



Read and comply with notes on handling wiring harnesses and cables.

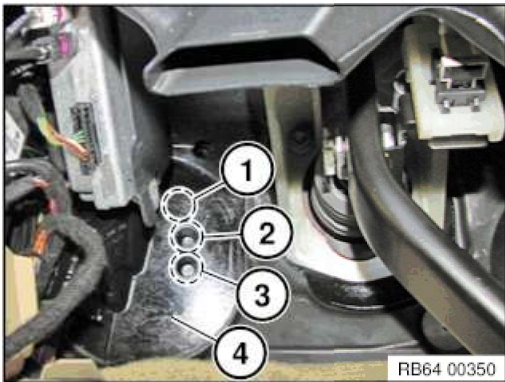


Note:

Work is shown on the F30 by way of example. There may be differences in detail in the case of other vehicle types and equipment specifications.

Necessary preliminary work:

- Remove wheel arch cover front section, front left
- Remove the cover in the left engine compartment
- Remove trim panel for pedal mechanism



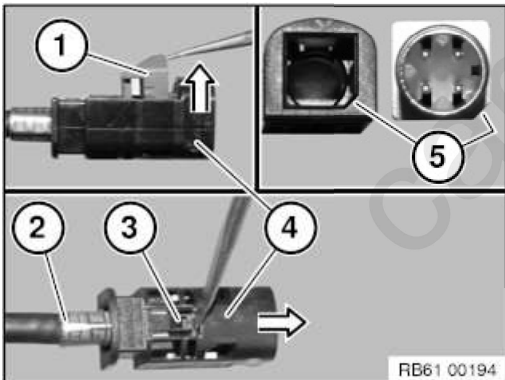
Break through the driver's footwell opening (2) in rubber grommet (4) using a suitable tool.



Note:

If the opening (2) is used, use opening (3).

If both openings (2, 3) are used, break through at position (1).



Unlock the lock (1) in direction of arrow with suitable tool.



Important!

Risk of damage!

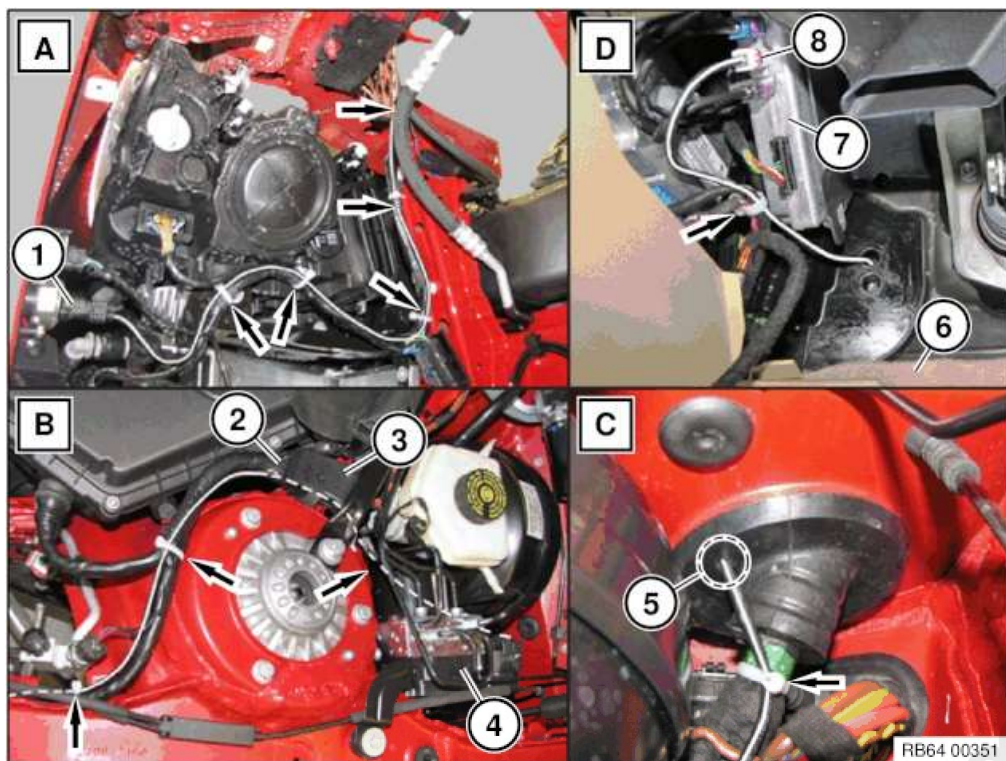
Unlock the lock (3) carefully with a suitable tool. Pull connector housing (4) of line (2) in direction of arrow.



Installation note:

Pay attention to encoding (5)!





Connect the repair cable (shown in white) to the Side View camera (1). Leave approx. 10 cm overlength in the area of Side View camera (1) (Figure A).

Route repair cable in direction of arrow along the vehicle wiring harness and attach at locations marked with arrow (Figure A, B, C, D).

Remove adhesive tape in position (2). Feed the repair cable through the cable channel (3) and underneath the DSC hydraulic unit (4) (Figure B).

Feed the repair cable through at point (5) in driver's footwell (Figure C).

Assemble repair cable. Connect repair cable to connector (8) of all-round vision camera control unit (7) (Figure D).



Installation note:

Tape off the point (2) with suitable adhesive tape.



Important!

To prevent moisture from entering the passenger compartment, seal opening (5) on the outside, using suitable means!



Note:

Route any repair cable overlength under the carpet (6).

After successful completion of function check, detach start and end of faulty cable at first mounting point.



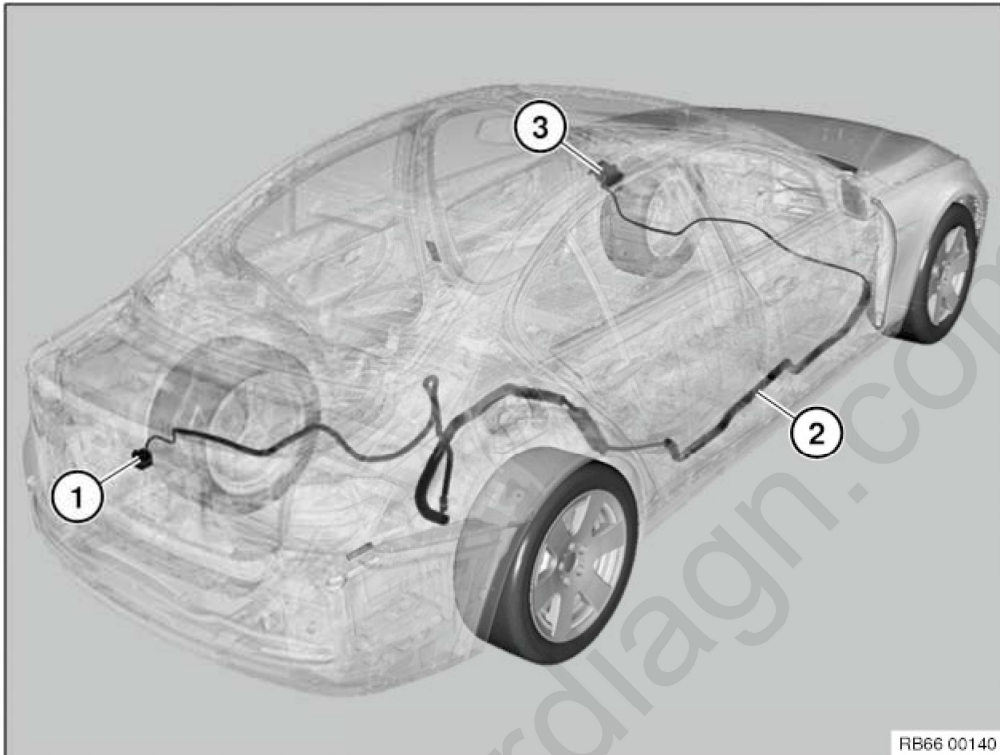


Read and comply with notes on handling wiring harnesses and cables.



Note:

Work is shown by way of example. There may be differences in detail in the case of other vehicle types and equipment specifications.



Remove trim panels.

Lay repair cable from reversing camera (1) along wiring harness (2) up to TRSVC control unit (3, middle slot) and secure sufficiently.

Lay any repair cable overlength under carpet.

After successful completion of function check, detach start and end of faulty cable at first mounting point.





Read and comply with notes on handling wiring harnesses and wiring.

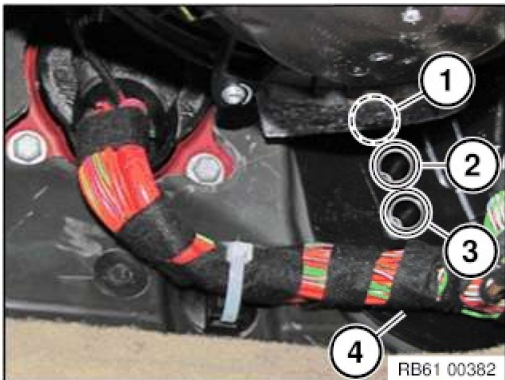


Note:

Work is shown on the F30 by way of example. There may be differences in detail in the case of other vehicle types and equipment specifications.

Necessary preliminary work:

- Remove the front right wheel arch cover front section
- Remove the right cover in the engine compartment
- Remove instrument panel trim, bottom left
- Remove trim panel for pedal assembly



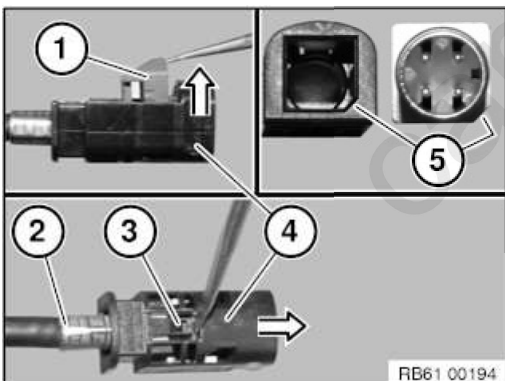
Break through the passenger footwell opening (2) in rubber grommet (4) using a suitable tool.



Note:

If the opening (2) is used, use opening (3).

If both openings (2, 3) are used, break through at position (1).



Unlock the lock (1) in direction of arrow with suitable tool.



Important!

Risk of damage!

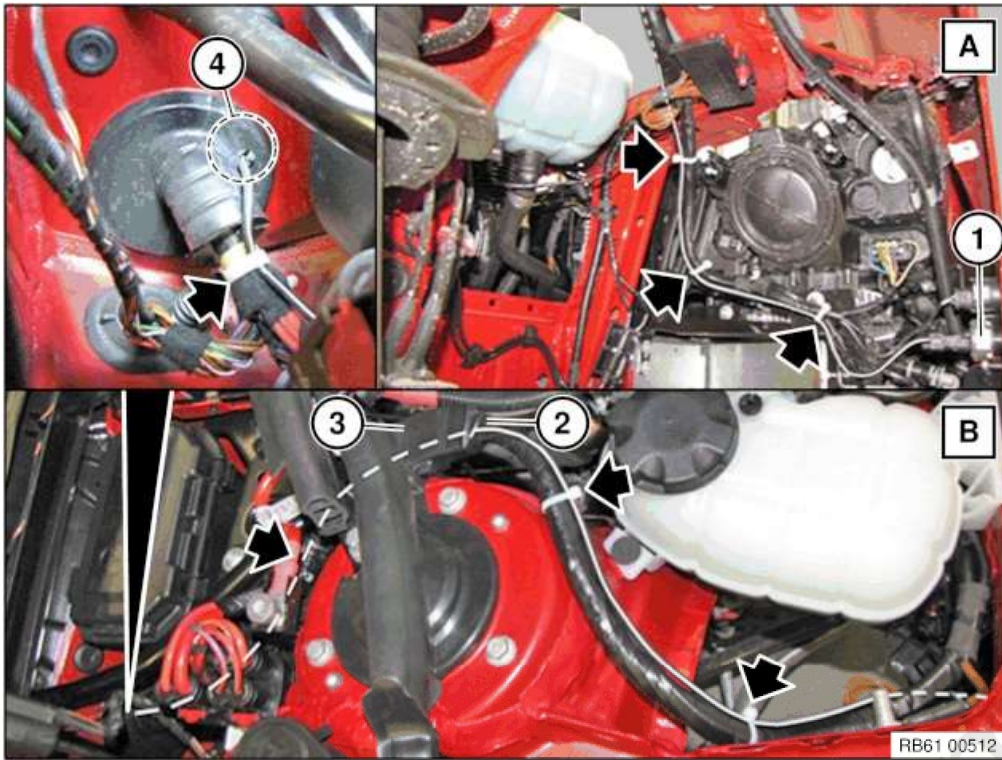
Unlock the lock (3) carefully with a suitable tool. Pull connector housing (4) of line (2) in direction of arrow.



Installation note:

Pay attention to encoding (5)!





Connect the repair cable (shown in white) to the Side View camera (1).

Leave approx. 10 cm overlength in the area of Side View camera (1) (Figure A).

Route repair cable in direction of arrow along the vehicle wiring harness and attach at locations marked with arrow (Figure A, B).

Remove adhesive tape at point (2). Feed through repair cable through cable channel (3) (graphic B).

Feed through repair cable at point (4) in passenger footwell (graphic B).



Installation note:

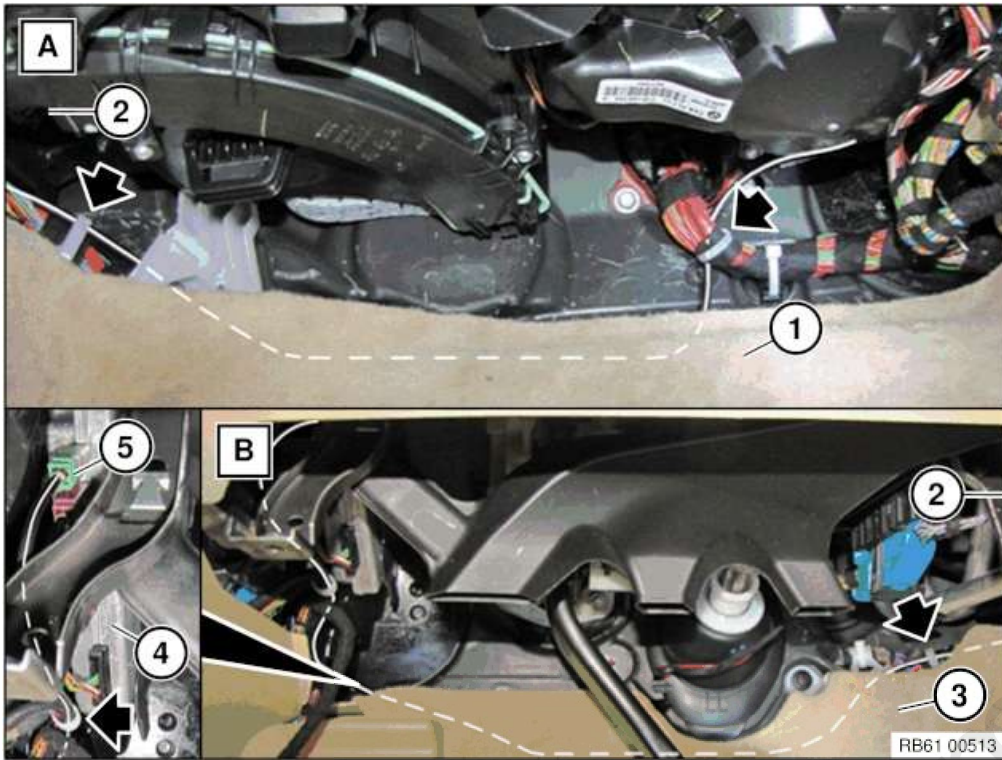
Tape off the point (2) with suitable adhesive tape.



Important!

To prevent moisture from entering the passenger compartment, seal opening (4) on the outside, using suitable means!





Route repair cable in passenger footwell (graphic A)/driver's footwell (graphic B) under carpet (1, 3) as illustrated up to TRSCV control unit (4).

Secure repair cable at points marked with an arrow.

Route the repair cable from the passenger footwell under the heating and air-conditioning unit (2) in the driver's footwell (Figure A, B).

Complete the repair cable and connect at slot (5) of the TRSCV control unit (4) (Figure B).



Note:

Route any repair cable overlength under the carpet (3).

After successful completion of function check, detach start and end of faulty cable at first mounting point.

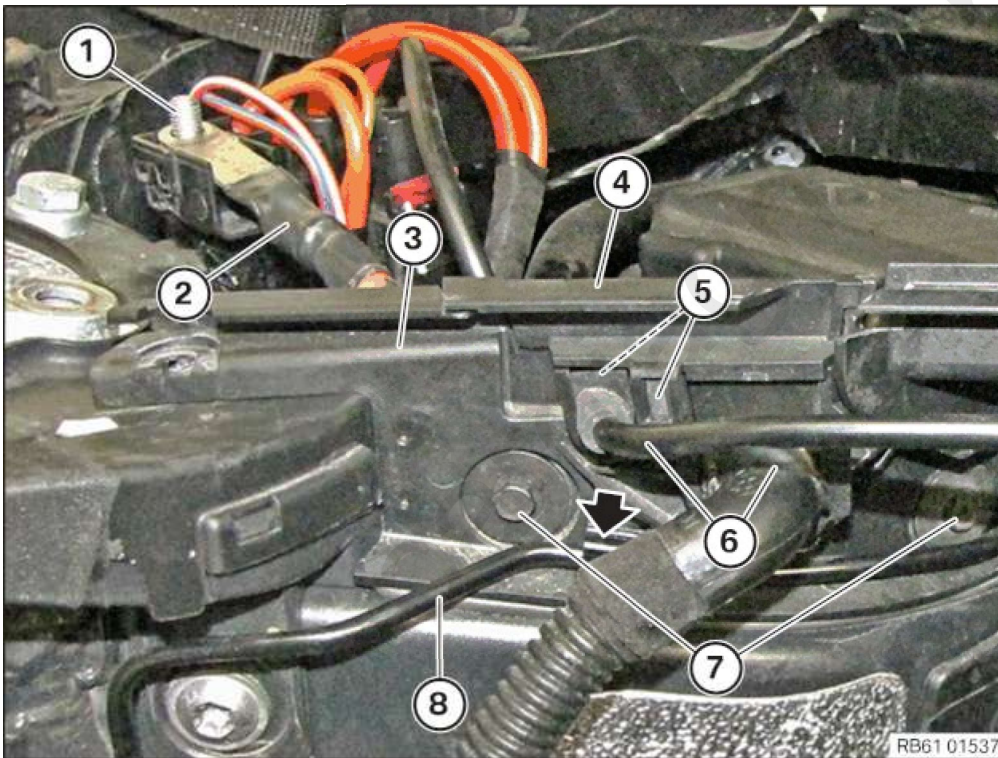


**Note:**

The EPS repair wiring harness fits the steering gear manufactured by the ZF and TKP company.

Necessary preliminary work:

- Disconnect negative battery lead
- Remove the sound insulation from the upper bulkhead section
- Remove front underbody protection
- Removing front wheel arch cover (front section), right
- Place the coolant expansion tank to one side:
 - Loosen screws.
 - If necessary unfasten plug connection.
 - Do **not** pull off the coolant connections.



Carefully lift the tabs (5).

Remove the sealing on the upper section of the partition wall (4).

Remove the cable (6) towards the top.

Detach the brake line (8) at the point marked by the arrow.

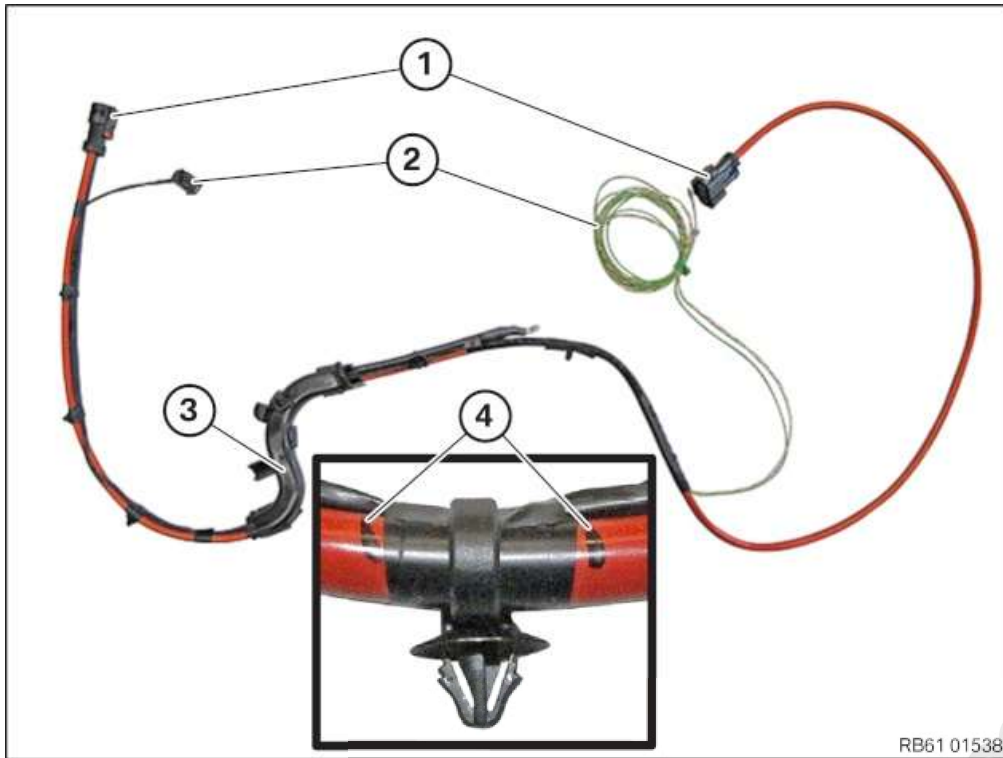
Release screws (7).

Remove the partition wall sealing (3).

Slacken nut (1).

Disconnect positive line (2) and place to one side.





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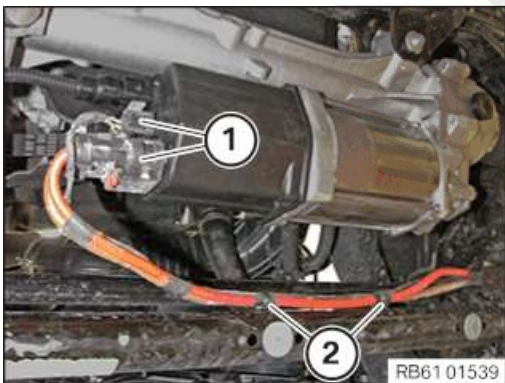


Note:

The line (2) from repair wiring harness (1) will not be required. A line installed in the vehicle will be used.

Removing line (2) from the repair wiring harness (1):

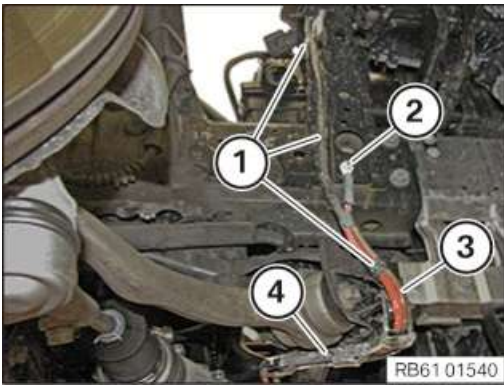
- Mark all the adhesive tape positions as shown (4).
- Remove all cable straps.
- Open cable channel (3).
- Remove all the adhesive tape.
- Remove line (2).



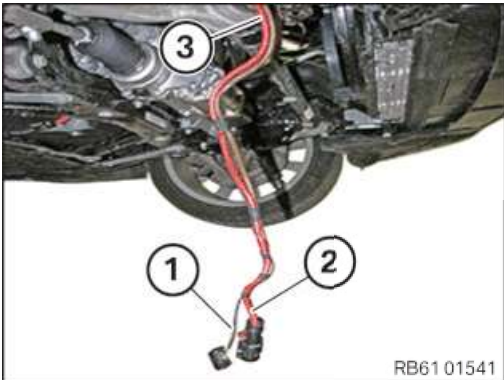
Disconnect plug connection (1).

Release wiring harness retainers (2).

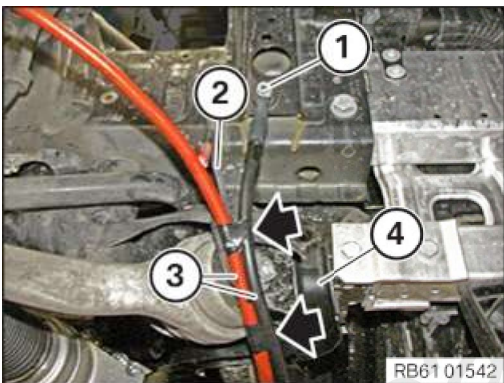




Release wiring harness retainers (1).
 Slacken nut (2).
 Remove grounding cable on wiring harness (3) from ground pin.
 Release cable channel (4) from front axle support.
 Remove cable strap from cable channel (4).
 Open cable channel (4) and remove wiring harness (3).

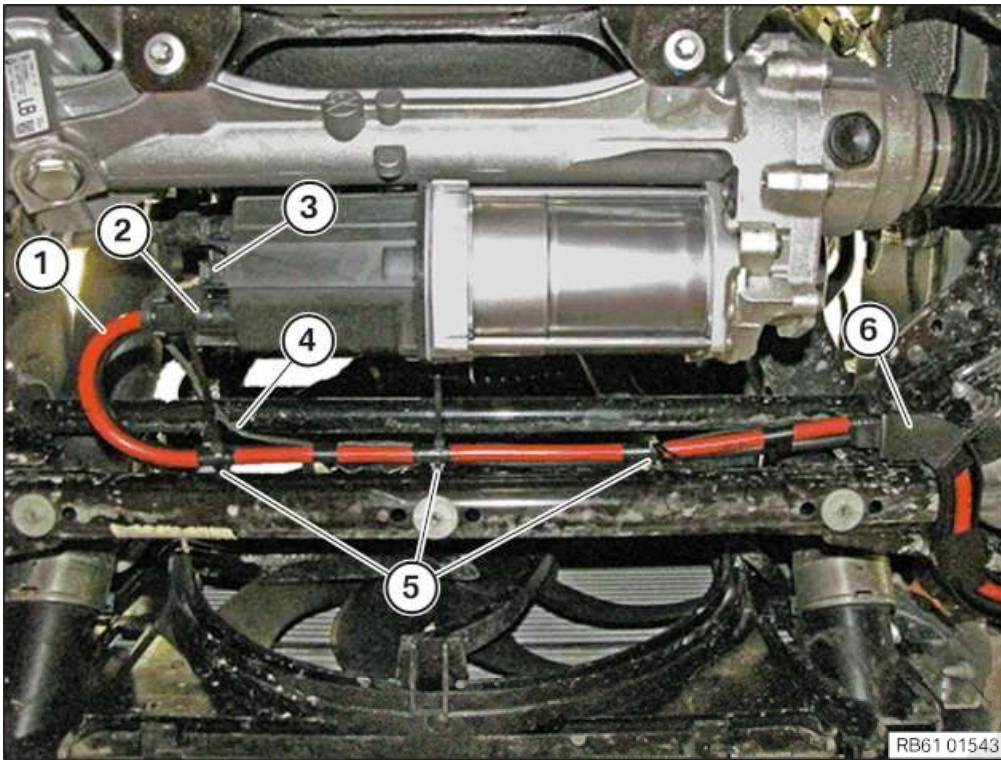


Remove all cable straps in the area shown.
 Remove all the adhesive tape in the area shown.
 Remove line (1) from wiring harness (2).
 Disconnect the positive line from wiring harness (2) at point (3). Do not damage line (1) while doing so.
 Remove wiring harness (2) (both **thick** cables).
 Wiring harness (2) is no longer needed.



Mount cable channel (4) on front axle support.
 Mount grounding cable from repair wiring harness (3) on ground support point (1).
 Tighten nut (1).
 Tightening torque 61 11 1AZ.
 Fasten line (2) and repair wiring harness (3) together at the places marked by the arrow using adhesive tape.





Connect plug connection (2) of repair wiring harness (1).

Connect plug connection (3) of line (4).

Route repair wiring harness (1) and line (4) as shown.

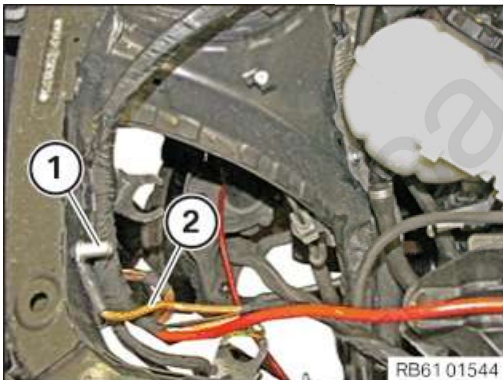
Fasten line (4) and repair wiring harness (1) together at the places marked as shown, using adhesive tape.

Place repair wiring harness (1) and line (4) in cable channel (6).

Shut cable channel (6).

Position repair wiring harness (1) and line (4) such that the cable straps lie on the adhesive tape.

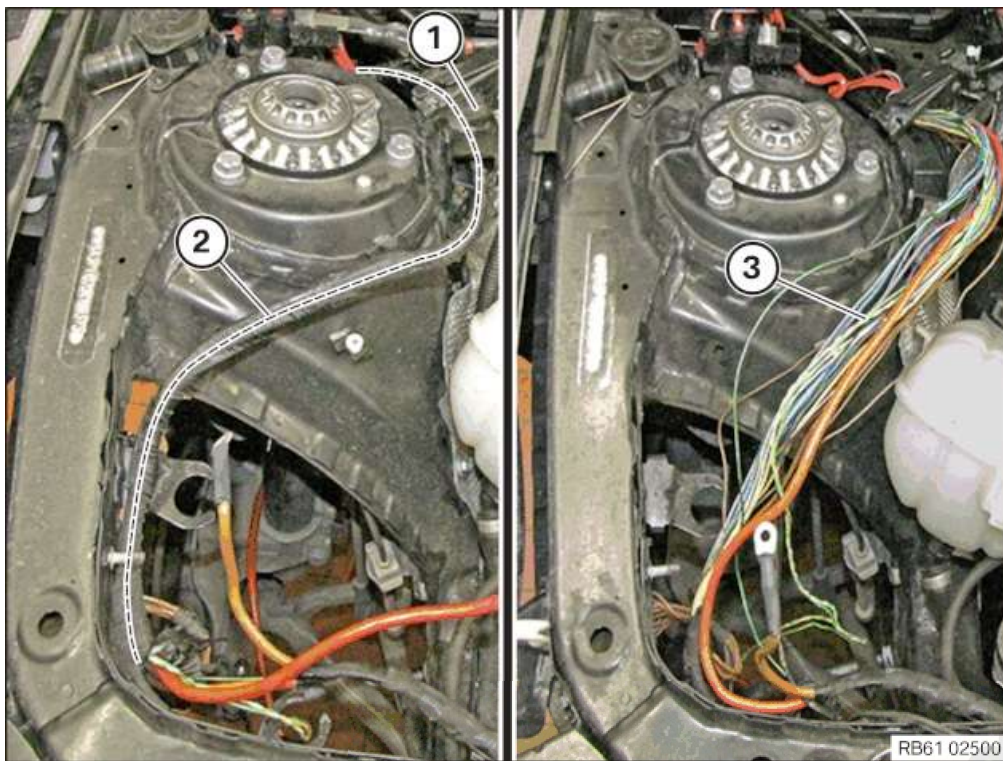
Fasten repair wiring harness (1) and line (4) at points (5) using cable straps on the front axle support.



Slacken nut (1).

Remove ground cable (2) and place to one side.





Attention!

Risk of damage!

Do not damage the lines (3) when removing the adhesive tape.

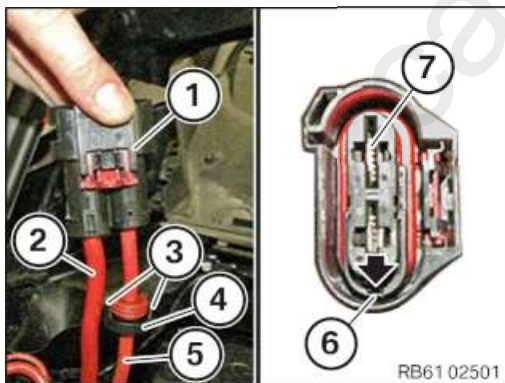
Open cable channel (1).

Remove adhesive tape from wiring harness (2).



Note:

The bonding area is marked by the dotted line.



Unpin pin 2 of the positive line (5) from connector (1) that is no longer required:

Lift tabs (3) **carefully**.

Push back sealing (4).

Open primary locking device (6) in the direction of the arrow.

Unpin pin 2 (7) of the positive line (5) using a suitable tool.

Connector (1) with positive line (2) is no longer required.

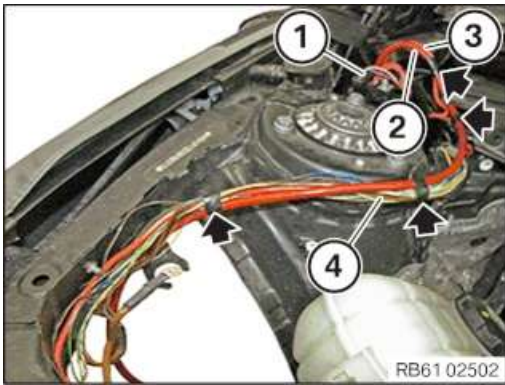
Pin positive line (5) in the connector (1) of the repair wiring harness:

Pin pin 2 (7) of the positive line (5).

Close primary locking device (6) against direction of arrow.

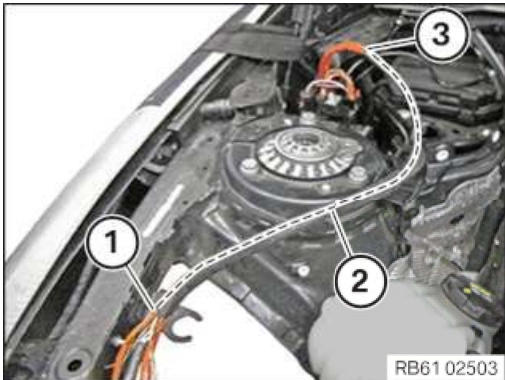
Push sealing (4) upwards and engage correctly on the connector (1).





Close connector (1).

Secure repair wiring harness (2), positive line (3) and wiring harness (4) using adhesive tape at the points marked with an arrow as shown in the figure.

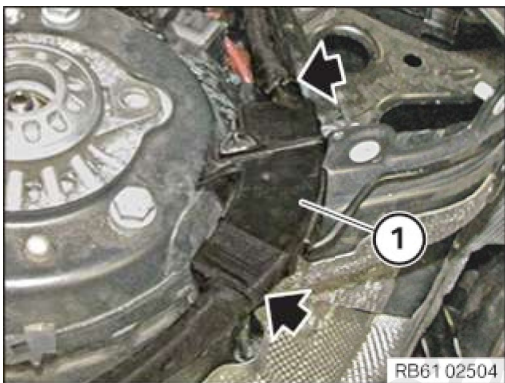


Wrap all the wiring harnesses (2) mentioned in the last operation **beginning with (1) and ending with (3)** with adhesive tape.



Note:

The bonding area is marked by the dotted line.

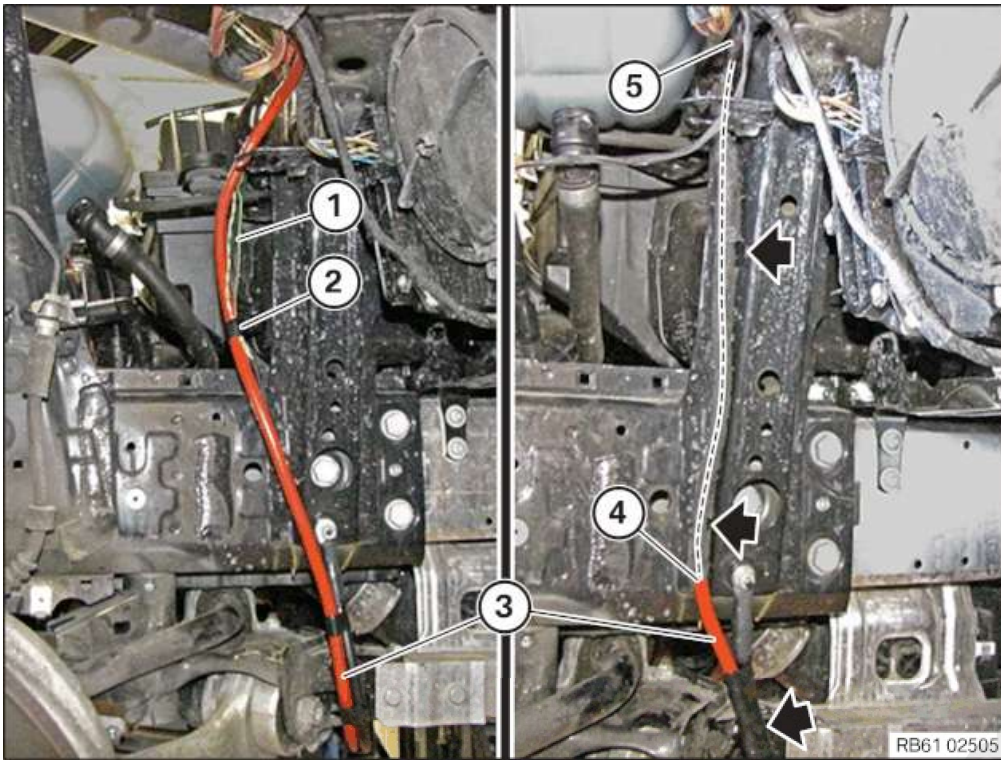


Close cable channel (1).

Secure cable channel (1) at the points marked with an arrow using cable straps.

Wrap cable channel (1) with adhesive tape as shown.



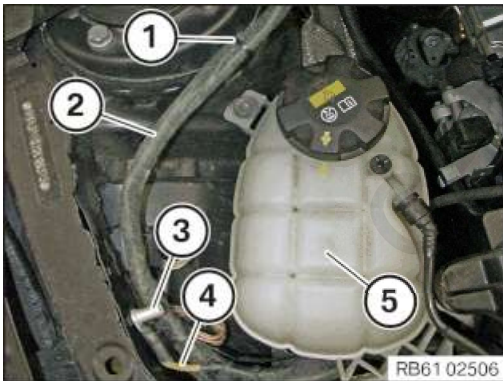


Secure repair wiring harness (3) and line (1) at point (2) with adhesive tape.
 Wrap repair wiring harness (3) and line (1) **beginning with (4) and ending with (5)** with adhesive tape.
 Wrap mounting elements for wiring harness (3) at the points marked with an arrow, as well.
 Secure wiring harness (3) at the points marked with an arrow.



Note:

The bonding area is marked by the dotted line.



Secure wiring harness (2) with a cable strap at point (1).
 Fasten grounding cable (4) using the nut (3).
 Tightening torque 61 11 1AZ.

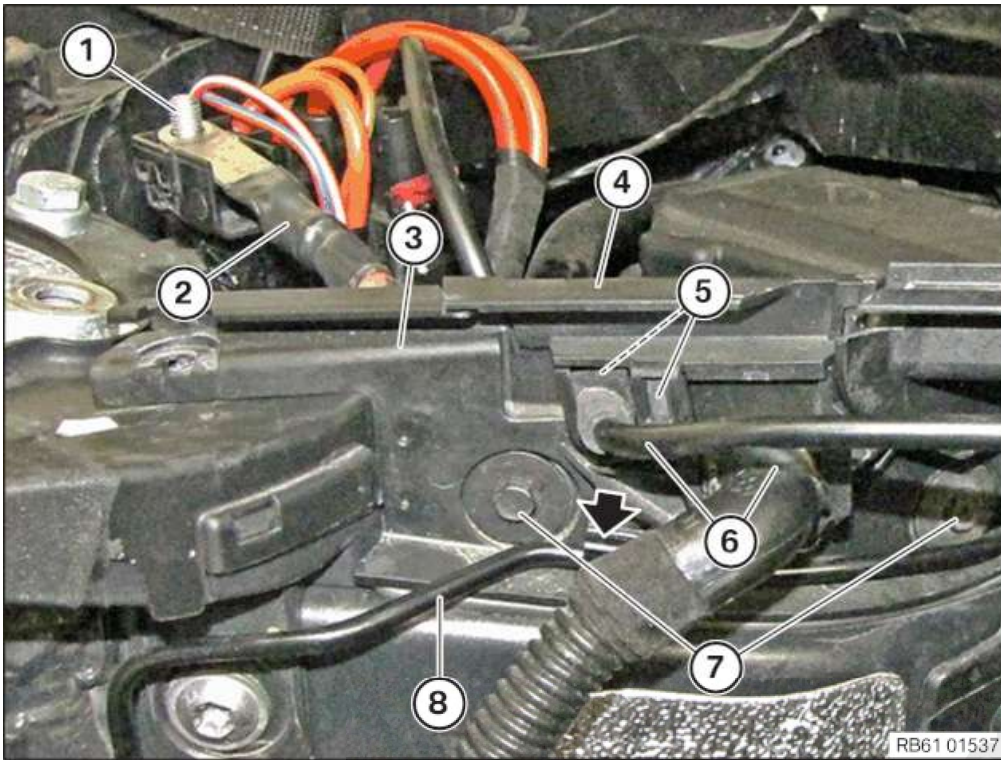


Note:

The figure of coolant expansion tank (5) can vary depending on the vehicle and the engine.

Fasten the coolant expansion tank (5).
 Close plug connection, if necessary.





Position positive line (2) and fasten with nut (1).

Tightening torque 61 11 2AZ.

Install partition wall sealing (3) and fasten with screws (7).

Tightening torque 61 11 3AZ.

Attach the brake line (8) at the point marked by the arrow.

Install wiring harnesses (6).

Fit upper section of partition wall sealing (4) until tabs (5) engage correctly.



Add final details to vehicle:

- Install centre bulkhead upper part sound insulation
- Connect battery earth lead
- Install front underbody protection
- Installing front wheel arch cover (front section), right



**The following applies in general:**

To avoid damage, observe the following instructions:

- Avoid compressive and tensile loads
- To ensure professional repairs, perform repair work only with BMW-approved or recommended special tools and spare parts
- Make sure cables are laid without kinks or abrasions
- Ensure non-contacting routing at sharp-edged body parts; use edge protection if necessary
- Secure additionally laid cables/leads with cable ties

The following additionally applies:Shielded lines

Interference radiation and interference resistance can lead to neutral zones at contact points in the shielding. Consequently, distinctions have to be drawn between the following types:

Coaxial lines

- Shielded coaxial cables RTK031 may only be repaired with a special crimping tool.
- For aerial lines only the bushing contact may be repaired.
- RG174 Lines and the bushing contact may not be repaired.

CVBS lines

- CVBS cables may not be repaired.
- CVBS cables must be replaced in their entirety.

HSD lines

- HSD cables may not be repaired.
- HSD cables must be replaced in their entirety.

Optical fibre cable:*Note:*

Fibre-optic cables are coloured differently as follows:

- Green = **MOST** (**M**edia **O**riented **S**ystems **T**ransport) optical fibres
- Yellow = **ISIS** (**I**ntelligent **S**afety and **I**ntegration **S**ystem) optical fibres
- Orange=repair fibre-optic cables

Attention!

- Optical fibres are permitted to show only one junction point (bridge). Replace optical fibres if necessary
- Smallest permissible bending radius is 25 mm
- Avoid effects of heat $\geq 85^\circ$

Treating cables and fibre-optic cables

FlexRay (twisted cables):

It is possible to repair the FlexRay. In the event of damage, the cables can be joined with conventional butt connectors and heat-shrink tubing.



Note:

- FlexRay lines may only reveal one separation point (bride); renew complete line if necessary.
- If possible, maintain twisted cable after repair.
- After repairs, twist cables as close as possible to the connector/separation point.
- Twisting must be as symmetrical as possible.

Airbag lines:

Repairing airbag cables

Ribbon cables:

Repairing ribbon cables

Replacing wiring harnesses

Repair wiring harnesses mainly cover the full equipment of the vehicle. If certain optional equipment is not installed in the vehicle, note the following:

- If necessary, secure the remaining connectors.
- If necessary, seal the remaining connectors outside the vehicle interior, for example, with butyl tape in such a way that moisture ingress can be eliminated permanently.
- If necessary, repin the connector of the repair wiring harness.

Note:

Repair wiring harnesses can be equipped with an **additional socket housing** (30-pin, for example), **which was not provided on the previous vehicle-side wiring harness**. This socket housing also cannot be found in the wiring diagram.

Procedure

The separation point between the vehicle-side wiring harness and the repair wiring harness is located **in the vehicle interior** (in the footwell, for example):

- Cut the additional socket housing and connect the lines to the vehicle-side wiring harness using a butt connector.
- Alternatively, a suitable pin housing can be fitted on the vehicle-side wiring harness and connected to the additional socket housing.

However, this is permitted only if the following conditions are met:

- Carpets must not protrude visibly or become deformed due to the installation of the additional plug connection.
- It must be possible to install the adjacent components (for example, trims, trim panels, etc.) correctly after installing the additional plug connection.
- All the attachment points of the adjacent components (for example, trims, trim panels, etc.) must engage correctly.
- There must be no rattling noise due to the installation of the additional plug connection.
- The additional plug connection must not damage the adjacent components/wiring harnesses, etc..

The separation point between the vehicle-side wiring harness and the repair wiring harness is located **outside the vehicle interior** (in the wheel arch, for example):



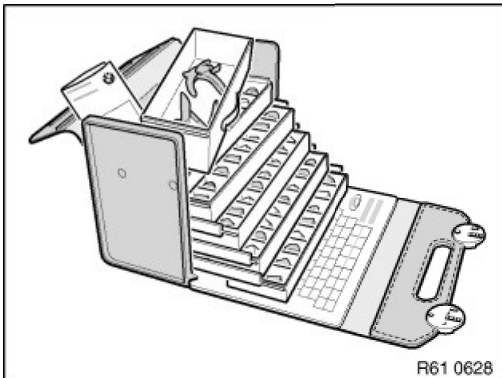
- Cut the additional socket housing and connect the lines to the vehicle-side wiring harness using a butt connector.
- **Using the additional socket housing is not permitted with a separation point outside the vehicle interior.**

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**Special tools required:**

- 61 0 300
- 61 0 400
- 61 1 100
- 61 4 320
- 61 0 200
- 61 0 210
- 61 0 220
- 61 0 230
- 61 0 240



R61 0628

Repair range, vehicle electrical system:

Single parts for wiring harness repairs*

* Sourcing reference: BMW Parts Department

Note:

- Refer to Service Information:
SI 2 04 07 341



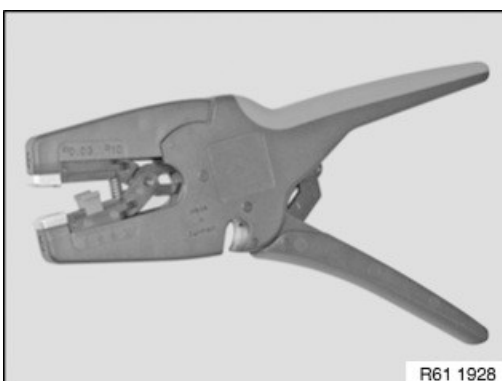
W61 0 300

Release and press-out tool:

- Special tool 61 0 300
- Special tool 61 0 400 (MINI N12/N14)
- Special tool 61 1 100 (engine)

Handling:

- Notes for opening contacts and locks of different connector contact systems



R61 1928

Cutting to length and stripping insulation from cables:

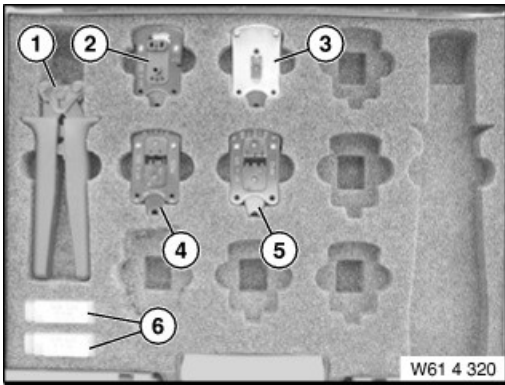
Wire stripper MultiStrip10*

*Sourcing reference BMW Workshop Equipment Catalogue

Handling:

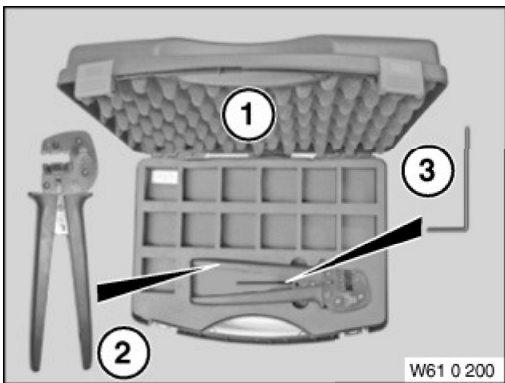
- Cutting cables to length and strip insulation





Crimping stop parts (small contacts) and butt connectors:

- Special tool 61 4 320
 1. Tool without crimping head
 2. Crimping head (stripping insulation and cutting fibre-optic cables to length)
 3. Crimping head (crimping fibre-optic cable contacts)
 4. Crimping head (crimping MQS contacts)
 5. Crimping head (crimping MPQ contacts)
 6. Replacement blade (face-cutting fibre-optic cables)
 7. Replacement blade with tool (insulation stripping unit)
 8. Universal crimping head (SI 2 04 06 293)



Crimping stop parts (large contacts) and butt connectors:

- Special tool 61 0 200 (crimping set)
- Special tool 61 0 210 (matrix set SLK 8)
- Special tool 61 0 220 (matrix set SLK 2.8)
- Special tool 61 0 230 (matrix set MAK 8 / DFK4)
- Special tool 61 0 240 (butt connector 4.0 - 6.0 mm²)

Handling:

- Refer to Service Information:
 - SI 2 02 05 194
 - SI 2 07 05 233

