n.a.	1
4	Master Cylinder	9913551708E	2
5	Pressure Sensor	0261545040	2
6	Screw Plug	n.a.	2
7	Sealing Ring 10x13.5	90012303320	4
8	Connecting Cable HBZ1 to Hydraulic Unit	MTH355401	1
9	Connecting Cable HBZ 1 to Hydraulic Unit	MTH355402	1
10	Cable Adapter M10x1 to M12x1	n.a.	2
11	Rotary Selector 12 stages complete	MR002058	1
12	Dry/Wet Switch	MTH355230	1
13	Mounting Kit Diagnostic Connector	F 02U B01 028-01	1
14	Brake Pad Set Front Axle Cup Gen.II	MTH609501	1 Set
(14)	Brake Pad Set Front Axle Cup MR	MTH609511	1 Set
15	Brake Pad Set Rear Axle Cup Gen.II	MTH609503	1 Set
(15)	Brake Pad Set Rear Axle Cup MR	MTH609513	1 Set
o.B.	Dust protection caps	MR017462	2
o.B.	Lettering Dry / Wet Switch (Sticker)	n.a.	1
o.B.	Main Cable Harness including fuse carrier	MTH355403	1
o.B.	Wiring Harness rear	MTH355404	1
o.B.	3M 3751 Dual Lock Velcro Tape	MR013069	0,1m



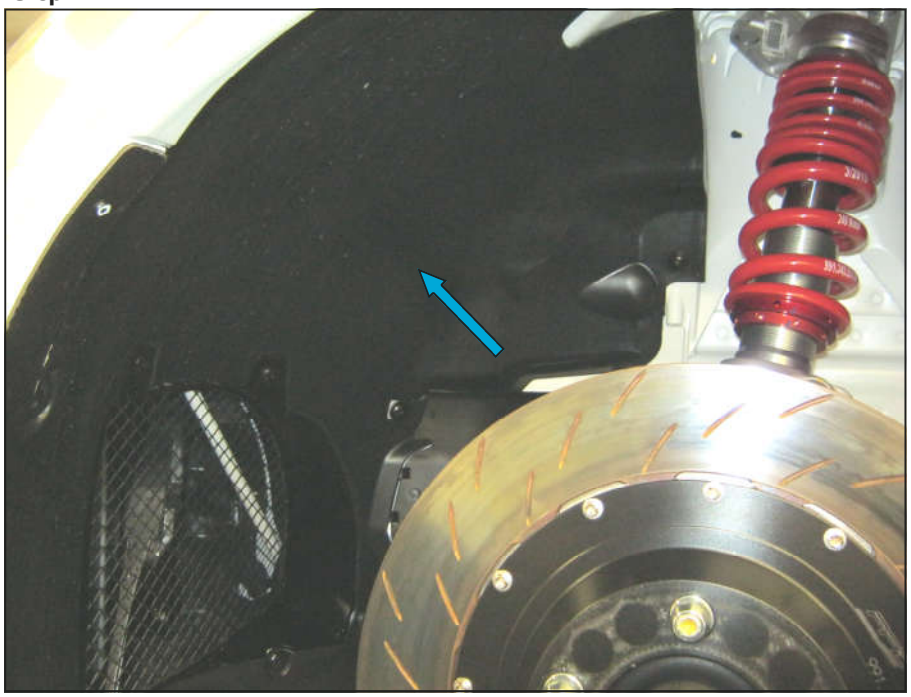
3. Assembly of the hydraulic components

This section describes how to assemble the hydraulic components. The safety instructions for the individual steps must be followed without restriction.
Non-observance can lead to malfunctions or failure of the brake system while driving!

Always use these installation instructions in conjunction with the technical documentation provided by Porsche AG for the Porsche 911 GT3 Cup Gen.II (type 991.2).

3.1 Preparatory works

Step 1:



Step 1:

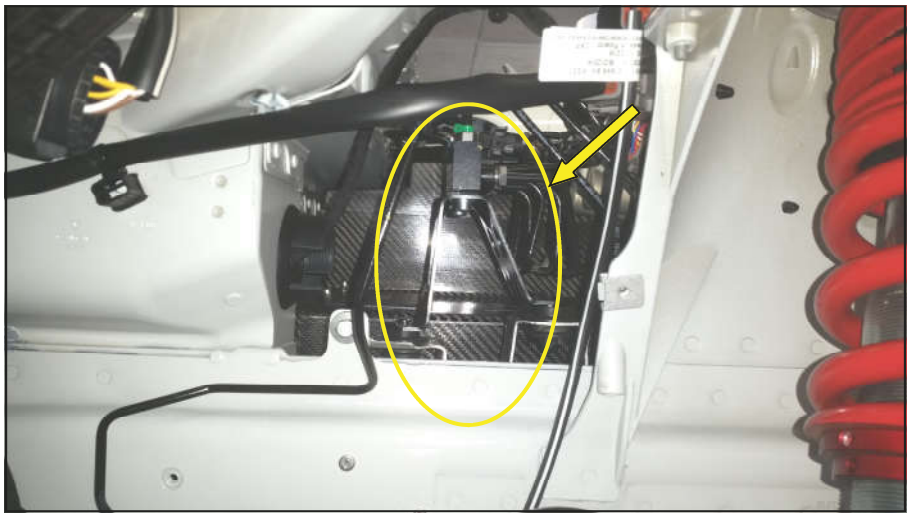
Lift the vehicle on a lift.

Disassemble all four wheels.

Dismount the front left wheel arch liner to gain access to the standard manifold.

WARNING

Make sure that the vehicle is lifted properly at the designated pickup points. If the vehicle is lifted with an air jack system, please use the air lifting supports to prevent unintentional lowering.



Step 2:

Using suitable tools, remove all brake fluid from both reservoirs.

NOTE

Place protective covers over the tank and, if necessary, body panels to protect them against dripping brake fluid.

Step 2:

WARNING

Always wear personal protective equipment when working with brake fluid. Avoid skin contact. Harmful if swallowed or in contact with eyes.

ATTENTION

Observe corrosive properties of brake fluid. Protect painted components against contact. Remove spilled brake fluid immediately. Dispose old and used brake fluid professionally.

3.2 Disassembly of the standard manifold and cables

Step 1:

Disassemble the four access lines and the four output lines from the standard manifold.

Disassemble the two brake lines on the manifolds of the master cylinder. Carefully set aside the four output lines marked with colored cable ties

⚠ ATTENTION

Do not bend pipes during disassembly work!

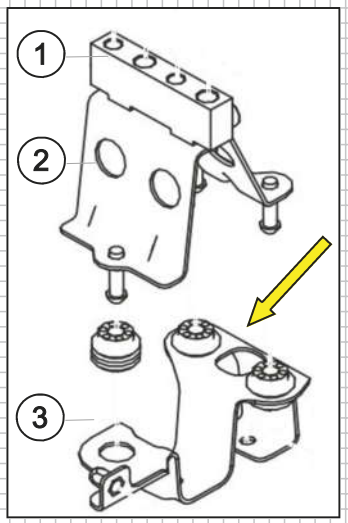
NOTE

Never remove the colored cable ties!

Step 2:

Dismantle the brake line distributor **(1)** including its holder **(2)**.

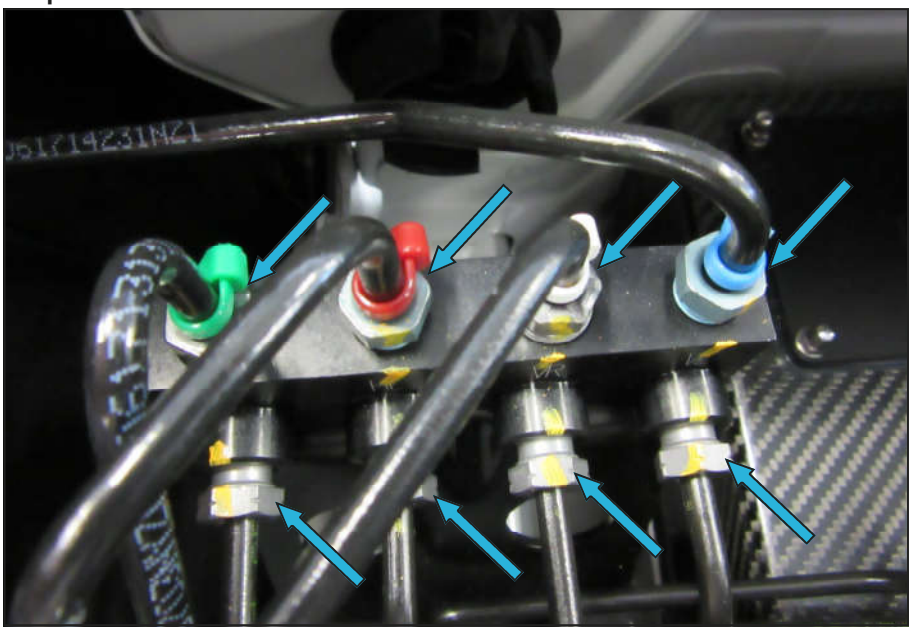
The retaining bracket bolted to the body, including the three rubber elements **(3)**,

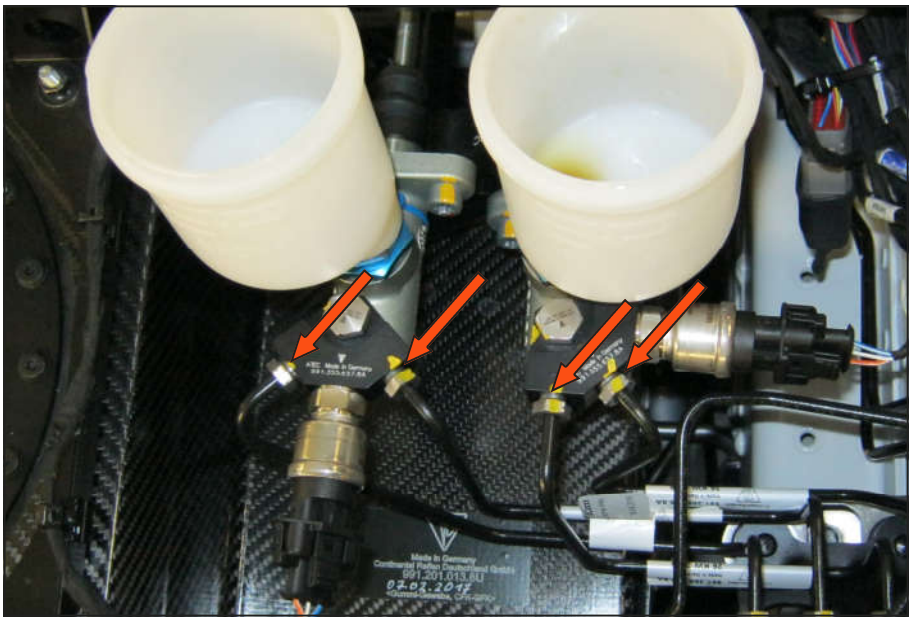


NOTE

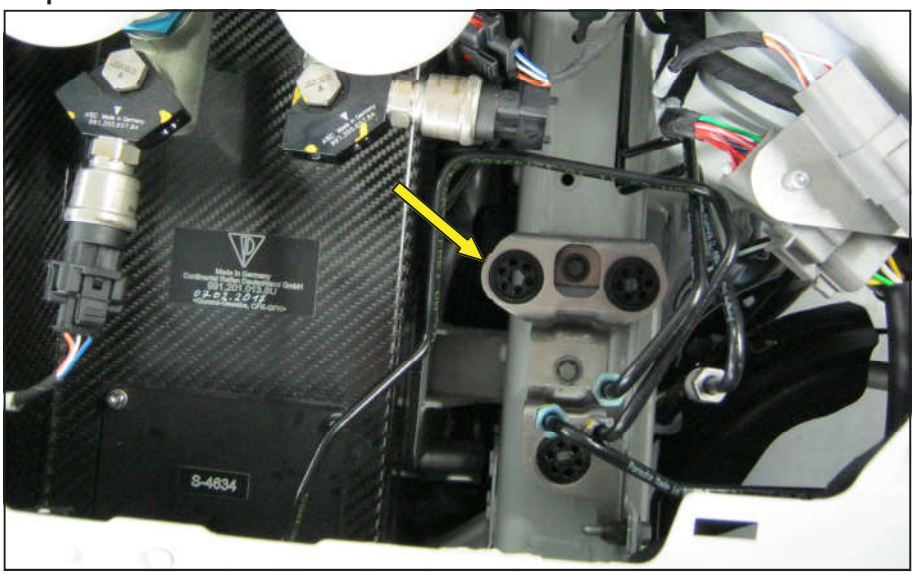
Store the dismantled components for possible dismantling.

Step 1:



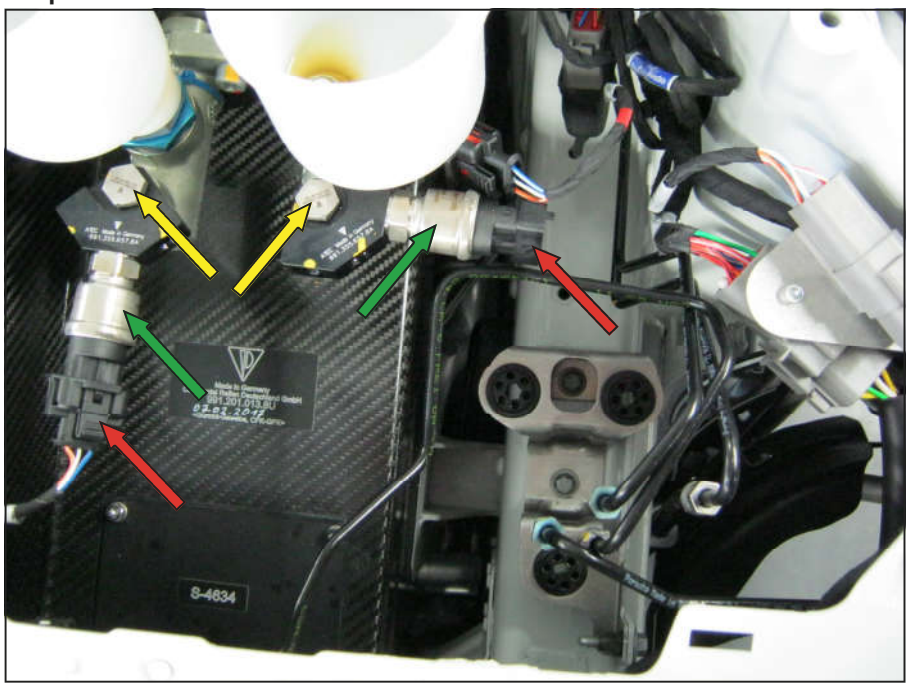


Step 2:

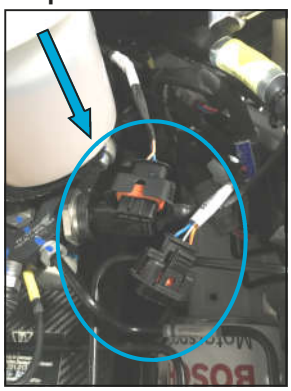


3.3 Disassembly of the standard pressure sensors and manifolds from the master brake cylinders

Step 1:



Step 2:



Step 1:

Disconnect the connectors of the two standard pressure sensors.

Disassemble the two pressure sensors.

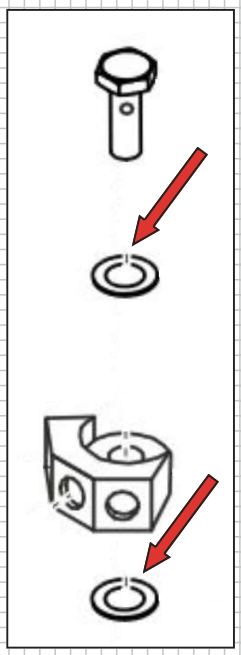
Loosen and remove the banjo bolt on the manifold.

NOTE

Note the alignment of the two manifolds. The later assembly takes place in the same manner! Store the two distributor pieces and the two banjo bolts until they are reassembled.

⚠ WARNING

The four sealing rings on the hollow screws must be replaced mandatory for later assembly. The scope of delivery includes four new sealing rings.



Step 2:

Attach the supplied dust caps to the two connectors for the standard brake pressure sensors. Attach the wiring harnesses of the standard pressure sensors with cable ties as shown in the picture.

.

3.4 Assembly of the supplied master cylinder (for ABS operation)

DANGER

The standard brake master cylinder (BMC), part number **9113551708C MUST** be replaced for ABS operation by the brake master cylinder included, part number **9113551708E**. Non-observance can lead to malfunctions and failure of the brake system while driving.

Step 1:

Dismantle the emptied brake fluid reservoir (see section 3.1)

Spanner size of fixing nut: **14**

NOTE

DO NOT clean the rubber bellows in the covers with Brake Cleaner.

Step 2:

Dismantle the two connection adapters.

Be careful not to damage or lose the two sealing rings.

