MANTHEY - RACING

Operation manual

ABS 911 GT3 Cup Gen.II

MTH355200

Version _V1_2018/02

Contact

Manthey-Racing GmbH

Technical Support

Rudolf-Diesel-Str. 11-13

53520 Meuspath

Germany

Phone: +49 (0) 2691 9338 807

E-Mail: techsupport@manthey-racing.de

Note

Due to the ongoing optimization of our products, this document will be updated on a regular basis. Please note that only the current version of this document is valid. The current documents are available in the download area.

Download area

The installation and operation manuals as well as the technical manuals are available for download under the following link.

www.manthey-racing.de/motorsport/downloads

Foreword

These operating instructions are intended to familiarise you with the handling and setting options of the ABS.

The prerequisite for a fully functional ABS is to install and check the functionality of the system using the installation instructions of Manthey Racing GmbH available at:

 www.manthey-racing.de/motorsport/downloads

To check and change the parameters (tire circumference) the software *PI Toolset* (from version 4.5) and the software *RACE ABS* (version 1.4.0.9) are required. For communication between vehicle and software, the "MSA-Box" interface of Bosch Motorsport is required (can be purchased via Porsche Motorsport with part number 9F0927431).

These operating instructions do not claim to be exhaustive.

Warning and safety instructions

The classification of the warning and safety information is made using the respective signal word (Danger, Warning, Caution) in addition to the warning icon.

⚠ **DANGER**	**Warning of death or serious bodily injuries, which will occur in the event of non-compliance.**
⚠ **WARNING**	**Warning of death or serious bodily injuries, which may occur in the event of non-compliance.**
⚠ **ATTENTION**	**Warning of minor bodily injuries in the event of non-compliance.**
NOTE	**Warning of property damage in the event of non-compliance.**

MANTHEY - RACING

Table of Contents

911 GT3 Cup Gen.II
ABS operation manual

1.   Operating and display components in the vehicle

12-position multiswitch

Dry-wet toggle switch

⚠ **WARNING**

Adjusting and operating the ABS while driving may distract you from the traffic. Control over the vehicle can be lost.
Only adjust the ABS while driving if the traffic situation allows it.

NOTE

In order for the system to record the changeover of wheel circumferences (switching from slick to rain tire or vice versa) it is **mandatory** to turn the ignition off and on again (power cycle).

① Ignition OFF

② Changeover dry-wet switch

③ Ignition ON

A change of the switch position with Ignition ON (for example while driving) is **not** implemented by the system!

12-position multiswitch

With the 12-position multiswitch, the driver can adjust the control characteristics of the ABS to his/her needs and to the road conditions. An overview of each switch position can be found on page 9.

Dry-wet toggle switch

With the dry-wet toogle switch the change between slick and rain tires is communicated to the ABS.

Because the wheel circumferences between slick and rain tires differ and the wheel circumferences serve the system as a basis for calculation, it is imperative that the circumferences are transmitted to the system through the dry-wet switch.

The system is preset with the values of the wheel circumference of standard tires (Michelin) (see chapter 3).

Slick (Michelin Cup N2):			Rain tires (Michelin P2L):		
Front axle:	27-65-18	2020 mm	Front axle:	27-65-18	2040 mm
Rear axle:	31-71-18	2200 mm	Rear axle:	31-71-18	2190 mm

911 GT3 Cup Gen.II
ABS operation manual

The selected ABS position is displayed to the driver in the ICD on the pages "RACE" and "PRACTICE" in the lower left section of the screen.
If the ABS position is changed on the multiswitch while driving, this change is also shown in the display.

The selected postion of the 12-position multiswitch is displayed in Race ABS on page "Testing" and in the data recording "PI Toolbox" in channel "abs_poti_diag" by the position 1 higher due to the system.

