

Measure no.

US 60830088-02

Subject

Brake – soft pressure point

Status date (mm/dd/yy)

3/5/15

Status

Accepted

Organization

US, MOT

Date created (mm/dd/yy)

3/5/15

Created by

Werner Uhrmann

PQM Problem reference**Release date (mm/dd/yy)****Approved by****Dealer release**

Allow automatic release

Vehicles affected**Engine****Body****E series**

K21 K25 K25/02 K25/03 K25/11

K25/12 K25/31 K25/32 K25/HP

K26 K26/02 K26/11 K27 K27/11

K29/HP K42 K43 K43/11 K43/HV

K44 K44/31 K46 K46/11 K46/12

K47 K48 K50 K51 K52 K53

K54 K70/11 K71 K71/11 K72

K72/11 K73/02 K73/03 K75

**Production period (from/to)
(mm/dd/yy)****Comment on production period****Feedback (all cases relating to
measure up to) (mm/dd/yy)****Complaint**

Soft pressure point (spongy) on the front or rear brakes.

Cause

Air may have entered the brake systems

Measure

1. If the rear brake is affected: Determine the amount of free travel (free play) of the footbrake lever (see RSD "Removing/Installing or replacing footbrake lever"). If the amount of free travel on the footbrake lever is NOT OK --> Set the amount of free travel correctly.

2. Inspect the clearance between the brake pad and the brake disc (compare to a known good motorcycle).

3. After checking items 1 and 2 above, Please perform a guided diagnostics for soft pressure point. You can find a detailed description in the accompanying attachment (Serviceprogram-Soft pressure point).

Complaint

	Fault location	Fault type	Fault place
⌵	Brakes	Too soft	Front
⌵	Brakes	Too soft	Rear

Cause

#	Fault location	Fault type	Fault place
⌵ 1	34/51 ABS 2 modulator	Pressure not OK	
	Repair Task	Special Clearance	Area
	Other tasks	No	Chassis and Suspension

#	Fault location	Fault type	Fault place
⌵ 2	34/11 Front Wheel	Pressure drop/ loss	
	Brakes		
	Repair Task	Special Clearance	Area
	Other tasks	No	Chassis and Suspension

#	Fault location	Fault type	Fault place
⌵ 3	34/21 Rear brake	Pressure drop/ loss	
	Repair Task	Special Clearance	Area
	Other tasks	No	Chassis and Suspension

#	Fault location	Fault type	Fault place
⌵ 4	34/31 Brake master	Malfunction	
	cylinder		
	Repair Task	Special Clearance	Area
	Other tasks	No	Chassis and Suspension

Fault code

Progman / DIS / ISTA / ISTA/P

System	State	Version
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Check the brake pressure point

1. Identify motorcycle, start vehicle test

The screenshot displays the Integrated Service Technical Application interface. At the top, the title bar reads "Integrated Service Technical Application". Below it, the VIN is Z183019 and the vehicle is identified as R/K50/R 1200 GS/USA/0A11/2012/05. Battery voltages are shown as KL 15: 13.9 V and KL 30: 13.9 V. The main navigation menu includes "Operations", "Vehicle information" (selected), "Vehicle management", "Service plan", "Favourites", "Workshop/Operating fluids", and "Measuring devices". A secondary menu shows "Vehicle details", "Repair history", "Control unit tree" (selected), "Control unit list", and "Operations report".

The central area displays a control unit tree with the following components:

- KOMBI
- RDC
- DME
- EWS
- ABS
- ESA
- GM
- DWA

At the bottom left, the text "FACAN" is followed by a horizontal line. Below that, it says "Fault memory Not existent". A legend indicates the status of ECUs: a green square for "Ecu responding", a yellow square for "Ecu not responding", and a grey square for "Ecu state unknown". At the bottom, there are three buttons: "Start vehicle test", "Call up ECU functions", and "Display fault memory".

2. Select fault pattern

2.1. Select Main group [002 Chassis and suspension]

The screenshot displays the 'Integrated Service Technical Application' interface. At the top, the VIN is Z183019 and the vehicle is identified as R/K50/R 1200 GS/USA/0A11/2012/05. The battery voltages are shown as KL 15: 13.9 V and KL 30: 13.9 V. The main navigation menu includes 'Operations', 'Vehicle information', 'Vehicle management', 'Service plan', 'Favourites', 'Workshop/Operating fluids', and 'Measuring devices'. The 'Vehicle information' menu is expanded, showing 'Repair/Maintenance', 'Troubleshooting', and 'Fault pattern'. The 'Fault pattern' option is selected. Below this, the 'Main groups' list includes '001 Drive', '002 Chassis and suspension', and '003 Electrical system'. The '002 Chassis and suspension' group is highlighted. The 'Selected structure elements' panel on the right shows 'Layer 1: Perceived symptoms (old)'. At the bottom, the status indicates 'Number of fault memories: 0 / 0' and 'No. fault patterns: 0'. Buttons for 'Undo all', 'Undo', 'Add fault pattern', 'Show fault pattern', and 'Calculate test plan' are visible.

