

66 72 37 Disassembling and assembling pump unit

Removing hydraulic cylinder

Filling the hydraulic cylinder

Installing hydraulic cylinder

Removing pump

Filling the pump unit

Installing pump

Bleeding the pump unit

Removing and installing wiring harness

Troubleshooting

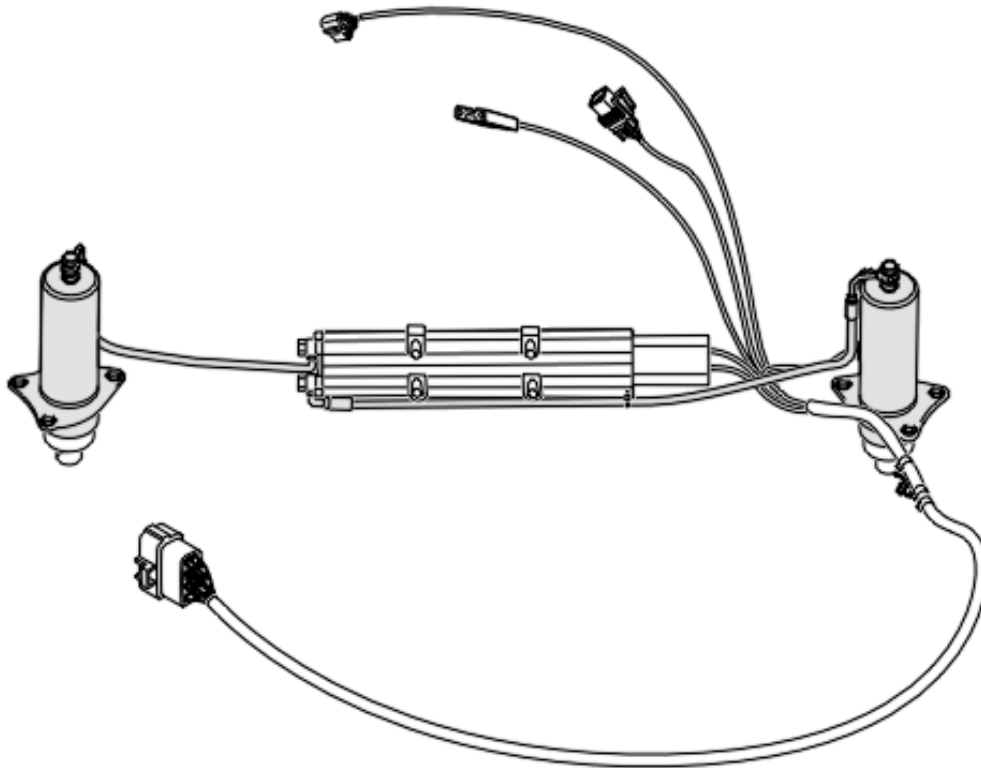
Tools and materials



Note

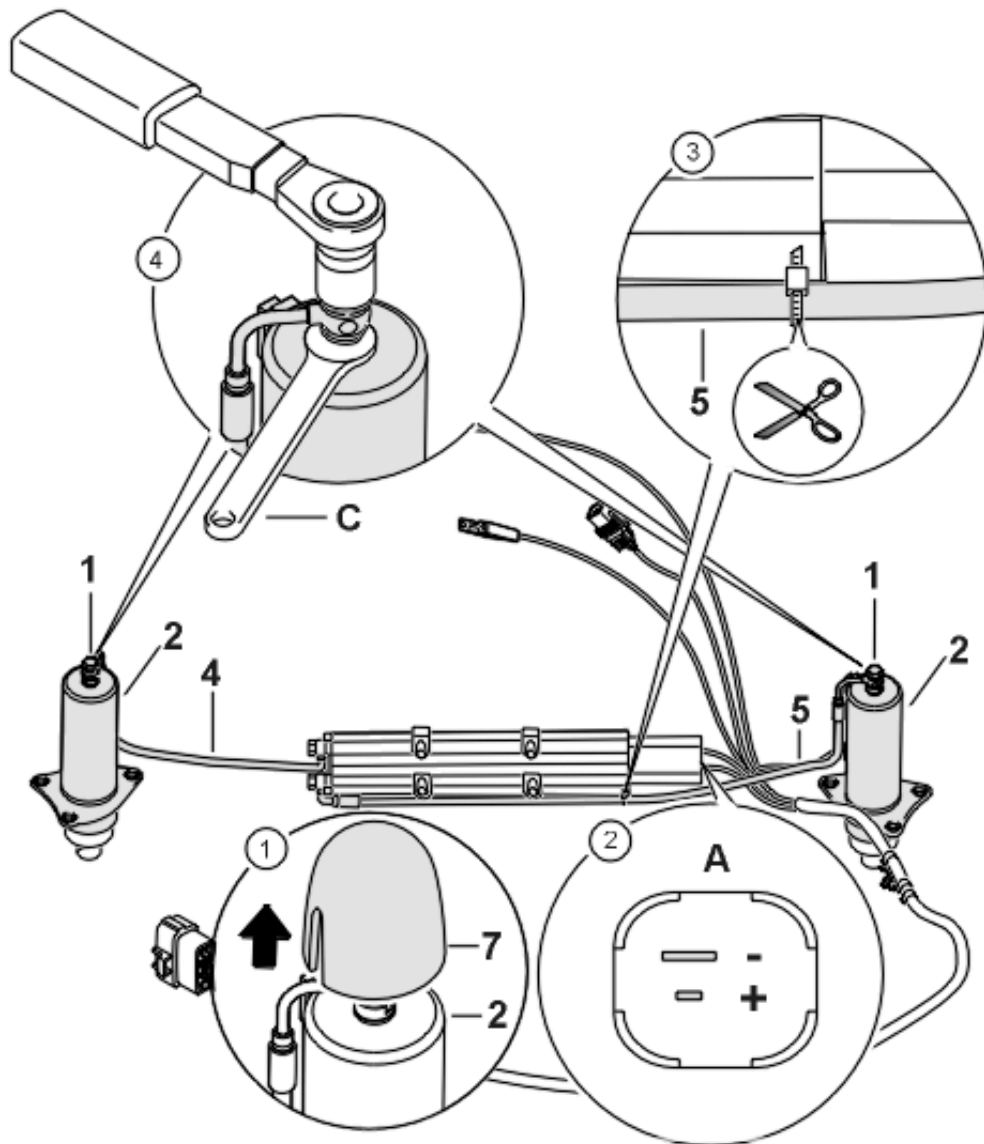
- The hydraulic lines, banjo bolts and the sealing rings should always be replaced when replacing the hydraulic cylinder or the pump drive.