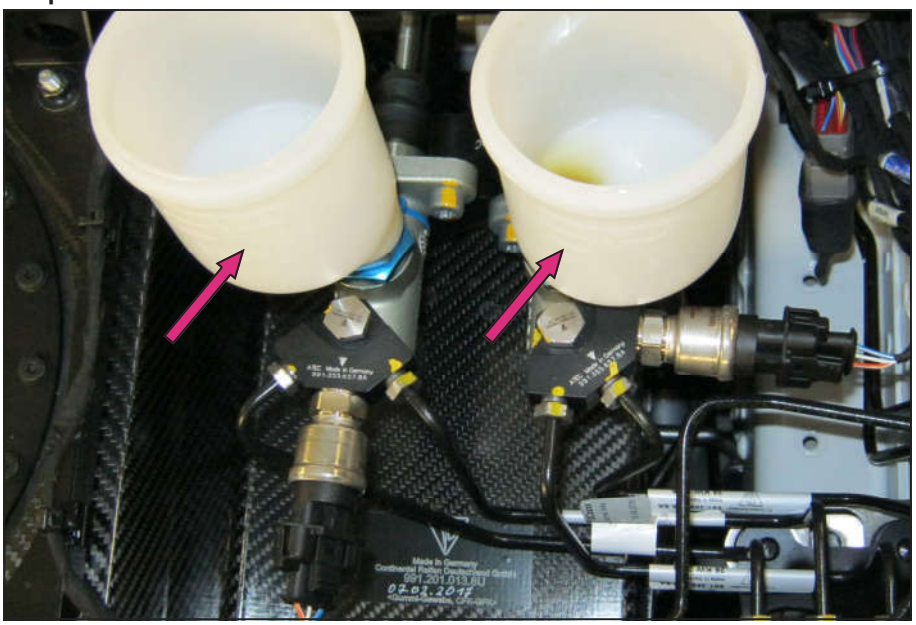
Spanner size of the connection adapter: **24**

Step 3:

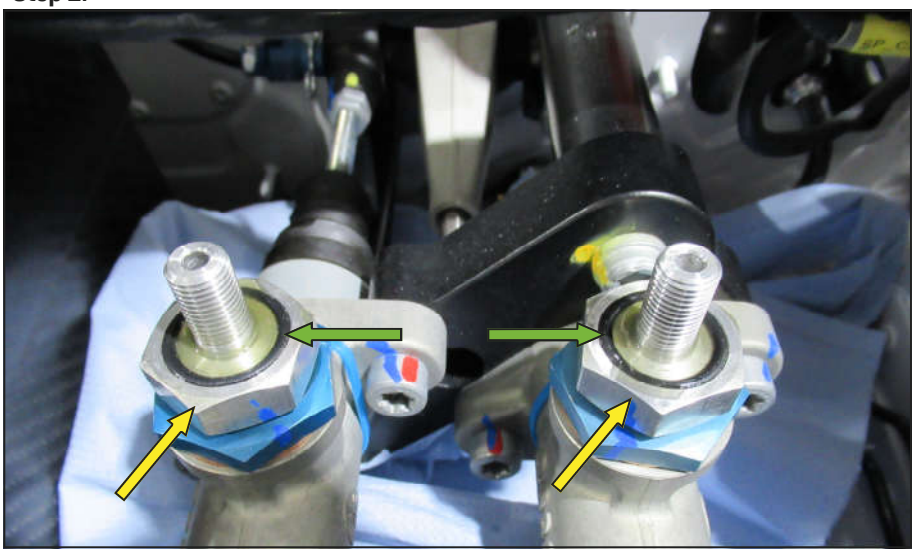
Loosen and remove the fixing screws of the two master brake cylinders.

Loosen the nuts on the two push rods of the master cylinder. Turn the two push rods out of the balance beam. Remove both master cylinders

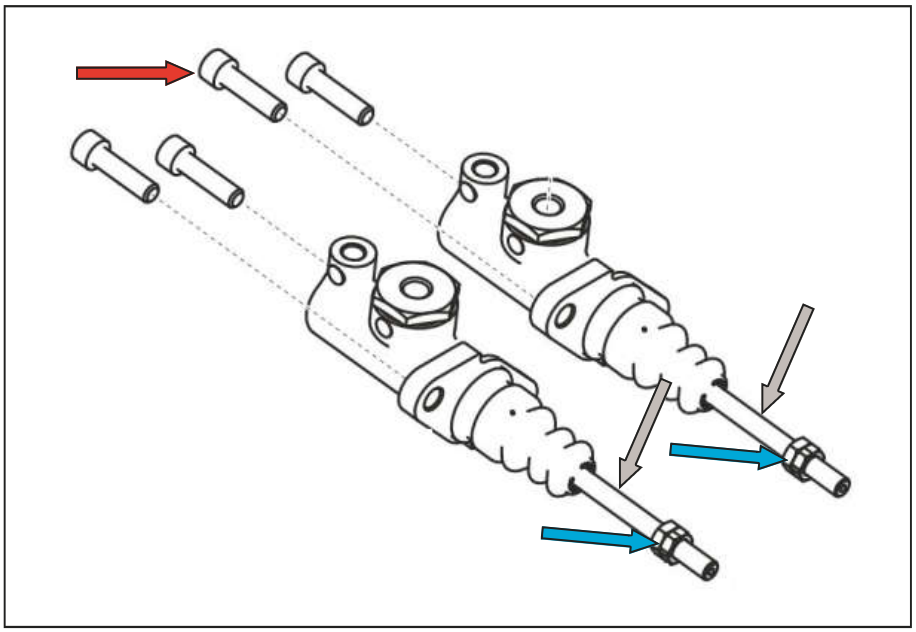
Step 1:



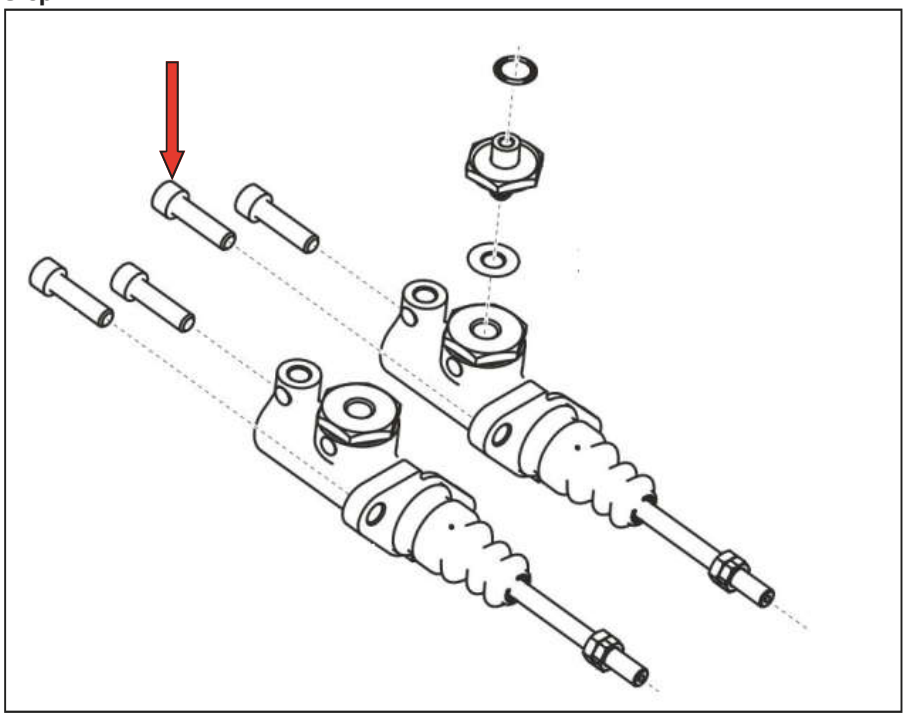
Step 2:



Step 3:



Step 4:



Step 4:

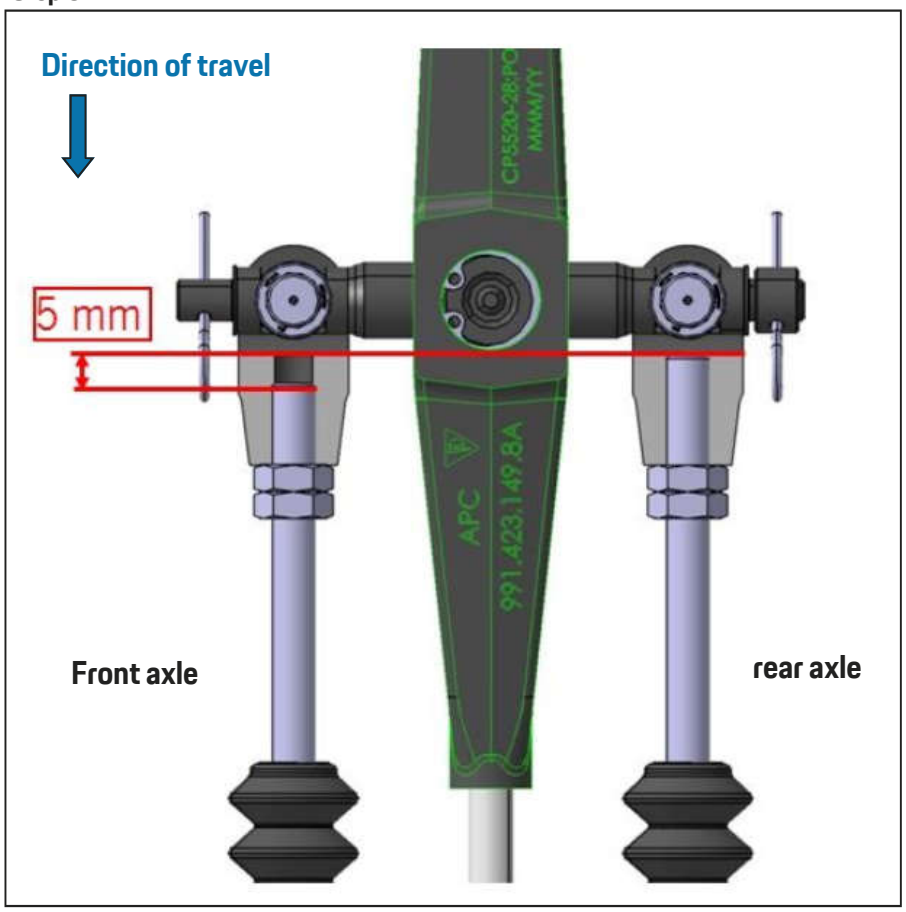
Mount the two new ABS brake master cylinders part number **9113551708E**.

Cylinder screw: M8x30:

Tightening torque:

23 Nm TX 40

Step 5:



Step 5:

Screw the two push rods of the brake master cylinders into the balancer bar.

NOTE

The following must be observed!

At the connection of the balancer bar to the brake master cylinder of the front axle a distance of 5 mm must be set between the thread base of the joint and the threaded rod of the master cylinder.

The push rod of the brake master cylinder of the rear axle must be screwed in to the bottom of the thread **(never screw in further!)**.

Thus, when loaded, the balancer bar is upright to the pressure rod.

Schritt 4:

Step 6:

Mount the connection adapter including the standard sealing ring on both brake master cylinders.

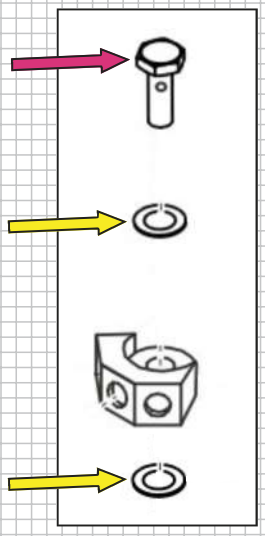
Step 7:

Refit the two distributors to the brake master cylinders. Pay attention to the correct alignment of the distributors.

Tightening torque banjo bolt:
22 Nm Spanner size: **15**

NOTE

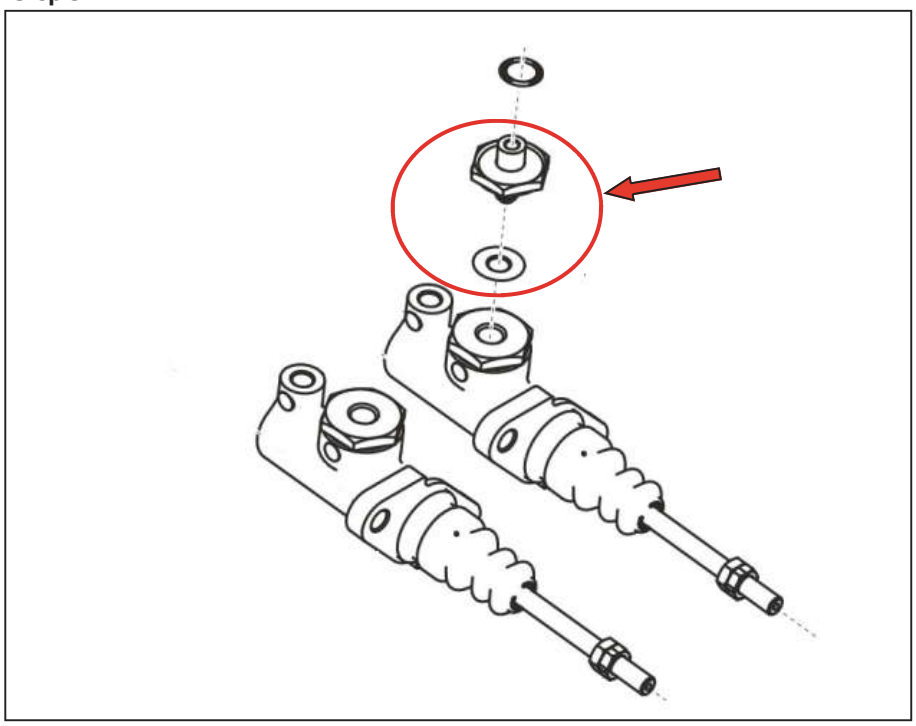
The included copper sealing rings are to be used !



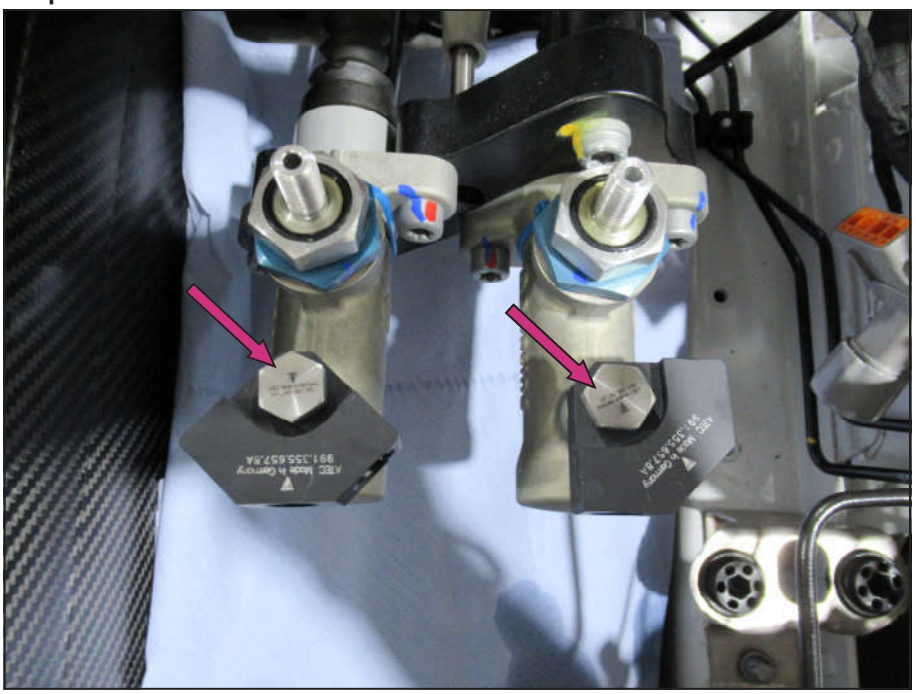
ABS M5

911 GT3 Cup Gen.II/ Cup MR Gen.II

Step 6:



Step 7:



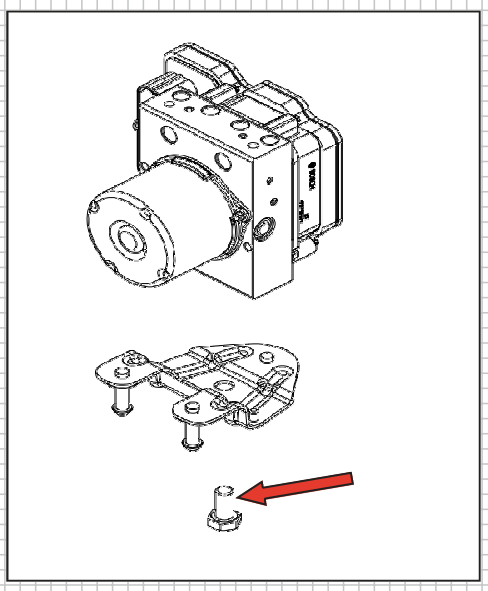
3.5 Preliminary work on the ABS hydraulic unit

Step 1:

Step 1:

Mount the holder, part number: 99135513501, to the ABS hydraulic unit with the supplied M10x1 screw.

30 Nm Spanner size 17



NOTE

All six plugs must remain closed until the unit is installed in the vehicle and the corresponding lines are connected.

The ABS hydraulic unit is pre-filled with liquid. Liquid leakage is possible if the plugs are removed prematurely!

Step 1:

Carefully insert the ABS hydraulic unit into the existing bracket.

Make sure that all three pins of the holder snap correctly into the rubber bearings.

Check the firm and correct fit!

NOTE

During installation, make sure that you do not bend the brake lines and that the hydraulic unit is not damaged by impact.

