



5.0.4 Initiation of the drive controller

1491.15

- Software update
- Parametrizing
- Drive calibration

5.0.4 Initiation of drive controller



The drive control is a Bosch-Rexroth system. To diagnose, parameterize and also for the software update Bodas Version 3.5 (04039640000) is needed. For the communication between machine (controller) and computer with diagnose software the Hako Interface is needed, either the Sontheim CAN-USB (03501750), or the Sontheim CAN-FOX (03502430) and the OBD II cable (03502750). To Bodas belongs a dongle. This one have to be plugged in an USB-Port of the computer. If the drive controller is changed or a software update is available, an implementing procedure have to be carried out. To this procedure belongs a drive controller adjustment. Therefore the hydraulic oil temperature have to be at least 40°C (check with Hako-Diagnose). Furthermore the CM1600 have to be jacked at one side (recommended is the right side, cause the wheels have to be seen during the machine is operated with the drive pedal). For save conditiones use the lock-pin at the articulated joint and secure the machine against rolling away (**parking brake need to be open!**). The engine have to be stopped!



5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View **Tools** Help

Options...
Interface...
Language...

Scan Open Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare

Available ECUs

Diagnosis

Rexroth
Bosch Group

Before the first use of Bodas you need to determine the communication port

Choose the field „Tools“ and open „Interface“.

Available ECUs
Select an ECU to communicate with!

Scan for controllers

BODAS-service is ready and waits for instructions.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Options... Interface... Language...

Scan Open Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare

Available ECUs

Put the hook at CAN and choose your interface

Available ECUs
Select an ECU to communicate with

COM1
COM6
COM8

Serial

CAN

Sontheim CANfox
Vector VN1611
Vector VN1630
Vector VN1640
Vector VN89xx
Demo Sontheim CANUSBlight
 Sontheim CANUSB
Lawicel CANUSB

OK Cancel

Serial

CAN

Sontheim CANfox
Vector VN1611
Vector VN1630
Vector VN1640
Vector VN89xx
Demo Sontheim CANUSBlight
 Sontheim CANUSB
Lawicel CANUSB

OK Cancel

BODAS-service is ready and waits for instructions.

5.0.4 Initiation of drive controller



The screenshot shows the BODAS-service 3.5 (BOSCH Rexroth AG) software interface. The window title is "BODAS-service 3.5 (BOSCH Rexroth AG)". The menu bar includes "File", "Actions", "View", "Tools", and "Help". The "Tools" menu is open, showing "Options...", "Interface...", and "Language...". The toolbar contains various icons for "Scan", "Open", "Print", "Break", "Get data", "Password", "PAR→PC", "EPR→PC", "EPR→ECU", "Save", "Default", "Reinit", "Reset", "Compare", and "Help".

The main interface is divided into two panes. The left pane is titled "Available ECUs" and contains the text: "After the start of Bodas and the connection is established it is needed to search for the available controllers." The right pane is titled "Diagnosis" and features the "Rexroth Bosch Group" logo. It also has a sub-header "Available ECUs" with the instruction "Select an ECU to communicate with!". A large blue oval highlights a button in the center of the right pane. The button is labeled "Scan for controllers" and features an icon of a magnifying glass over a circuit board. A blue arrow points to the button.

At the bottom left of the window, a status bar reads: "BODAS-service is ready and waits for instructions." There are also three small circular icons (a key, a lightning bolt, and a gear) and a right-pointing arrow.

5.0.4 Initiation of drive controller



The screenshot shows the BODAS-service 3.5 software interface. On the left, a panel titled "Available ECUs" lists an RC12-10/30 unit with SN: 00102924 and HwCode: 0002D6. The main window displays the "Bosch Rexroth BODAS-service" dialog box, which includes the following text:

Bosch Rexroth BODAS-service
 Version 3.5
 Copyright (2016)

LIMITATION OF LIABILITY

The user of this software is responsible for safe operation of the machine. Bosch Rexroth AG in its role as component manufacturer, is not in a position to be aware of the precise application of the software.

Bosch Rexroth AG is not liable for consequential or incidental damages, incurred by the user or a third party due to parameterizing by means of the distributed software unless these damages are caused by intent or gross negligence of statutory representatives of Bosch Rexroth AG or persons employed by Bosch Rexroth AG in performing their obligations or defects have been concealed with intent or in case of death, bodily injury or injury of health or the assumption of a guarantee or the risk of

Bosch Rexroth AG
The Drive & Control Company
 Glockeraustr. 4
 D-89275 Elchingen

At the bottom of the dialog box are two buttons: "I decline" and "I accept". A blue arrow points to the "I accept" button. In the background, a component card for "HAKO8878 V4.01" with SN: 00102924 is visible.

BODAS-service is ready and waits for instructions.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

	RC12-10/30	SN: 00102924 HwCode: 0002D6 No errors detected
<input checked="" type="checkbox"/>		
▶	Parameter	
▶	Processdata	
▶	I/O Status view	
▶	Custom view	
▶	Error messages	

Active connection with controller (green hook).

Activate Bodas by a click on the controller button.

Rexroth
Bosch Group

Diagnosis

Available ECUs
Select an ECU to communicate with!

Scan for controllers

HAK08878 V4.01

SN: 00102924

BODAS-service is ready and waits for instructions.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password **PAR → PC** EPR → PC EPR → ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924 HwCode: 0002D6 No errors detected
HAKO8878 V4.01

- Parameter
- Processdata
- I/O Status view
- Custom view
- Error messages

Save the existing parameters to the computer. They are needed later partly for the new configuration.