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Removing hydraulic cylinder



No.	Procedure	Instructions
	Removing pump unit	' 559037 Disassembling and assembling rear lid
1	Pulling off cover caps	Pull off cover caps -7- from the hydraulic cylinders -2- .
2	Moving pump motor to initial position	Before the pump unit can be disassembled, the pump motor must be moved to its lower initial position. Move pump unit into lower initial position. To do this, connect narrow contact to +12 V, wide contact ground (-) to the pump motor according to the polarisation arrangement -A- . The limit position is attained when the piston of the pump unit moves onto the mechanical stop or the amperage rating is larger than 10 A. => <u>Tools and materials</u>



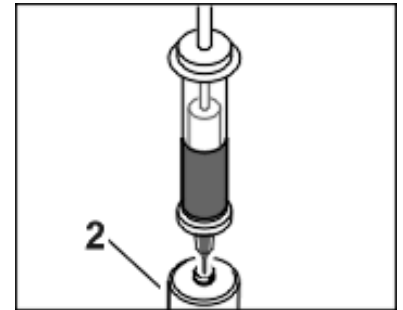
The drive module is pressurised!

- => Safety instructions for the pump unit hydraulic system of the rear spoiler

No. Procedure	Instructions
3 Cutting tie wrap	Cut tie wrap on the hydraulic line -5- using a pair of side cutters.
4 Disconnecting hydraulic lines.	Unscrew the short banjo bolts -1- from the hydraulic cylinders -2- of the hydraulic lines -4, 5- . To do this, counter with an open-ended wrench -C- .
Disconnecting hydraulic lines from the pump unit	=> <u>Removing pump</u>

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Filling the hydraulic cylinder



