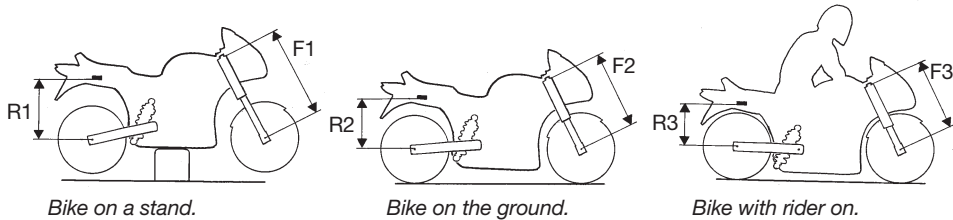


# Mounting Instructions

Öhlins shock absorber kit  
BM 346, 347 & EC Unit for BMW K 1200 RS



## Setup data

### BM 346

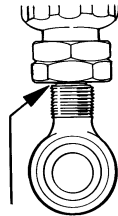
Shock absorber length (model 2003 and earlier)	321 (+5/-5) mm
(model 2004 and later)	326 (-10/+0) mm
Shock absorber stroke	81 mm
Spring pre-load	7 mm
Rebound damping adjuster	12 clicks
Compression damping adj.	var.

### BM 347

Shock absorber length	355 (+12/-0) mm
Shock absorber stroke	57 mm
Spring pre-load	20 mm
Rebound damping adjuster	18 clicks
Compression damping adj.	var.

## WARNING!

If the shock absorber has an adjustable end eye/bracket, this must not be threaded out more than that one groove is fully visible beneath the lock nut. Make sure that the lock nut is tightened after adjustment.



Groove

## Checking sag and ride height

### Front suspension

F1. Bike on a stand with the suspension fully extended	=	.....
F2. Bike on the ground <u>without</u> rider	=	.....
F3. Bike on the ground <u>with</u> rider	=	.....

Free sag  $F1 - F2 = \dots\dots\dots$

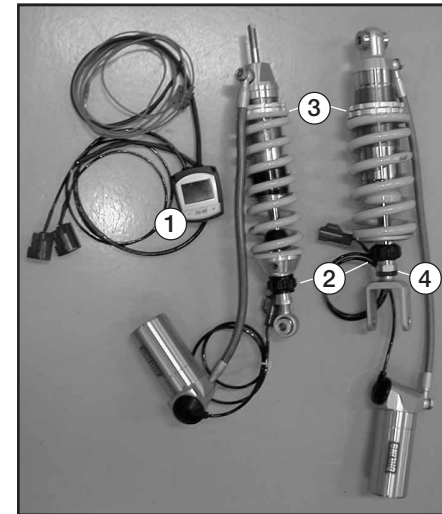
Ride height  $F1 - F3 = \dots\dots\dots$

### Rear suspension

R1. Bike on a stand with the suspension fully extended	=	.....
R2. Bike on the ground <u>without</u> rider	=	.....
R3. Bike on the ground <u>with</u> rider	=	.....

Free sag  $R1 - R2 = \dots\dots\dots$

Ride height  $R1 - R3 = \dots\dots\dots$



1. Compression damping adjuster
2. Rebound damping adjuster
3. Spring pre-load adjuster
4. Length adjuster

## Öhlins shock absorber

Your Öhlins shock absorber type 36 HRC3L/46 HRC3L features the following adjusters:

### Compression damping adjuster

Adjustments are made by setting the electronic adjustment device. The higher the number is, the higher the compression damping will be.

### Rebound damping adjuster

Adjuster wheel on the piston shaft above the end bracket.

### Spring pre-load adjuster

Adjustments are made by turning the threaded ring on the shock absorber body. Use the tool provided. Clockwise for harder adjustment, counter clockwise to release the pre-load.

### Length adjuster

Adjustment is made by turning the end eye and tightening with the lock nut.