Diagnosis Rexroth Bosch Group
RC12-10/30 (SN: 00102924) + HAKO8878 V4.01

Device info

Controller type: RC12-10/30
Operation time: 72:52
Reset counter: 658
Voltage: 12 Volt
Connection mode: CAN @250 kBaud
Application name: HAKO8878 V4.01
Last reprogrammed on: 2019-06-13 by: BR

Information

```

Hardware version:      R917008181
Serial number:        00102924

BIOS / API / Firmware:
- software information:  R917007887 V01.05
- date of installation:  2019-06-13
- installer identification: BR
- API/Library/Module information:
  - P30-Basic  01.63
  - RC30-00D6  01.05
  - P30-EepRC  01.40
  - P30-Diag   02.21
  - P30-InExt  01.08
  - P30-CANOPN 01.12
  - P30-J1939  01.18
  - P30-RTS    01.42
  - P30-CO_RCE 01.03
  - P30-UDS    01.07
    
```

Version information ECU info text

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR → PC EPR → PC EPR → ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924 HwCode: 0002D6 No errors detected
HAKO8878 V4.01

- Parameter
- Processdata
- I/O Status view
- Custom view
- Error messages

Confirm with „OK“

Diagnosis Rexroth Bosch Group
RC12-10/30 (SN: 00102924) + HAKO8878 V4.01

Device info

Controller type:	RC12-10/30
Operation time:	72:52
Reset counter:	658
Voltage:	12 Volt
Connection mode:	CAN @250 kBaud
Application name:	HAKO8878 V4.01
Last reprogrammed on:	2019-06-13 by: BR

Information

Hardware

Serial

BIOS /

- soft
- date
- inst
- API

1.05

Save parameter and processdata

Parameterfile

Save learning curves?

Curve 1 Curve 2

Save processdata?

OK Cancel

- P30-Basic 01.63
- RC30-00D6 01.05
- P30-EepRC 01.40
- P30-Diag 02.21
- P30-InExt 01.08
- P30-CANOPN 01.12
- P30-J1939 01.18
- P30-RTS 01.42
- P30-CO_RCE 01.03
- P30-UDS 01.07

Version information ECU info text

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

Scannen Öffnen Speichern Vorschau Drucken Trennen Auslesen Passwort PAR→PC EPR→PC EPR→ECU Speichern Default ReInit Reset Vergleich Hilfe

Verfügbare ECUs

RC12-10/30
HAKO8878 V4.01

- Parameter
- Prozessgrößen
- I/O Statusanzeige
- Benutzerdefinierte Ansicht
- Fehlermeldungen**

Enter a file name and save the logfile

Save parameter and processdata

Suchen in: Bodas Logfile

- Zuletzt verwendet
- Desktop
- Dokumente
- Dieser PC
- Netzwerk

- CM 1650.par
- CM 1653.par**
- CM 1661.par
- CM2200.par
- logfil M29 mit Handbremse.par
- logfil M29 ohne Handbremse.par
- logfil M29.par

Dateiname:

Dateityp: PAR-files (.par)

Save Cancel

RC12-10/30
71:17
652
12 Volt
CAN @250 kBaud
HAKO8878 V4.01
13.06.2019 von: BR

- P30-CANOPN 01.12
- P30-J1939 01.18
- P30-RTS 01.42
- P30-CO_RCE 01.03
- P30-HDC 01.07

Versionsinformationen ECU Info Text

Aktuell verbundenes Gerät: **RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox**

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAKO8878 V4.01 HwCode: 0002D6
No errors detected

- ▶ Parameter
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ Error messages

Activate the „flash symbol“ by a click with the mouse.

↓

Flash Tool

Rexroth
Bosch Group

Diagnosis
RC12-10/30 (SN: 00102924) + HAKO8878 V4.01

Device info

Controller type:	RC12-10/30
Operation time:	72:52
Reset counter:	658
Voltage:	12 Volt
Connection mode:	CAN @250 kBaud
Application name:	HAKO8878 V4.01
Last reprogrammed on:	2019-06-13 by: BR

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BIOS / API / Firmware:
- software information: R917007887 V01.05
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- installer identification: BR
- API/Library/Module information:
  - P30-Basic 01.63
  - RC30-00D6 01.05
  - P30-EepRC 01.40
  - P30-Diag 02.21
  - P30-InExt 01.08
  - P30-CANOPN 01.12
  - P30-J1939 01.18
  - P30-RTS 01.42
  - P30-CO_RCE 01.03
  - P30-UDS 01.07
    