Step 1:

Mount the two brake line adapters at the shown outputs of the ABS hydraulic unit:

HR/RR (green)

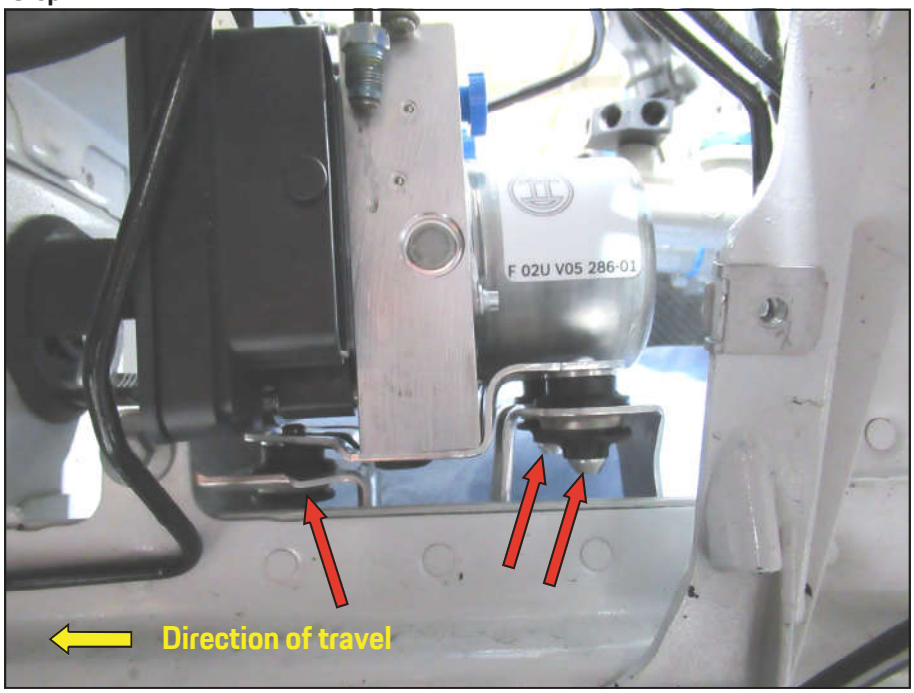
VR/FR (white)

Tightening torque brake line adapters :

18 Nm

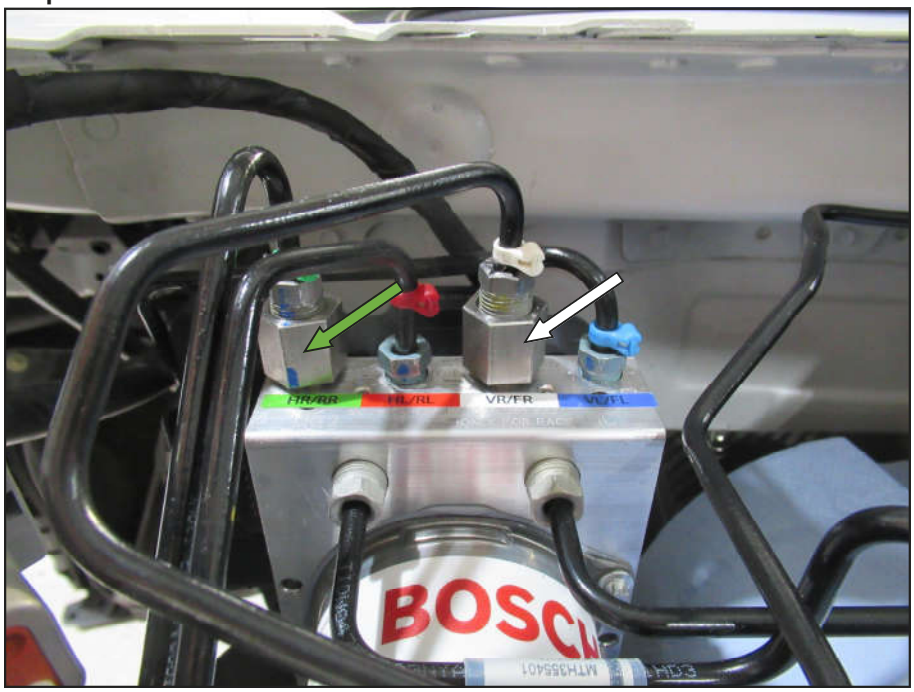
3.6 Assembling the ABS hydraulic unit

Step 1:



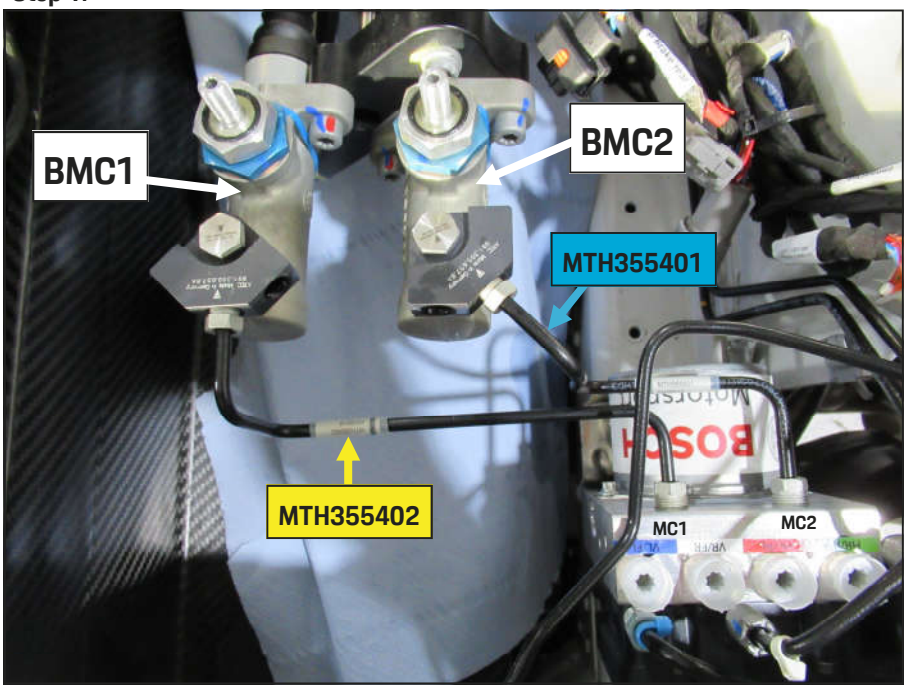
3.7 Mounting the supplied brake line adapters to the ABS hydraulic unit

Step 1:



3.8 Assembly of the new brake lines and pressure sensors

Step 1:



Step 2:

Step 3:

Step 1:

Mount the new brake line **MTH355402** to the middle outlet of the brake master cylinder 1 distributor and the corresponding MC1 connector on the ABS hydraulic unit.

Mount the new brake line **MTH355401** also to the central outlet on the distributor of the brake master cylinder 2 and the corresponding inlet MC2 on the ABS hydraulic unit.

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Tightening torque MTH355401 and MTH355402 to distributor BMC:

16 Nm Spanner size 11

Tightening torque MTH355401 and MTH355402 to the ABS hydraulic unit:

16 Nm Spanner size 11

Step 2:

Mount the two included pressure sensors at the positions shown on the distributors of the brake master cylinder BMC 1 and BMC 2.

Tightening torque for the pressure sensors to the distributors:

16 Nm Spanner size 27

Step 3:

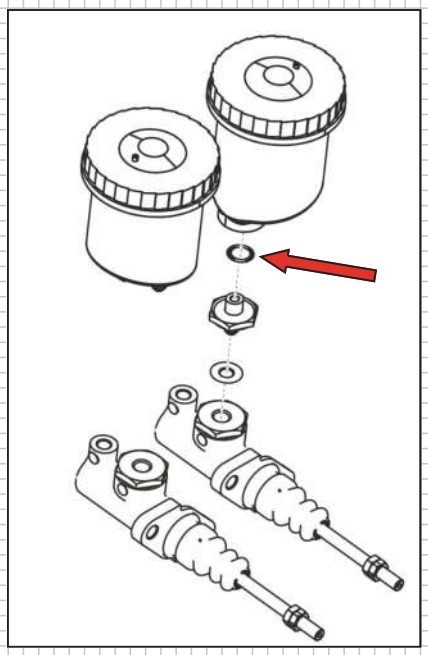
Mount the two plug screws on the free outputs of the manifolds.

16 Nm Spanner size 11

Step 4:

Finally, mount the two fluid reservoirs to the brake master cylinders.

Make sure that the O-ring on the adapter fits correctly.



Attach the two dust caps to the locking screws.

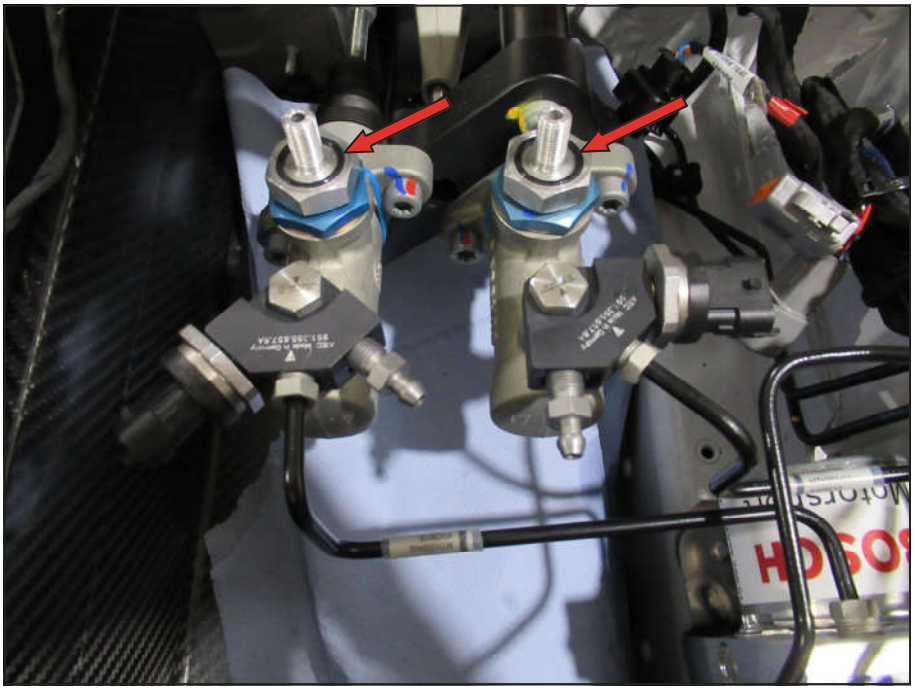
⚠ WARNING

Safety relevant screw connections!
Observe tightening torques!
For all work on the brake system, the technical information of Porsche AG must be observed.

NOTE

Corresponding torque wrenches and special socket wrenches are required for the execution of the fittings.

Step 4:



3.9 Connecting of the standard brake lines (outputs) to the ABS hydraulic unit

Schritt 1:

Schritt 1:

Connect the standard brake lines (see section 3.2 for disassembly) to the ABS hydraulic unit.

NOTE

The brake lines are marked with colored cable ties. The assignment to the outputs on the ABS hydraulic unit are also coded with corresponding colors.

Connections:

Line (green) -> connection RR (green)
Line (red) -> connection RL (red)
Line (white) -> connection FR (white)
Line (blue) -> connection FL (blue)

Tightening torque of the four brake lines to the ABS hydraulic unit:

16 Nm Spanner size 11

WARNING

After connection of ALL brake lines, ensure that there is free movement to other components of at least 4 mm in order to avoid damage caused by scrubbing while driving.

DANGER

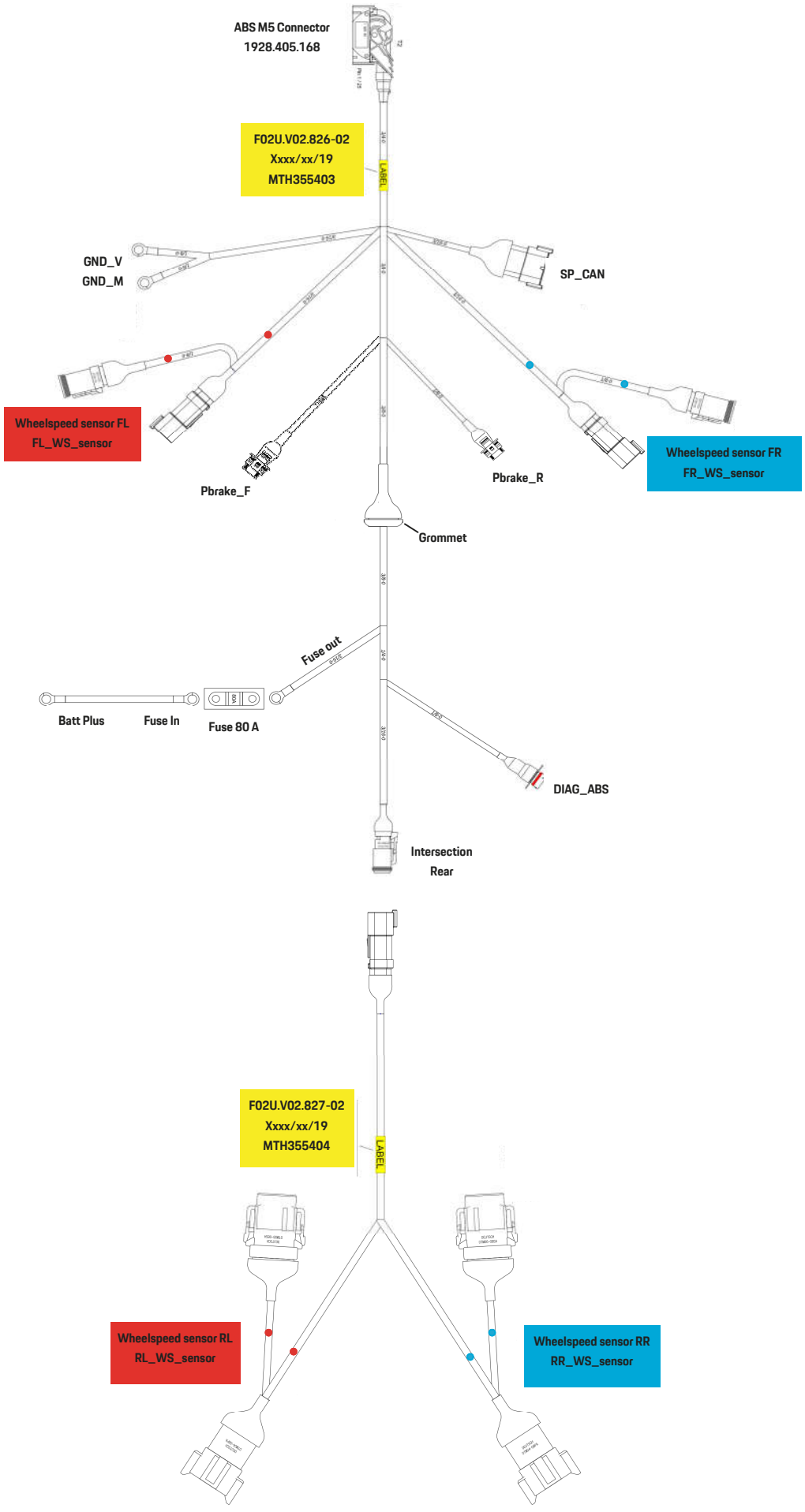
Be sure to connect the brake lines as described in this manual. Failure to follow the installation instructions will inevitably lead to malfunctions while driving!

4. Assembly of the electrical components

This section describes how to assemble the electrical components. The safety instructions for the individual steps must be followed without any restriction. Non-observance can lead to malfunctions or failure of the brake system while driving!

Always use these installation instructions in conjunction with the Porsche 911 GT3 Cup Gen.II (type 911.2) technical documentation provided by Porsche AG.

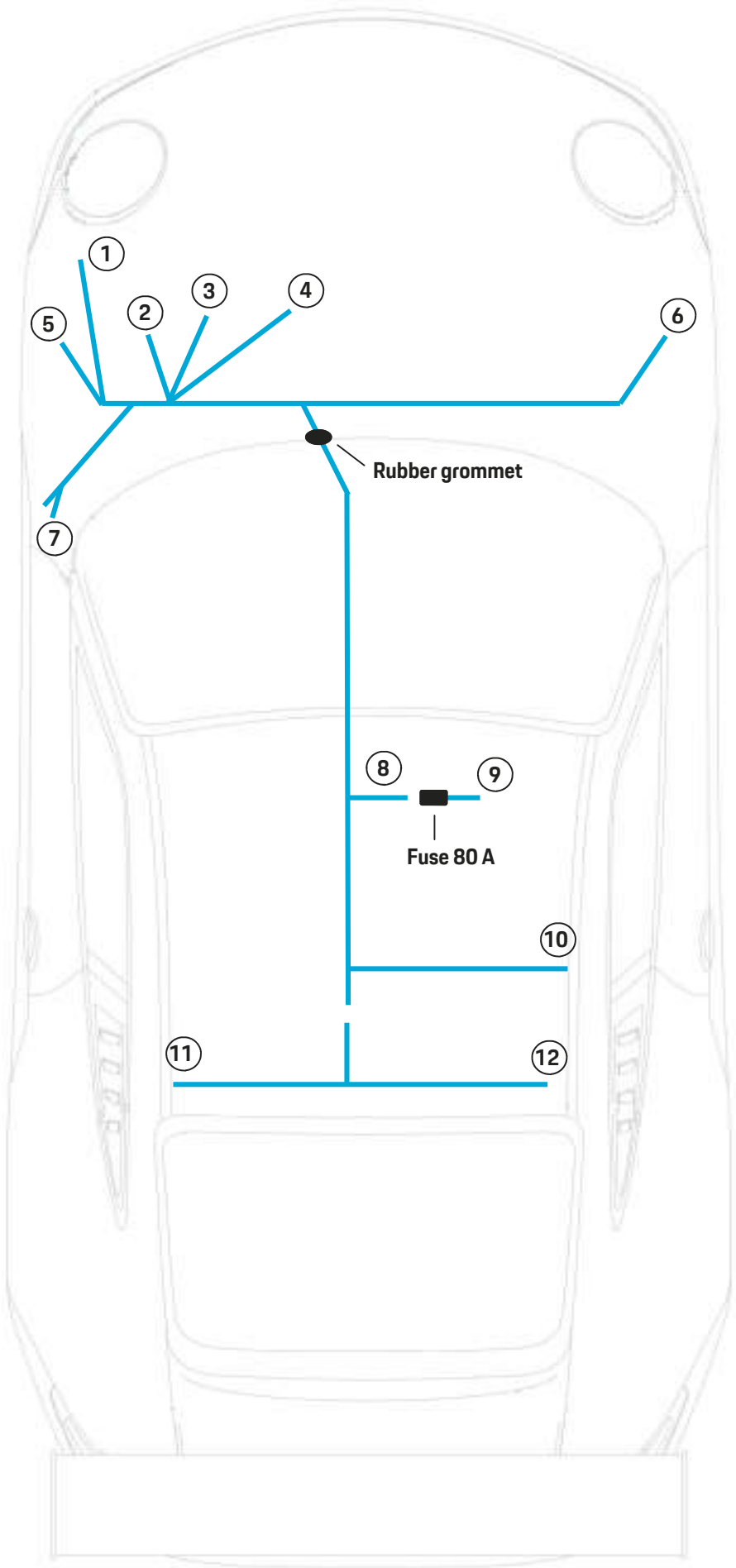
4.1 Overview: cable harness (two-piece)



4.2 Schematic view of the installation position of the cable harness

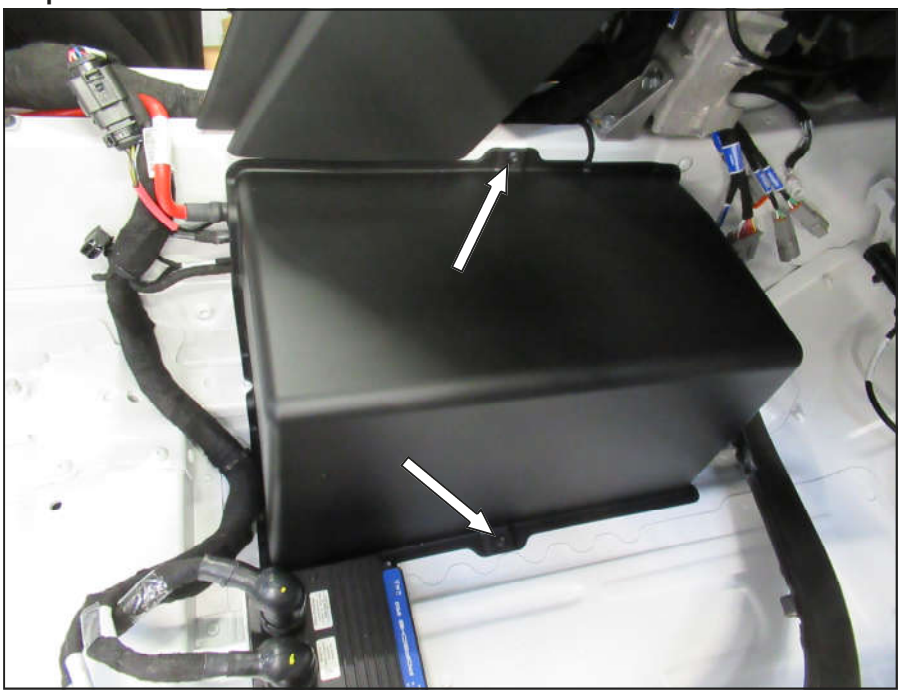
The picture opposite shows the approximate installation position of the ABS cable harness with its connector plugs in the vehicle.