1. Filling the hydraulic cylinder

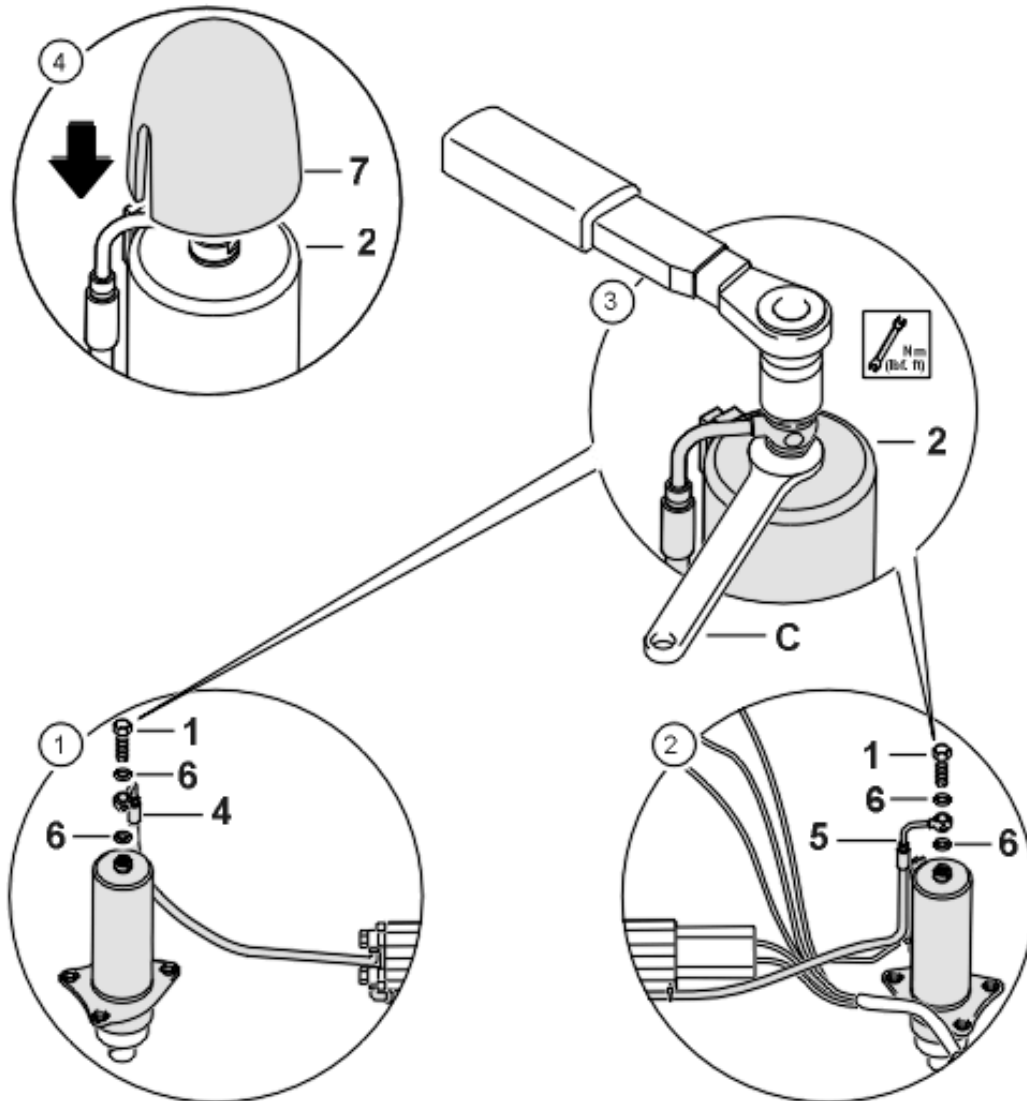
The hydraulic cylinder can only be filled in a retracted position.

- Assemble hydraulic cylinder **-2-** vertically and fill with 5 ml Pentosin perhydraulic cylinder using a syringe. => Tools and materials

Only Pentosin CHF 11 S may be filled into the hydraulic cylinder. Quantity supplied 1 litre container
=> Tools and materials

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Installing hydraulic cylinder



No. Procedure

Information:

Installing hydraulic line on the pump

- 1 Fitting short hydraulic line -4- .
- 2 Fitting long hydraulic line -5- .
- 3 Tightening short banjo bolt -1- with tightening torque.

Instructions

The lines, banjo bolts and sealing rings included in the scope of replacement parts should always be replaced.

Observe installation sequence of the hydraulic lines!

The hydraulic lines must be mounted first to the pump unit and the pump motor must be extended and retracted.

=> Installing pump

Fit short hydraulic line -4- with the sealing rings -6- . Screw in short banjo bolt -1- .

Fit long hydraulic line -5- with the sealing rings -6- . Screw in short banjo bolt -1- .

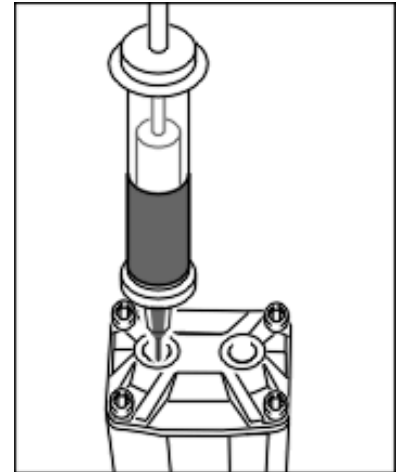
Tighten short banjo bolt -1- , to do this, counter the hydraulic cylinder -2- with an open-ended wrench -C- .
Tightening torque: 15 Nm (11 ftlb.)

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Unscrew the long banjo bolts –3– from the hydraulic lines –4, 5– . To do this, counter with an open-ended wrench –C– .