```

Version information ECU info text

Connected with: Flash Tool RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Preview Print

Help


Available ECUs

Serial Protocol

CAN Standard Protocol

CAN DI3 Protocol

CAN Special Protocol

	RC12-10/30 HAKO8878 V4.01	SN: 00102924 HwCode: 0002D6 No errors detected
--	-------------------------------------	--

Choose the controller

Flash Tool

Rexroth Bosch Group

Available ECUs

Select an ECU to communicate with!

BODAS-service is ready and waits for instructions.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)


File Actions View Tools Help

Scan Preview Print

Help

Available ECUs

- Serial Protocol
- CAN Standard Protocol
- CAN DI3 Protocol
- CAN Special Protocol

 RC12-10/30 HAKO8878 V4.01	SN: 00102924 HwCode: 0002D6 No errors detected
--	--

Flash Tool

RC12-10/30 (SN: 00102924) + HAKO8878 V4.01

Rexroth Bosch Group

Configure flashing

Selected Hex File:

hex file

Flashing Erase flash Reset after flashing

Communication

Interface settings

Sontheim CANfox

Chnl 1

250 kBaud

Flash Status Information

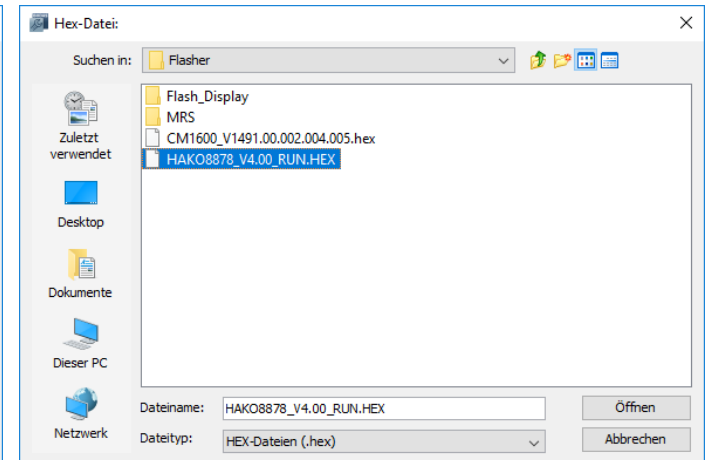
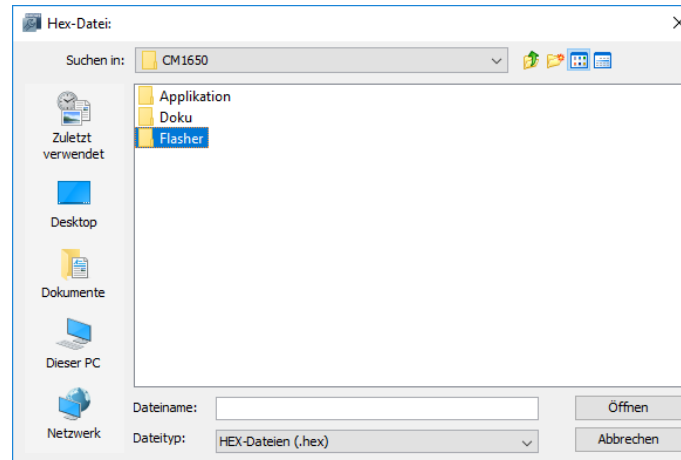
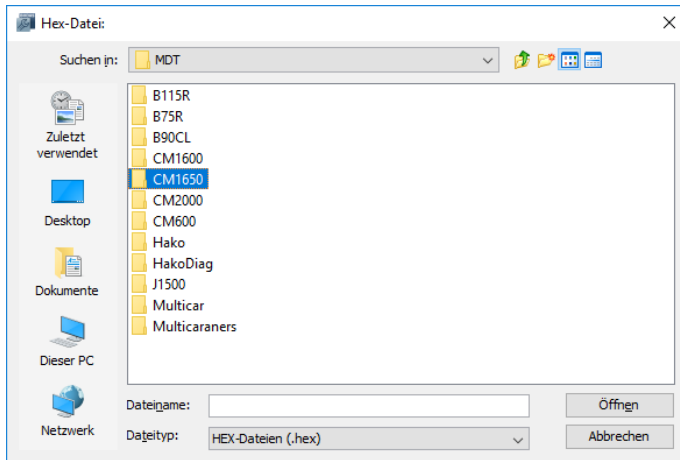
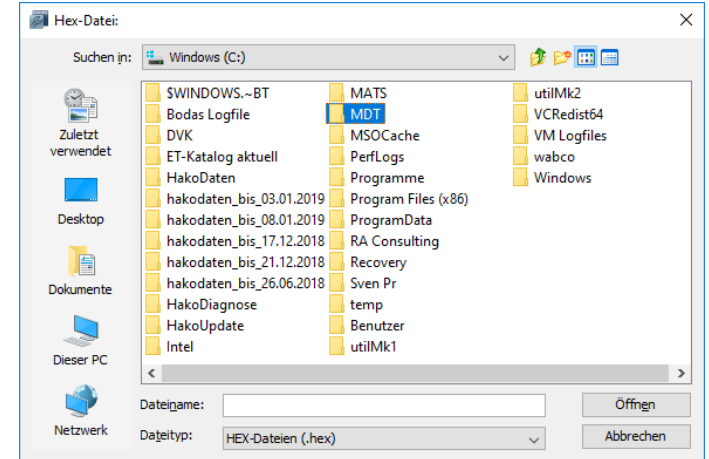
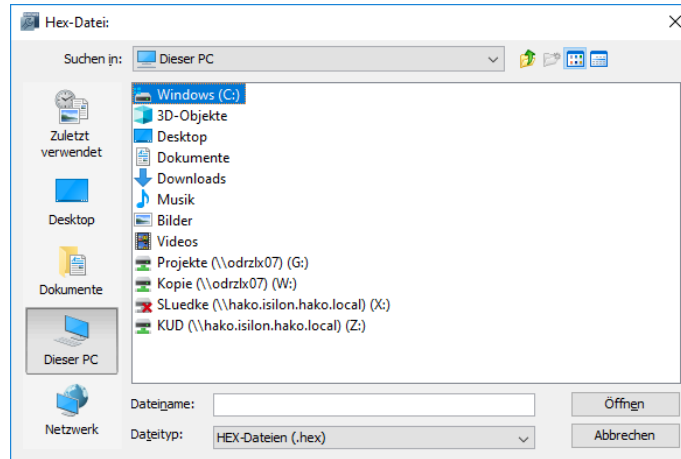
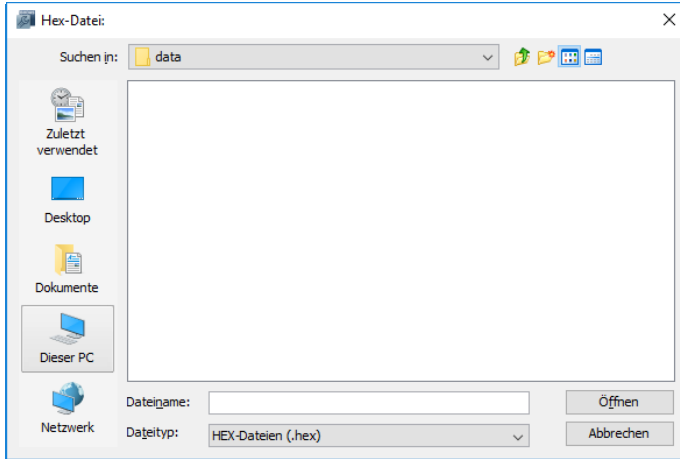
To select the the flash file, use this button

Selected interface: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



You will find the Hex-file in the path:
 Hard Disc (C:) -> MDT -> CM1650 -> Flasher



5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Preview Print

Help


Available ECUs

Serial Protocol

CAN Standard Protocol

CAN DI3 Protocol

CAN Special Protocol



RC12-10/30
HAKO8878 V4.01

SN: 00102924
HwCode: 0002D6
No errors detected

Rexroth
Bosch Group

Flash Tool
RC12-10/30 (SN: 00102924) + HAKO8878 V4.01

Configure flashing

Selected Hex File: Date: 2018.03.20 - 10:13:06

C:\MDT\CM1650\Flasher\HAKO8878_V4.00_RUN.HEX ...

Flashing
 Erase flash
 Reset after flashing

Flash Status Information

Begin flash process by pressing „Start“

Note:

1. During the running flash process in the display is shown the service message 1.7.0.3 and the beeper is ON
2. During the flash process all parameters are resetted to default. They need to be parametrized manually
3. After ending of the flash process: Switch ignition to OFF and directly again to ON.
4. Reconnect the communication

Selected interface: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
No errors detected

- ▶ Parameter ←
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ Error messages

After the flash process some parameters need to be calibrated manually.

Therefore activate the menu Parameter

Rexroth
Bosch Group

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

- 1 Menu 1**
 - 1.1 Konfiguration I**
 - 1.2 Dieselbegr / Freigabe Auto**
 - 1.3 Ströme / Charak AFM**
 - 1.5 Deak. Arbeitshyd./ Konfig. II**
 - 1.7 Konfiguration II**
 - 1.8 Diag Geschw Sensoren**
- 3 Menu 3**
 - 3.4 Endgeschwindigkeitsregler**
 - 3.7 Einstellungen 1**
- 4 Menu 4**
 - 4.4 Lüfter 3**
- 5 Menu 5**
 - 5.1 Stromabgleich I**

Show only menus Show groups Show all parameters Write for filtering Update interval ms

RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
No errors detected

- Parameter
- Processdata
- I/O Status view
- Custom view
- Error messages

In the menu „1.5 Deak. Arbeitshyd./ Konfig.II“

In the field „1.5.5 Druckschalterauswahl“ choose the “600bar-sensor“.

Press “Save” to transfer the values into the control unit.

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

1.5 Deak. Arbeitshyd./ Konfig. II

1.5.5 Drucksensorauswahl 600 bar Value: 2 STD

1.5.6 Fahrpedal im Fehlerfall 0 STD

1.5.7 Blinkzeit Bremsleuchte 5,000 ms STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
No errors detected

- ▶ **Parameter**
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ Error messages