The channel "dash_poti_abs" shows the value corresponding to the 12-position multiswitch (table page 9).
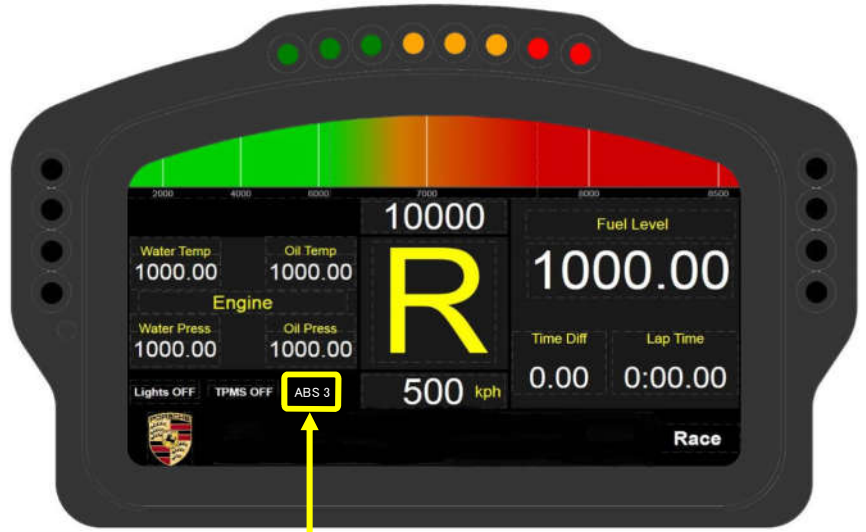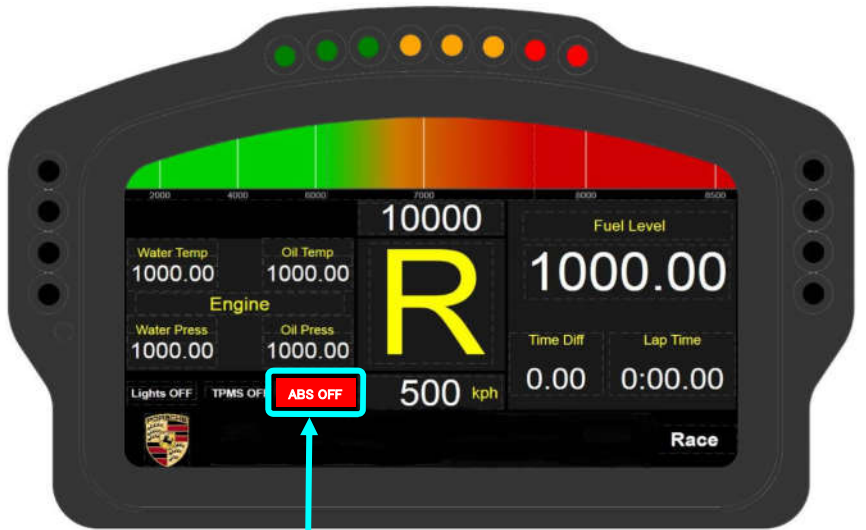

ABS 3

If the ABS control intervention is deactivated (12-position multiswitch is set to "0" ,signals continue to be detected) or if the system fails, this is shown to the driver with a red "ABS OFF" indication for the duration of the condition.

The red "ABS OFF" indication means that ABS control has been disabled (postion 0) or is **NOT** working due to failure.

The ABS will not function!

ABS OFF

2 Overview 12-position multiswitch

ABS Map internal/ abs_poti_diag	ABS 12– pos. Multi-switch/ dash_poti_abs	Griplevel	track conditions	Regulation difference to the next lower level
12	11	↑ Low Grip	Wet	- Earlier ABS interventions on both axles with increased braking stability compared to switch pos. 10
11	10	↑	Wet	- Earlier ABS interventions on both axles with increased braking stability compared to switch pos. 9
10	9	↑	Damp - Wet	- Earlier ABS interventions on both axles with increased braking stability on the front axle compared to switch pos. 8
9	8	↑	Damp - Wet	- Basic setting for wet track conditions
8	7	↑	Dry - Damp	- Earlier ABS interventions on the rear axles with increased braking stability compared to switch pos. 6. Lower pedal frequency than switch pos. 6
7	6	↑	Dry - Damp	- Earlier ABS control interventions on the rear axles with increased braking stability compared to switch pos. 5 Lower pedal frequency than switch pos. 5
6	5	↑	Dry	- Earlier ABS interventions on the rear axles as switch pos. 4
5	4	↑	Dry	- Earlier ABS interventions on the rear axles as switch pos. 3
4	3	↑	Dry	- Earlier ABS interventions on the front axles as switch pos. 2 - Higher pedal frequency than switch pos. 2
3	2	↑	Dry	- Earlier ABS interventions as switch pos. 1
2	1	High Grip	Dry	- Setting for highest grip level and a lot of slip. - Hot and dry track conditions
1	0	Off	Off	Off

NOTE

The adjacent table shows reference values based on driving tests with Michelin Cup tires.

No settings are recommended in this operation manual, as an optimal ABS setting does not just depend on a series of vehicle and track-specific factors but also on the abilities of the driver.

⚠ **WARNING**

To familiarise yourself with the control intervention of the ABS while driving, Manthey Racing recommends to start with an ABS position of stronger control intervention.

Once the driver has become familiar with the system, ABS positions can be selected with less control intervention.