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Filling the pump unit



1. Filling the pump unit

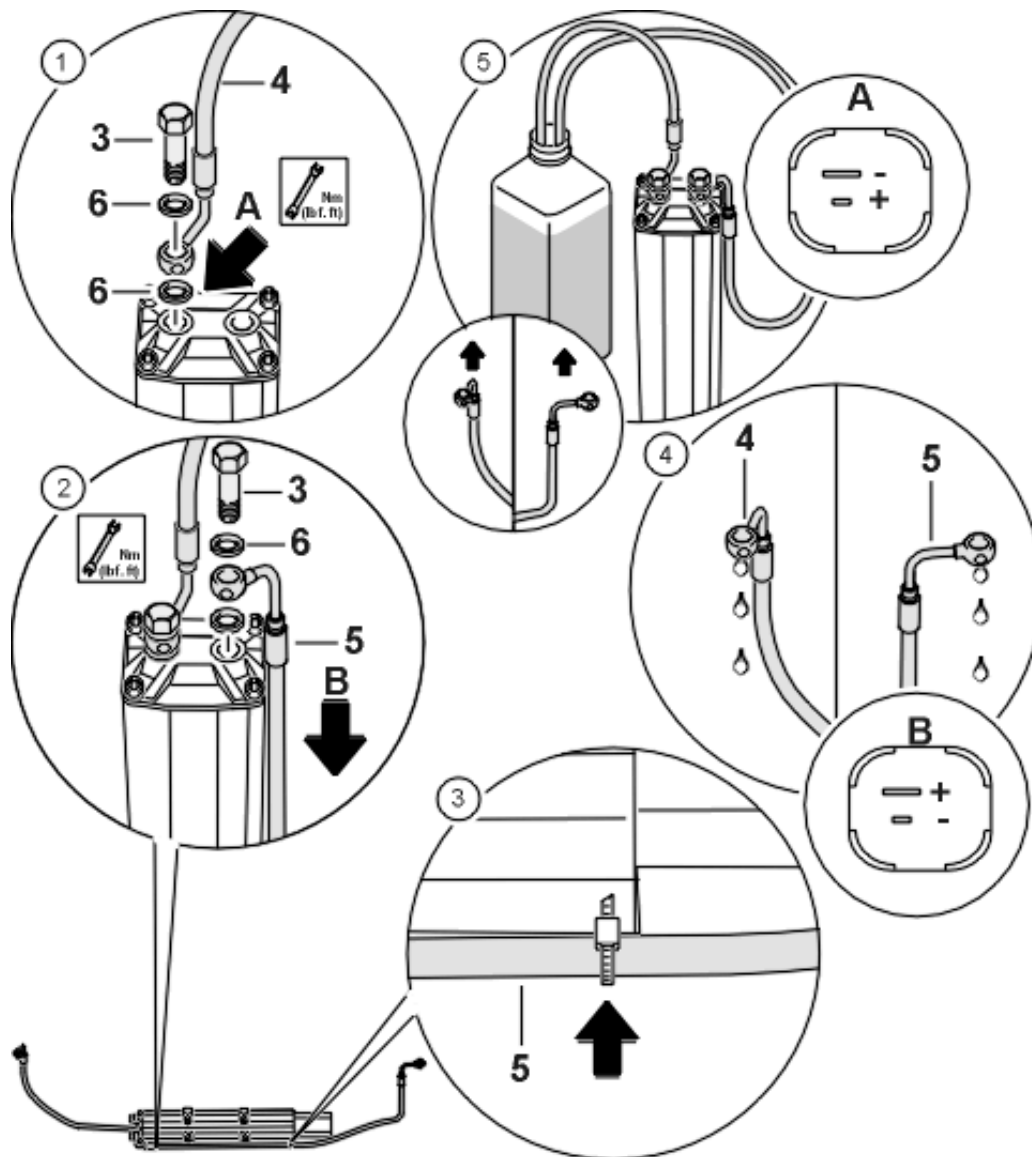
- a. Fill the pump vertically using a syringe with 20 ml Pentosin per pump chamber. => [Tools and materials](#)

Only Pentosin CHF 11 S may be filled into the pump unit. Quantity supplied 1 litre container => [Tools and materials](#)

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Installing pump

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No. Procedure

Instructions

- Information: The lines, banjo bolts and sealing rings included in the scope of replacement parts should always be replaced.
- 1 Fitting short hydraulic line Lay short hydraulic line **-4-** to the left leading from the pump unit **-arrow A-**, position the sealing rings **-6-**. Screw in banjo bolt **-3-** and tighten slightly. Tightening torque: 1 Nm (0.5 ftlb.)
 - 2 Fitting long hydraulic line Lay long hydraulic line **-5-** along the pump unit **-arrow B-**, position the sealing rings **-6-**. Screw in banjo bolt **-3-** and tighten slightly. Tightening torque: 1 Nm (0.5 ftlb.)
 - 3 Affixing cable ties Fasten long hydraulic line **-5-** to the pump unit with a cable tie **-arrow-**.
 - 4 Pulling out pump unit
 1. Pull pump unit out so far that oil (Pentosin) emerges from both lines **-4, 5-**.
 - 2.

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To do this, connect wide contact to +12 V, narrow contact ground () to the pump motor according to the polarisation arrangement **-B-** .