Rexroth
Bosch Group

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

1.7 Konfiguration II

1.7.1 Fahrpedalauswahl	Pedal ohne Mikros.	Value: 2	STD
1.7.2 Bremspedalauswahl	Pedal ohne Mikros.	Value: 2	STD
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum: 0.51 V, Maximum: 4.50 V, Current: ---	Accept, Calibrate	STD
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum: 0.52 V, Maximum: 4.51 V, Current: ---	Accept, Calibrate	STD
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum: 0.52 V, Maximum: 4.51 V, Current: ---	Accept, Calibrate	STD
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum: 0.51 V, Maximum: 4.50 V, Current: ---	Accept, Calibrate	STD
1.7.7 Bremspedal	Minimum: 0.53 V, Maximum: 3.65 V, Current: ---	Accept, Calibrate	STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

In the menu „1.7 Konfiguration II“

In the field „1.7.1 Fahrpedalauswahl“ choose “Pedal ohne Mikro Schalter“

In the field „1.7.2 Bremspedalauswahl“ choose “Pedal ohne Mikro Schalter“.

Press “Save” to transfer the values into the control unit.

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)



File Actions View Tools Help



Available ECUs

RC12-10/30 SN: 00102924
 HAK08878 V4.01 HwCode: 0002D6
Errors detected

Parameter

Processdata
 I/O Status view
 Custom view

Error messages

In the menu „1.7 Konfiguration II“

In the field „1.7.3 Fahrpedalauswahl 1 – K 1“

1. Activate calibration.
2. Forward pedal in neutral position
Press the button „**Set min. value**“
3. Forward pedal fully pushed down.
Press the button „**Set max. value**“

Parameter

Parameter values are displayed and can be edited.

Parameter Learning curves

1.7 Konfiguration II

1.7.1 Fahrpedalauswahl	Pedal ohne Mikros.	Value: 2	STD						
1.7.2 Bremspedalauswahl	Pedal ohne Mikros.	Value: 2	STD						
1.7.3 Fahrpedal 1 - K1 Min-Max	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Maximum</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>0.51 V</td> <td>4.50 V</td> <td>4.50 V</td> </tr> </tbody> </table>	Minimum	Maximum	Current	0.51 V	4.50 V	4.50 V	<input type="button" value="Set max value"/> <input type="button" value="Cancel"/>	STD
Minimum	Maximum	Current							
0.51 V	4.50 V	4.50 V							
1.7.4 Fahrpedal 1 - K2 Max-Min	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Maximum</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>0.25 V</td> <td>4.73 V</td> <td>---</td> </tr> </tbody> </table>	Minimum	Maximum	Current	0.25 V	4.73 V	---	<input type="button" value="Accept"/> <input type="button" value="Calibrate"/>	STD
Minimum	Maximum	Current							
0.25 V	4.73 V	---							
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Maximum</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>0.25 V</td> <td>4.73 V</td> <td>---</td> </tr> </tbody> </table>	Minimum	Maximum	Current	0.25 V	4.73 V	---	<input type="button" value="Accept"/> <input type="button" value="Calibrate"/>	STD
Minimum	Maximum	Current							
0.25 V	4.73 V	---							
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Maximum</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>0.25 V</td> <td>4.73 V</td> <td>---</td> </tr> </tbody> </table>	Minimum	Maximum	Current	0.25 V	4.73 V	---	<input type="button" value="Accept"/> <input type="button" value="Calibrate"/>	STD
Minimum	Maximum	Current							
0.25 V	4.73 V	---							
1.7.7 Bremspedal	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Maximum</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>0.20 V</td> <td>3.78 V</td> <td>---</td> </tr> </tbody> </table>	Minimum	Maximum	Current	0.20 V	3.78 V	---	<input type="button" value="Accept"/> <input type="button" value="Calibrate"/>	STD
Minimum	Maximum	Current							
0.20 V	3.78 V	---							

Show only menus

Show groups

Show all parameters

Write for filtering

Update interval ms

Connected with:

RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
Errors detected

- ▶ **Parameter**