1

2

3

4

Integrated Service Technical Application						
VIN: Z183019		Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05		KL 15: 13.9 V		KL 30: 13.9 V
Operations	Vehicle information	Vehicle management	Service plan	Favourites	Workshop/Operating fluids	Measuring devices
Repair/Maintenance	Troubleshooting	Service function	Software update	Control Unit Exchange	Vehicle modification	
Fault memory	Fault pattern	Function Structure	Component Structure	Text Search	Input fault code	

Main groups	Selected structure elements
001 Drive	Layer 1: Perceived symptoms (old)
002 Chassis and suspension	
003 Electrical system	

Number of fault memories: 0 / 0 No. fault patterns: 0

Undo all Undo Add fault pattern Show fault pattern Calculate test plan

2. Select fault pattern

2.2. Select Main group [Antilock braking system ABS]

The screenshot displays the 'Integrated Service Technical Application' interface. At the top, the VIN is Z183019 and the vehicle is identified as RK50/R 1200 GS/USA/0A11/2012/05. The battery voltage is shown as 13.9 V for both KL 15 and KL 30. The main navigation menu includes 'Operations', 'Vehicle information', 'Vehicle management', 'Service plan', 'Favourites', 'Workshop/Operating fluids', and 'Measuring devices'. The 'Fault memory' section is active, showing 'Fault pattern' as the selected option. The 'Main groups' list includes 'Antilock braking system ABS', 'Electronic suspension adjustment', and 'RDC tyre pressure control'. The 'Selected structure elements' panel shows 'Layer 1: Perceived symptoms (old)' and 'Layer 2: 002 Chassis and suspension'. At the bottom, the status indicates 'Number of fault memories: 0 / 0' and 'No. fault patterns: 0'. The interface includes buttons for 'Undo all', 'Undo', 'Add fault pattern', 'Show fault pattern', and 'Calculate test plan'.

Operations	Vehicle information	Vehicle management	Service plan	Favourites	Workshop/Operating fluids	Measuring devices
Repair/Maintenance	Troubleshooting	Service function	Software update	Control Unit Exchange	Vehicle modification	
Fault memory	Fault pattern	Function Structure	Component Structure	Text Search	Input fault code	

Main groups	Selected structure elements
Antilock braking system ABS	Layer 1: Perceived symptoms (old)
Electronic suspension adjustment	Layer 2: 002 Chassis and suspension
RDC tyre pressure control	

Number of fault memories: 0 / 0 No. fault patterns: 0

Undo all Undo Add fault pattern Show fault pattern Calculate test plan

2. Select fault pattern

2.3. Select the fault pattern [Brake system: soft pressure point], then push button “Add fault pattern”

The screenshot displays the 'Integrated Service Technical Application' interface. At the top, it shows the VIN: Z183019 and Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05. The main menu includes 'Operations', 'Vehicle information', 'Vehicle management', 'Service plan', 'Favourites', 'Workshop/Operating fluids', and 'Measuring devices'. The 'Fault pattern' button is highlighted in blue. Below the menu, the 'Main groups' section lists 'ABS button not working', 'Brake system: soft pressure point' (highlighted with a red box and arrow labeled '1'), 'Insufficient venting of pressure modulator', and 'No ABS release after driving off'. The 'Selected structure elements' section shows a hierarchy: Layer 1: Perceived symptoms (old), Layer 2: 002 Chassis and suspension, Layer 3: Antilock braking system ABS, and Layer 4: Brake system: soft pressure point. At the bottom, the status bar shows 'Number of fault memories: 0 / 0' and 'No. fault patterns: 0'. The 'Add fault pattern' button is highlighted with a red box and arrow labeled '2'. Other buttons include 'Undo all', 'Undo', 'Show fault pattern', and 'Calculate test plan'.