1. ABS M5 Connector
2. SP_CAN
3. Pbrake_R
4. Pbrake_F
5. Wheelspeed sensor FL
6. Wheelspeed sensor FR
7. GND _V /GND_M
8. Fuse OUT
9. Fuse IN / BATT Plus
10. DIAG_ABS
11. Wheelspeed sensor RL
12. Wheelspeed sensor RR

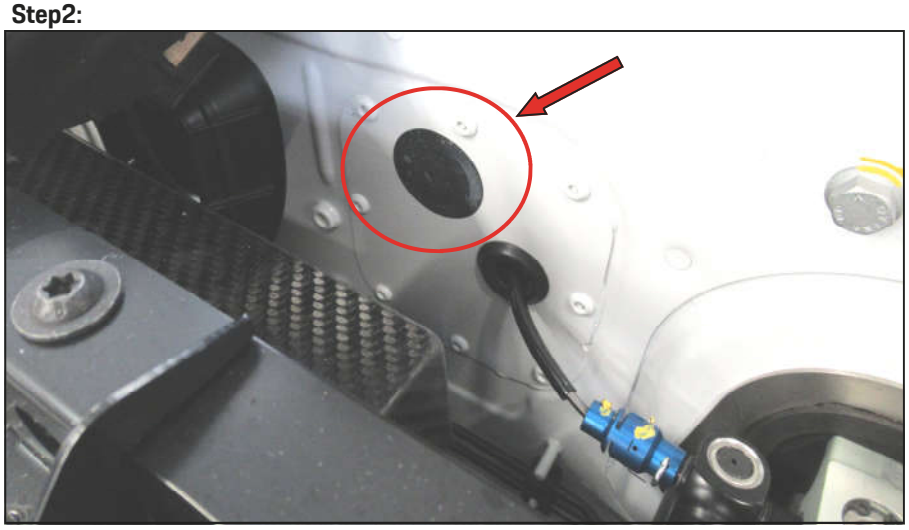


4.3 Preparatory work

Step 1:



Step2:



Step 3:

⚠ WARNUNG

To connect the ABS wiring harness, the vehicle must be de-energized - battery disconnected!
Failure to do so may result in damage and injury from short circuit and cable fire.

Step 1:
Disassemble the cover of the starter battery.

Required tools:Torx 25 screwdriver

Remove the pole terminal at the negative pole.
Required tools: Wrench, spanner size: 10

Step 2:
Remove the lock on the bulkhead to the interior. The shutter is located below the wiper motor.

Step 3:
Disassemble the switch plate. This will be equipped later with the switches "ABS Position" and "Wet / Dry".

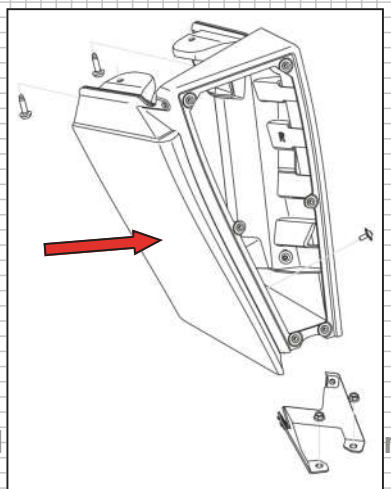
Required tools:
Torx 25 Screwdriver

Step 4:

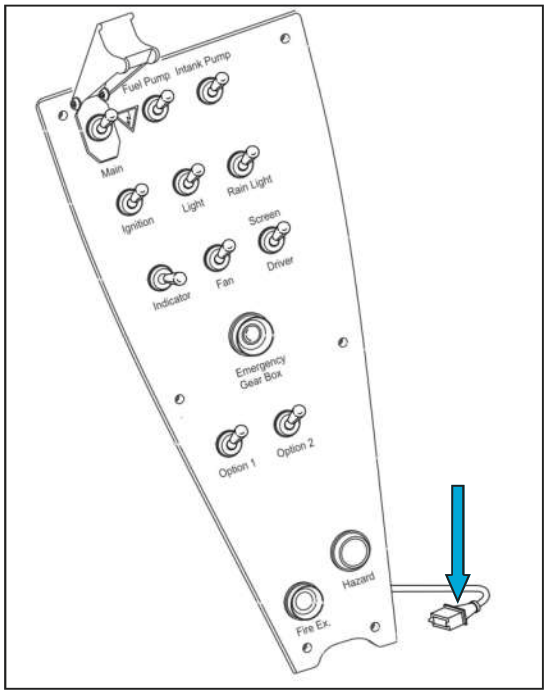
Disconnect the central connector behind the switch plate. Remove the switch plate from the vehicle.

Step 5:

Dismantle the carrier of the switch plate.

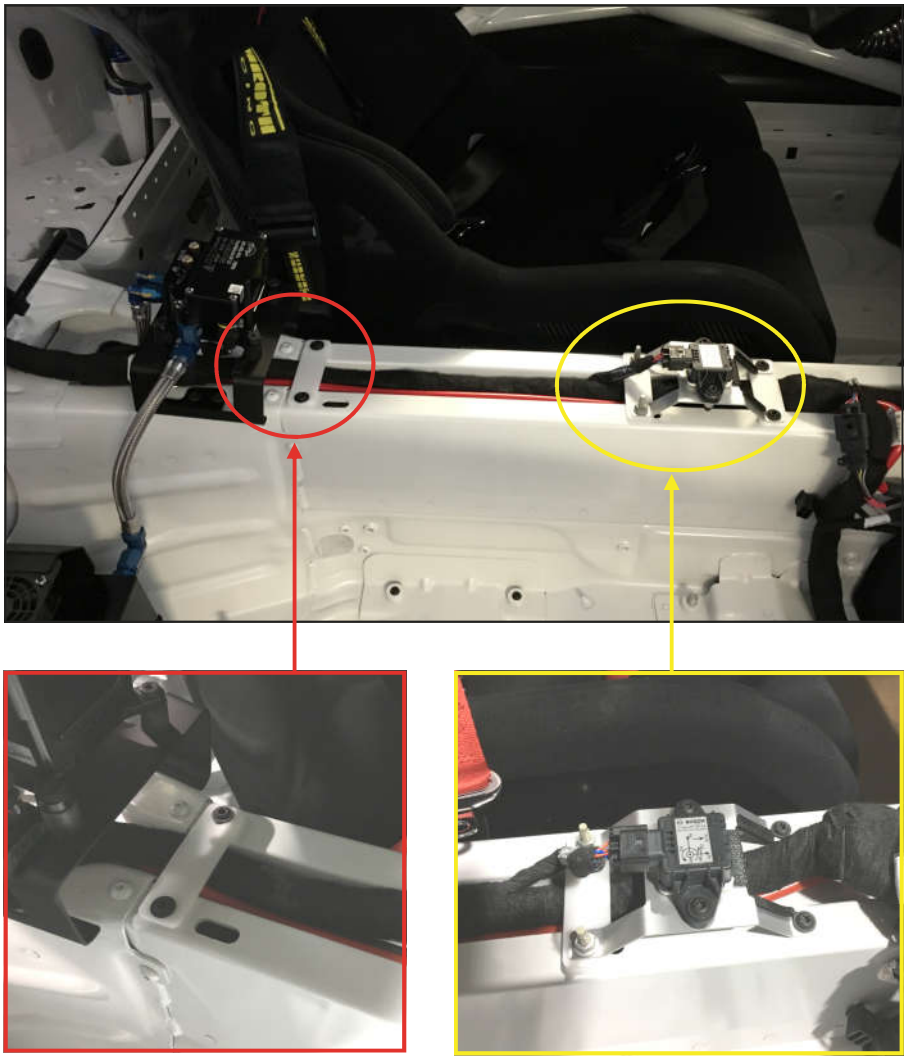


Step 4:



Step 5:

Step 6:



Step 6:

Disconnect the electrical connector of the rotation rate sensor.

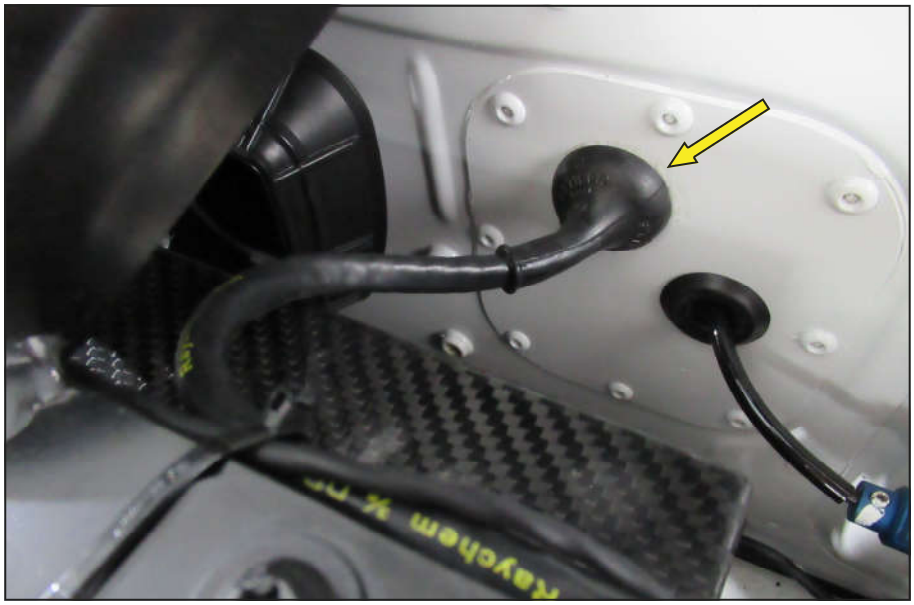
Remove the two retaining plates and the yaw rate sensor including holder.

4.4 Installation of the cable harnesses MTH355403 and MTH355404 into the interior

Step 1:

Feed the subsections "Intersection", "DIAG_ABS" and the wiring harness for the "Batt Plus" power supply of the MTH355403 cable harness through the opening in the bulkhead to the vehicle interior.

Fit the rubber grommet correctly into the opening..



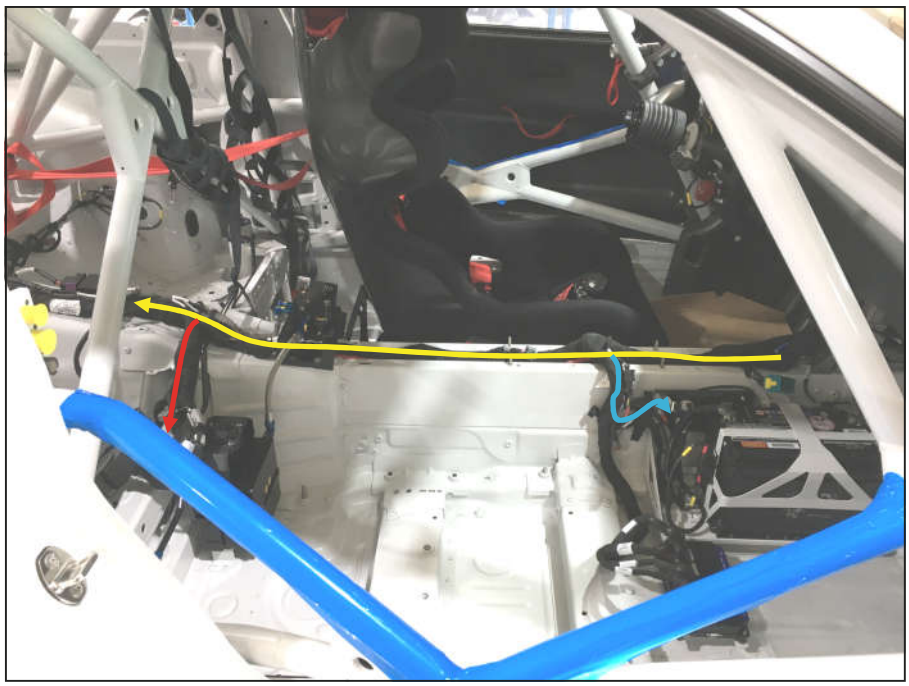
Route down the wiring harness on the inside of the bulkhead

Route the wiring harness along the main vehicle wiring harness towards the rear of the vehicle.

Step 2:

Step 2:

Feed the cable harness further back through the opening in the cast-iron carrier of the control panel.



Route the wiring harness along the center tunnel.

Feed the subsections "Intersection" and "DIAG_ABS" below the valve block of the switching unit.

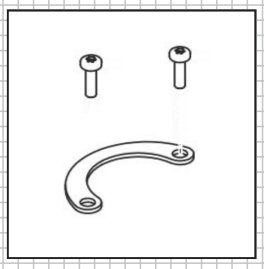
Route the sub-line "DIAG_ABS" along the cable harnesses for the engine control unit and the switching compressor below the engine control unit in the direction of the connector strip B-pillar passenger side.

Lay the sub-strand "Batt Plus" along the connecting cables for the IPS into the installation space of the starter battery.

Step 3:

Guide the sub-string "DIAG_ABS" below the engine control unit along the vehicle wiring harnesses for "diagnostic_msa_box" and "ICD_diagnose" as far as the free port of the power strip.

Attach the "DIAG_ABS" plug to the power strip with the supplied mounting kit.



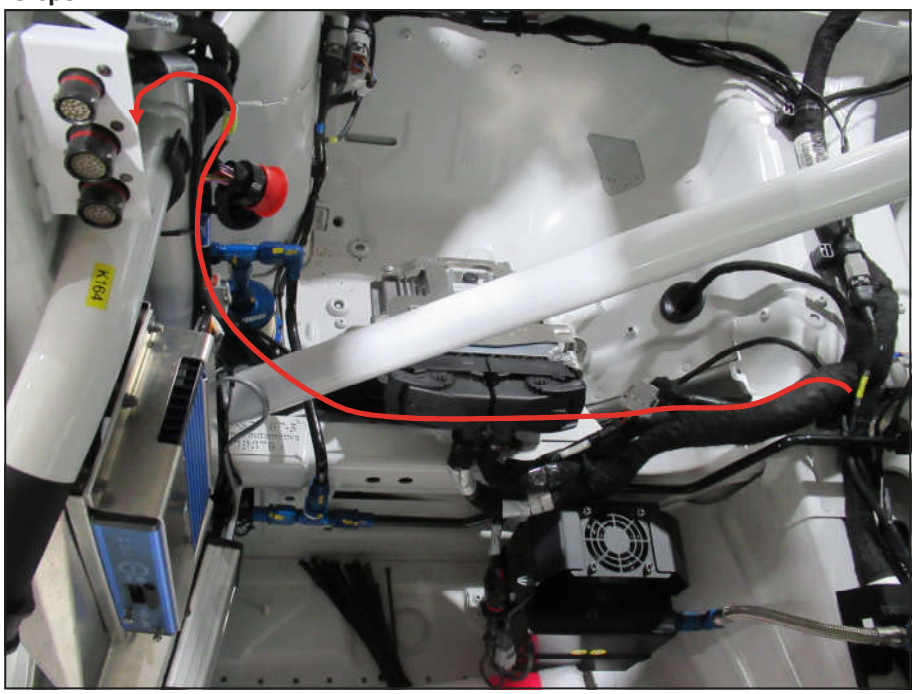
Tightening torque: Fixing screws diagnostic connector:

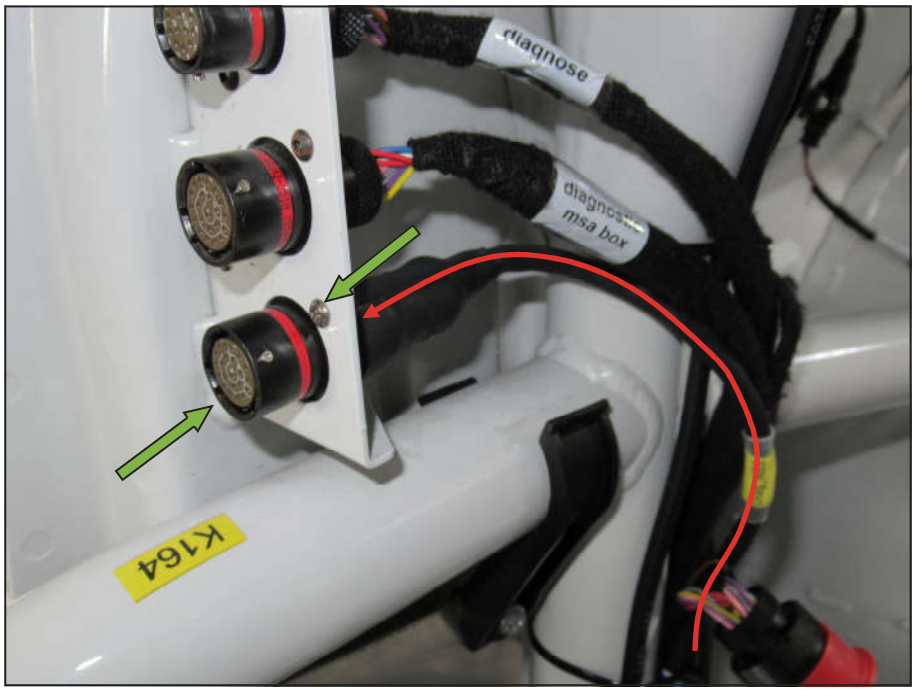
1,2 Nm TXH 10

⚠ ATTENTION

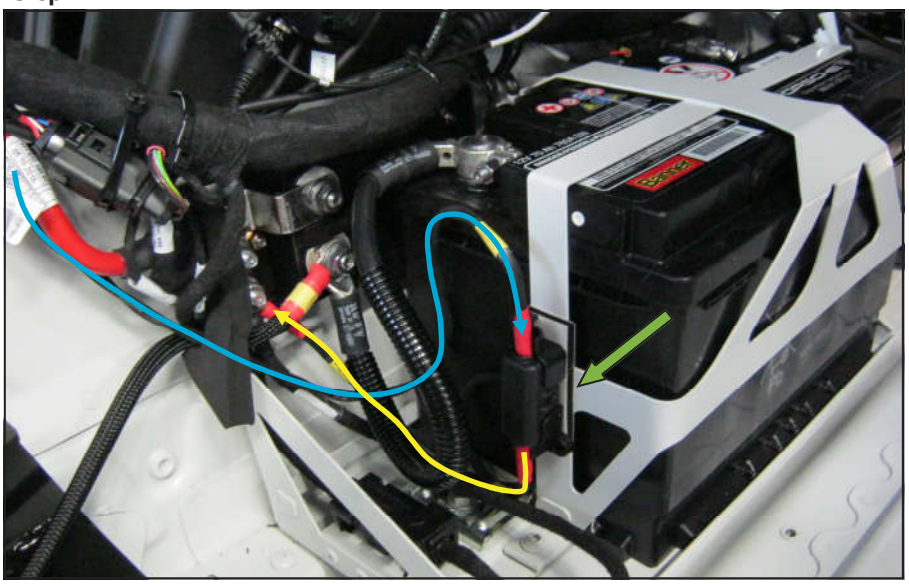
Secure the wiring harness "DIAG_ABS" with cable ties at regular intervals. Tensile stresses are to be avoided. Do not bend the wiring harness! Do not lay in sharp-edged places! An abrasion-free installation is important!

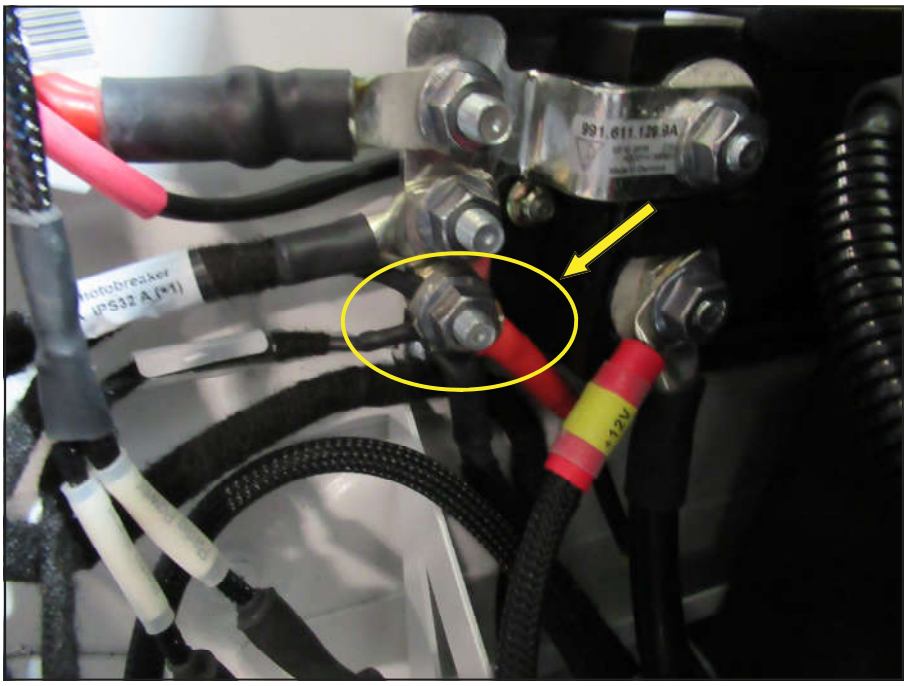
Step3:

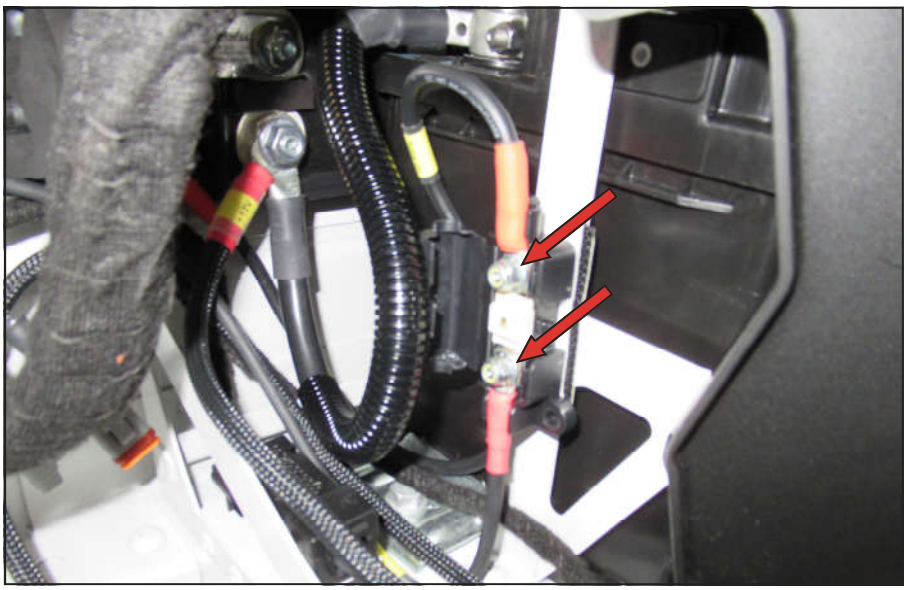




Step 4:







Step 4:

Lead the cable harness for the power supply "Fuse IN" into the installation space of the starter battery.

Attach the fuse carrier to the holder of the starter battery by using the supplied Velcro tape.

Route the cable harness "Fuse OUT / BATT Plus" from the fuse carrier to the lower terminal on the contact plate of the +12 volt power supply as shown.

Tightening torque M10 mounting nut on the contact plate:

10 Nm Spanner size 10

⚠ ATTENTION

The two securing nuts M6 in the fuse carrier are to be checked at regular intervals for firm seating (as part of the vehicle maintenance).

Tightening torque M6 mounting nut in fuse carrier:

5 Nm Spanner size 10

ABS M5

911 GT3 Cup Gen.II / Cup MR Gen.II

Step 5:

Connect the harness for the rear speed sensors to the connector "Intersection". The plug must click into place.

Route the cable harnesses for the RPM sensors RL and HR along the vehicle cable harness to the connections on the wheel arches left and right. Connect the connection plugs according to the pictures.

DANGER

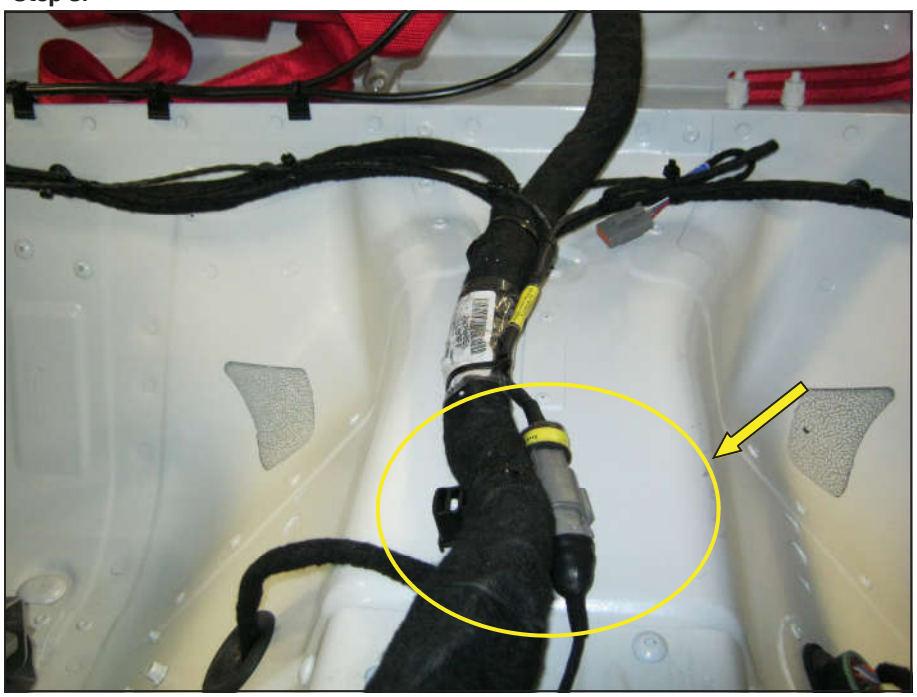
The cable strands for the speed sensors of the rear axle are related to one side only. In addition to the inscription "wheel speed sensor RL" and "wheel speed sensor RR", the cable strands are color-coded!

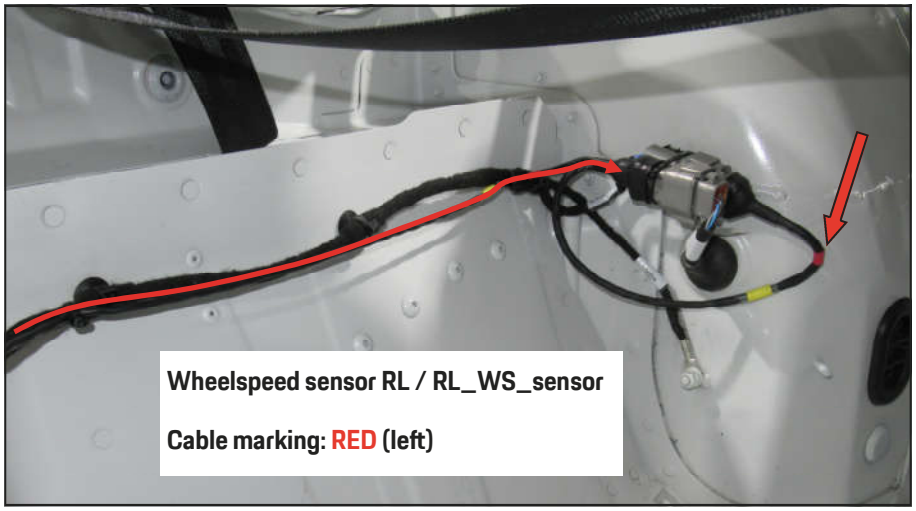
The cable strand for the left speed sensor "wheelspeed sensor RL" is marked RED for a clear identification.

The cable strand for the speed sensor "wheel speed sensor RR" is marked BLUE for a clear identification.

Interchanging the line strands left / right inevitably leads to malfunctions while driving!

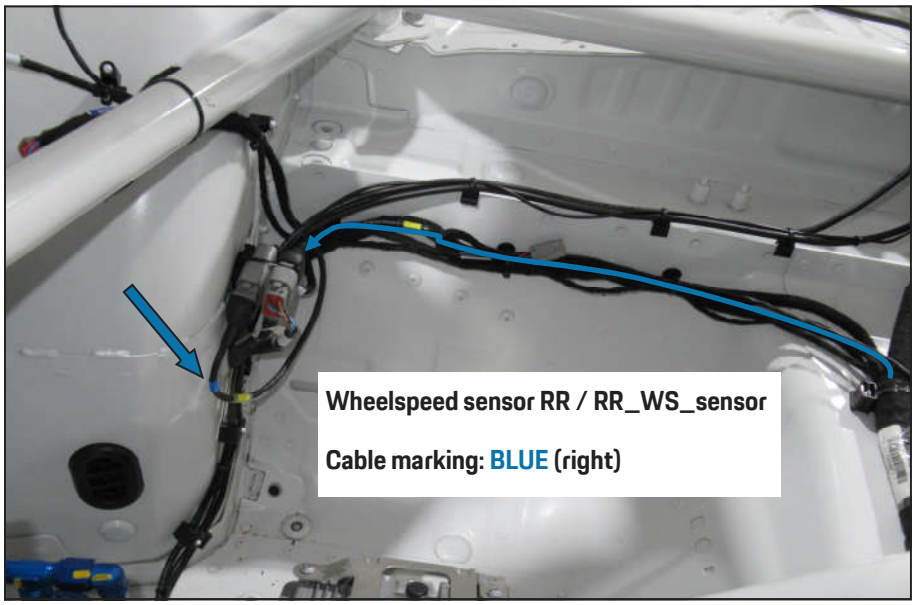
Step 5:





Wheelspeed sensor RL / RL_WS_sensor

Cable marking: RED (left)

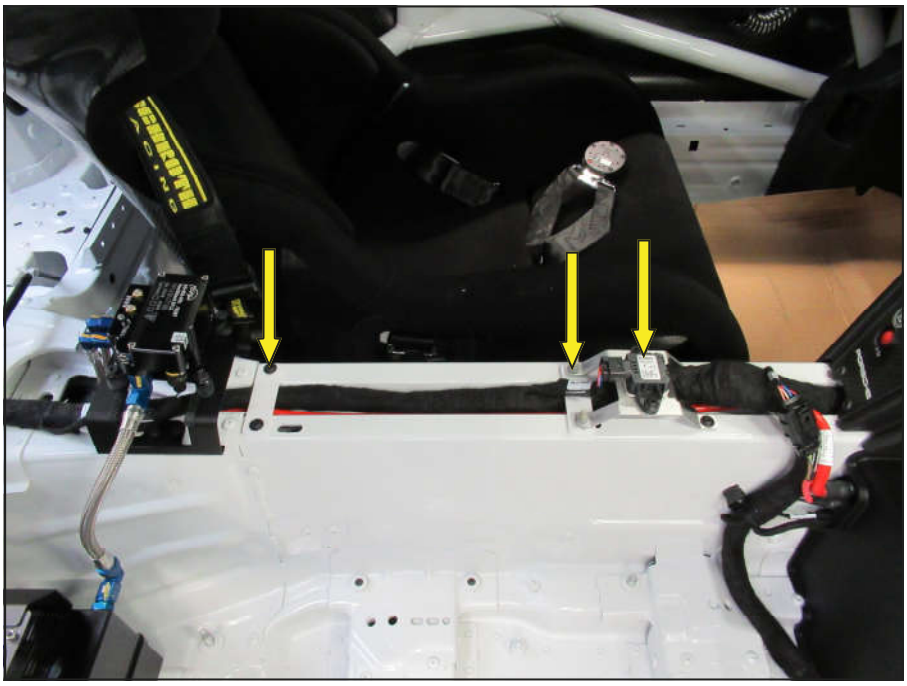


Wheelspeed sensor RR / RR_WS_sensor

Cable marking: BLUE (right)

4.5 Final work in the interior

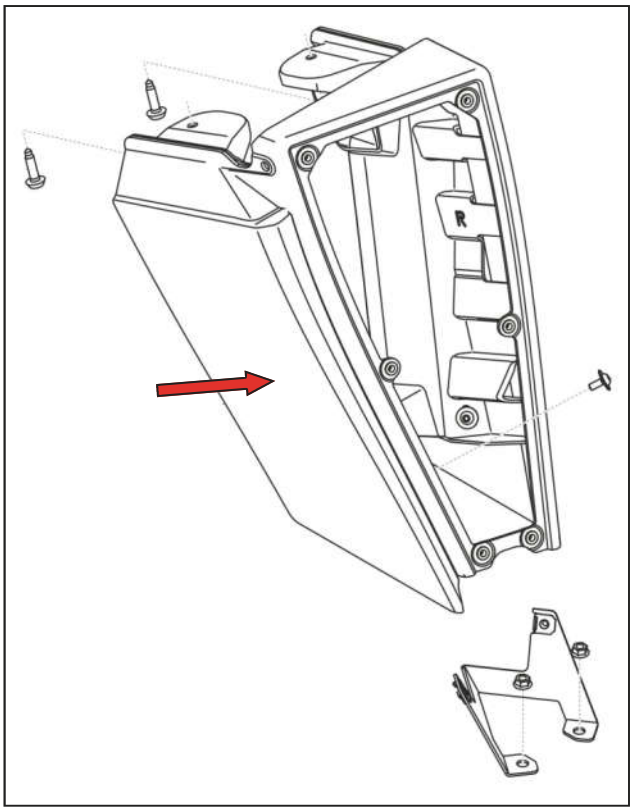
Step 1:



Step 1:

Install the retaining plates disassembled under point 4.3 and the yaw rate sensor including holder.

Step 2:



Step 2:

Reconnect the negative pole of the starter battery. Mount the battery cover.