3 Adjusting the wheel circumferences in the ICD configuration
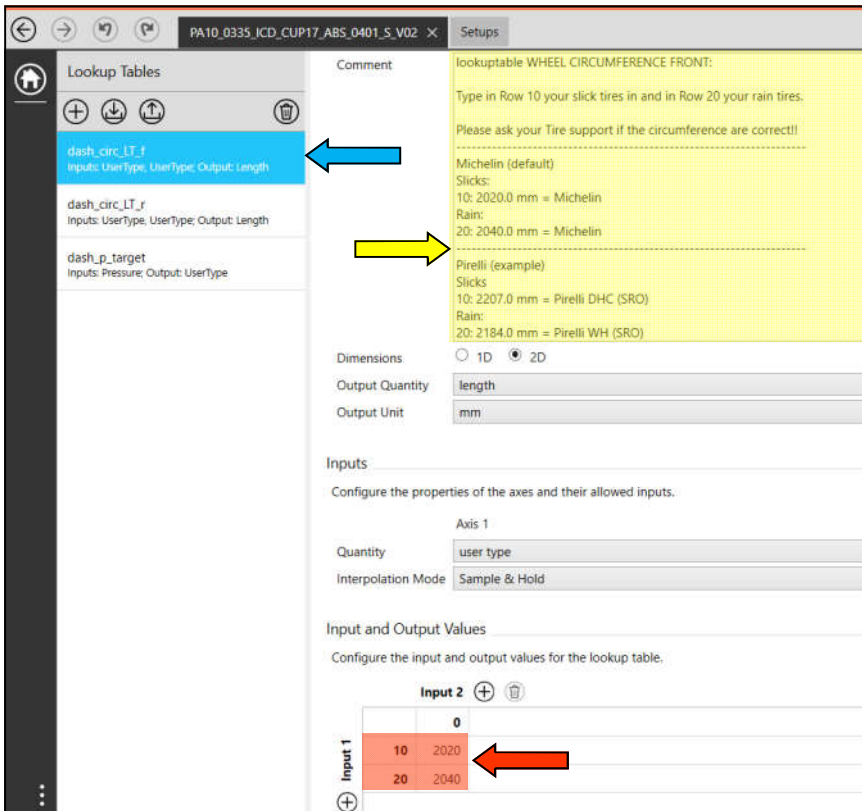
Step 1:

Start the PI toolset program and open the ICD configuration PA_10_0335_ICD_CUP17_ABS_0401_S_V02 by double-clicking.

Step 2:
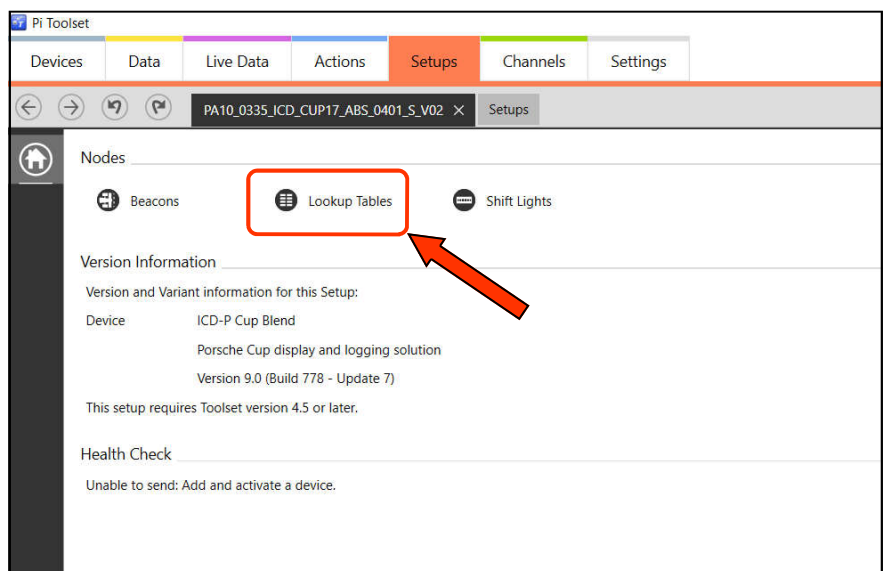
Open the "Lookup Tables" menu item.

Step 3:

↓ *Select the **dash_circ_LT_f** menu item (front).*

The wheel circumferences for the front axle are specified in this menu item.
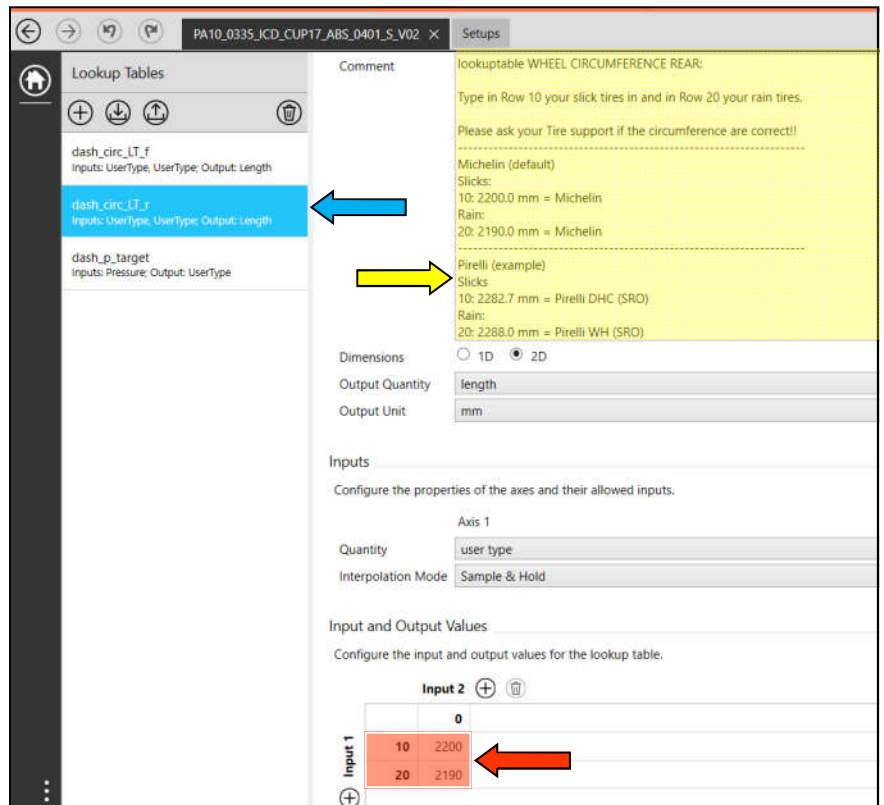
↓ The marked area can be used for comments

If you want to enter different wheel circumferences from the standard values (Michelin), proceed as follows:

↓ Enter the wheel circumference for the **slick front axle** in line 10. Details in [mm].

↓ Enter the wheel circumference for the **rain tire front axle** in line 20. Details in [mm].

Step 4:

*Select the **dash_circ_LT_r** menu item (rear).*

The wheel circumferences for the rear axle are stored in this menu item.

The marked area can be used for comments.

If you want to enter different wheel circumferences from the standard values (Michelin), proceed as follows:

Enter the wheel circumference for the **slick rear axle** in line 10. Details in [mm].

Enter the wheel circumference for the **rain tire rear axle** in line 20. Details in [mm].

Step 5:
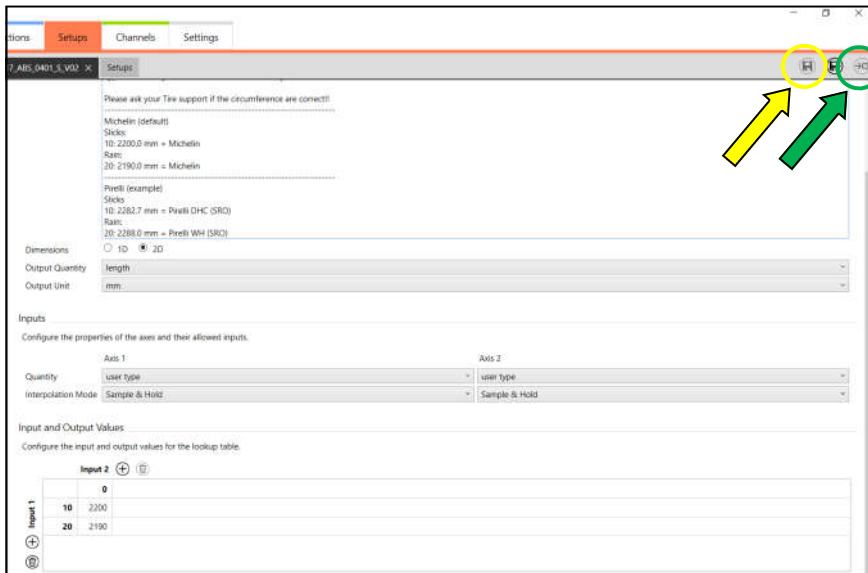
🔽 Save your changes.

🔽 Send the configuration with the new wheel circumference values to the ICD.

NOTE

Before you save your changes and transmit them to the ICD, make sure the entry is correct.

Incorrect information on the wheel circumferences can limit the function of the ABS!

NOTE

The ABS works with the values of the wheel circumferences stored in the ICD.

Make sure that the correct wheel circumferences are always stored in the ICD.