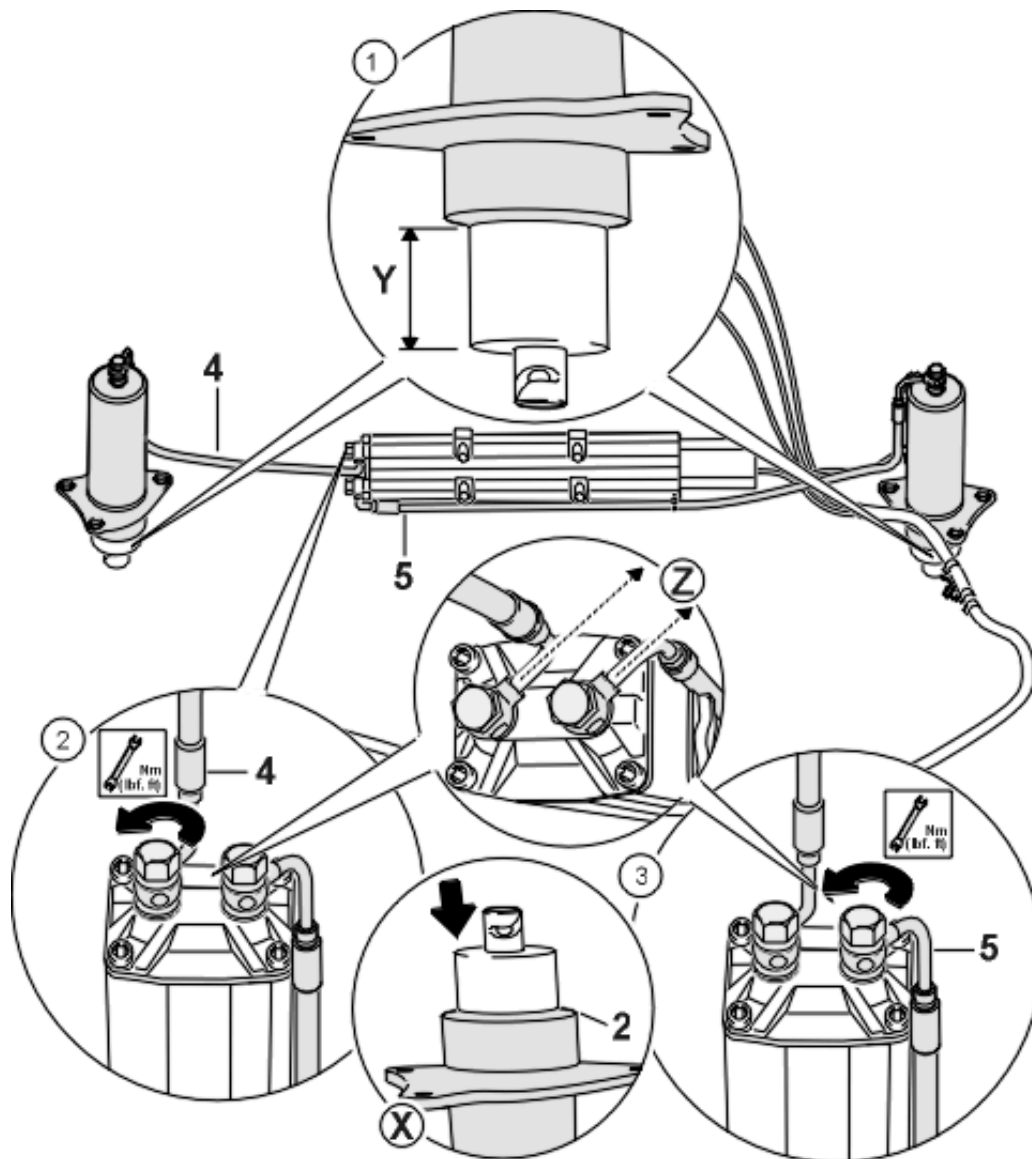
- 5 Inserting pump unit
3. Dip the hydraulic line ends completely in oil (Pentosin).
 4. Insert pump unit to the lower initial position. To do this, connect wide contact () to ground, narrow contact +12 V to the pump motor according to the polarisation arrangement **-A-** .
 5. To avoid oil leaking out, hold the hydraulic lines pointing vertically upward after removing from the oil bath.

Installing hydraulic cylinder => Installing hydraulic cylinder or => Filling the hydraulic cylinder