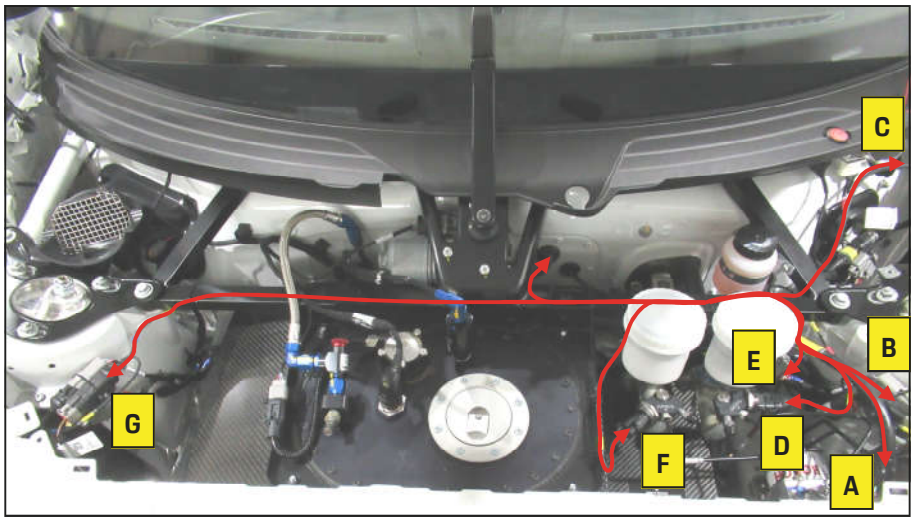
ATTENTION

Secure all strands at regular intervals with cable ties. Tensile stresses are to be avoided. Do not bend or kink cable strands! Do not lay in sharp-edged places! An abrasion-free installation is important!

4.6 Connection of the cable harness in the front / engine area

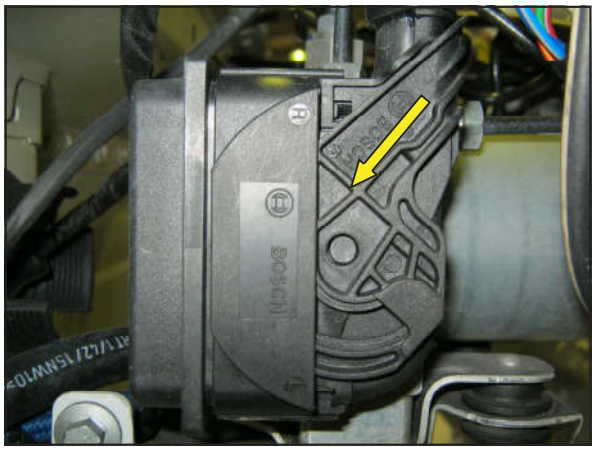
⚠ ATTENTION

Secure all strands at regular intervals with cable ties. Tensile stresses are to be avoided. Do not bend or kink the wiring harness! Do not lay in sharp-edged places! An abrasion-free installation is important! Ensure that the position of all connections is correct.



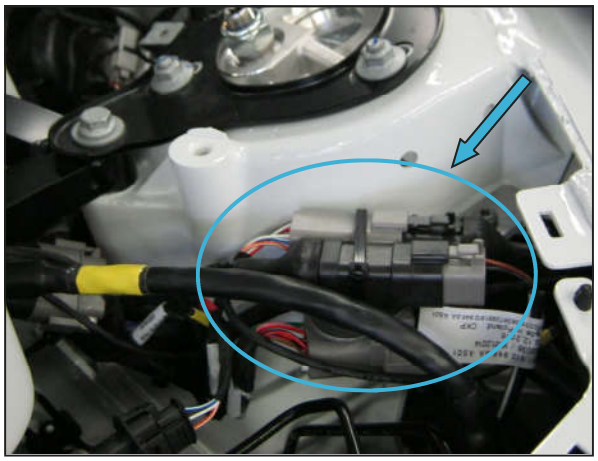
A

Lay the cable harness in front position. Start at the central plug of the hydraulic unit (A). Open the latch. Connect the plug to the ABS hydraulic unit and close the lock.



B

Position **(B)**: disconnect the connector of the standard speed sensor VL (**connector wheel trunk FL)** and insert the Y-connector which is located at the new cable harness **(wheelspeed_FR)** in between.



C

Finally lay the cable harness "GND_V GND_M" with the 2 earth contacts to point **(C)**. To be able to do this the air duct is to be dismantled. Then screw the earth contacts to the provided stud bolts. Mount the air duct.

Tightening torque fixing nut at ground contact :

10 Nm Spanner size 10

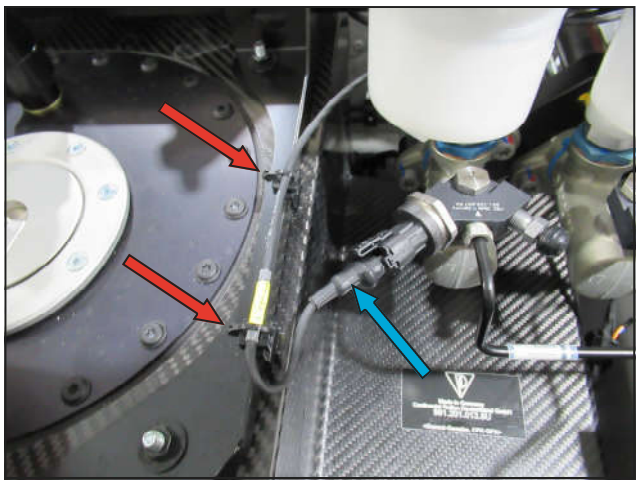
ABS M5

911 GT3 Cup Gen.II/ Cup MR Gen.II

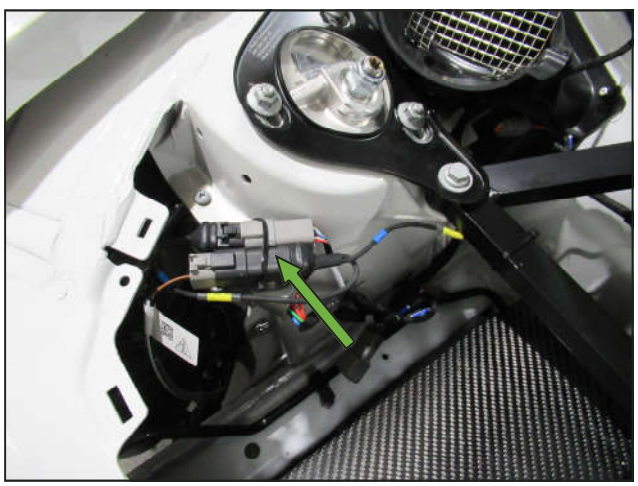
D

E

F



G



D

Connect the cable harness **(Pbrake_R)** to the brake pressure sensor **(D)** of the master brake cylinder of the rear axle.

E

Connect the plug of the cable harness **(SP_CAN)** to the connector **(Option_ABS) (E)** vehicle-sided.

F

Connect the plug of the cable harness **Pbrake_F** to the brake pressure sensor **(F)** of the master brake cylinder of the front axle.

Secure the wiring harness with cable ties to the two standard retention clips.

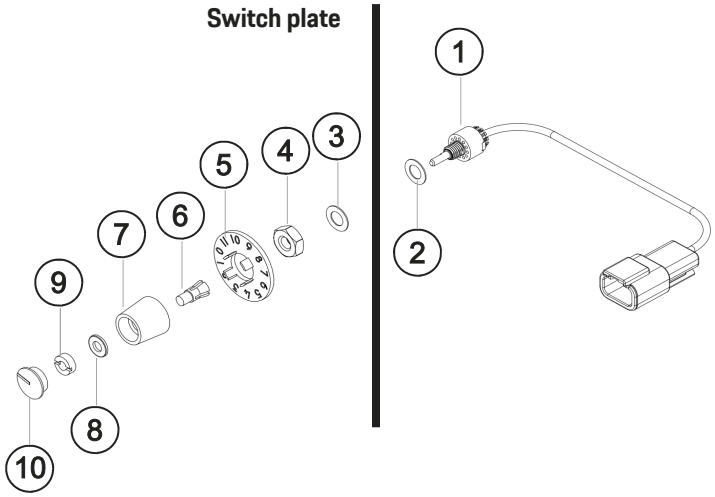
G

Guide the cable harness **(wheel speed sensor_FR)** along the strut bar to the right wheel speed sensor connector **(connector wheel trunk FR)** at point **(G)**. Connect the plug connection analogously to position **(B)**.

4.7 Mounting the rotary selector switch and the wet/dry switch into the switch plate

Overview: components rotary selector

1. 12-stage rotary selector switch
2. Spacer
3. Toothed washer
4. Fixing nut
5. Dial
6. Threaded cone
7. Handle
8. Washer
9. Slotted nut
10. Cap

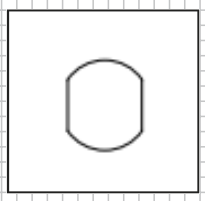


Step 1:

Drill with a 5.0 mm drill into the option preparation next to the "Emergency Gear-box" button.

With a key file, the hole must be adapted to the outer contour of the 12-stage rotary selector switch.

This step MUST be performed to prevent twisting upon actuation of the switch.



Schematic representation of the cutting for the rotary selector switch.

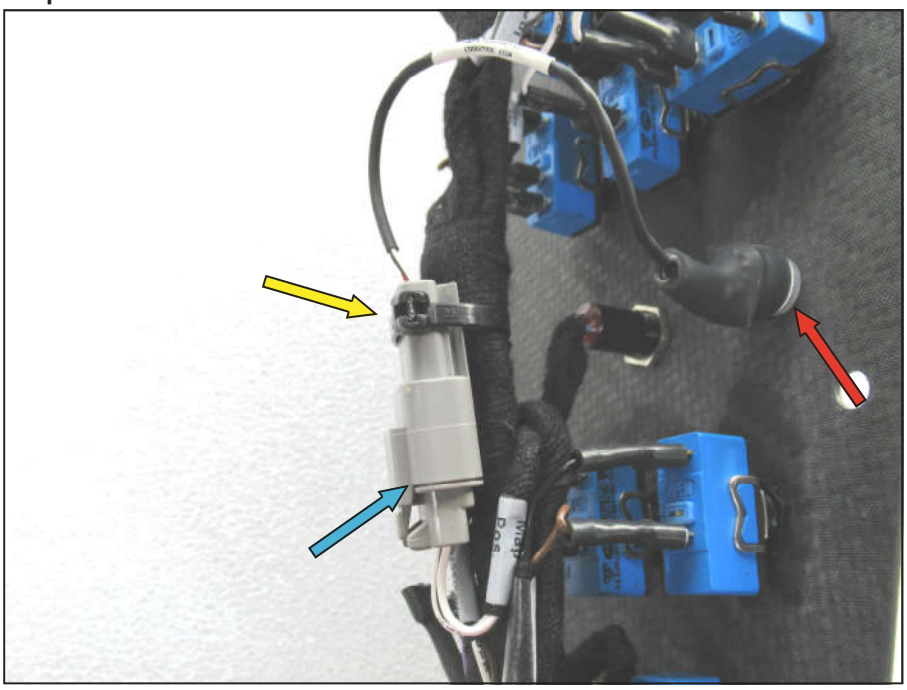
Step 2:

The supplied blue-white sticker should be positioned centered around the drilled hole so that the white field is vertical.

Step 1:

Step 2:

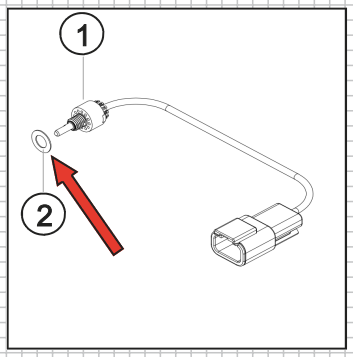
Step 3:



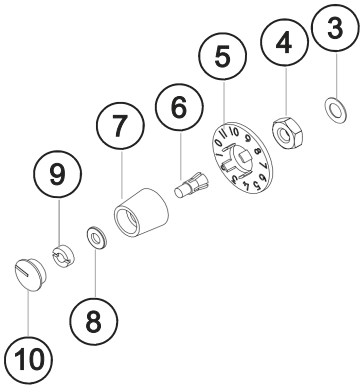
Step 3:

Connect the connection plug of the 12-stage rotary selector switch to the counter plug "MAP_Pos" of the switch plate. Secure the cable harness with a cable tie at the position shown.

Insert the 12-speed rotary selector switch from behind through the previously inserted recess into the switch plate. Make sure that the spacer is installed in the position shown in the figure.



Step 4:



Step 4:

Set the rotary switch to "zero"=> basic position by turning it counterclockwise until it stops. Fit in the toothed disc **(3)** and screw the rotary selector switch to the nut **(4)**. Now add the thread cone **(6)**. Then take the dial with handle **(5 and 7)** and slide it onto the previously installed thread cone **(6)**, so that the "zero" of the dial is on the white field of the previously fixed sticker. Now place the washer **(8)** into the handle **(7)** and screw it with the slotted nut **(9)**. Place the cap **(10)** on the handle.

Finally, stick the sticker with the lettering "ABS" at the point shown on the switch plate.

Step 5:

Using a 12.0 mm drill, drill a hole in the option preparation of the switch plate to the left of the hazard warning switch. De-burr the hole.

Insert the switch from the back of the switch plate through the hole and attach it.

Glue the enclosed labels "Wet" and "Dry" to the toggle switch.

Connect the switch to the cable harness "ABS" of the switch plate as shown in the picture.

NOTE

Pay attention to the correct connection of the cables to the plug contacts of the switch.

Brown connection cable → connect to plug contact **(2)** of the switch

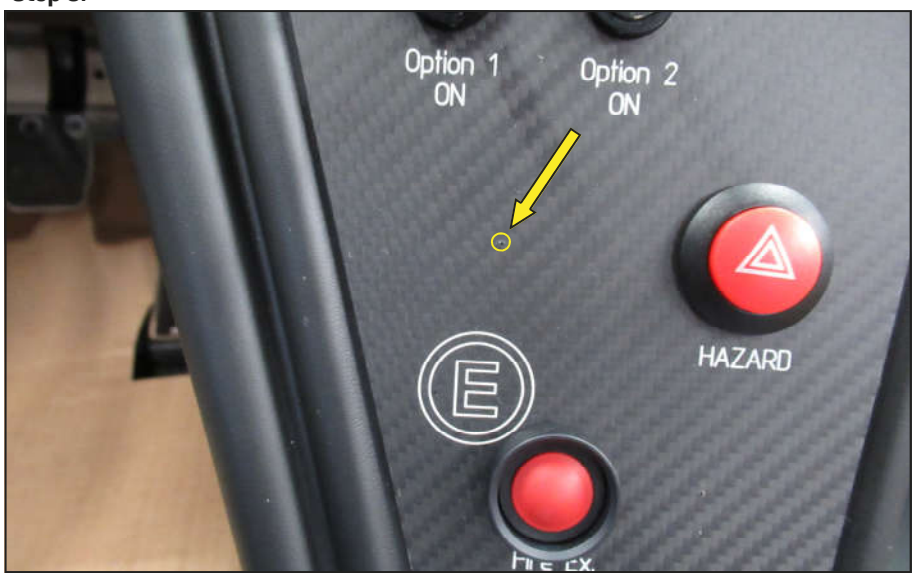
White connection cable → connect to plug contact **(1)** of the switch

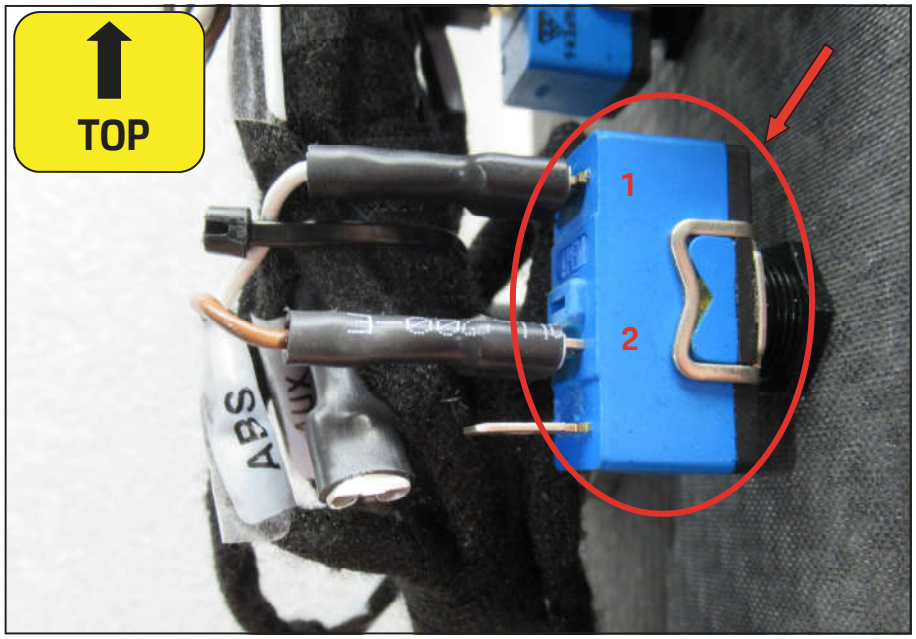
⚠ WARNING

Please note that incorrect assignment of the switch can lead to malfunctions.

Finally, remount the switch plate into the vehicle again and reconnect the starter battery. Remote the cover of the starter battery.

Step 5:





5. Commissioning and functional testing of the ABS

In this section you will be explained how to obtain the software needed to operate and to diagnose and initialize the system with the appropriate programs and carry out the necessary system checks.

Note:

For the following steps, the hardware components listed below are mandatory:

⇒ Cosworth diagnostic cable
⇒ Bosch MSA-Box II

5.1 Obtaining the PI Toolset 7.0 software and loading the required ICD setup for use with ABS M5

NOTE

The required ICD setup for use with ABS M5 is designed for PI Toolset 7.0. Loading and editing the ICD setup is only possible with Toolset 7.0 (and higher).

Download the PI Toolset 7.0 program in the PMRSI. For the subsequent installation, follow the instructions during the installation.

Step 1:

Also download the latest ICD setup for ABS M5 operation in the PMRSI.

NOTE

The ICD setups are updated regularly. Only use the latest setup version.

Step 2:

Open the toolset 7.0 program. Import the ICD setup for ABS M5 loaded in step 2.

Open the setup by double-clicking. Press the "Send to device" button and load the setup onto your ICD.