NOTE

You can obtain information about the wheel circumferences from your tire supplier. The values given for the wheel circumferences should be checked on wheels with operating air pressure (warm).
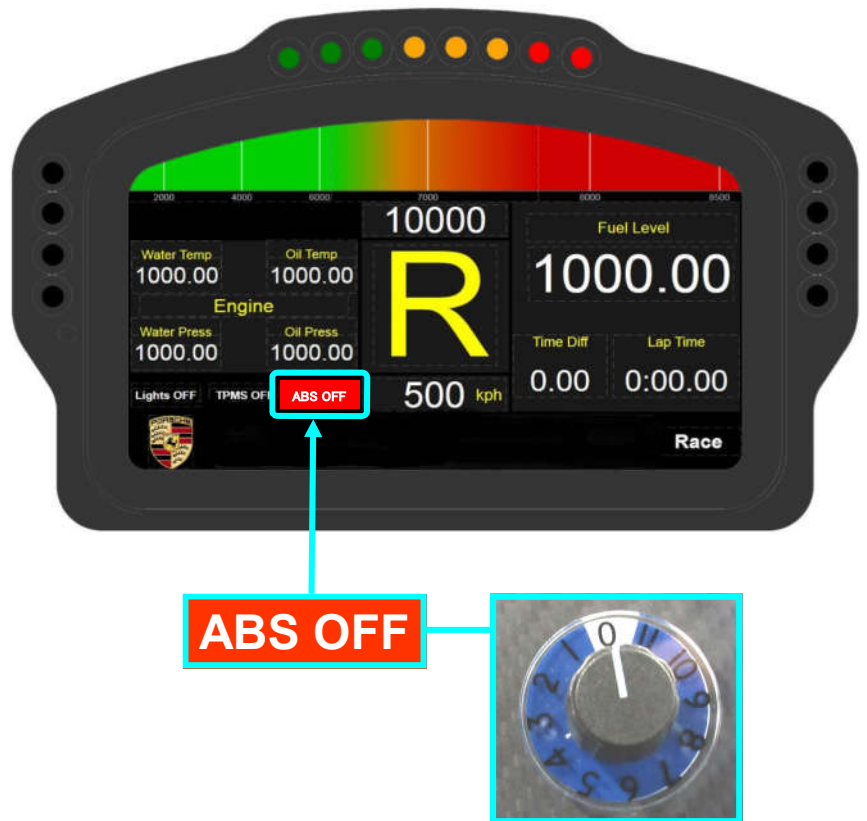
## 4   Note on the warm-up procedure of the vehicle

If the gears of the gearbox are shifted through when the vehicle is raised (test or warm-up procedure), the 12-position multiswitch **must be set to position "0" (ABS OFF)** before starting the procedure.

Failure to do so leads to fault memory entries in the ABS, which can restrict the function of the ABS.

5 Fault memory entries in RACECON
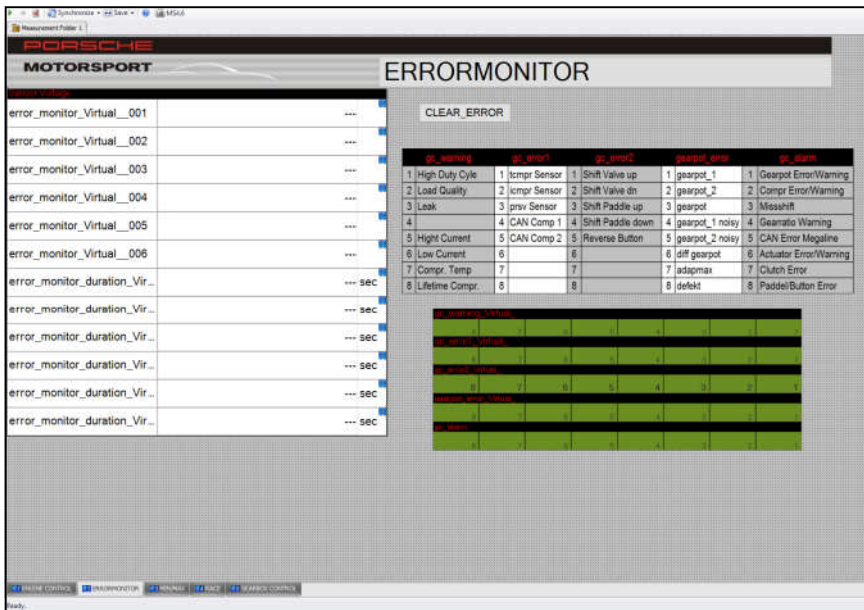
Certain ABS-specific fault entries are stored in the fault memory of the ECU.

Check regularly the fault memory of ECU using the software RACECON .

ABS-specific fault memory entries:

E_canmsg_bremse_02a

This fault indicates a communication problem with the 12-position multiswitch.

Check whether the fault is active (time in seconds counting up) or whether the fault has occurred sporadically.

In case of sporadic entry, please delete the fault.

If the fault remains active, the cause must be determined.

E_canmsg_bremse_02b

Check whether the fault has occurred sporadically.

If the fault is active (time counting up), there is a fault with one or more wheel speed sensors.

It is mandatory to correct the fault.

E-canmsg_bremse_02c

This fault indicates a communication problem between ECU and ABS.

Too low battery voltage can be the reason.

Charge the vehicle battery.

6 Diagnostic-Software Race ABS

NOTE

For the diagnosis of the ABS, the MSA-Box interface is required apart from the RACE ABS (version 1.4.0.9).

In order to use the MSA box, the required driver must downloaded and installed.

www.bosch-motorsport.com

You can obtain the RACE ABS (version 1.4.0.9) software free of charge from:

www.bosch-motorsport.com.