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Bleeding the pump unit

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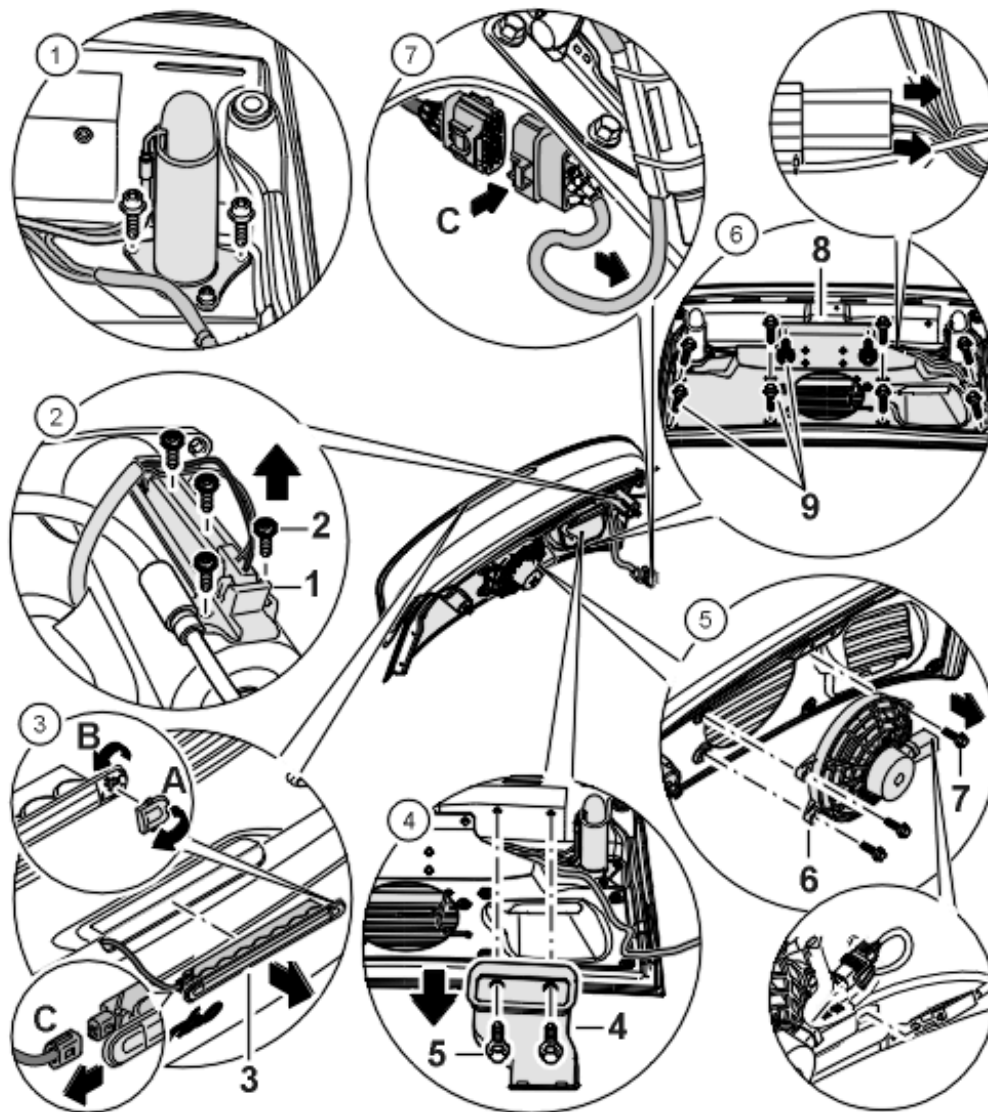


No.	Procedure	Instructions
1	Pulling out pump	Pull hydraulic cylinder -2- out to the dimension -Y = 35 +2 mm- . To do this, connect 12 V to the pump. Observe polarisation arrangement -A- .
2	Bleeding short hydraulic line	Slowly tighten short hydraulic line -4- until the hydraulic cylinder -2- moves. If the hydraulic cylinder has reached the lower mechanical stop -inset X- , push back onto the stop if necessary, hydraulic lines must be laid parallel to each other -inset Z- . Tighten banjo bolt -3- . Tightening torque: 15 Nm (11 ftlb.)
3	Bleeding long hydraulic line	Slowly tighten long hydraulic line -5- until the hydraulic cylinder -2- moves. If the hydraulic cylinder has reached the lower mechanical stop -inset X- , push back onto the stop if necessary, hydraulic lines -inset Z- must be laid parallel to each other. Tighten banjo bolt -3- . Tightening torque: 15 Nm (11 ftlb.)

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Removing and installing wiring harness