3. Calculate test plan

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

Operations	Vehicle information	Vehicle management	Service plan	Favourites	Workshop/ Operating fluids	Measuring devices
Repair/ Maintenance	Troubleshooting	Service function	Software update	Control Unit Exchange	Vehicle modification	
Fault memory	Fault pattern	Function Structure	Component Structure	Text Search	Input fault code	

Main groups

Perceived symptoms (old)

Selected structure elements

Number of fault memories: 0 / 0 No. fault patterns: 1

Undo all Undo Add fault pattern Show fault pattern Calculate test plan

Note: fault pattern selected

4. Operate serviceprogram

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

Operations	Vehicle information	Vehicle management	Service plan	Favourites	Workshop/ Operating fluids	Measuring devices
Hit list	Test plan	Programming plan				

Type	Title	Status	Priority
Brake system			1
ABL	Check the brake pressure point	<input checked="" type="checkbox"/>	1

Hits: 1 / 1 Filter: Default Not called Performed Minimized Canceled Suspected

Back Filters Show symptoms Collapse / expand Set standard filter **Display**

4. Operate serviceprogram

4.1. choose brake circuit

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

ABL-DIT-BIKE_ABS_CT_MK100_LUFTEINTRAG - Check the brake pressure point

Procedure

Wiring Diagram

Functional Description

Test step selection

- Front brake circuit
- Rear brake circuit**
- End

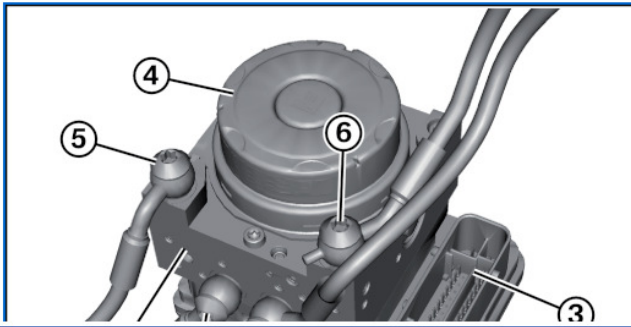
BMW Motorrad Integral ABS IV

The BMW Motorrad Integral ABS IV is based on the tried-and-tested MK100 from Continental-Teves and is adapted to the special requirements and functions in Motorrad.

The ABS control operation is effected separately for the front and rear wheel (2-channel ABS).

Brief component description

The ABS control unit (HECU) is made up of the hydraulic unit (HCU), the control unit (ECU) and the electrical pump motor.



Back Measuring Devices Keyboard Full Screen Update **Next**

4. Operate serviceprogram

4.2. Notice instructions

The screenshot displays the 'Integrated Service Technical Application' interface. At the top, it shows the VIN 'Z183019', the vehicle model 'R/K50/R 1200 GS/USA/0A11/2012/05', and battery voltages 'KL 15: 13.9 V' and 'KL 30: 13.9 V'. The main title bar reads 'FUB-FUB-BIKE_ABS_MK100_SYSTEMBESCHREIBG - BMW Motorrad Integral ABS IV'. Below this are three tabs: 'Procedure', 'Wiring Diagram', and 'Functional Description', with the latter being the active tab. The main content area is split into two columns. The left column, titled 'Function check', contains a paragraph about checking the brake lever pressure point, a numbered list of steps (1. first with an open and then 2. with a closed ABS intake valve), and a note stating the ABS system must be completely filled. The right column, titled 'Intake valves', 'Exhaust valves', 'Separator valve', and 'Changeover valve', provides detailed functional descriptions for each. At the bottom, there are navigation buttons: 'Back', 'Measuring Devices', 'Keyboard', 'Full Screen', 'Update', and 'Next'.

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

FUB-FUB-BIKE_ABS_MK100_SYSTEMBESCHREIBG - BMW Motorrad Integral ABS IV

Procedure Wiring Diagram **Functional Description**

Function check

The pressure point of the brake lever is checked in the following function check,

1. first with an open and then
2. with a closed ABS intake valve

Notes:

The ABS system must be completely filled as well as fully connected both hydraulically and electrically.

Intake valves

The intake valves are open for normal braking and are closed in the ABS control operation (pressure reduction phase). In the pressure build-up phase of the ABS control operation the intake valves can be held opened and closed in any position or changed (analogue valves).

Exhaust valves

The discharge valves are closed for normal braking and are open in the ABS control operation (pressure reduction phase). During the ABS control operation the position of the discharge valves switches between open and closed (digital valves).