The ABS control unit of the 911 GT3 Cup Gen.II sends coded data to the diagnostic software. The specific FPS file decodes these messages and displays them in in the error memory.

Please download this specific FPS file from the Manthey Racing Homepage (download area).

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

> 991 GT3 Cup Gen. II
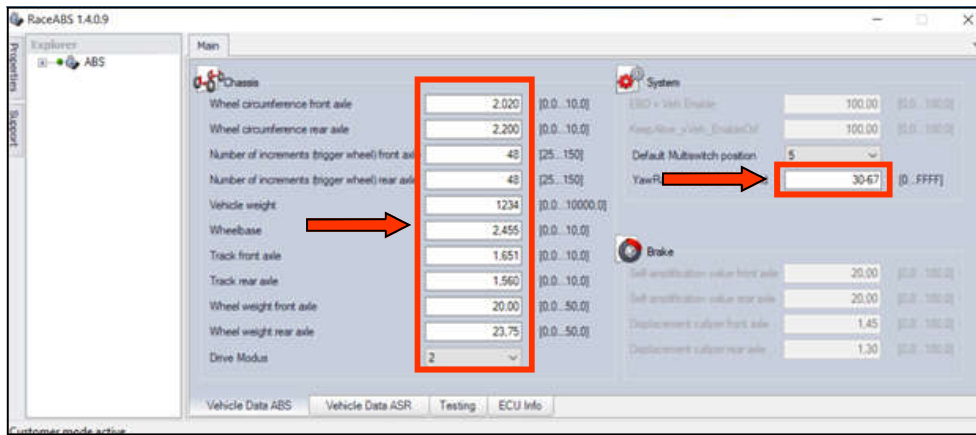
    > Software

        > FPS File

Save the FPS file on your PC.
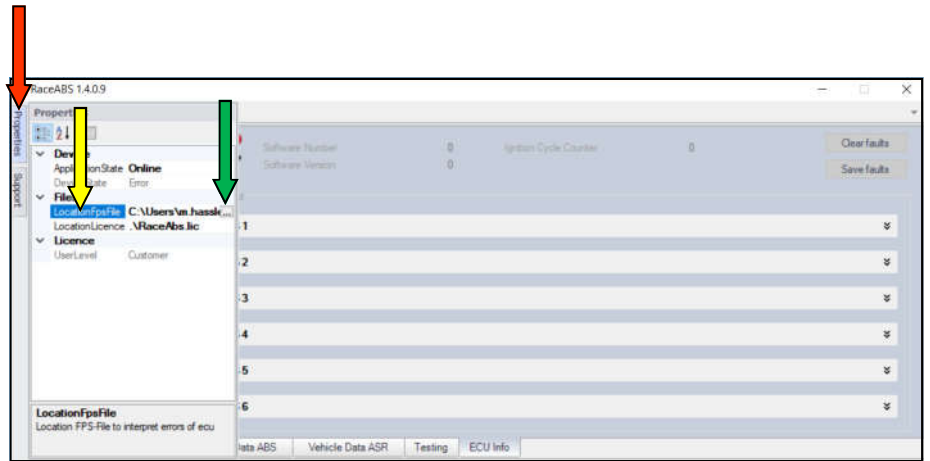
After installing the required software and drivers, start the RACE ABS program.

🔴 Open the "Properties" window on the left side and select "LocationFPSFile.

🟡 Click on the rectangular button next to the file path.

🟢 Assign the program the correct path to the required FPS file.

Vehicle Data Base

Connect the PC to the vehicle using the MSA box (ABS diagnostic connector on the passenger side). Turn on MAIN and IGNITION.

The LED of the MSA box will change after a few seconds from red to green. The connection is established. In the lower part of the window "Customer mode active" will be displayed.

Open the "Vehicle Data Base" window. Preset measured values are displayed here. These measured values are adapted for the 911 GT3 Cup and should not be changed.
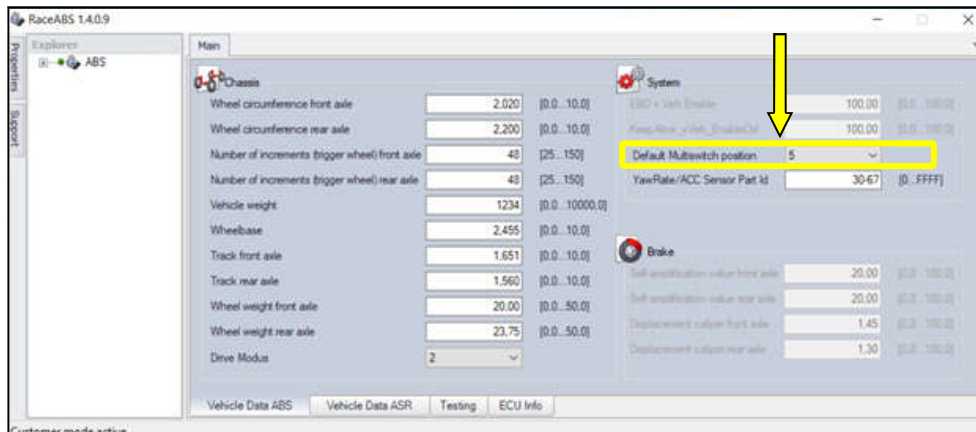
A default value can be specified for the 12-position multiswitch installed in the vehicle. If the 12-position multiswitch fails, the ABS ECU automatically assumes this preset value. To assign a position to the standard value, select a number between one and twelve in "Default Multiswitch position" .