Removing wiring harness



No. Procedure

- 1 Hydraulic cylinder, right
- 2

Instructions

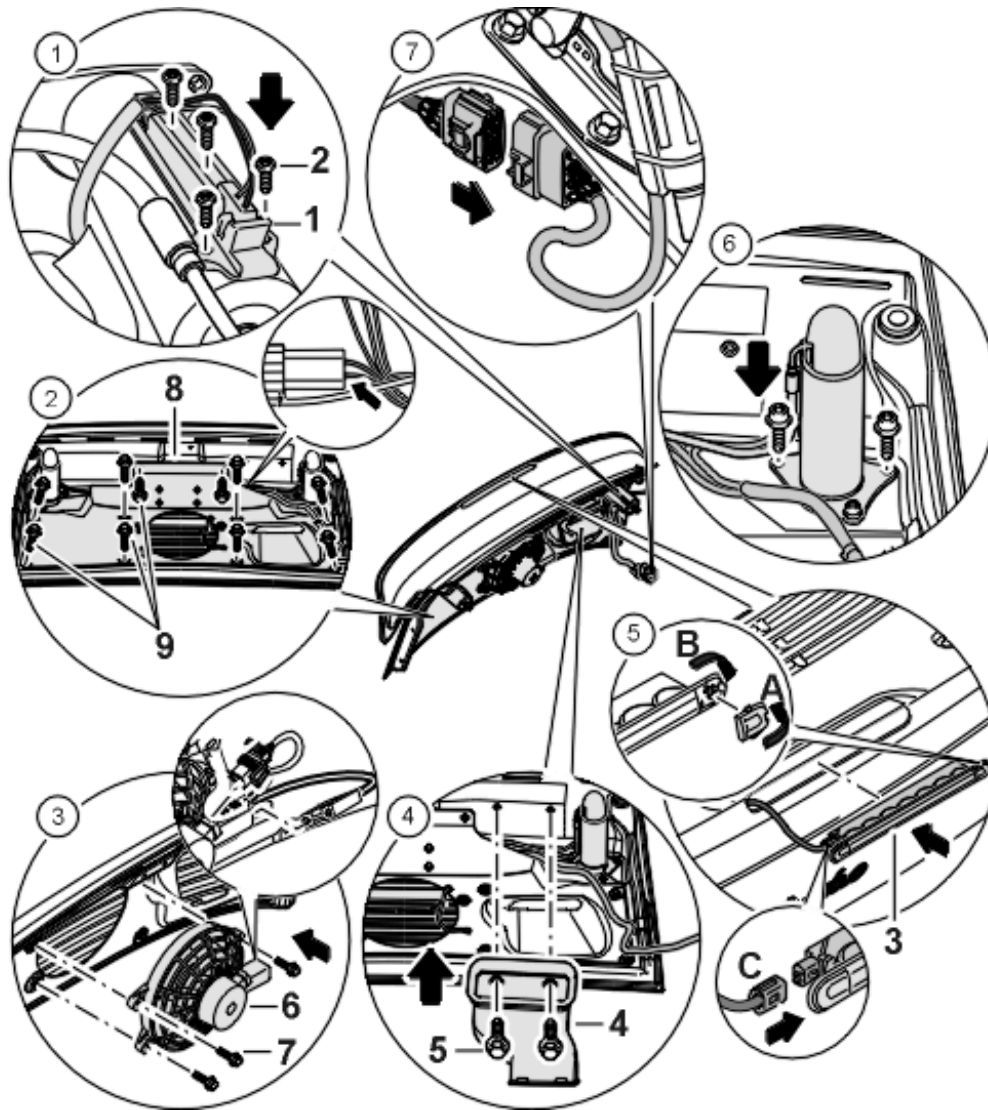
- Loosen fastening screws on right hydraulic cylinder. Unscrew 2 fastening screws. 3. Screw can remain installed.
- Unscrew 4 fastening screws -2- from the holder -1- .

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- Holder for micro switch.
- 3 Remove additional brake light **-3-** Disengage cover **-A-** at the sides, unlock lock **-B-** . Pull off plug **-C-** and remove additional brake light **-3-** .
 - 4 Removing air guide **-4-** Unscrew fastening screws **-5-** and remove air guide **-4-** .
 - 5 Removing fan with fan housing **-6-** Disconnect plug connections for fan and engine compartment lighting on the fan housing. Unscrew fastening screws **-7-** and remove fan with fan housing **-6-** .
 - 6 Disconnecting mount **-8-** Unscrew fastening screws **-9-** . Remove mount **-8-** . Pull off plug connection on the pump unit.
 - 7 Electrical plug connection Push in locking tab of the electrical plug connection **-C-** and pull apart. Cut cable tie on the pneumatic spring. Remove wiring harness.

Installing wiring harness

einordnung



No. Procedure

- 1 Fastening holder **-1-** for micro switch
- 2 Fitting pump unit plug connection and mount **-8-** .
- 3 Installing fan with fan housing **-6-**
- 4 Installing air guide **-4-**
- 5 Installing additional brake light **-3-**
- 6 Fastening right hydraulic cylinder

Instructions

- Fasten holder **-1-** for both micro switches onto the hydraulic cylinder with the fastening screws **-2-** .
Tightening torque: 0.5 Nm (0.5 ftlb.)
- Insert electric plug on the pump unit.
Screw in fastening screws **-9-** .
Tightening torque: 10 Nm (7.5 ftlb.)
- Put on fan with fan housing **-6-** and tighten with the three fastening screws **-7-** .
Tightening torque: 10 Nm (7.5 ftlb.)
Push on plug for fan and plug for engine compartment lighting.
- Screw in both fastening screws **-5-** .
Tightening torque: 10 Nm (7.5 ftlb.)
- Push on plug **-C-** . Insert brake light. Lock the lock **-B-** .
Engage cover **-C-** .

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Screw the hydraulic cylinder to the spoiler with the fastening screws.

Tightening torque: 10 Nm (7.5 ftlb.)

- 7 Connecting the plug connection Press plug connection together in **–direction of arrow–** until it engages.
Lay electric line on the pneumatic spring and fix with tie wraps.