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ **Error messages**

In the menu „1.7 Konfiguration II“

In the field „1.7.4 Fahrpedalauswahl 1 – K 2“

1. Activate calibration.
2. Forward pedal in neutral position
Press the button „**Set max. value**“
3. Forward pedal fully pushed down.
Press the button „**Set min. value**“

Rexroth
Bosch Group

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

1.7 Konfiguration II

1.7.1 Fahrpedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.2 Bremspedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum: 0.51 V, Maximum: 4.50 V, Current: ---	Accept	Calibrate	STD
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum: 0.52 V, Maximum: 4.50 V, Current: 0.52 V	Set min value	Cancel	STD
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum: 0.25 V, Maximum: 4.73 V, Current: ---	Accept	Calibrate	STD
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum: 0.25 V, Maximum: 4.73 V, Current: ---	Accept	Calibrate	STD
1.7.7 Bremspedal	Minimum: 0.20 V, Maximum: 3.78 V, Current: ---	Accept	Calibrate	STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HwCode: 0002D6
HAKO8878 V4.01 **Errors detected**

▶ **Parameter**

▶ Processdata

▶ I/O Status view

▶ Custom view

▶ **Error messages**

Im the menu „1.7 Konfiguration II“

In the field 1“.7.5 Fahrpedalauswahl 2 – K 1“

1. Activate calibration.
2. Backward pedal in neutral position
Press the button „**Set min. value**“
3. Backward pedal fully pushed down.
Press the button „**Set max. value**“

Parameter Rexroth Bosch Group

Parameter values are displayed and can be edited.

Parameter Learning curves

1.7 Konfiguration II

1.7.1 Fahrpedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.2 Bremspedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum	Maximum	Current	Accept Calibrate STD
	0.51 V	4.50 V	---	
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum	Maximum	Current	Accept Calibrate STD
	0.52 V	4.50 V	---	
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum	Maximum	Current	Set max value Cancel STD
	0.51 V	4.51 V	4.51 V	
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum	Maximum	Current	Accept Calibrate STD
	0.25 V	4.73 V	---	
1.7.7 Bremspedal	Minimum	Maximum	Current	Accept Calibrate STD
	0.20 V	3.78 V	---	

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAKO8878 V4.01 HwCode: 0002D6
Errors detected

Parameter
Processdata
I/O Status view
Custom view
Error messages

In the menu „1.7 Konfiguration II“

In the field „1.7.6 Fahrpedalauswahl 2 – K 2“

1. Activate calibration.
2. Backward pedal in neutral position
Press the button „**Set max. value**“
3. Backward pedal fully pushed down.
Press the button „**Set min. value**“

Press “Save” to transfer the values into the control unit.

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

1.7 Konfiguration II

1.7.1 Fahrpedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.2 Bremspedalauswahl	Pedal ohne Mikros.	Value:	2	STD
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum	Maximum	Current	Accept Calibrate STD
	0.51 V	4.50 V	---	
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum	Maximum	Current	Accept Calibrate STD
	0.52 V	4.50 V	---	
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum	Maximum	Current	Accept Calibrate STD
	0.51 V	4.51 V	---	
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum	Maximum	Current	Set min value Cancel STD
	0.51 V	4.50 V	0.51 V	
1.7.7 Bremspedal	Minimum	Maximum	Current	Accept Calibrate STD
	0.20 V	3.78 V	---	

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HwCode: 0002D6
HAKO8878 V4.01 **Errors detected**

▶ **Parameter**

▶ Processdata

▶ I/O Status view

▶ Custom view

▶ **Error messages**

In the menu „1.7 Konfiguration II“

In the field „1.7.7 Bremspedal“

1. Activate calibration.
2. Break pedal in neutral.
Press the button „**Set min. value**“
3. Break pedal fully pushed down.
Press the button „**Set max. value**“