⚠ **WARNING**

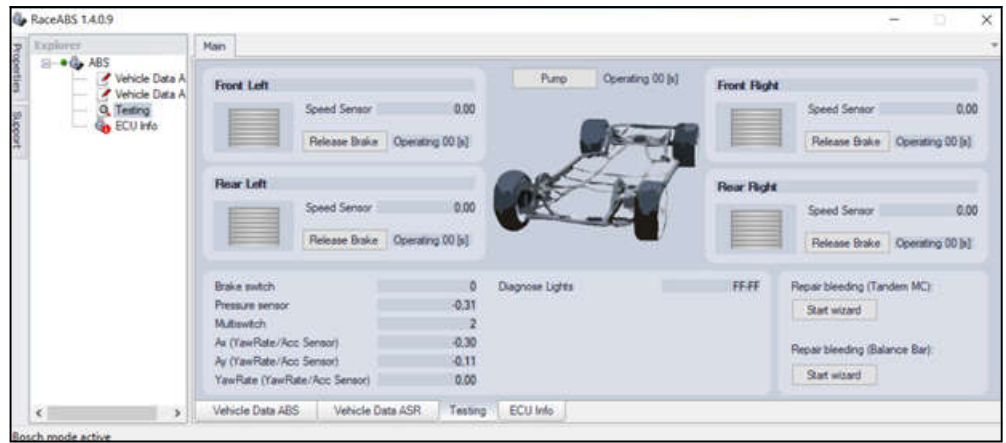The red marked values should not be changed. Changes can affect the proper functioning of the ABS.

NOTE

Note that the value displayed in "Default Multiswitch position" (for example, 5) corresponds to switch position 4 on the 12-position multiswitch.

NOTE

The RACE ABS software will not work if the RACECON program is open.

911 GT3 Cup Gen.II
ABS operation manual

Testing

The set value of the 12-position multiswitch is displayed in Race ABS under "Testing" and in the data recording "PI Toolbox" by the value 1 higher due to the system

NOTE

System restart in case of drive cycle faults

Drive cycle faults, e.g. caused by wheel speed sensor faults, require a system restart after rectifying (Ignition OFF - Ignition ON) and acceleration of the vehicle to over 12 km/h for system check.
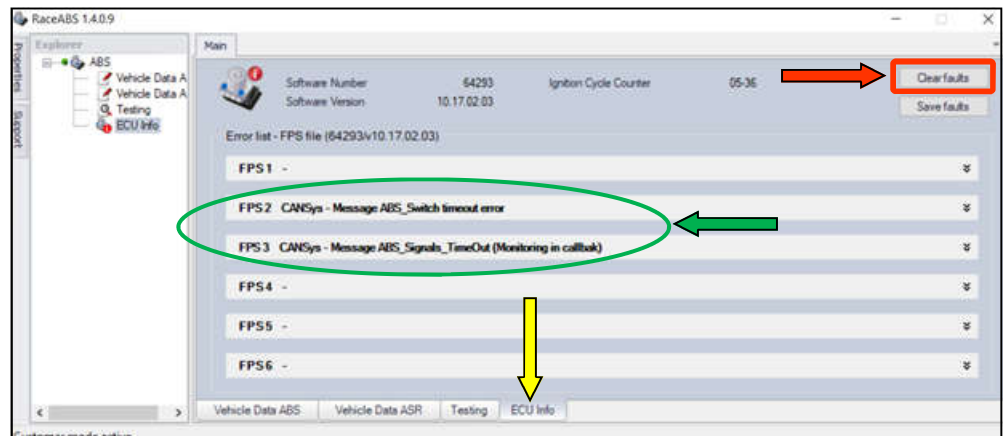
NOTE

"*Timeout errors*" are "design-related" and negligible.

Open the window "Testing".

In this view, you have various functions available for checking the system.

The test functions were already described in the installation instructions and they have been carried out by you during installation.

ECU Info

If the ABS OFF indicator light is constantly lit in the ICD after switching on the ignition or while driving (with 12-position function switch position 1 - 11), there is a system fault. For analysis, read out the system fault memory. Click on "ECU Info" to open the fault memory.