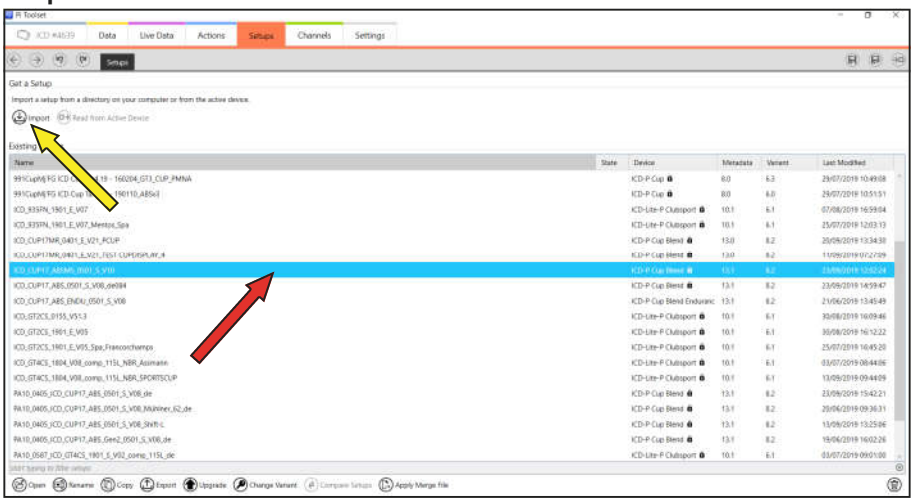
NOTE

For the transmission of the new ICD setup the main power switch must be switched on.

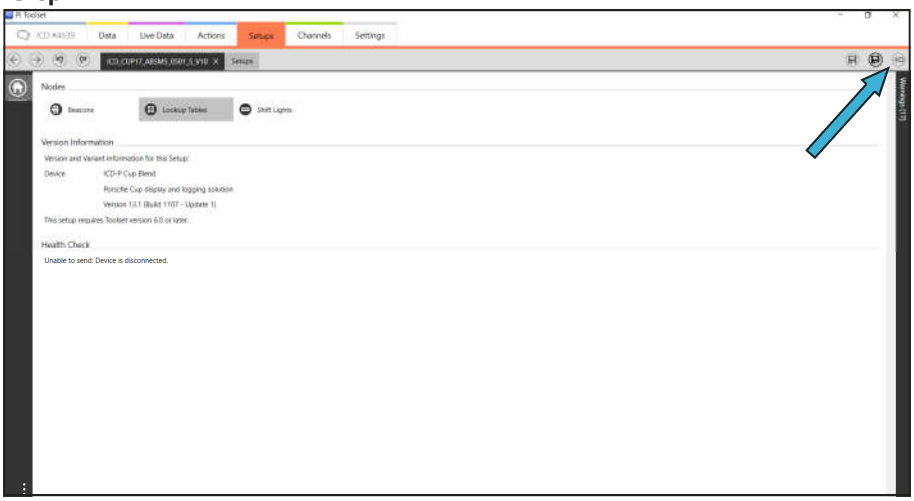
NOTE

It is strongly recommended to deactivate all anti-virus programs and firewalls while communicating with the ICD. Non-observance can lead to transmission errors.

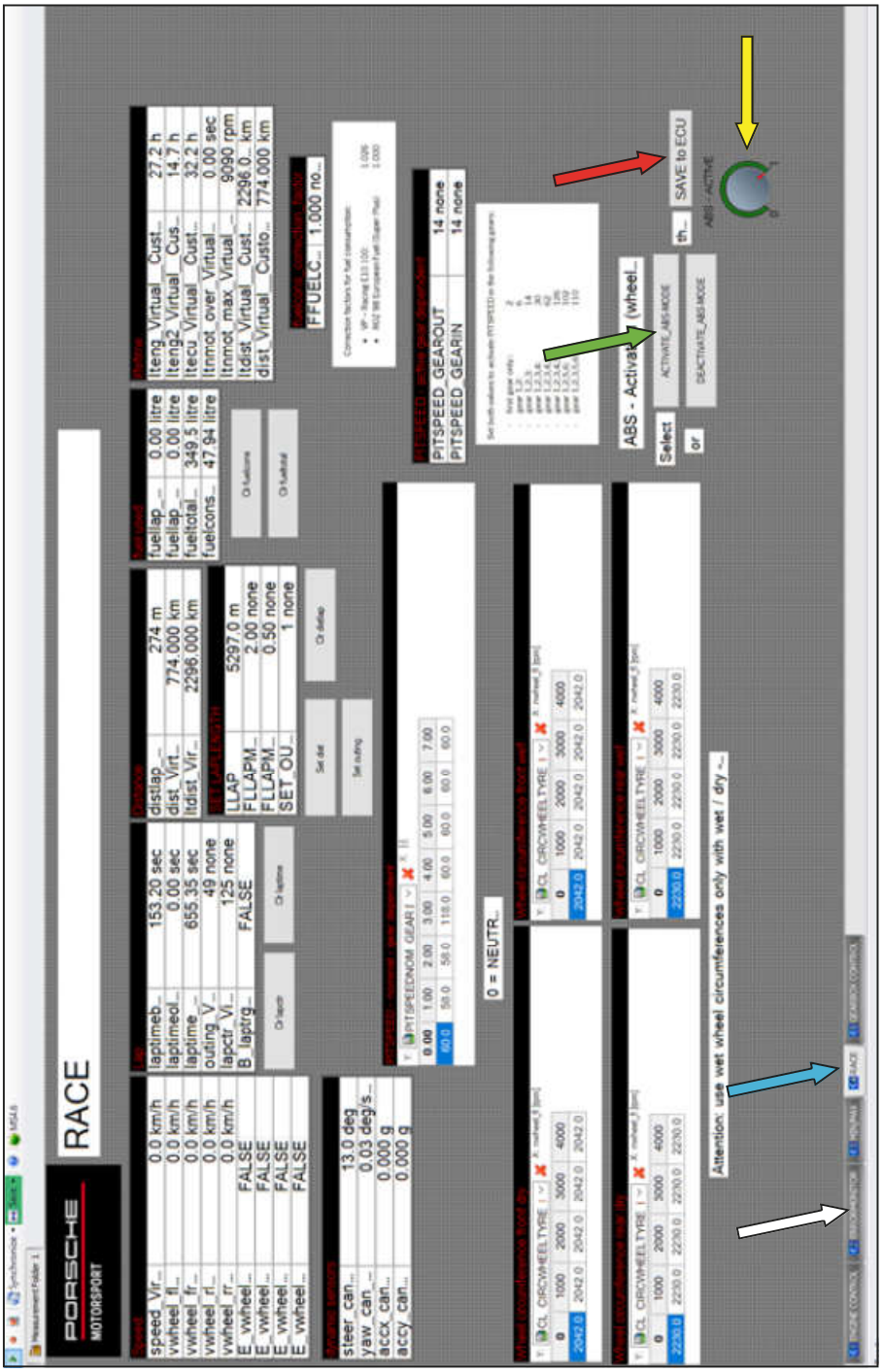
Step 1:



Step 2:



5.2 Activation of the ABS in the engine control unit



Note:

If a connection to the engine control unit is to be established, the program RaceABS must **NOT** be opened. This would lead to malfunctions!

⚠ WARNING

In order to be able to put the installed ABS into operation, it MUST be activated in the engine control unit.

Step 1:

Download the program RaceCon in the PMRSI.

Additionally, you have to download the current project (.rlp-file) in the section "Software" in the PMRSI.

Install the software on your PC. Open the downloaded project in the RaceCon software. Connect the PC to the vehicle by using the MSA box. Use the diagnostic connector on the passenger side (B-pillar). Turn on the main switch and ignition.

⇒ Open the "Error Monitor" tab and check the fault memory of the engine control unit. This must be free of errors. Any errors are to be eliminated and the error memory is then to be deleted.

⇒ Open the tab "Race".

⇒ Click on **"Activate ABS-Mode".**

⇒ The control dial must change from "0" to value "1".

⇒ Save the change with **"Save to ECU".**

The ABS is now released in the engine control unit.

5.3 Obtaining the Bosch RaceABS software and communication with the ABS M5

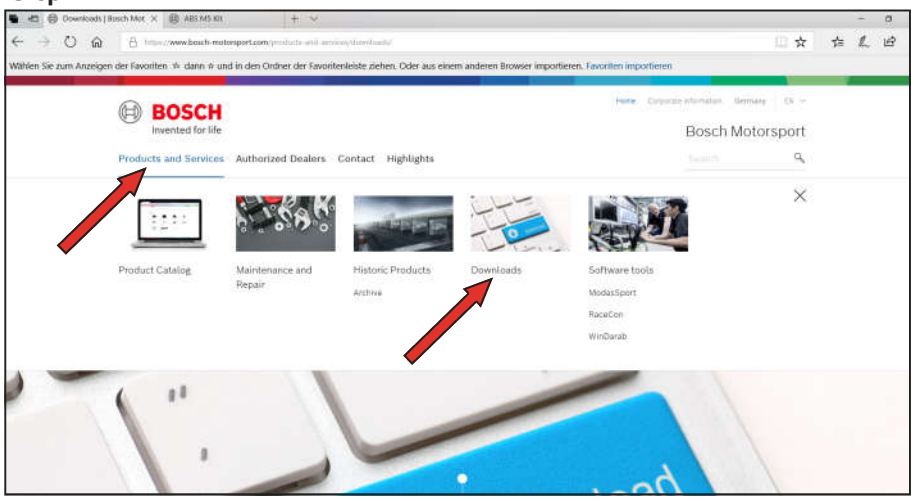
Step 1:

Download the RaceABS software for the ABS M5 from Bosch Motorsport at the following link:

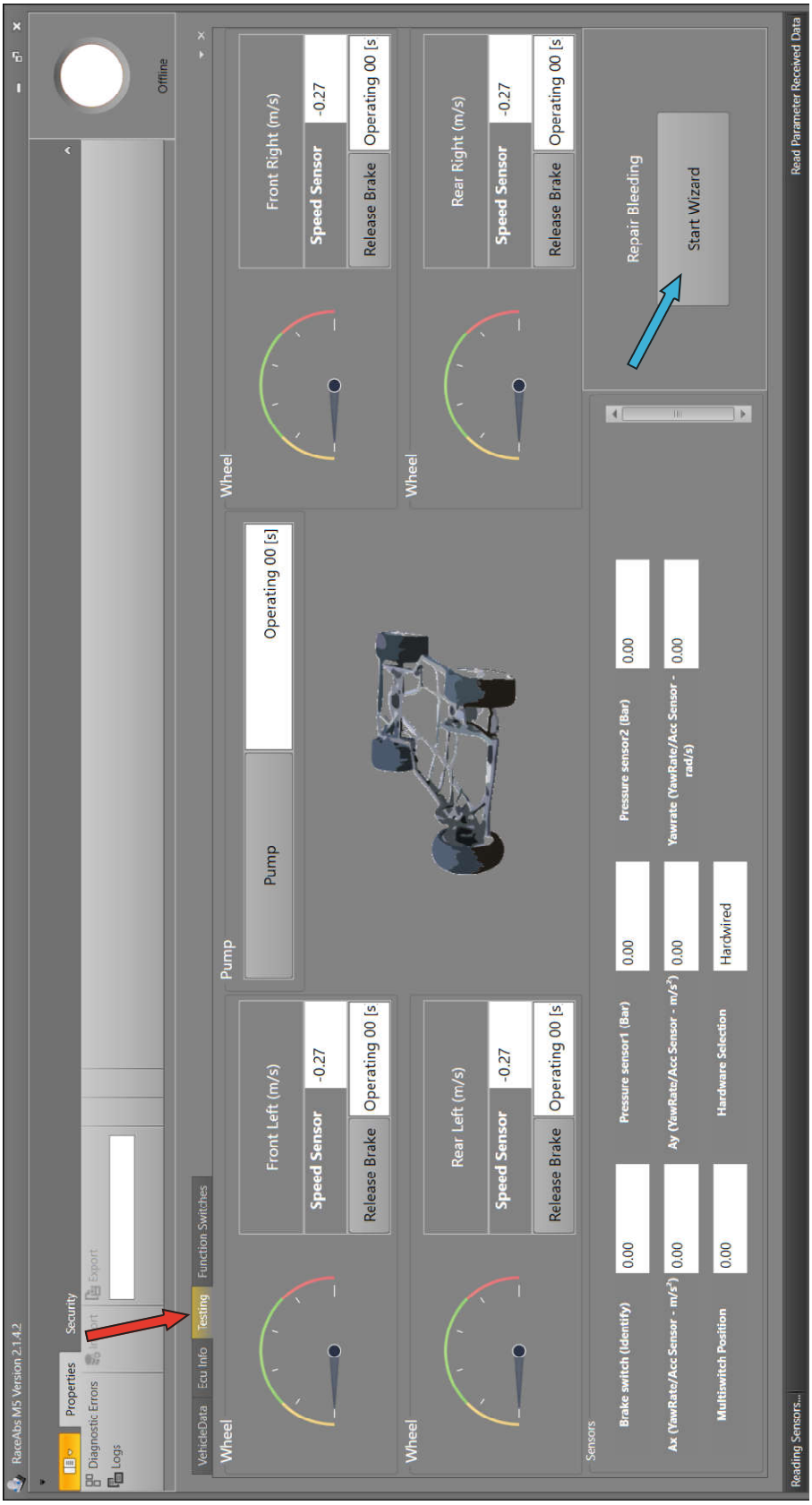
http://www.bosch-motorsport.de/content/downloads/Raceparts/en-GB/54592523141183115.html#/Tabs=54676107/

Install the software on your computer.

Step1:



5.4 Bleeding the brake system including the ABS hydraulic unit



Note:

If a connection to the ABS control unit is to be established using RaceABS, the program RaceCon may NOT be open. This would lead to malfunctions!

NOTE

Before you can subject the ABS to a functional test, both the hydraulic unit and the remaining hydraulic components are to be bleeded in accordance with the regulations.
This happens in three steps.

⚠ WARNING

To ensure proper functioning of the ABS, the **system MUST** be bleeded in the manner described here.

Step 1:

Refill the two reservoirs with brake fluid.
In the first step, the system MUST be bleeded according to the Porsche 911 GT3 Cup Gen.II manual.

Step 2:

In the second step, the hydraulic unit is bleeded using the Repair Bleeding Wizzard.
Connect the computer to the diagnostic connector of the ABS system via a Bosch MSA Box (optionally available).
Start the program RaceABS.

⇒ Open the tab "Testing

⇒ Click on the button "Start Wizzard" (Balance Bar)

⇒ Follow the instructions of the program

NOTE

By using the function "Bleeding Wizzard" ONLY the hydraulic unit is bleeded!

Step 3:

In the end, the system MUST be bleeded again according to the manual of the Porsche 991 GT3 Cup Gen. II.

5.5 Performing a functional test - Hydraulic exchange test

⚠ WARNING

If the system has been bleeded according to point 5.4, the correct assignment of the individual brake calipers to the ABS hydraulic unit MUST be checked.

NOTE

This step should be done by two people. A person presses the brake permanently and executes the test steps using RaceABS.
The second person checks the correct hydraulic assignment to the individual calipers.

Step 1:

Press the brake permanently.

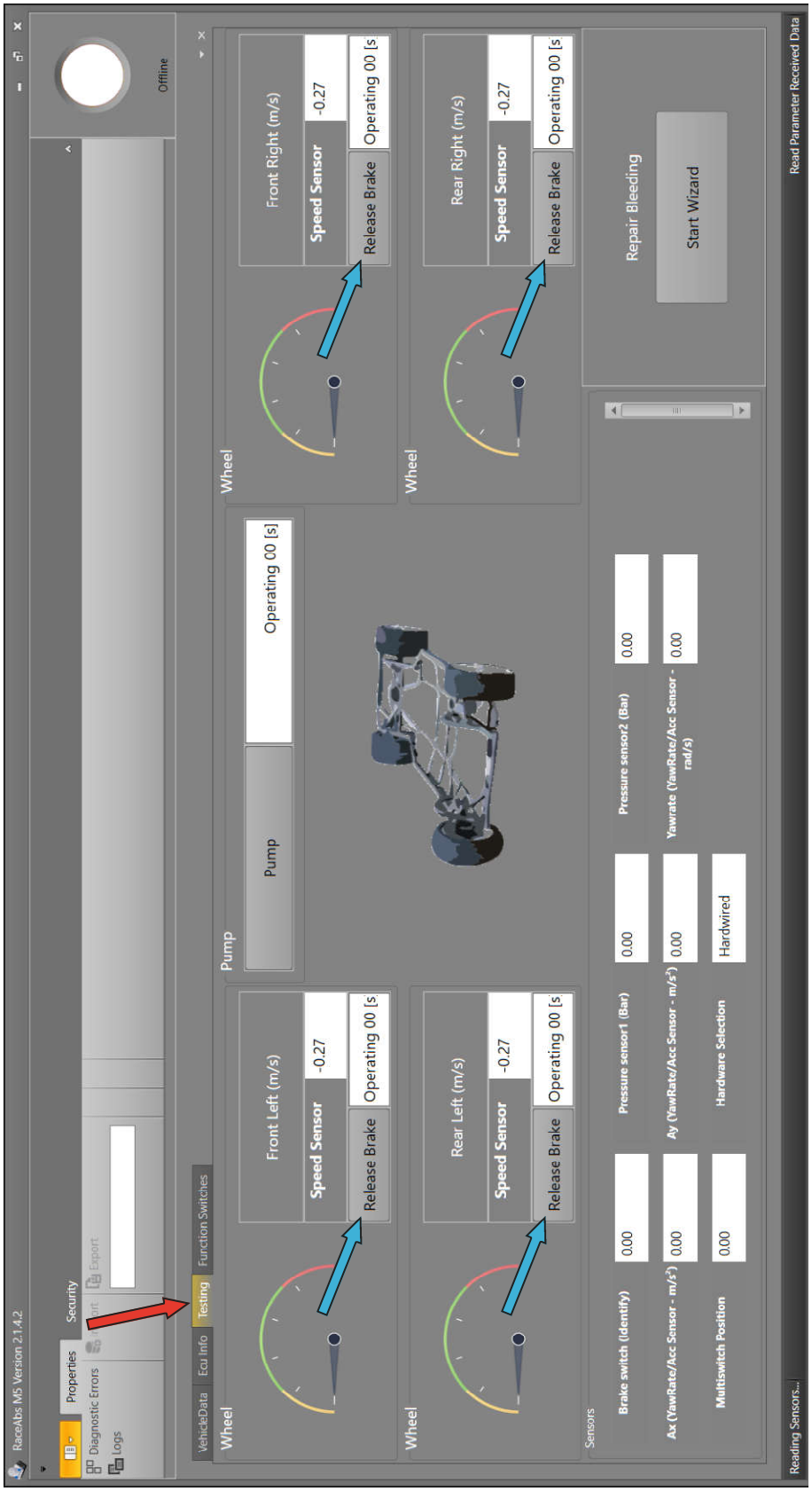
Under the tab "Testing", the individual valves in the ABS hydraulic unit for the respective brake caliper can be controlled and opened (Brake is released).