If the message “**Voltage to high**“ occurs => carry out procedur on next page 26 (in 1.7.8)

Otherwise save it by clicking the “Save” button

Parameter Rexroth Bosch Group

Parameter values are displayed and can be edited.

Parameter Learning curves

1.7.2 Bremspedalauswahl	Pedal ohne Mikros.			Value: 2	STD
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum 0.51 V	Maximum 4.50 V	Current ---	Accept Calibrate	STD
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum 0.52 V	Maximum 4.50 V	Current ---	Accept Calibrate	STD
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum 0.51 V	Maximum 4.51 V	Current ---	Accept Calibrate	STD
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum 0.51 V	Maximum 4.50 V	Current ---	Accept Calibrate	STD
1.7.7 Bremspedal	Minimum 0.52 V	Maximum 4.19 V	Current 4.19 V	Set max value Cancel	STD
1.7.8 Auflösung Kalib Bremspedal				4,511 mV	STD

1.8 Diag Geschw Sensoren

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HwCode: 0002D6
HAKO8878 V4.01 **Errors detected**

▶ **Parameter**

▶ Processdata

▶ I/O Status view

▶ Custom view

▶ **Error messages**

Only if calibration failure **“voltage to high” !!!**

In the field „1.7.8 Auflösung Kalib Bremspedal“ change the value to 5000 setzen and press the button „Save“

Then reset controller by the button „Reset“

After it carry out procedure on Page 25 (1.7.7 Kalibrieren) again

Rexroth Bosch Group

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

1.7.2 Bremspedalauswahl	Pedal ohne Mikros.		Value:	2	STD				
1.7.3 Fahrpedal 1 - K1 Min-Max	Minimum	Maximum	Current	Accept	Calibrate				
	0.51 V	4.50 V	---		STD				
1.7.4 Fahrpedal 1 - K2 Max-Min	Minimum	Maximum	Current	Accept	Calibrate				
	0.52 V	4.50 V	---		STD				
1.7.5 Fahrpedal 2 - K1 Rückw.Min-Max	Minimum	Maximum	Current	Accept	Calibrate				
	0.51 V	4.51 V	---		STD				
1.7.6 Fahrpedal 2 - K2 Rückw.Max-Min	Minimum	Maximum	Current	Accept	Calibrate				
	0.51 V	4.50 V	---		STD				
1.7.7 Bremspedal	Minimum	Maximum	Current	Accept	Calibrate				
	0.52 V	4.19 V	---		STD				
1.7.8 Auflösung Kalib Bremspedal	<input type="text" value="4500"/>		Current	Accept	Calibrate				
	2000	2500	3000	3500	4000	4500	5000	4,500 mV	STD

1.8 Diag Geschw Sensoren

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
Errors detected

- ▶ **Parameter**
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ **Error messages**

In menu „1.7 Konfiguration II“

In the field „1.8.7 Drehzahlsensorauswahl“ choose the “DSM-Sensor“

Press “Save” to transfer the values into the control unit.

Parameter Rexroth Bosch Group

Parameter values are displayed and can be edited.

Parameter Learning curves

1.8 Diag Geschw Sensoren

1.8.7 Drehzahlsensorauswahl Value:

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)



File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
Errors detected

- ▶ **Parameter**
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ **Error messages**

Delete all errors before you start the drive calibration.

Delete active and saved errors

Error messages

Overview of current active and saved error messages:

Active errors:

Index	Error Code	Occurrences	Timestamp	Error Message	Param
1	0xF015	1	73:18	Flag RC Start	0
2	0xA010	1	73:18	Anst. Deakt. Arbeitshydraulik	0
3	0x9005	1	73:18	Start: Motordrehzahl	0
4	0xA007	1	73:25	Anst. Lüfterumschaltung	0

Saved errors:

Index	Error Code	Occurrences	Timestamp	Error Message	Param
1	0xA010	4	73:18	Anst. Deakt. Arbeitshydraulik	0
2	0x06D1	1	73:05	menu1: invalid param corrected	73
3	0x06D1	1	73:05	menu1: invalid param corrected	74
4	0x06D1	1	73:05	menu1: invalid param corrected	75
5	0x06D1	1	73:05	menu1: invalid param corrected	76
6	0x06D1	1	73:05	menu1: invalid param corrected	77
7	0xA007	1	73:25	Anst. Lüfterumschaltung	0

Delete active errors

Delete saved errors

Operation time: 73:27

Update interval ms

Connected with: >

RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
No errors detected