## NOTE!

When delivered the Öhlins shock absorber is dialed to recommended settings for the specific brand and make of the motorcycle. If you have changed the settings, check like this:

The adjusters have a normal right hand thread. Turn the damping adjusters clockwise to fully closed (pos. zero [0]). Turn counter clockwise to open and count the clicks until you reach the recommended number of clicks. See Setup data at last page.

## CAUTION!

Do not use too much force, delicate sealing surfaces can be damaged.



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Part No. BM 346, 347 & EC Unit. Issued 05 03 02

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## Safety signals

Important information concerning safety is distinguished in this manual by the following notations:



*The Safety alert symbol means:  
Caution! Your safety is involved.*

### **WARNING!**

*Failure to follow warning instructions could result in **severe or fatal injury** to anyone working with, inspecting or using the suspension, or to bystanders.*

### **CAUTION!**

*Caution indicates that special precautions must be taken to avoid damage to the suspension.*

### **NOTE!**

*This indicates information that is of importance with regard to procedures.*

Öhlins products are subject to continual improvement and development. Consequently, although these instructions include the most up-to-date information available at the time of printing, there may be minor differences between your suspension and this manual. Please consult your Öhlins dealer if you have any questions with regard to the contents of the manual.

### **NOTE!**

*During storage and transportation, especially at high ambient temperature, the oil and grease used for assembling may run out inside the packing and damage the expanded polystyrene packing material. This is not unusual and is in no way detrimental to the shock absorber.*

## Kit contents

Before installing the shock absorber, please check the contents of the kit. If anything is missing, contact your Öhlins dealer.

### BM 346

Description	Pcs.	Part No.
Shock absorber 36 HRC3L	1	BM 346
Hose clamp stainless	2	00643-02
Rubber mount reservoir	2	00230-01
Tie-rap	6	00231-01
C-spanner	1	00710-01
Sticker Öhlins	2	00192-01
Owners manual	1	

### BM 347

Description	Pcs.	Part No.
Shock absorber 46 HRC3L	1	BM 347
Control Unit w. scotch lock	1	03700-01
Spacer	2	01138-01
Hose clamp stainless	1	00643-03
Bracket	1	03720-01
Bracket, reservoir	1	03721-01
Tie-rap	12	00231-01
C-spanner	1	00710-02
Screw M3x6	3	00382-20
Sticker Öhlins	2	00192-01
Owners manual	1	

### **NOTE!**

*The control unit will automatically switch to the correct mode: single suspension or front and rear suspension.*

### Functions for front and rear suspension:

- A Press for front suspension
  - B Press for rear suspension
  - C Press for front and rear
- After C the function returns to A.

### **NOTE!**

*If the button is pressed for at least one second the display will show the voltage for five seconds.*

### Functions for single suspension only:

- A Press for voltage readings
  - B Press to turn the voltage readings off
- After B the function returns to A

### **WARNING!**

*Do not alter the damping when riding in traffic. The motorcycle must come to a stop before the damping is set. To avoid dangerous situations, do not take your eyes and attention off the traffic and your surroundings.*

When the motorcycle is restarted the adjusters will return to the earlier chosen positions. If the power supply fails there is always a certain damping force in the shock absorber, to contribute to safe riding.

## Troubleshooting

- Er1 No power to the front damper**  
Measures: Make sure the damper is connected. Check cables and connections for damages.
- Er2 No power to the rear damper**  
Measures: Make sure the damper is connected. Check cables and connections for damages.
- Er3 No power to front and rear dampers**  
Measures: Make sure the dampers are connected. Check cables and connections for damages.
- Er4-Er7 Insufficient voltage to the control unit**  
Measures: Check battery and alternator. Check all connections.

### **NOTE!**

*If you have two dampers connected to the control unit and one of them suffers a cable failure while the power is off, the control unit will automatically switch to single damper mode next time it is powered on. Er1 and Er2 will only show up if the connection fails during power on.*

## Before installation

Öhlins Racing AB can not be held responsible for any damage whatsoever to shock absorber or vehicle, or injury to persons, if the instructions for fitting and maintenance are not followed exactly.