Separator valve

The separator valve is installed in the rear brake circuit between the footbrake cylinder and the pressure side of the 2-piston pump and is open in a de-energized state. In this state brake pressure can be built up in the rear brake circuit via the footbrake. At the start of the integral braking the separator valve is closed and prevents the delivery of brake fluid to the footbrake cylinder. During integral braking the separator valve can be held open or closed in any position or changed for the pressure reduction (analogue valve).

Changeover valve

The changeover valve is installed in the rear brake circuit between the expansion tank and the intake side of the 2-piston pump and is closed in a de-energized state. At the

Back Measuring Devices Keyboard Full Screen Update Next

4. Operate serviceprogram

4.3. Braking system at initial state: Evaluate pressure point

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

ABL-DIT-BIKE_ABS_CT_MK100_LUFTEINTRAG - Check the brake pressure point

Procedure Wiring Diagram Functional Description

Function check

Check the pressure point of the rear brake lever:

- Operate the rear brake lever several times and mind the pressure point.

Is the pressure point of the rear brake OK?

Yes

No, pressure point is too soft

Intake valves

The intake valves are open for normal braking and are closed in the ABS control operation (pressure reduction phase). In the pressure build-up phase of the ABS control operation the intake valves can be held opened and closed in any position or changed (analogue valves).

Exhaust valves

The discharge valves are closed for normal braking and are open in the ABS control operation (pressure reduction phase). During the ABS control operation the position of the discharge valves switches between open and closed (digital valves).

Separator valve

The separator valve is installed in the rear brake circuit between the footbrake cylinder and the pressure side of the 2-piston pump and is open in a de-energized state. In this state brake pressure can be built up in the rear brake circuit via the footbrake. At the start of the integral braking the separator valve is closed and prevents the delivery of brake fluid to the footbrake cylinder. During integral braking the separator valve can be held open or closed in any position or changed for the pressure reduction (analogue valve).

Changeover valve

The changeover valve is installed in the rear brake circuit between the expansion tank and the intake side of the 2-piston pump and is closed in a de-energized state. At the

Back Measuring Devices Keyboard Full Screen Update Next

4. Operate serviceprogram

4.4. Braking system while ABS-inlet valve is actuated: Evaluate pressure point again

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.7 V KL 30: 13.7 V

ABL-DIT-BIKE_ABS_CT_MK100_LUFTEINTRAG - Check the brake pressure point

Procedure Wiring Diagram Functional Description


Function check

The ABS intake valve is being activated.
Check the pressure point of the rear brake lever again:

- Operate the rear brake lever several times and mind the pressure point.

Is the pressure point of the rear brake very tight?

Remaining activation time: 9 s



Note:
The activation can be ended at any time with "Continue".

Intake valves

The intake valves are open for normal braking and are closed in the ABS control operation (pressure reduction phase). In the pressure build-up phase of the ABS control operation the intake valves can be held opened and closed in any position or changed (analogue valves).

Exhaust valves

The discharge valves are closed for normal braking and are open in the ABS control operation (pressure reduction phase). During the ABS control operation the position of the discharge valves switches between open and closed (digital valves).

Separator valve

The separator valve is installed in the rear brake circuit between the footbrake cylinder and the pressure side of the 2-piston pump and is open in a de-energized state. In this state brake pressure can be built up in the rear brake circuit via the footbrake.
At the start of the integral braking the separator valve is closed and prevents the delivery of brake fluid to the footbrake cylinder. During integral braking the separator valve can be held open or closed in any position or changed for the pressure reduction (analogue valve).

Changeover valve

The changeover valve is installed in the rear brake circuit between the expansion tank and the intake side of the 2-piston pump and is closed in a de-energized state. At the

Back Measuring Devices Keyboard Full Screen Update Next

4. Operate serviceprogram

4.4. Braking system while ABS-inlet valve is actuated: Evaluate pressure point again

The screenshot displays a software interface for an Integrated Service Technical Application. At the top, there is a navigation bar with icons for home, back, forward, search, and other functions. Below this, the VIN is Z183019 and the vehicle is identified as R/K50/R 1200 GS/USA/0A11/2012/05. The current task is titled "ABL-DIT-BIKE_ABS_CT_MK100_LUFTEINTRAG - Check the brake pressure point".

The main content area is divided into three tabs: "Procedure" (selected), "Wiring Diagram", and "Functional Description". The "Procedure" tab contains a "Function check" section with the question: "Was the pressure point of the rear brake lever very tight during the activation of the ABS intake valve?". Two options are provided: "The pressure point is very tight" (indicated by a blue square) and "No, pressure point is too soft" (indicated by a grey square).