- ▶ **Parameter**
- ▶ Processdata
- ▶ I/O Status view
- ▶ Custom view
- ▶ Error messages

Following parameters has to be activated to start the drive calibration

In the menu „5.1 Stromabgleich I“

In the field „5.1.1 Funktion I“ choose „Ein“.
In the field „5.1.2“ Funktion II“ choose „Ein“.

Press “Save” to transfer the values into the control unit.

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

5.1 Stromabgleich I

5.1.1 Funktion I	EIN	Value: 1	STD
5.1.2 Funktion II	EIN	Value: 1	STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



Now the following steps have to be carried out at the machine:

1. Start the engine (low idle) ★
2. Press the drive pedal to full forward and hold it ,if the engine revolution increasing one of the procedure conditiones (hydraulic oil temperatur, brake activ or controller not correctly switched off) are not correct, or there are still failures in Bodas, => Delete them. After correcting you need to switch of the controller for minium 2 min. [Ignition OFF]. Then restart the procedure.)
3. After some time the wheels start to turn in forward direction (first the rear then the front) (if the wheels are not start turning, check for error messages and erase them. After it see above)
4. After approx. 1 min. they stop again
5. Press further the drive pedal till the revolution increase (plus 100 rpm)
6. Release the forward pedal to neutral
7. Press the drive pedal to full revers and hold it
8. After some time the wheels start to turn in revers direction (first the rear then the front)
9. After approx. 1 min. they stop again
10. Release the revers pedal to neutral

★ With the current working hydraulic software the brake must be applied for starting. Release brake immediatly after engine run, cause the adjustment procedure will not start then.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

- Scan for controllers F2
- Disconnect**
- Enter password
- Get controller data
- PC → Controller F10
- Controller → PC F11
- Save param file F7
- Startup values
- Default values
- Save parameters in EEPROM
- Reset ECU

Break Get data Password PAR → PC EPR → PC EPR → ECU Save Default Reinit Reset Compare Help

Parameter
Parameter values are displayed and can be edited.

Rexroth Bosch Group

Parameter Learning curves

6.1 Stromabgleich Stanz 2 Teil 1

6.1.1 Datensatz 2

1

STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

Now disconnect the controller computer communication.

Therefore open the menu point **Actions** and click **Disconnect**.

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30
HAKO8878 V4.01

SN: 00102924
HwCode: 0002D6
No errors detected

- Parameter
- Processdata
- I/O Status view
- Custom view
- Error messages

Rexroth
Bosch Group

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

6.1 Stromabgleich Statz 2 Teil 1

Lost the connection to the controller: RC12-10/30 + HAKO8878 V4.01

Rescan system

Discard all active connections and start a new search for controllers in the system.

Reconnect

Rebuild connection and load all data

Rebuild connection and reload values only

Discard connection

Do not ask again and if possible always perform the selected action.

After the disconnect press „Rescan system“

Connected with: RC12-10/30 + HAKO8878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)

File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
No errors detected

▶ **Parameter**

▶ Processdata

▶ I/O Status view

▶ Custom view

▶ Error messages

Following parameters has to be deactivated after the drive calibration.

In the menu „5.1 Stromabgleich I“

In the field „5.1.1 Funktion I“ choose „AUS“.

In the field „5.1.2“ Funktion II“ choose „AUS“.

Press “Save” to transfer the values into the control unit.

Parameter
Parameter values are displayed and can be edited.

Parameter Learning curves

5.1 Stromabgleich I

5.1.1 Funktion I	AUS	Value: 0	STD
5.1.2 Funktion II	AUS	Value: 0	STD