Similarly, the warranty will become null and void if the instructions are not adhered to.

### **WARNING!**

*1. Installing a shock absorber, that is not approved by the vehicle manufacturer, may affect the stability of your vehicle. Öhlins Racing AB cannot be held responsible for any personal injury or damage whatsoever that may occur after fitting the shock absorber. Contact an Öhlins dealer or other qualified person for advice.*

*2. Please study and make certain that you fully understand all the mounting instructions and the owners manuals before handling this shock absorber kit. If you have any questions regarding proper installation procedures, contact an Öhlins dealer or other qualified person.*

*3. The vehicle service manual must be referred to when installing the Öhlins shock absorber*

8

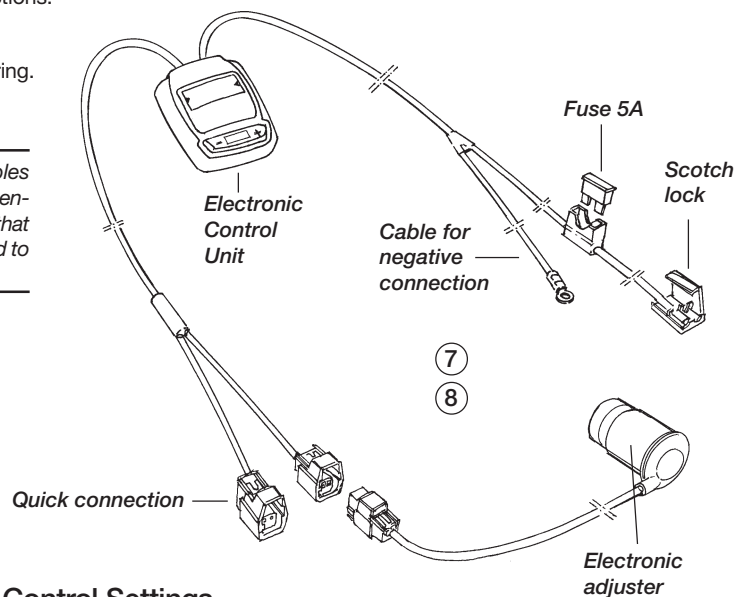
When the shock absorbers are fitted, the cables running to the shock absorbers are connected with the quick connections.

9

Refit the right side fairing.

### CAUTION!

Make sure that the cables do not restrict the suspension and steering, and that they are firmly attached to the motorcycle.



## EC – Electronic Control Settings

### Setting the damping

You can instantly optimize adjustments to suit your individual way of riding and the condition of the road.

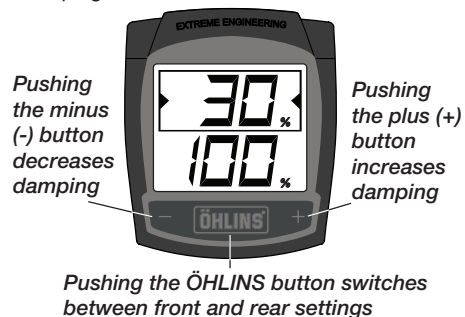
The electronic controlled compression damping is set with the control panel of the electronic unit. New settings will affect the damping within ten [10] milliseconds. By setting high figures the damping action will increase and low figures reduces the damping. High figures are recommended when riding with greater load (eg. passenger and packing) and when riding on a race track.

To be able to improve the road holding qualities it is of the utmost importance that you fully understand the functioning of the shock absorbers. Please refer to the Owners Manual for basic settings procedures (spring pre-load and rebound damping settings). Then you can learn by trial and error how they affect the vehicle.

### The control unit

The control unit display has a window with two sections, showing how much damping power the shock absorber and the front fork have. The upper section shows the front fork damping and the lower section shows the rear wheel damping. If the electronic control unit operates one shock absorber only, the damping force is read in the upper display and the lower display shows the electrical voltage of the motorcycle.

By pressing the ÖHLINS logotype you choose front or rear setting and by pushing the + or - buttons you increase or decrease the damping forces. The higher the figures, the stronger the damping forces.



## Mounting Instructions

### Öhlins front shock absorber BM 346. 36 HRC3L

1

Put the motorcycle on a stand so the front wheel is clear of the ground. Make sure it's steadily fixed so it will not fall over.

### NOTE!

The front wheel must have a distance of 100 mm from the ground.

### WARNING!

1. It's advisable to have an Öhlins dealer or other qualified person to fit your shock absorber.
2. Instructions in the vehicle service manual are to be followed when changing the shock absorber.
3. When working on a lifted vehicle it must be securely supported to prevent it from falling.

2

Remove the seat and the side fairings.

3

Loosen the fuel tank and move it rearwards so the upper shock absorber mount is reachable.

4

First loosen the lower shock absorber bolt, then the upper shock absorber bolt. Lift the original shock absorber out downwards.

### CAUTION!

The shock absorber is delivered set to a length of 321 mm. This is the correct figure for all models 2003 and earlier. For models 2004 and later the length should be adjusted to 326 mm

5

To adjust to the correct length, loosen the lock nut and turn the end eye counter clock wise five turns (one turn changes 1 mm). Tighten the lock nut.

6

Fit the Öhlins shock absorber with the hose facing forward.

7

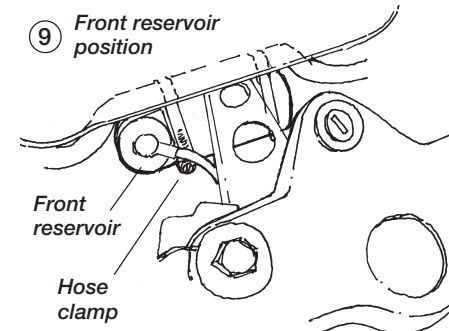
Use the original mounting rubbers, washer and nut to first fit the upper bracket.

8

Fit the lower bracket. Use the original bolt and nut.

9

Fit the external reservoir to the crossbar under the instrument cluster. Use the rubber mounts and hose clamps provided. The hose should be facing downwards and run between the fork legs.



10

Pull the electrical damper cable upwards and fix it to the frame.

11

Fit the damper cable with the quick connection to the shorter cable coming from the control unit

### CAUTION!

Make sure that the cables not restricts the suspension and steering and that they are firmly attached to the motorcycle.

12

Refit the fuel tank, the side fairings and the seat.

### NOTE!

Make sure that all bolts are tightened to the correct torque and that nothing fouls or restricts movement of the shock absorber when the suspension is being fully compressed or extended.

13

Continue your work according to the Owners Manual, section Adjustments.

## Mounting Instructions

### Öhlins rear shock absorber BM 347. 46HRC3L

1

Put the motorcycle on a stand so the rear wheel is clear of the ground. Make sure it's steadily fixed so it will not fall over.

#### **⚠ WARNING!**

1. It's advisable to have an Öhlins dealer or other qualified person to fit your shock absorber.
2. Instructions in the vehicle service manual are to be followed when changing the shock absorber.
3. When working on a lifted vehicle it must be securely supported to prevent it from falling.

2

Remove the seat and the side fairings.

3

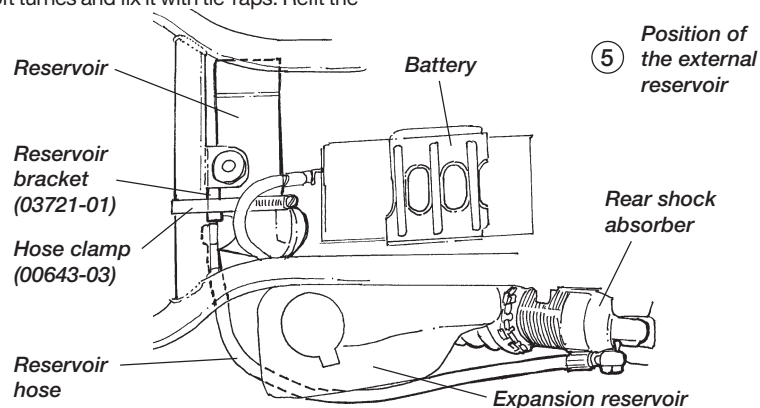
Remove the upper and lower shock absorber mounting bolts and lift out the original shock absorber.

4

Fit the Öhlins shock absorber with the hose facing the right side of the motorcycle. Use the original mounting bolts.

5

Remove the expansion reservoir. Fit the external reservoir to the crossbar behind the battery. Use the bracket (03721-01) and the hose clamp (00643-03) provided. Make sure that the hose runs in soft turns and fix it with tie-raps. Refit the reservoir.



6

Pull the electrical damper cable to the space in front of the battery, under the seat. Fix it with tie-raps.

7

Fit the damper cable with the quick connection to the longer cable coming from the control unit

#### **CAUTION!**

Make sure that the cables not restricts the suspension and steering and that they are firmly attached to the motorcycle.

8

Refit the side fairings and the seat

#### **NOTE!**

Make sure that all bolts are tightened to the correct torque and that nothing fouls or restricts movement of the shock absorber when the suspension is being fully compressed or extended.

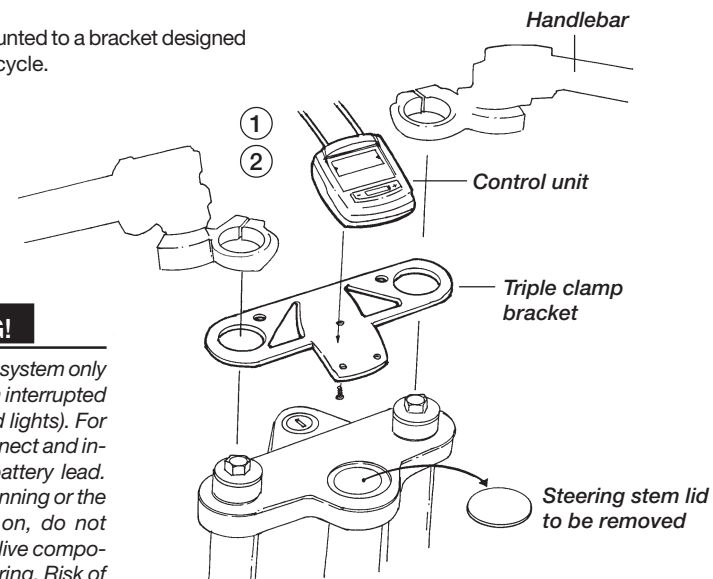
9

Continue your work according to the Owners Manual, section Adjustments.

## Mounting Instructions

### Control Unit

The control unit is mounted to a bracket designed for your BMW motorcycle.



#### **⚠ WARNING!**

Work on the electrical system only if the circuit has been interrupted (switch of ignition and lights). For greater safety, disconnect and insulate the negative battery lead. When the engine is running or the ignition is switched on, do not touch any electrically live components, terminals or wiring. Risk of fatal accident!

1

Fit the control unit to the triple clamp bracket supplied. Use the screws provided.

2

Remove both handlebars from the fork legs, Remove the lid covering the steering stem nut. Fit the bracket to the upper triple clamp.

3

Refit the handlebars, use Loctite 222 or similar.

4

Remove the side fairing of the right side of the motorcycle.

5

Run the damper cables and the power supply cables down aside the steering stem, then backwards beside and under the fuel tank. The short damper cable will end up just beside the fuel tank.

6

Fix the cables to the frame, use the tie-raps provided. Run the cables in soft turns and make sure they not are squeezed or damaged by the motorcycle.

7

The power cable (red cable) is connected to a power supply cable, activated by the ignition lock, at a certain cable. The cable is blue/green and is located between the fuse box and the relay box. (see illustration) Use the scotch lock provided. Negative connection is made to the negative side of the battery or to the frame with a cable grip, to be attached with a screw. The power supply has a 5A fuse connected.