The "Functional Description" tab is currently active, showing detailed information about the braking system components:

- Intake valves:** The intake valves are open for normal braking and are closed in the ABS control operation (pressure reduction phase). In the pressure build-up phase of the ABS control operation the intake valves can be held opened and closed in any position or changed (analogue valves).
- Exhaust valves:** The discharge valves are closed for normal braking and are open in the ABS control operation (pressure reduction phase). During the ABS control operation the position of the discharge valves switches between open and closed (digital valves).
- Separator valve:** The separator valve is installed in the rear brake circuit between the footbrake cylinder and the pressure side of the 2-piston pump and is open in a de-energized state. In this state brake pressure can be built up in the rear brake circuit via the footbrake. At the start of the integral braking the separator valve is closed and prevents the delivery of brake fluid to the footbrake cylinder. During integral braking the separator valve can be held open or closed in any position or changed for the pressure reduction (analogue valve).
- Changeover valve:** The changeover valve is installed in the rear brake circuit between the expansion tank and the intake side of the 2-piston pump and is closed in a de-energized state. At the

At the bottom of the interface, there is a navigation bar with buttons for "Back", "Measuring Devices", "Keyboard", "Full Screen", "Update", and "Next". A mouse cursor is pointing at the "Next" button.

4. Operate serviceprogram

4.5. Summarize test result

The screenshot displays the 'Integrated Service Technical Application' interface. At the top, it shows the VIN: Z183019 and Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05. The current task is 'ABL-DIT-BIKE_ABS_CT_MK100_LUFTEINTRAG - Check the brake pressure point'. The interface is divided into three main sections: 'Procedure', 'Wiring Diagram', and 'Functional Description'. The 'Procedure' section is active and contains the following text:

Test result

The pressure point is too tight with a closed intake valve.
The pressure point is too soft with an open intake valve.

There is air in the rear brake circuit between the:

- ABS pressure modulator and
- rear brake caliper.

Instructions:

- Bleed rear brake.
- If applicable, carry out the "bleed pressure modulator" service function again.

The 'Functional Description' section is also visible, containing information about 'Intake valves', 'Exhaust valves', 'Separator valve', and 'Changeover valve'. At the bottom of the interface, there are navigation buttons: 'Back', 'Measuring Devices', 'Keyboard', 'Full Screen', 'Update', and 'Next'.

-> terminate service program.

5. Reset fault pattern

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

Operations Vehicle information Vehicle Service plan Favourites Workshop/ Measuring devices

Selected fault patterns

Repair/Maintenance

Fault memory

Main groups

Perceived symptoms

Fault patterns list

Perceived symptoms (old) / 002 Chassis and suspension / Antilock braking system ABS / Brake system: soft pres...

Cancel Delete Close

Number of fault memories: 0 / 0 No. fault patterns: 1

Undo all Undo Add fault pattern Show fault pattern Calculate test plan

1 2 3

6. Display test result and diagnostic code in the operations report

Integrated Service Technical Application

VIN: Z183019 Vehicle: R/K50/R 1200 GS/USA/0A11/2012/05 KL 15: 13.9 V KL 30: 13.9 V

Operations Vehicle information Vehicle management Service plan Favourites Workshop/Operating fluids Measuring devices

Vehicle details Repair history Control unit tree Control unit list Operations report

DIAGNOSE_MODE	JOB_STATUS	OKAY
<u>ECU function - ABS - X ABS</u>		
<u>Action</u>	<u>Function</u>	<u>Result</u>
STEUERN_IO	JOB_STATUS	OKAY
<u>ECU function - ABS - X ABS</u>		
<u>Action</u>	<u>Function</u>	<u>Result</u>
STEUERGERAETE_RESET	JOB_STATUS	OKAY
Function check		1
Was the pressure point of the rear brake lever very tight during the activation of the ABS intake valve?		
The pressure point is very tight		
No, pressure point is too soft		
Test result		False
The pressure point is too tight with a closed intake valve.		
The pressure point is too soft with an open intake valve.		
There is air in the rear brake circuit between the:		
ABS pressure modulator and rear brake caliper.		
Instructions:		
Bleed rear brake. If applicable, carry out the "bleed pressure modulator" service function again.		
na		M0401_00000000_50_104
DIAGCODE: M0401_00000000_50_104		
Diagnosecode		
M0401_00000000_50_104		
Test step selection		3
Front brake circuit		
X Rear brake circuit		
End		

Show vehicle test Information search