Show only menus Show groups Show all parameters Write for filtering Update interval ms

Connected with: RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

5.0.4 Initiation of drive controller



BODAS-service 3.5 (BOSCH Rexroth AG)



File Actions View Tools Help

Scan Open Save Preview Print Break Get data Password PAR→PC EPR→PC EPR→ECU Save Default Reinit Reset Compare Help

Available ECUs

RC12-10/30 SN: 00102924
HAK08878 V4.01 HwCode: 0002D6
Errors detected

- Parameter
- Processdata
- I/O Status view
- Custom view
- Error messages**

Finalizing steps

- Delete all errors of the hydrostat

Delete active and saved errors

Error messages
Overview of current active and saved error messages:

Active errors:

Index	Error Code	Occurrences	Timestamp	Error Message	Param
1	0xF015	1	73:18	Flag RC Start	0
2	0xA010	1	73:18	Anst. Deakt. Arbeitshydraulik	0
3	0x9005	1	73:18	Start: Motordrehzahl	0
4	0xA007	1	73:25	Anst. Lüfterumschaltung	0

Saved errors:

Index	Error Code	Occurrences	Timestamp	Error Message	Param
1	0xA010	4	73:18	Anst. Deakt. Arbeitshydraulik	0
2	0x06D1	1	73:05	menu1: invalid param corrected	73
3	0x06D1	1	73:05	menu1: invalid param corrected	74
4	0x06D1	1	73:05	menu1: invalid param corrected	75
5	0x06D1	1	73:05	menu1: invalid param corrected	76
6	0x06D1	1	73:05	menu1: invalid param corrected	77
7	0xA007	1	73:25	Anst. Lüfterumschaltung	0

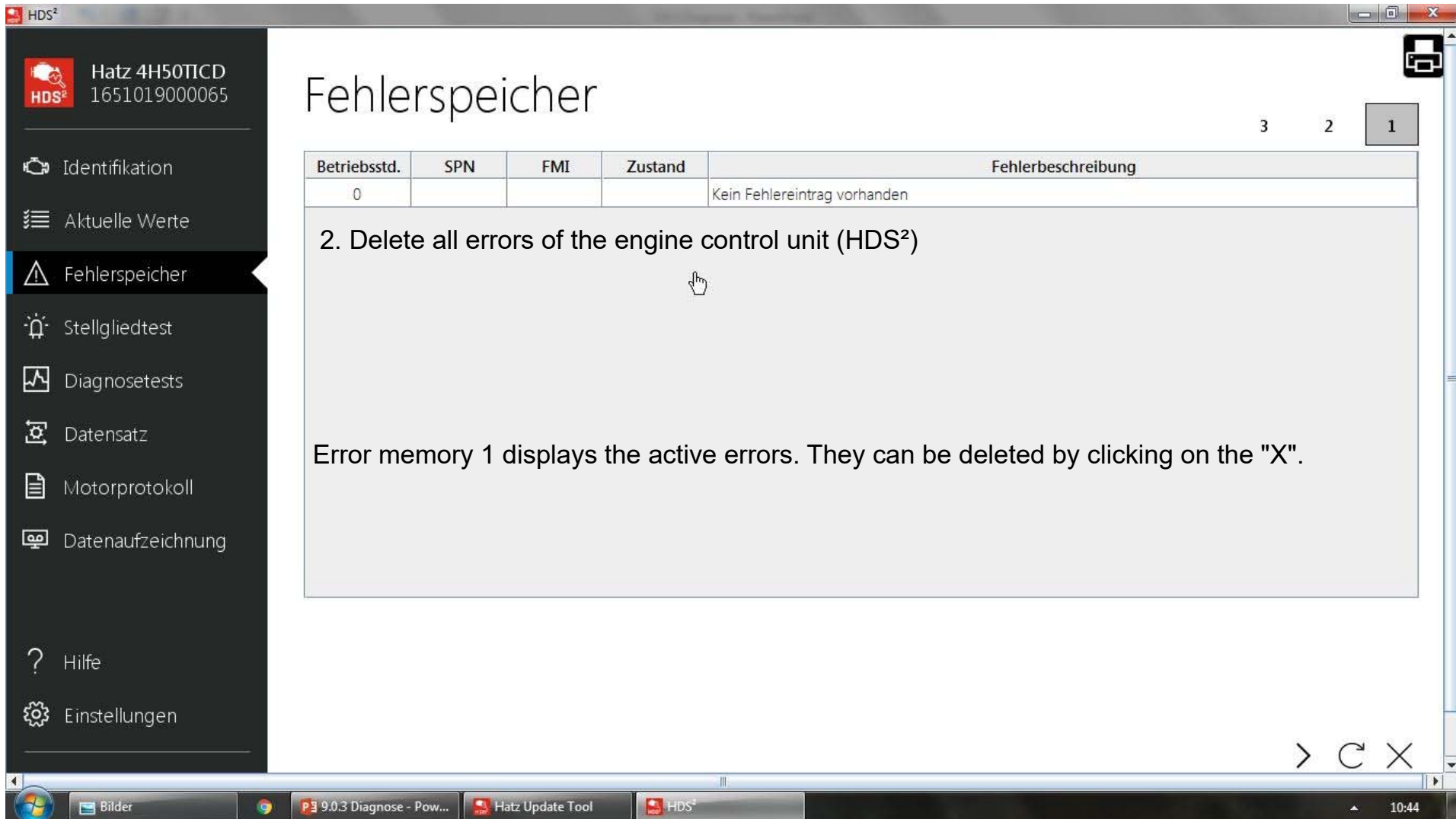
Delete active errors Delete saved errors Operation time: 73:27 Update interval 2400 ms



Connected with:

RC12-10/30 + HAK08878 V4.01 + Sontheim CANfox

Hatz



HDS²

Hatz 4H50TICD
1651019000065

- Identifikation
- Aktuelle Werte
- Fehlerspeicher**
- Stellgliedtest
- Diagnosetests
- Datensatz
- Motorprotokoll
- Datenaufzeichnung
- Hilfe
- Einstellungen

Fehlerspeicher

3 2 1

Betriebsstd.	SPN	FMI	Zustand	Fehlerbeschreibung
0				Kein Fehlereintrag vorhanden

2. Delete all errors of the engine control unit (HDS²)

Error memory 1 displays the active errors. They can be deleted by clicking on the "X".

> ↺ ✕

Bilder 9.0.3 Diagnose - Pow... Hatz Update Tool HDS² 10:44

5.0.4 Initiation of drive controller



The screenshot shows the HDS² diagnostic software interface. The window title is 'HDS²'. The left sidebar contains the following menu items: Identifikation, Aktuelle Werte, Fehlerspeicher (highlighted), Stellgliedtest, Diagnosetests, Datensatz, Motorprotokoll, Datenaufzeichnung, Hilfe, and Einstellungen. The main area is titled 'Fehlerspeicher' and contains a table with the following columns: Betriebsstd., SPN, FMI, Zustand, and Fehlerbeschreibung. The table is currently empty, and a text box below it explains: 'In fault memory 2 all errors are displayed after the control unit was switched off (shutdown time approx. 20s). They can be deleted by clicking on the "X".' The taskbar at the bottom shows several open applications: 'Bilder', '9.0.3 Diagnose - Pow...', 'Hatz Update Tool', and 'HDS²'. The system clock shows 10:44.

Betriebsstd.	SPN	FMI	Zustand	Fehlerbeschreibung
In fault memory 2 all errors are displayed after the control unit was switched off (shutdown time approx. 20s). They can be deleted by clicking on the "X".				

5.0.4 Initiation of drive controller



CM600 - Ereignisspeicher

Information Arbeitshydraulik Hydrostat Konfiguration System ? [DE]

334 Level: 1 CM 1600 - Information - Service Info Anzahl Einträge: 6 **Hako**

Speicher löschen Speicher lesen Historie lesen

Zelle	Intern	Text_1	Datum	Zeit	Anzeige	Text_2	R
1	412	HS: Fehler Fahrsteuerung	12-08-2016	10:26:11	0	0	
2	418	HS: Fehler Fahrsteuerung	12-08-2016	10:26:11	0	0	
3	415	HS: Fehler Fahrsteuerung	12-08-2016	10:26:16	0	0	
4	412	HS: Fehler Fahrsteuerung	12-08-2016	10:28:54	0	0	
5	415	HS: Fehler Fahrsteuerung	12-08-2016	10:28:54	0	0	
6	418	HS: Fehler Fahrsteuerung	12-08-2016	10:28:54	0	0	
End							

3. Delete all errors in the Hako diagnose

HakoDiagnose - Star... CM600 - Ereignisspei... 10:32