

ACCESSORIES & EQUIPMENT

Cruise Control - Special Tools - X6

66 3 140 OPS PACKAGE

NOTE: (complete set)

Order number: 66 3 140

OPS package

ACCESSORIES & EQUIPMENT

Cruise Control Systems - Repair Instructions - X6

PARK DISTANCE CONTROL

66 20 508 REMOVING AND INSTALLING (REPLACING) CONTROL UNIT (PARK DISTANCE CONTROL)

IMPORTANT: Read and comply with notes on protection against electrostatic damage (ESD protection) , see 61 35 ... NOTES ON ESD PROTECTION (ELECTRO STATIC DISCHARGE) .

Necessary preliminary tasks:

- Remove **flap in luggage compartment panel** on right, see 51 47 172 REMOVING AND INSTALLING/REPLACING FLAP IN LUGGAGE COMPARTMENT TRIM, LEFT OR RIGHT .

Fold insulating mat (1) to one side.

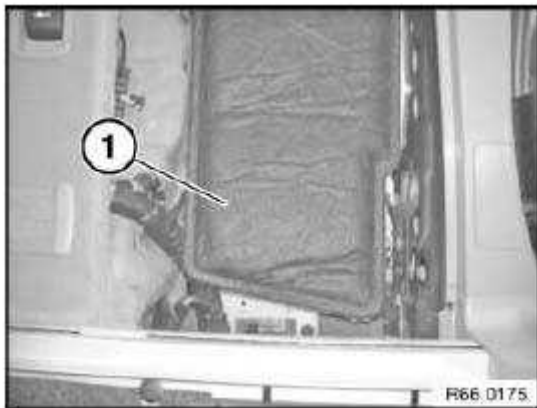


Fig. 1: Identifying Insulating Mat

Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connection (1).

Remove control unit (2).

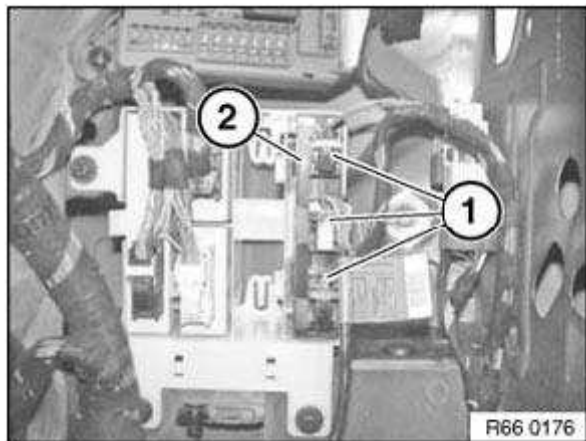


Fig. 2: Identifying Plug Connection And Control Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement

Carry out **programming/coding**.

66 20 515 REMOVING AND INSTALLING/REPLACING A FRONT LEFT ULTRASONIC TRANSDUCER

Necessary preliminary tasks:

- Remove **grille in bumper trim** at front left, see **51 11 185 REMOVING AND INSTALLING/REPLACING GRILLE (SIDE) IN BUMPER TRIM** .

Disconnect plug connection (1) and unclip ultrasonic transducer from retaining tabs (2).

Installation:

Retaining tabs (2) must not be damaged!

Make sure ultrasonic transducer is securely seated.

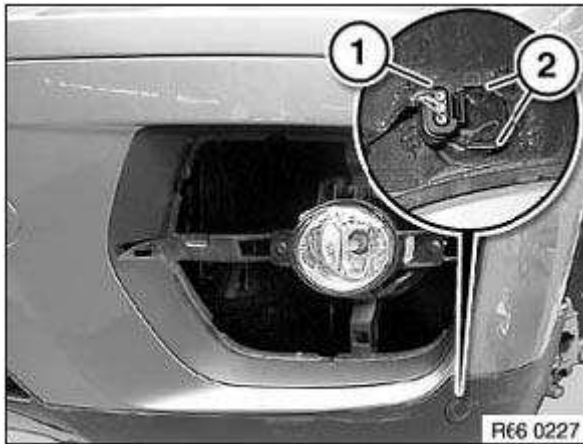


Fig. 3: Identifying Plug Connection And Retaining Tabs (Front Left Ultrasonic Transducer)
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

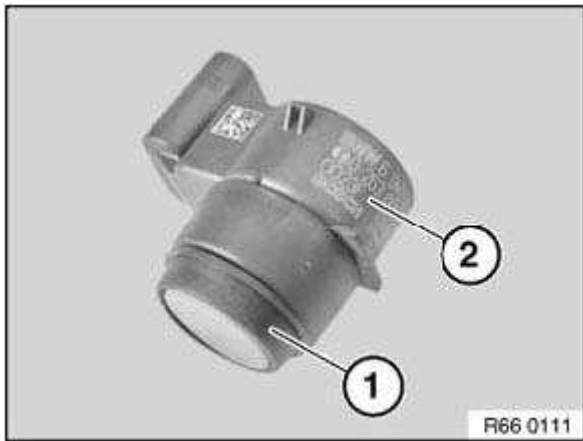


Fig. 4: Identifying Rubber Ring On Ultrasonic Transducer
 Courtesy of BMW OF NORTH AMERICA, INC.

66 20 516 REMOVING AND INSTALLING/REPLACING A FRONT RIGHT ULTRASONIC TRANSDUCER

Necessary preliminary tasks:

- N54: Remove **front bumper trim** , see **51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM** .
- M57T2: Remove **grille in bumper trim at front left** , see **51 11 185 REMOVING AND INSTALLING/REPLACING GRILLE (SIDE) IN BUMPER TRIM** .

Disconnect plug connection (1).

Unlock catches (2) and remove ultrasonic transducer from holder.

Installation:

Make sure electrical lead (4) is correctly guided in cable fastener (3).

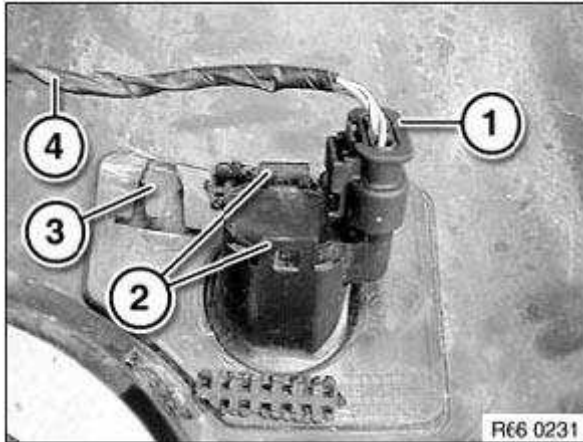


Fig. 5: Identifying Plug Connection, Catches And Electrical Lead
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

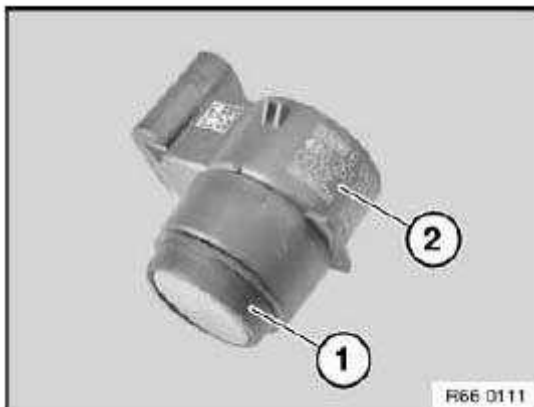


Fig. 6: Identifying Rubber Ring On Ultrasonic Transducer
Courtesy of BMW OF NORTH AMERICA, INC.

66 20 518 REMOVING AND INSTALLING/REPLACING A FRONT ULTRASONIC TRANSDUCER (CENTRE)

Necessary preliminary tasks:

- Remove front **bumper trim** , see 51 11 156 REMOVING AND INSTALLING FRONT BUMPER TRIM .

Disconnect plug connection (1) and unclip ultrasonic transducer from retaining tabs (2).

Installation:

Retaining tabs (2) must not be damaged!

Make sure ultrasonic transducer is securely seated.

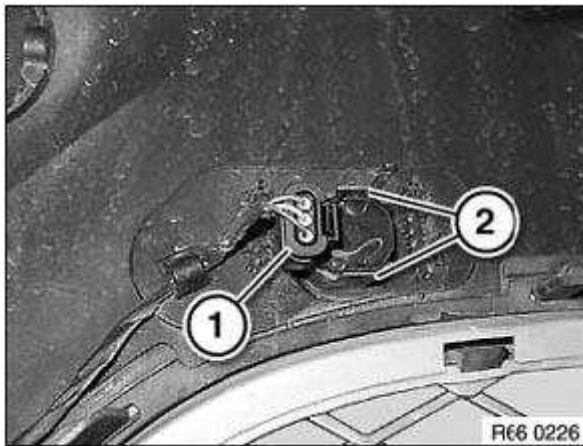


Fig. 7: Identifying Plug Connection And Retaining Tabs - Front Ultrasonic Transducer (Centre)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

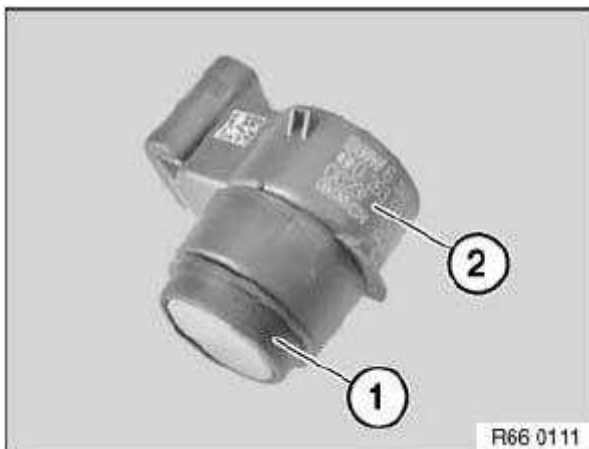


Fig. 8: Identifying Rubber Ring On Ultrasonic Transducer
Courtesy of BMW OF NORTH AMERICA, INC.

66 20 534 REMOVING AND INSTALLING/REPLACING REAR LEFT ULTRASONIC TRANSDUCER

WARNING: Scalding hazard!

Work on the exhaust system may only be carried out when it has cooled down!

Disconnect plug connection (1) and unclip ultrasonic transducer from retaining tabs (2).

Installation:

Retaining tabs (2) must not be damaged!

Make sure ultrasonic transducer is securely seated.

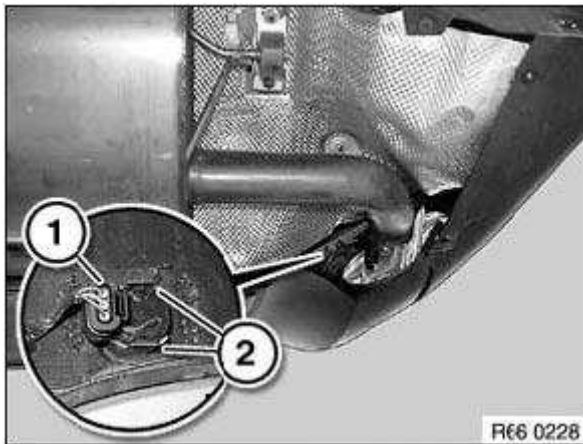


Fig. 9: Identifying Plug Connection And Retaining Tabs (Rear Left Ultrasonic Transducer)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

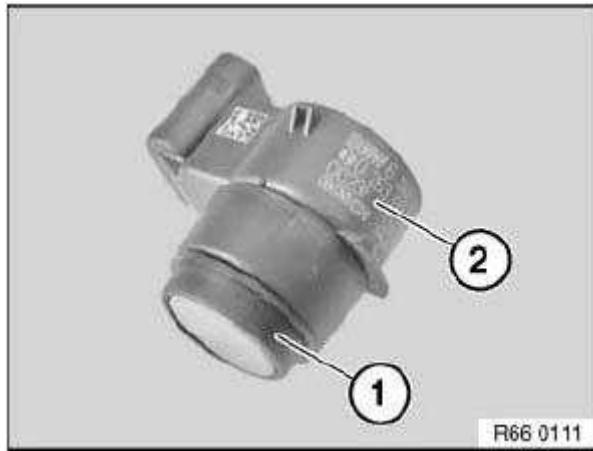


Fig. 10: Identifying Rubber Ring On Ultrasonic Transducer
 Courtesy of BMW OF NORTH AMERICA, INC.

66 20 535 REMOVING AND INSTALLING/REPLACING REAR RIGHT ULTRASONIC TRANSDUCER

WARNING: Scalding hazard!

Work on the exhaust system may only be carried out when it has cooled down.

Disconnect plug connection (1) and unclip ultrasonic transducer from retaining tabs (2).

Installation:

Retaining tabs (2) must not be damaged!

Make sure ultrasonic transducer is securely seated.

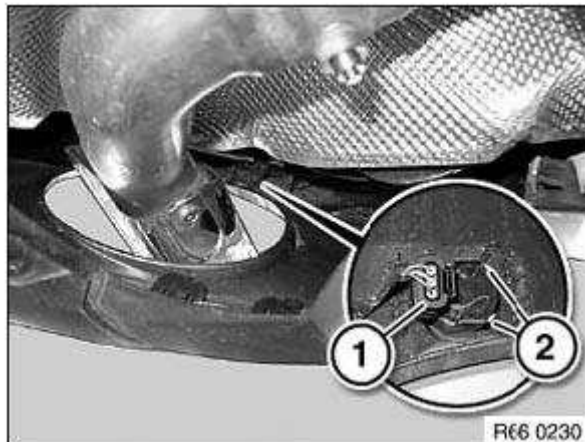


Fig. 11: Identifying Plug Connection And Retaining Tabs (Rear Right Ultrasonic Transducer)
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

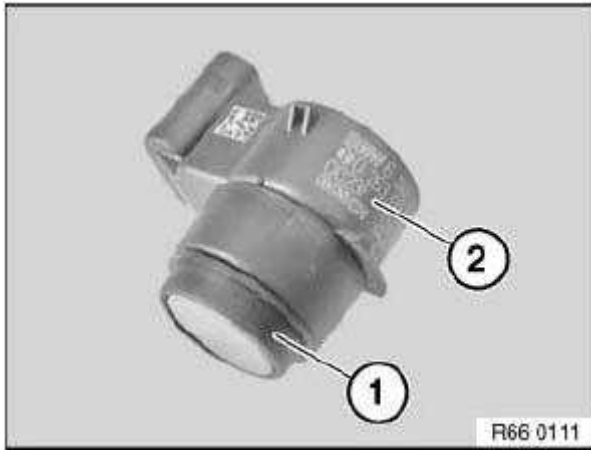


Fig. 12: Identifying Rubber Ring On Ultrasonic Transducer
Courtesy of BMW OF NORTH AMERICA, INC.

66 20 536 REMOVING AND INSTALLING/REPLACING REAR MIDDLE LEFT ULTRASONIC TRANSDUCER

Necessary preliminary tasks:

- Remove **rear bumper** , see **51 12 156 REMOVING AND INSTALLING REAR BUMPER TRIM** .

Disconnect plug connection (1) and unclip ultrasonic transducer from retaining tabs (2).

Installation:

Retaining tabs (2) must not be damaged!

Make sure ultrasonic transducer is securely seated.

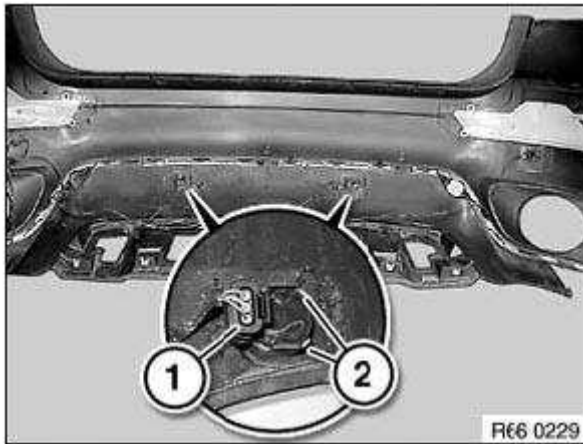


Fig. 13: Identifying Plug Connection And Retaining Tabs (Rear Middle Left Ultrasonic Transducer)
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Make sure rubber ring (1) is correctly seated on ultrasonic transducer (2).

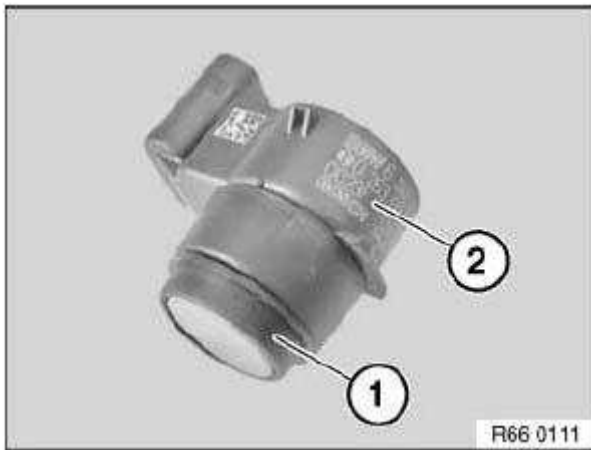


Fig. 14: Identifying Rubber Ring On Ultrasonic Transducer
 Courtesy of BMW OF NORTH AMERICA, INC.

66 20 537 REMOVING AND INSTALLING/REPLACING REAR MIDDLE RIGHT ULTRASONIC TRANSDUCER

NOTE: Operation is described in rear middle left ultrasonic transducer , see 66 20 536 Removing and installing/replacing rear middle left ultrasonic transducer.

REVERSING CAMERA

66 53 ... INSTRUCTIONS FOR ADAPTING ADJUSTMENT UNIT FOR REVERSING CAMERA (CORGHI KDS QUICK-ACTION CLAMP)

The following operations should only be carried out when using the tool kit for calibrating the reversing camera for the first time.

NOTE: The operation is described for the left-hand side; proceed in the same way for the right-hand side.

Remove support plate (1) from spindle (2).

Replace spindle (2) by spindle (3).

Press support plate (1) on to spindle (3).

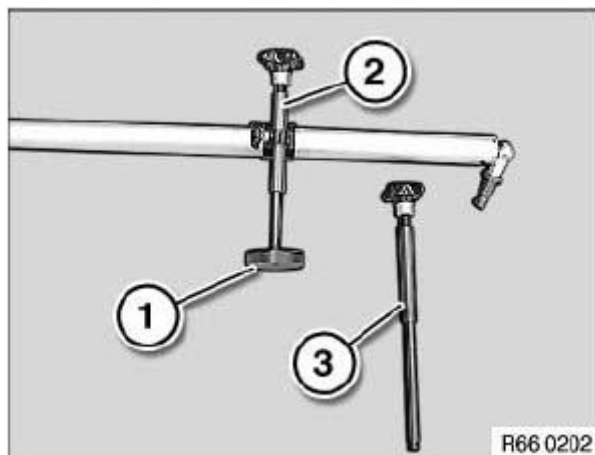


Fig. 15: Identifying Support Plate And Spindle
Courtesy of BMW OF NORTH AMERICA, INC.

Release retaining clip (1).

Remove ball pin (2) from rod (3).

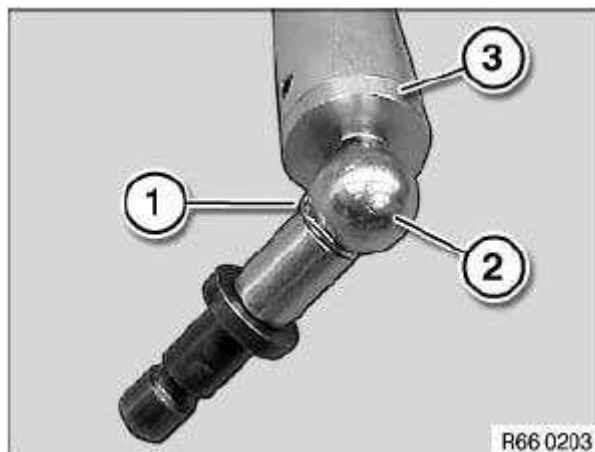


Fig. 16: Identifying Retaining Clip, Ball Pin And Rod

Courtesy of BMW OF NORTH AMERICA, INC.

Fit new ball pin (1) on rod (2) and secure with retaining clip (3).

Fit ball pin (1) on CORGHI KDS quick-release clamp and secure.

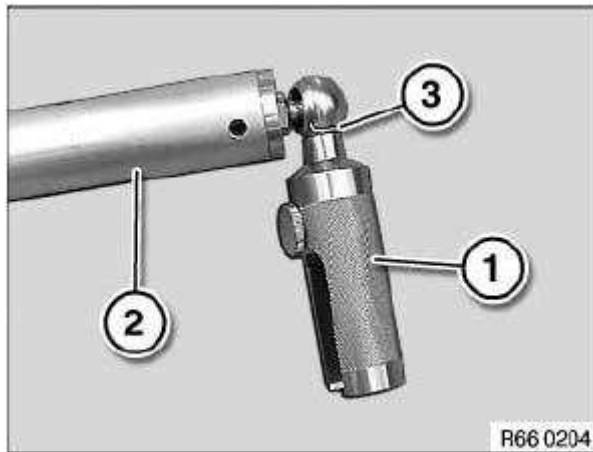


Fig. 17: Identifying Ball Pin On Rod

Courtesy of BMW OF NORTH AMERICA, INC.

Remove all spacers (1) on cross bar (2).

NOTE: Follow the same procedure for calibrating the reversing camera.

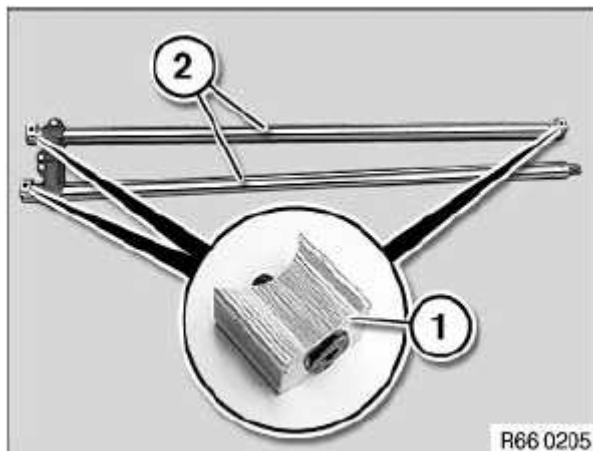


Fig. 18: Identifying Spacers On Cross Bar

Courtesy of BMW OF NORTH AMERICA, INC.

66 53 010 CALIBRATING REVERSING CAMERA

WARNING: Risk of injury!

Laser radiation at adjustment unit.
Do not look into the beam!
Laser class 2
As per EN 60825-1: 1994
 $P > \text{or} = 1 \text{ mW}$
 $\lambda = 632.8 \text{ nm}$

NOTE: Calibration of reversing camera must be carried out after the following work:

- Removal and installation/replacement of reversing camera
- Body repair work at rear end of vehicle
- Adjustment of rear lid

IMPORTANT: Follow instructions and specifications in test module.
To obtain an optimum result, always adhere to the following conditions:

- Vehicle standing level on headlight aiming station
- Correct tire inflation pressure (see instruction plate on car).
- Vehicle is free of load
- Rear seat bench is unoccupied
- Do not swap seats during calibration
- Steering wheel in straight-ahead position
- Do not move steering wheel

NOTE: Once the laser has been aligned to the camera lens, it is necessary to calibrate the reversing camera via the DIS Tester.
Also switch on reversing camera by means of PDC button.
Calibration can only be carried out with the BMW diagnosis system.
Service functions:

- Complete vehicle
- Body
- Camera systems

Observe information on use of **CORGHI KDS quick-action clamp**, see **66 53 ... Instructions for adapting adjustment unit for reversing camera (CORGHI KDS quick-action clamp)**.

Secure KDS quick-action clamp on rear wheels on both sides.

Insert ball pivot (1) in guide (2) up to stop and secure with screw (3).

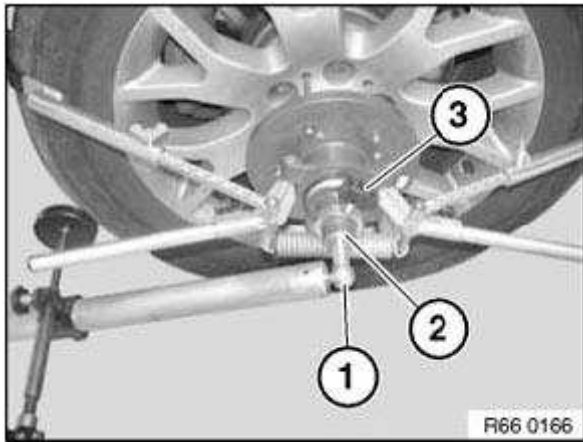


Fig. 19: Identifying Ball Pivot And Guide
 Courtesy of BMW OF NORTH AMERICA, INC.

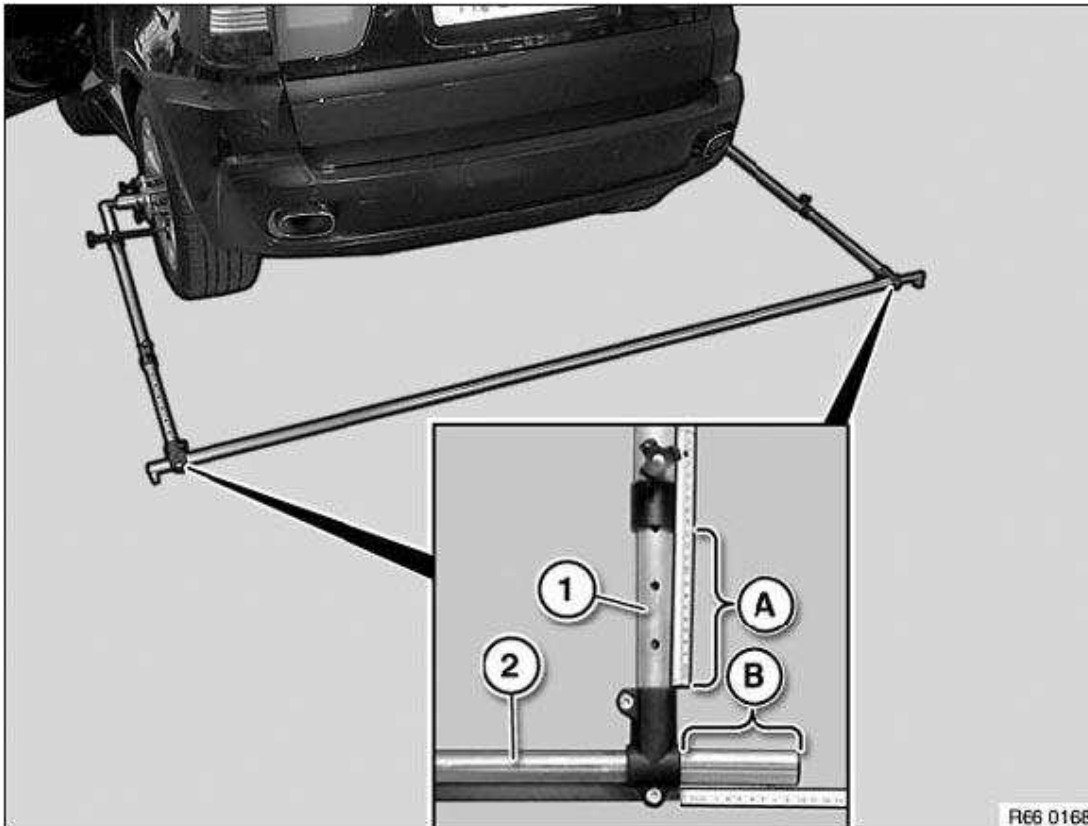


Fig. 20: Identifying Longitudinal And Transverse Rod Dimensions
 Courtesy of BMW OF NORTH AMERICA, INC.

Dimension (A) of longitudinal rod (1) and dimension (B) of transverse rod (2) must be adapted to the type of vehicle on both sides.

Position target (1) on transverse rod with scale and align to zero point on scale (2).

Secure target (1) using knurled screws (3).

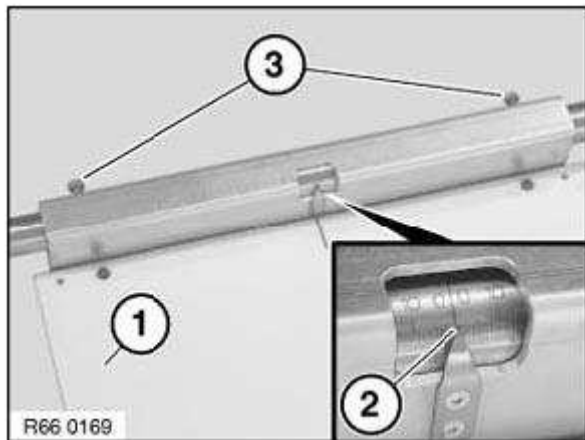


Fig. 21: Positioning Target On Transverse Rod
Courtesy of BMW OF NORTH AMERICA, INC.

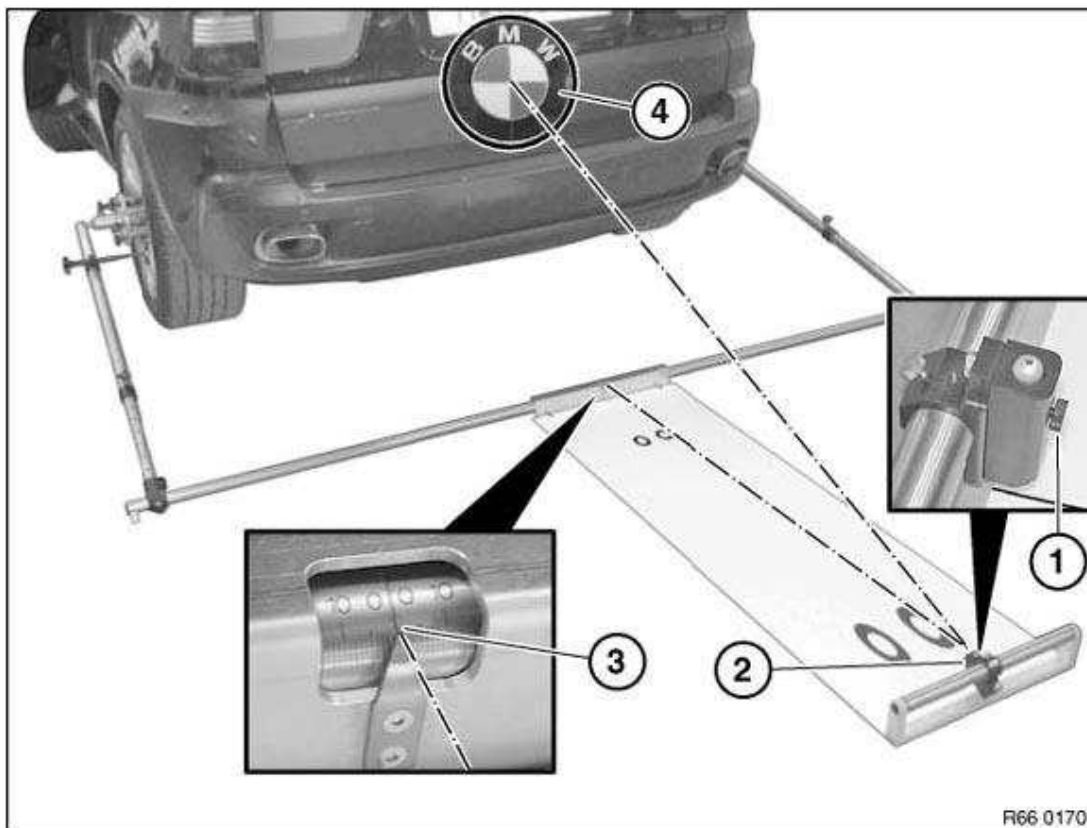


Fig. 22: Positioning Laser Point
Courtesy of BMW OF NORTH AMERICA, INC.

Switch on laser pointer (2) with knurled screw (1).

Align laser pointer first to zero point on scale (3), then upwards to centre of BMW badge (4).

In the event of a laser deviation from the BMW badge centre, this must be compensated for by shifting the complete linkage in the corresponding direction.

After realigning the target, check the position of the laser again and correct if necessary.

Align contact surface (1) on both sides to tire side wall.

Tighten linkage simultaneously on both sides with adjusting screw (2).

NOTE: **After securing linkage, check position of laser pointer again on vehicle's BMW badge.**
 If necessary, correct by means of adjusting screws.

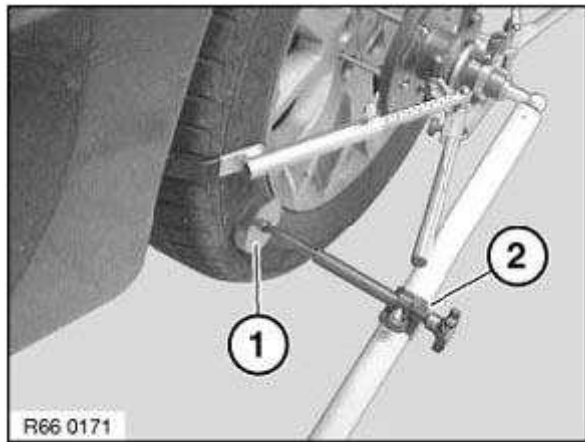


Fig. 23: Identifying Contact Surface And Adjusting Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken knurled screws (2).

Adjust scale value (1) as **specified**.

Tighten down knurled screws (2).

Version with ride-height control:

- Pull fuse F107 in luggage compartment distribution box.

Start calibration of reversing camera by way of BMW diagnosis system.

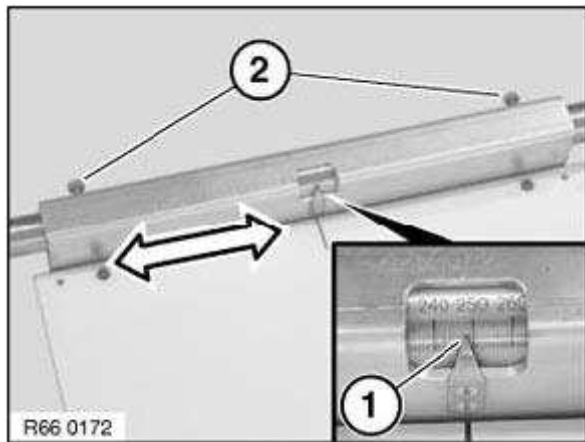


Fig. 24: Adjusting Scale Value

Courtesy of BMW OF NORTH AMERICA, INC.

66 53 020 REMOVING AND INSTALLING (REPLACING) REVERSING CAMERA

IMPORTANT: Read and comply with notes on protection against electrostatic damage (ESD protection) , see 61 35 ... NOTES ON ESD PROTECTION (ELECTRO STATIC DISCHARGE) .

Necessary preliminary tasks:

- Remove **rear lid upper section panel** , see 51 49 000 REMOVING AND INSTALLING/REPLACING PANEL FOR REAR LID .

Release screws (1).

Disconnect plug connections (2) and carefully feed out reversing camera (3).

Tightening torque **66 54 1AZ** , see 66 53 REVERSING CAMERA .

Replacement:

Remove protective film from reversing camera lens.

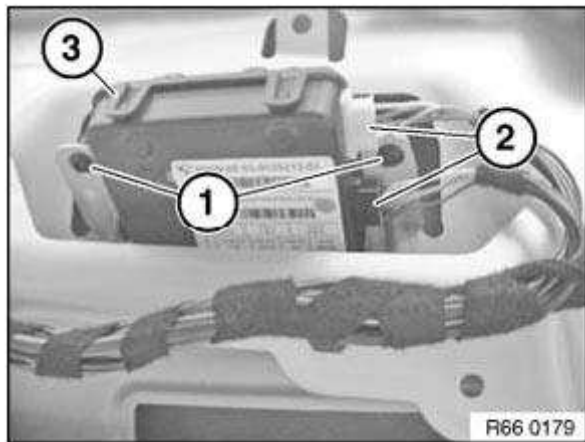


Fig. 25: Identifying Plug Connections, Screws And Reversing Camera
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Moisten seal (1) slightly to facilitate installation. Seal (1) must be correctly seated in rear lid (2).

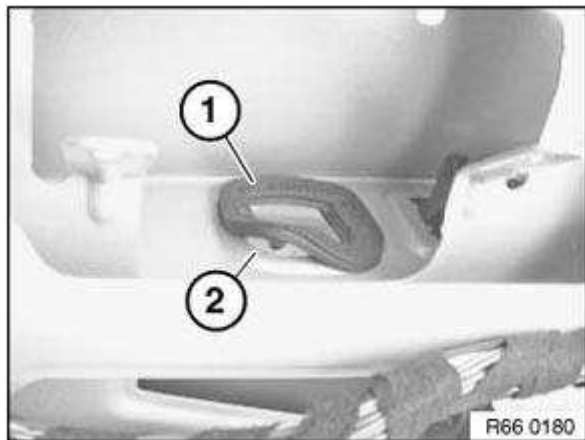


Fig. 26: Identifying Seal And Rear Lid
Courtesy of BMW OF NORTH AMERICA, INC.

After installation:

- Calibrate reversing camera , see 66 53 010 Calibrating reversing camera.

66 53 150 REMOVING AND INSTALLING/REPLACING VIDEO MULTIPLEXER

IMPORTANT: Read and comply with notes on protection against electrostatic damage (ESD protection). , see 61 35 ... NOTES ON ESD PROTECTION (ELECTRO STATIC DISCHARGE) .

Necessary preliminary tasks:

- Remove **trim panel for pedal assembly** , see **51 45 185 REMOVING AND INSTALLING/REPLACING PANEL FOR PEDALS** .
- Disconnect **battery negative lead** , see **61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD** .

Disconnect plug connection (1).

Unlock catch (2) in direction of arrow and pull out control unit (3) towards bottom.

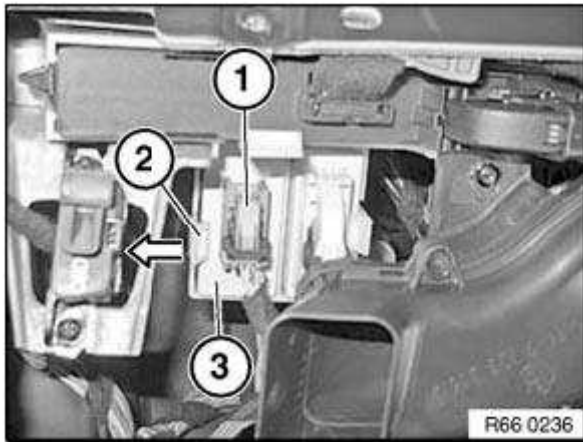


Fig. 27: Unlocking Catch

Courtesy of BMW OF NORTH AMERICA, INC.

Replacement:

Carry out **vehicle programming and coding**.

NIGHT VISION

66 53 010 CALIBRATING REVERSING CAMERA

WARNING: Risk of injury!

Laser radiation at adjustment unit.

Do not look into the beam!

Laser class 2

As per EN 60825-1: 1994

P > or = 1 mW

Lambda = 632.8 nm

NOTE: Calibration of reversing camera must be carried out after the following work:

- Removal and installation/replacement of reversing camera

- Body repair work at rear end of vehicle
- Adjustment of rear lid

IMPORTANT: Follow instructions and specifications in test module.

To obtain an optimum result, always adhere to the following conditions:

- Vehicle standing level on headlight aiming station
- Correct tire inflation pressure (see instruction plate on car).
- Vehicle is free of load
- Rear seat bench is unoccupied
- Do not swap seats during calibration
- Steering wheel in straight-ahead position
- Do not move steering wheel

NOTE: Once the laser has been aligned to the camera lens, it is necessary to calibrate the reversing camera via the DIS Tester. Also switch on reversing camera by means of PDC button. Calibration can only be carried out with the BMW diagnosis system.

Service functions:

- Complete vehicle
- Body
- Camera systems

Observe information on use of **CORGHI KDS quick-action clamp** , see 66 53 ... Instructions for adapting adjustment unit for reversing camera (CORGI KDS quick-action clamp).

Secure KDS quick-action clamp on rear wheels on both sides.

Insert ball pivot (1) in guide (2) up to stop and secure with screw (3).

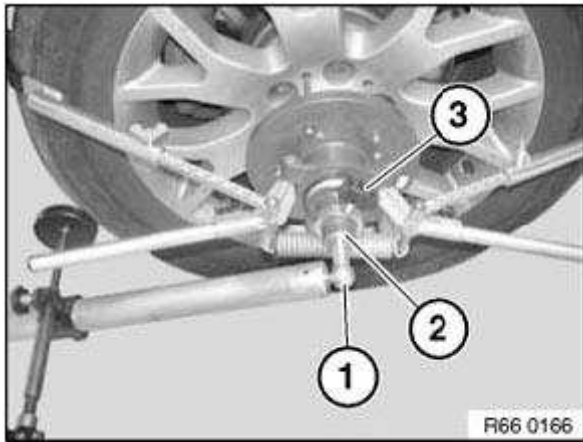


Fig. 28: Identifying Ball Pivot And Guide
 Courtesy of BMW OF NORTH AMERICA, INC.

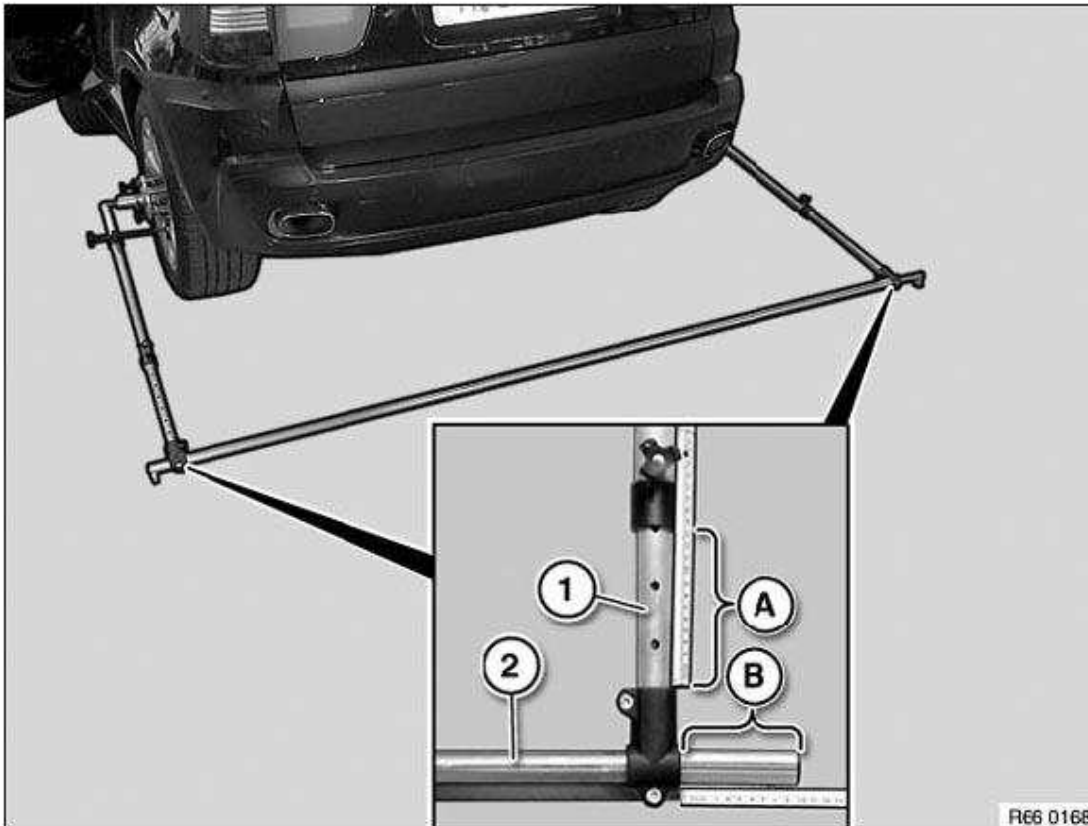


Fig. 29: Identifying Longitudinal And Transverse Rod Dimensions
 Courtesy of BMW OF NORTH AMERICA, INC.

Dimension (A) of longitudinal rod (1) and dimension (B) of transverse rod (2) must be adapted to the type of vehicle on both sides, see **66 53 REVERSING CAMERA (RFK) E70** or **66 53 REVERSING CAMERA (RFK) E71** .

Position target (1) on transverse rod with scale and align to zero point on scale (2).

Secure target (1) using knurled screws (3).

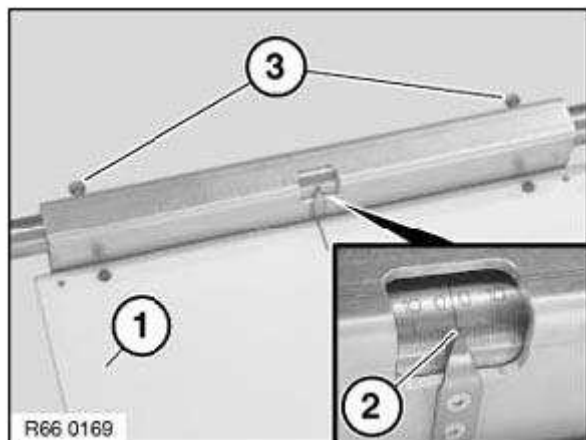


Fig. 30: Positioning Target On Transverse Rod
Courtesy of BMW OF NORTH AMERICA, INC.

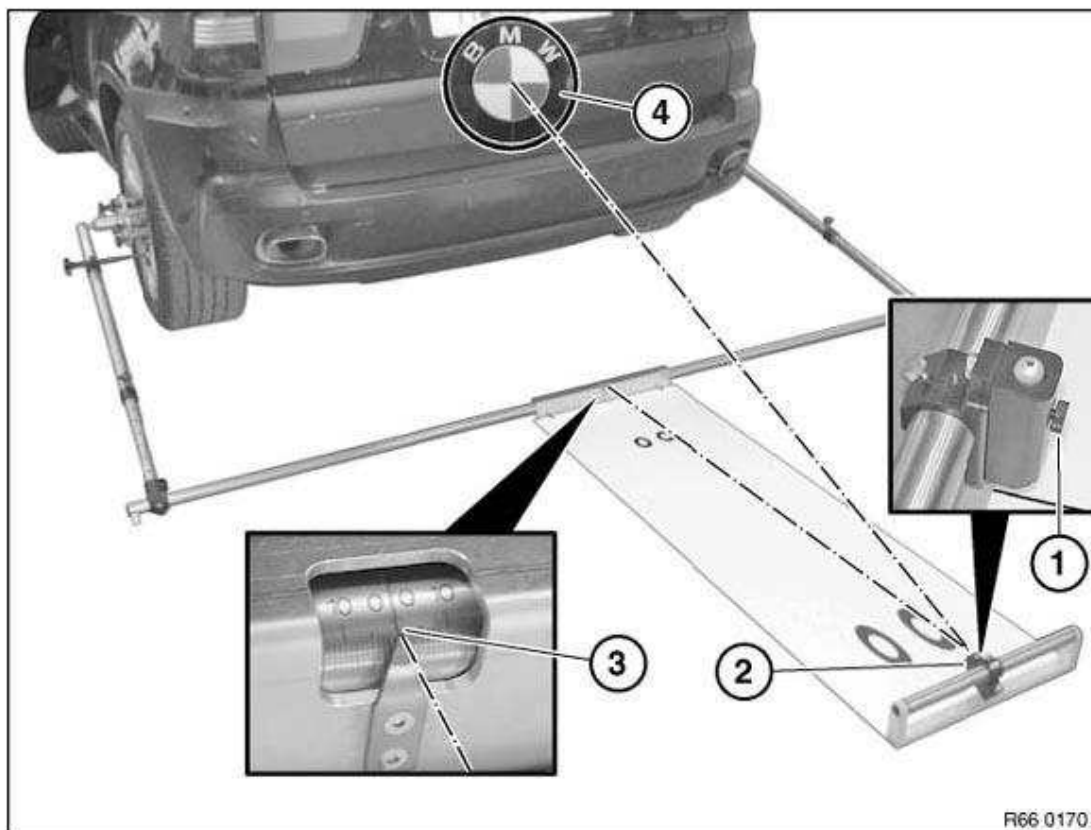


Fig. 31: Positioning Laser Point
Courtesy of BMW OF NORTH AMERICA, INC.

Switch on laser pointer (2) with knurled screw (1).

Align laser pointer first to zero point on scale (3), then upwards to centre of BMW badge (4).

In the event of a laser deviation from the BMW badge centre, this must be compensated for by shifting the complete linkage in the corresponding direction.

After realigning the target, check the position of the laser again and correct if necessary.

Align contact surface (1) on both sides to tire side wall.

Tighten linkage simultaneously on both sides with adjusting screw (2).

NOTE: After securing linkage, check position of laser pointer again on vehicle's BMW badge. If necessary, correct by means of adjusting screws.

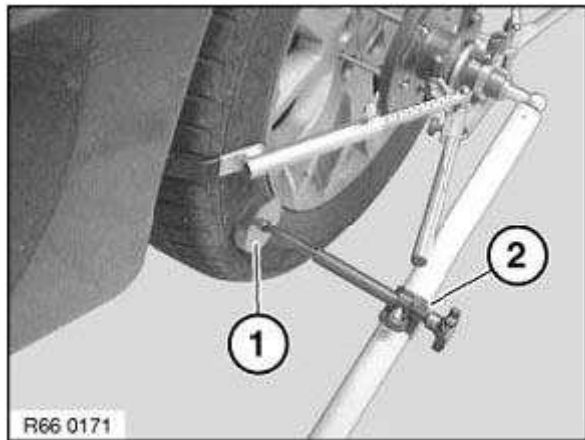


Fig. 32: Identifying Contact Surface And Adjusting Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken knurled screws (2).

Adjust scale value (1) as **specified**.

Tighten down knurled screws (2).

Version with ride-height control:

- Pull fuse F107 in luggage compartment distribution box.

Start calibration of reversing camera by way of BMW diagnosis system.

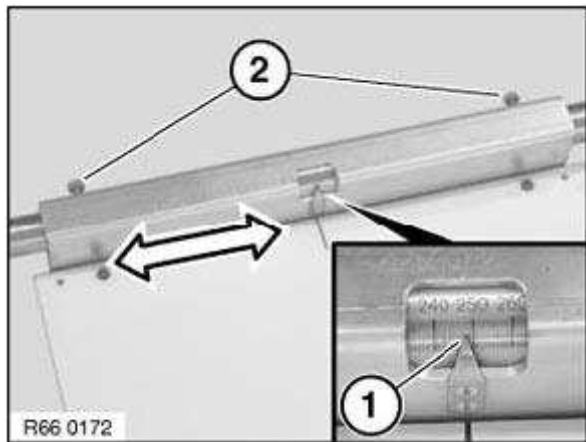


Fig. 33: Adjusting Scale Value
Courtesy of BMW OF NORTH AMERICA, INC.