Faults are always displayed in clear text in the fault memory, this makes it possible to quickly identify and correct the issue.
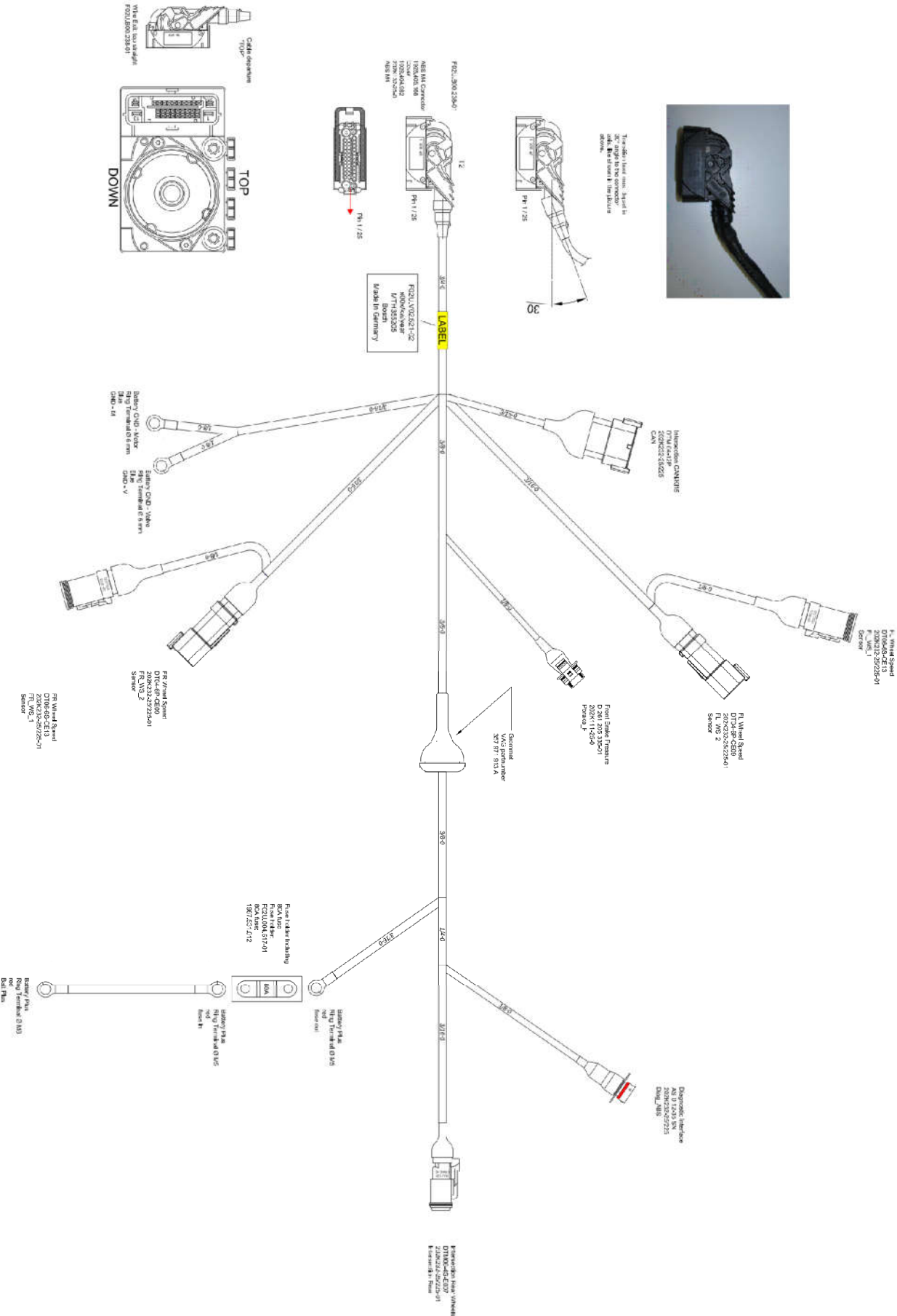
Delete fault memory entries:

After appropriate corrective action has been taken, delete the entry from the fault memory by clicking on "Clear faults"

Then turn the ignition off and on again.

The fault memory entry should no longer be displayed.

7 Wiring loom

7.1 Front wirirng loom

7.2 Rear wirirng loom

Intersection Rear Wheels
DTM04-4P-E003
202K232-25/225-01
Intersection Rear

RR Wheel Speed
DTM06-8SA-E007
202K232-25/225-01
RR_WS_1
Sensor

RL Wheel Speed
DTM06-8SA-E007
202K232-25/225-01
RL_WS_1
Sensor

F02U.V02.522-02
x00x/kw/year
MTH355210
Bosch
Made in Germany

LABEL

RL Wheel Speed
DTM04-8PA-E003
202K232-25/225
RL_WS_2
Sensor

RR Wheel Speed
DTM04-8PA-E003
202K232-25/225
RR_WS_2
Sensor