Click on the button "Release Brake". For about 5 seconds the corresponding valve in the ABS is opened and the corresponding brake caliper (for example front left) is released and the wheel can be turned.

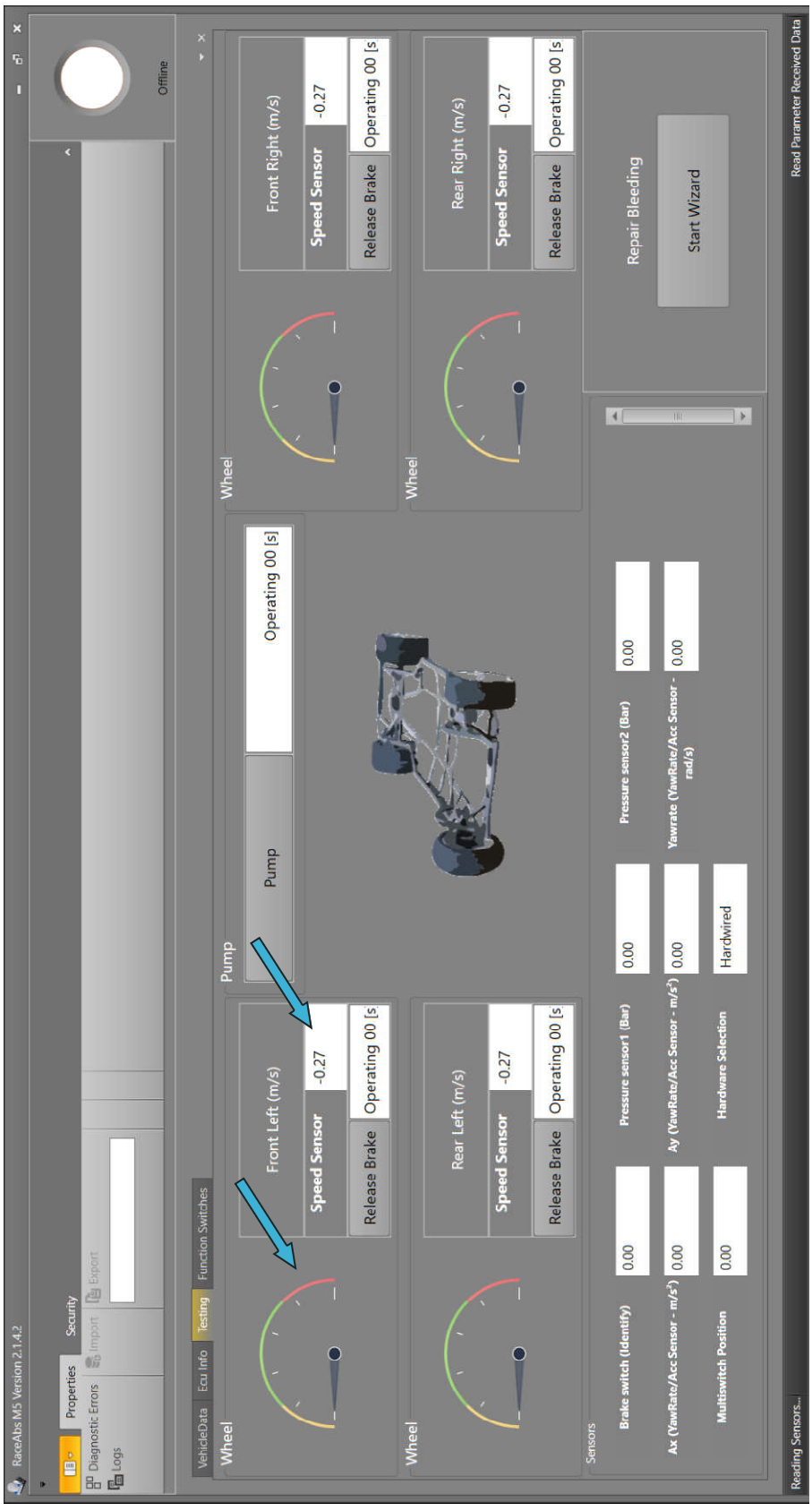
Carry out this test step successively for all four calipers.

⚠ WARNING

If the hydraulic assignment is not correct (lines reversed), this error MUST be corrected before further work is done.



5.6 Performing a function test - Check the electrical assignment of the wheel speed sensors



Step 1:

To ensure proper allocation of the wheel speed sensors, turn each wheel on the front axle individually. When turning the respective wheel, a value / deflection must be displayed at the corresponding position in the display on the page "Testing".

Turn FL = signal display FL

The following is to be done for the control on the rear axle:

- ⇒ Disconnect speed sensor rear left
- ⇒ Turn rear wheels
- ⇒ RPM signal on the right rear must now be displayed in RaceABS
- ⇒ Reconnect the RPM sensor at the rear left, clear fault memory (RaceABS and RaceCon) (Point 5.8)
- ⇒ Disconnect speed sensor at rear right
- ⇒ Turn rear wheels
- ⇒ Rear left speed signal must now be displayed in RaceABS
- ⇒ Reconnect the RPM sensor on the right rear, clear fault memory (RaceABS and RaceCon) (point 5.8)
- ⇒ Turn rear wheels. Now both signals of the wheel speed sensors should be displayed

⚠ WARNING

If the assignment is not correct, check the correct connection of the two cable strands (side-related) for the wheel speed sensors of the rear axle. If the cable strands need to be replaced, repeat the test steps described.

5.7 Performing a function test - Response of brake light switch and rotary selector switch

Step 1:

Next, check the function of the brake pressure sensor. If the brake is used, a plausible value [bar] must be displayed in the display field for the brake pressure.

In the display field "Brake switch (identify)", the value should change from value "0" to value "1" at a brake pressure of 3.0 to 10.0 bar (brake light activated).

To check the function of the 12-position switch, please switch all 12 stages (0 - 11) once.

NOTE

The respective position of the rotary switch in RaceABS differs from the actually set switch position by a factor of one.

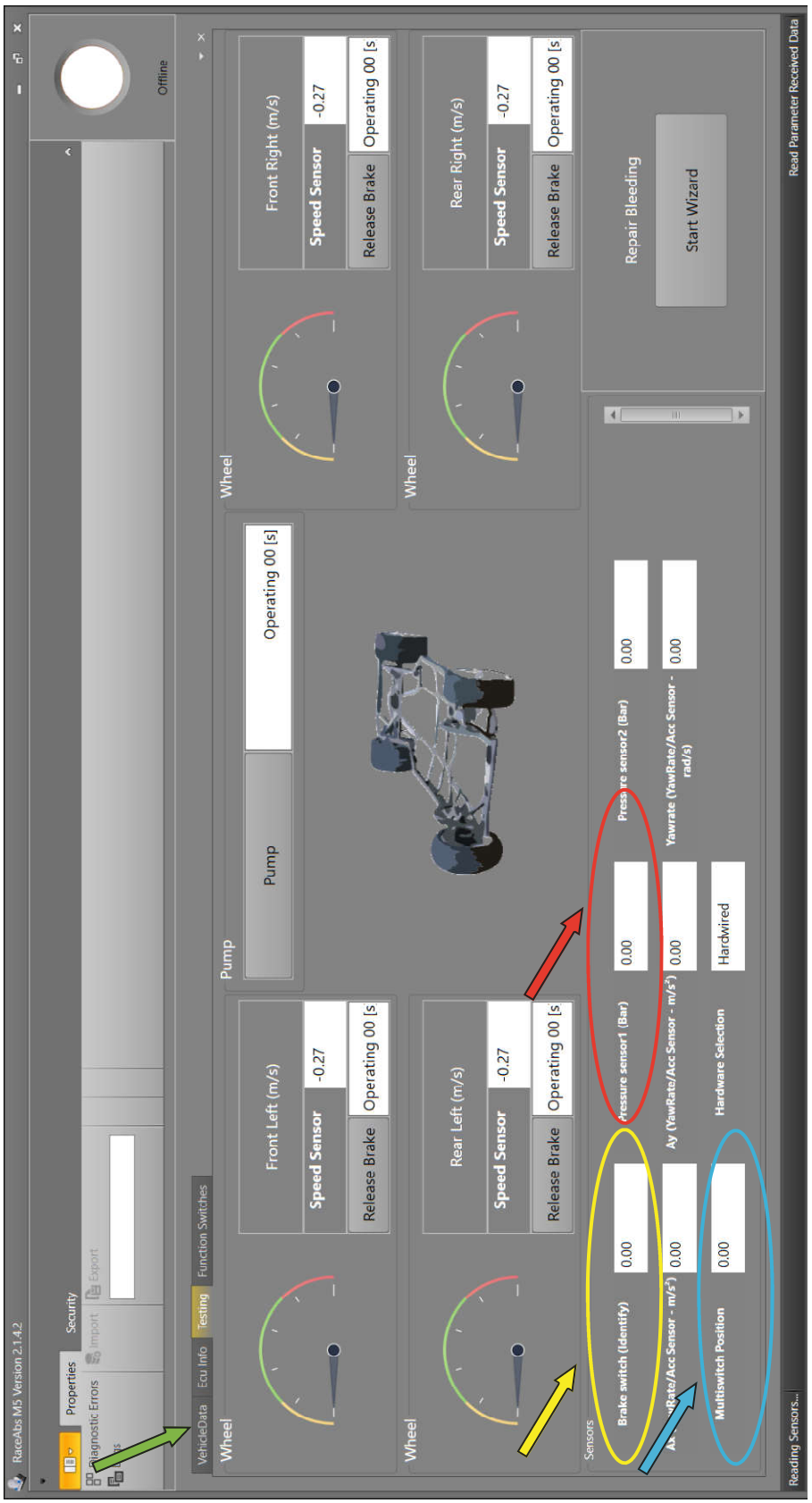
Example:

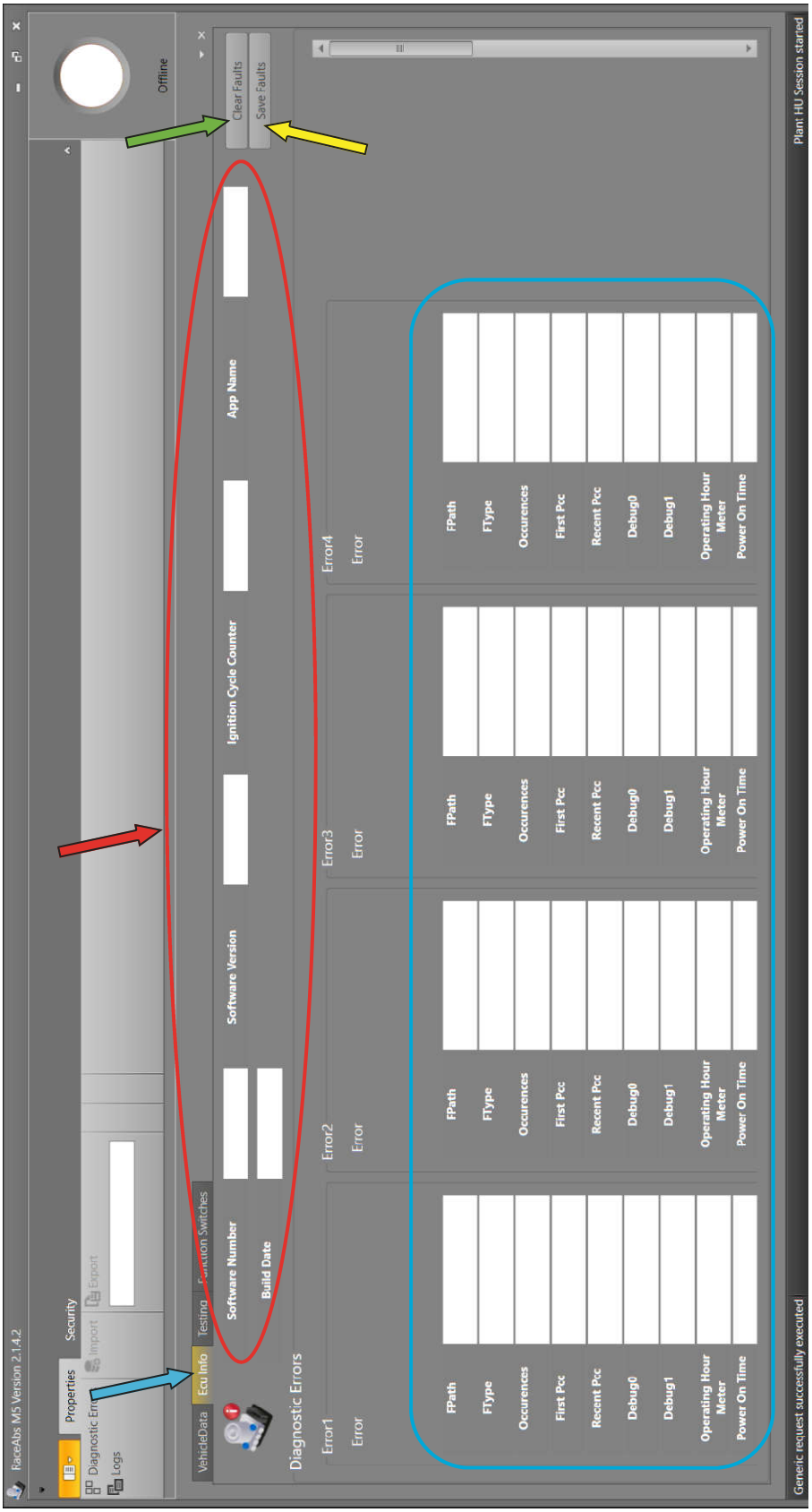
The set level on the rotary selector switch is 5. The output switch position in RaceABS is 6.

NOTE

Under the tab "VehicleData" important preset values for the 911 GT3 Cup Gen.II are displayed.

These values must not be changed.





Step 32:

Select the tab "ECU Info". Here you will be shown any errors of the system.

You can save these using the field "Save faults".

By clicking on the field "Clear faults", you delete the contents of the error memory.

The upper section displays information about the software version.

NOTE

To be able to display the error memory entries in plain text, it is necessary to enter a suitable FPS file into RaceABS.

TKWINX_FAILUREMEMORYDESCRIPTION_BB96242.XML

The file above can be obtained from the Manthey-Racing website at the following link:

https://www.manthey-racing.de/de/motorsport/downloads/downloads-991-gt3-cup-generation-2/downloads-991-gt3-cup-generation-2-software

Save this file on your PC.

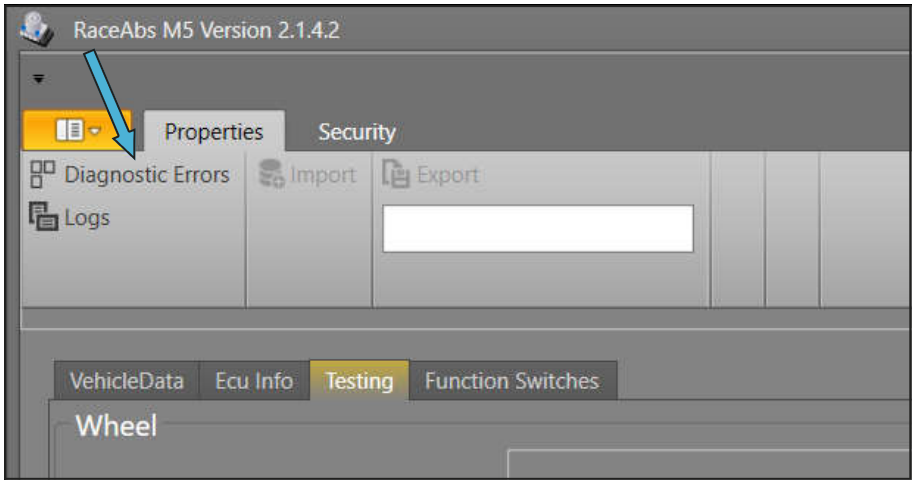
5.9 Loading the FPS file in RaceABS

Step 1:

Open the program RaceABS.

Click the button "Diagnostic Errors".

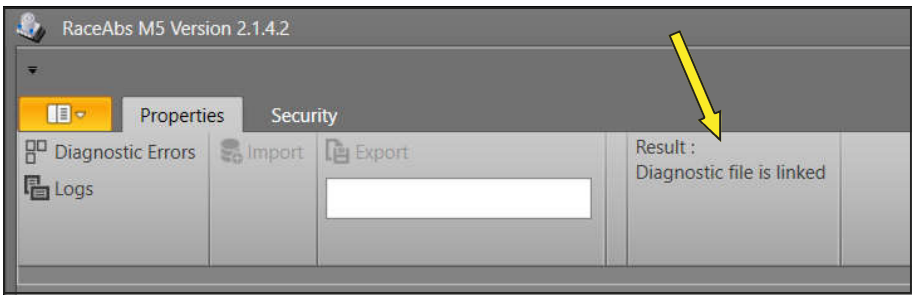
A window in Windows Explorer opens automatically.



Double-click on the FPS file saved in section 5.8.

In RaceABS, the note "Diagnostic file is linked" is now displayed under Results.

Error memory entries are now displayed in plain text.



Notes: