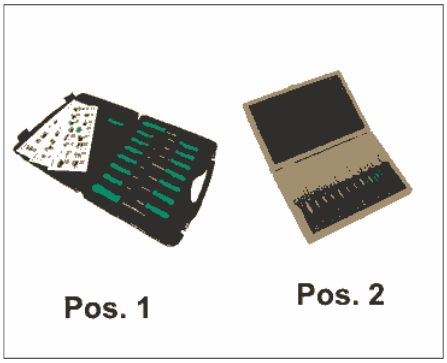
WM 9X00IN Optical waveguide (LWL) - MOST bus

Tools

Designation	Type	Number	Description	
press-out and unlocking tools for tab and round plug connectors of all sizes	Commercially available tool	Nr.155		

Optical waveguide (LWL) - MOST bus

Requirements when working with LWL

The plug connections must not be plugged or separated with tools.

The LWL and the plug connections must not come into contact with fluids such as water, creeping compound, preservative, anti-freeze protection, cleaning agent. They will impair the MOST system function or cause complete system failure. Even plug connectors with plugged-in protective caps must not come into contact with the fluids listed.

If the optical contacts, plug connections, or sockets are not plugged in, or if there are no protective caps installed on the plug, contact with dust and other solid materials (lubricants) must also be avoided.

The optical contacts, plug connectors, or sockets must not be cleaned.

Storage, Packing, Transport

The LWL must not be stored outside.

The LWL must be protected from direct sunlight during storage.

The LWL must be protected from high humidity during storage. Recommended storage conditions: Temperature - between -20 °C and +40 °C, humidity - between 40% and 60%.

The LWL must be stored in a box made of cardboard, or in a plastic bag.

Force must not be applied to the stored LWL which could deform or damage it.

The LWL must be stored with the dust boot attached.

While storing, the bending radius must not be smaller than 300 mm.

LWL with damaged surfaces must be replaced.

Installing the LWL in the vehicle

The following limit values listed must not be exceeded when installing a LWL in the vehicle.

Maximum permissible tensile load: 60 N (45 ftlb.)

Minimum bending radius after and during installation in the vehicle: 25 mm

Maximum number of torsions: 10 torsions per m

The following points must be observed when fitting the LWL and fitting wiring harnesses containing LWL:

Damaged LWL must not be installed.

Before installing the LWL or wiring harness with LWL in the vehicle, it must be checked if the dust boots have been attached properly. If this is not the case, the LWL set must not be installed.

After and during the installation of LWL in the vehicle, the bending radius must not be smaller than 25 mm.

During installation of the optical waveguide into the vehicle, the optical guide must not be pulled to set the length of the wiring harness (max. tensile load 60 N) and the optical guide must not be twisted or coiled up.

After installing the LWL in the vehicle, the twisted LWL must be straightened out.

External forces on the LWL are to be avoided when installing the LWL in the vehicle.

Repair

The defective LWL must be replaced. The LWL will not be repaired.

When exchanging the LWL, the optical contacts from the plug connection must be removed.

Push-on connector - dust boots

Dust boot for optical contacts:

If a LWL is stored, transported, or installed in a vehicle, then the dust boot must only be removed right before the LWL is used in the connector.

When testing the LWL, the dust boot must be put back on.

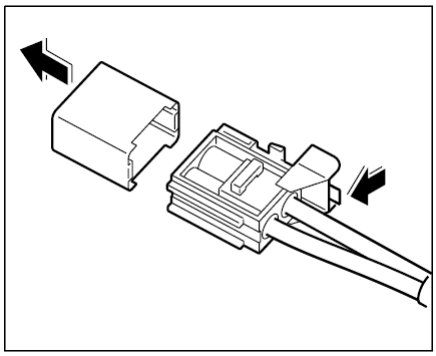
The dust boots can be removed without the use of a locking mechanism.

Do not touch the exposed contact surfaces while or after removing the dust boot, as otherwise the optical contacts could become damaged or dirty.

Dust boot for connector (wiring harness side):

If a pre-assembled wiring harness is installed, there is a dust boot on the connector for the LWL.

The dust boots can be removed by activating the locking mechanism **-arrow-** .



Dust boot for connector (wiring harness side)

When testing the LWL, the dust boot must be put back on.

Do not touch the exposed contact surfaces while or after removing the dust boot, as otherwise the optical contacts could become damaged or dirty.

Control unit plug connector (wiring harness side)

The LWL is delivered with affixed plastic contacts. These contacts are latched in the connector housing in the case of repairs. Grey and black contacts with identical mechanical dimensions are used.

Grey contacts are used in the wiring harness >> control unit junction (optical input).

Black contacts are used in the control unit >> wiring harness junction.

Push-on connector - connection points

Structure of a LWL joint:

1 - Optical contact, black

2 - Optical contact, grey

3 - Joint connector side

4 - Joint socket side

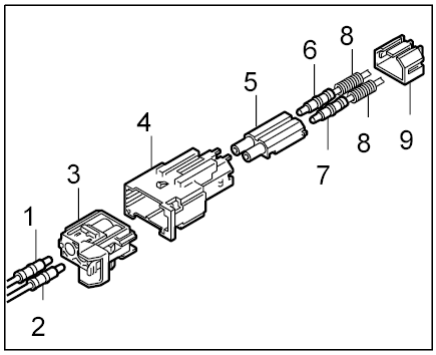
5 - Socket side LWL module

6 - Optical contact, grey

7 - Optical contact, black

8 - Springs

9 - Spring cap



Structure of a LWL joint

Optical fiber (LWL) - module

In all MOST control units, at least one sending diode and one receiver diode are installed. The sending diode of a MOST device is connected to a receiver diode of a 2nd MOST device. This results in a ring where the light signal is reinforced in each control unit (in each control unit, the light signal is transformed into an electrical signal).

The graphic clarifies the cabling of the individual MOST control units which vary according to their equipment.

Optical waveguide variants

Information

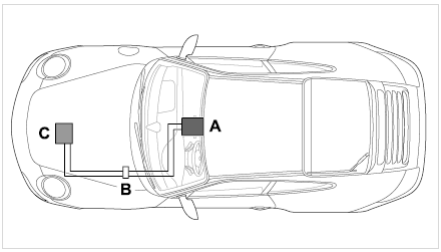
Depending on the equipment I No., the installation positions of the audio components in the front luggage compartment differ.

MOST control units, variant A - B - C

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier



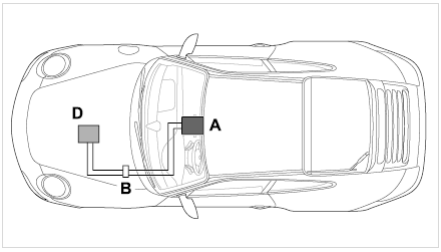
MOST control units, variant A - B - C, shown on the 911

MOST control units, variant A - B - D

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer



MOST control units, variant A - B - D, shown on the 911

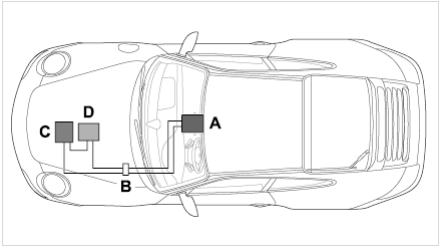
MOST control units, variant A - B - C - D

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer



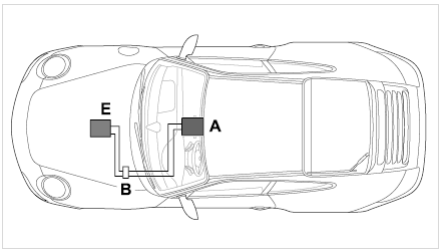
MOST control units, variant A - B - C - D, shown on the 911

MOST control units, variant A - B - E

A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit



MOST control units, variant A - B - E, shown on the 911

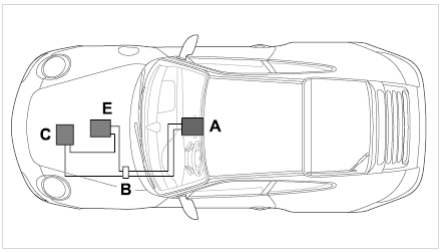
MOST control units, variant A - B - C - E

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

E - Navigation unit



MOST control units, variant A - B - C - E, shown on the 911

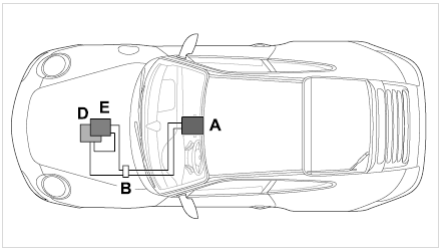
MOST control units, variant A - B - D - E

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

E - Navigation unit



MOST control units, variant A - B - D - E, shown on the 911

MOST control units, variant A - B - C - D - E

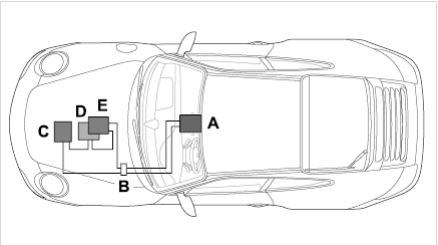
A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer

E - Navigation unit



MOST control units, variant A - B C - D - E, shown on the 911

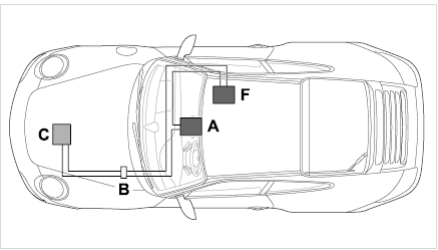
MOST control units, variant A - B - C - F

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

F - Telephone control module



MOST control units, variant A - B - C - F, shown on the 911

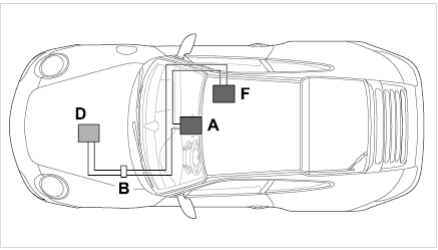
MOST control units, variant A - B - D - F

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

F - Telephone control module



MOST control units, variant A - B - D - F, shown on the 911

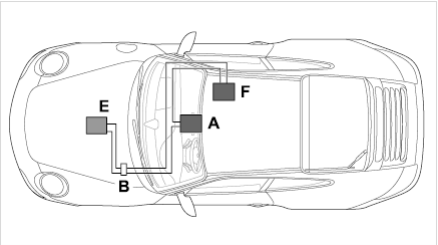
MOST control units, variant A - B - E - F

A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit

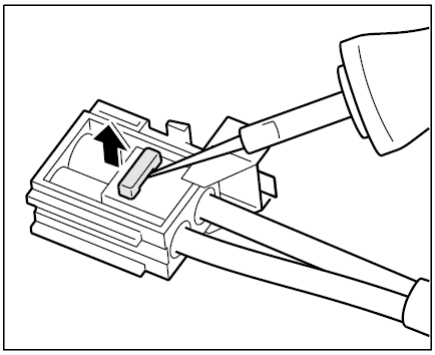
F - Telephone control module



MOST control units, variant A - B - E - F, shown on the 911

Removing and installing optical contacts on connector side

1. Open the secondary locking mechanism using the **press-out and unlocking tools for tab and round plug connectors of all sizes Nr.155**. Insert the tool into the opening provided and lift the locking mechanism. The locking mechanism engages in the upper position.

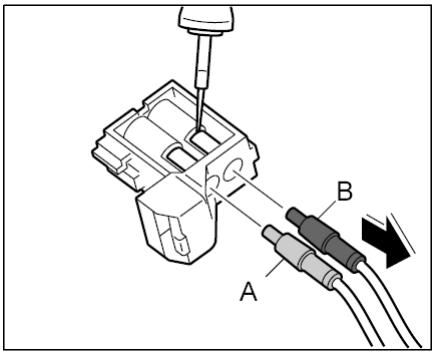


Unlocking secondary locking of the optical contacts (connector side)

2. **Press-out and unlocking tools for tab and round plug connectors of all sizes Nr.155** must be positioned on the primary locking mechanism. Then lift the locking mechanism.

A - Optical contact, grey

B - Optical contact, black



Unlocking primary locking of the optical contacts (connector side)

3. Carefully pull on the optical waveguide **-A and B-** in **-arrowrichtung-** . If it is not possible to pull out the optical waveguide, check again if the secondary locking mechanism is completely released and if the primary locking mechanism is raised sufficiently.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on connector side

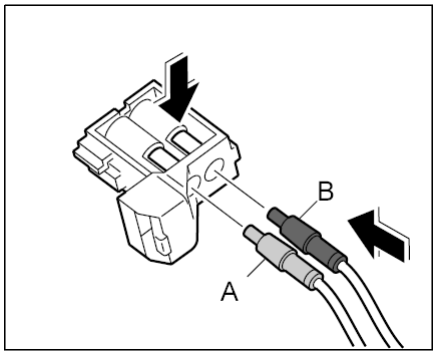
Remove the dust boot right before plugging.

Check the proper condition of the contacts.

1. Insert the optical contact **-A and B-** in the connector until it engages audibly.

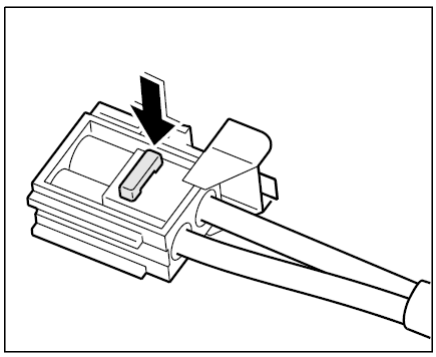
A - Optical contact, grey

B - Optical contact, black



Locking primary locking of the optical contacts (connector side)

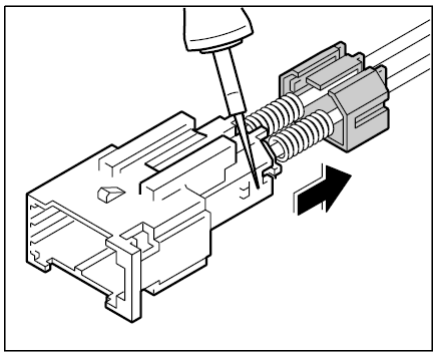
2. Lock the secondary locking and check the optical contacts for tightness.



Locking secondary locking of the optical contacts (connector side)

Removing and installing optical contacts on socket side

1. Release the spring cap on both sides using the **press-out and unlocking tools for tab and round plug connectors of all sizes Nr.155** and remove it.



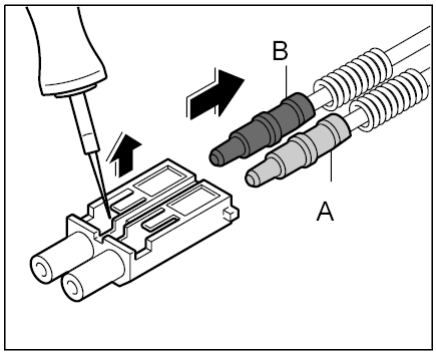
Unlocking spring cap of the optical contacts (on the socket side)

2. Remove optical waveguide module from connector.

3. Position the **press-out and unlocking tools for flat-type and round plug connectors of all sizes Nr.155** for releasing the contact locking mechanism of the optical waveguide module and lift up the locking mechanism.

A - Optical contact, grey

B - Optical contact, black



Unlocking contact locking of the optical contacts (on the socket side)

4. Carefully pull on the optical waveguide **-A and B-** in **-arrowrichtung-** . If it is not possible to pull out the optical waveguide, check again if the locking mechanism is completely released.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on socket side

Remove the dust boot right before plugging.

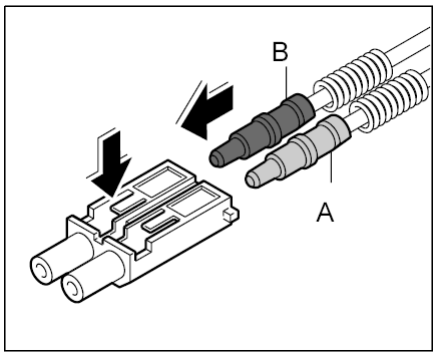
Check the proper condition of the contact.

At a force of 10 N (7.5 lb.) the springs installed in the connection point will be compressed. This leads to an increase in attenuation, which could lead to system impairment and system failure. Therefore a maximum force of 10 N (7.5 lb.) may be used to pull on optical waveguides at connection points.

1. Insert optical contact **-B-** into the optical waveguide module until it is felt to engage, and check the optical contact is seated securely.

A - Optical contact, grey

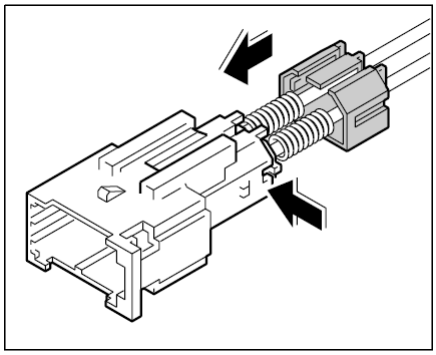
B - Optical contact, black



Locking contact locking of the optical contacts (on the socket side)

2. Insert optical waveguide module into the connection point on the socket side.

3. Slide the spring cap on the connection point until it can be felt to engage **-arrow-** .



Locking spring cap of the optical contacts (on the socket side)

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997420, 997421, 997430, 997431, 997510, 997511, 997520, 997521, 997610, 997611, 997620, 997621, 997630, 997631, 997810, 997811, 997830, 997840, 997841, 997850, 997851, 997140, 997141, 997450, 997451, 997650, 997651, 997720, 997721, 997820, 997860, 997861, 997150, 997151, 997160, 997161, 997170, 997350, 997351, 997360, 997361, 997370, 997460, 997461, 997560, 997561, 997660, 997661

Model year as of 2005
C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99