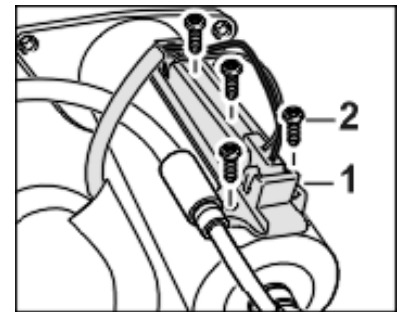
Removing and installing micro switches for rear spoiler



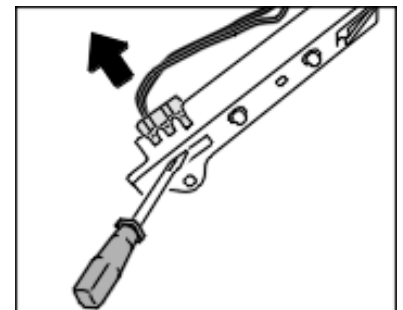
Note

- The rear spoiler is controlled via the instrument cluster.
- The micro switches can be checked with the Porsche System Tester.
- The micro switches are located on the right hydraulic cylinder.
- The operating principle of the micro switches differs (NO or NC contacts)

Removing micro switches



1. Unscrew fastening screws **–2–** for holder, micro switch **–1–** on the right hydraulic cylinder (4 screws) and remove holder.
2. Press the micro switch carefully out of the bracket using a screwdriver.



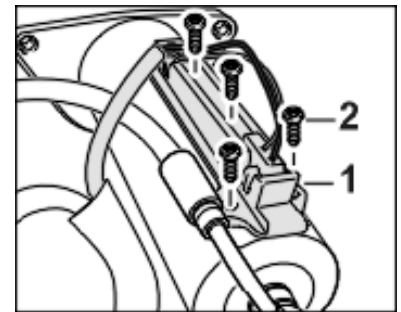
3.

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Open the protective sleeve of the wiring harness by a few centimetres and cut wiring of micro switch using a pair of side cutters.

Installing micro switches

1. Carefully push the new micro switch into the holder **-1-** . The micro switch with the blue lead at the bottom and the micro switch with the grey lead at the top.
2. The operating principle of the micro switches differs (NO or NC contacts)
3. Join wires using crimp connector and crimping tool. => Tools and materials
 - Cut off lines to different lengths (due to the shrink connection).
 - Slide shrink-fit hose over the leads.
 - Strip 10 mm of insulation off the wires.
 - Connect wires with crimp connectors (do not confuse colours of the individual wires).
 - Shrink shrink-fit hoses with a hot-air gun. It is essential that all wires are watertight.
 - Wrap commercially available PVC tape all around the area of the connection points.



4. Position holder with micro switch **-1-** on the hydraulic cylinder. Fastening screws **-2-** Tightening torque: 0.5 Nm.(0.5 ftlb.)

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Troubleshooting

Procedure		Work instruction	Cause
1	Possible causes of fault	Diagnosis troubleshooting, spoiler drive ' Spoiler control, 9150	
2	Drive motor for the pump does not turn.	Connect battery voltage to the pump.	' Pump faulty, replace => <u>Removing pump</u>
3	Drive motor for the pump turns. Hydraulic cylinders do not move.		' Pump faulty, replace => <u>Removing pump</u>
4	One hydraulic cylinders does not extend.	Visual inspection: -oil loss, visible fluid (Pentosin) on hydraulic cylinder.	' Hydraulic cylinder faulty, replace => <u>Removing hydraulic cylinder</u>

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5	Hydraulic cylinders do not extend.	Visual inspection: –oil loss, visible fluid (Pentosin) on the pump.	' Pump faulty, replace => <u>Removing pump</u>
6	Hydraulic cylinders extend automatically on parked vehicle.		' Oil level too high. => <u>Bleeding the pump unit</u>

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Tools and materials

Item	Designation of the special tool	Explanation
1	Pentosin CHF 11 S For filling the pump unit and the hydraulic cylinder	Spare part Gr 4; Parts Catalogue
2	Syringe	Commercial tool
3	Multimeter 155	Workshop Equipment Manual, Gr. 2.4
4	Repair set for wiring harness 155–1	Workshop Equipment Manual, Gr. 2.4

996420, 996421, 996450, 996451

66 85 19 Removing and installing micro switches for rear spoiler

Note

Remove micro switches

Installing micro switches

Tools

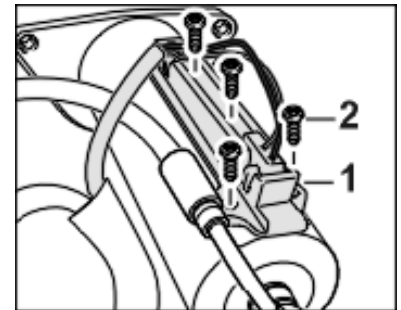


Note

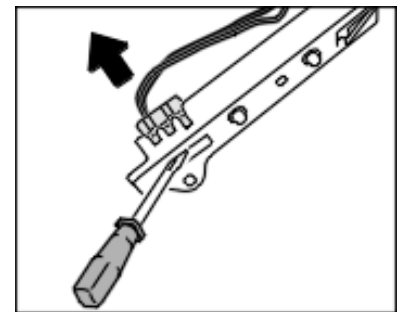
- The rear spoiler is controlled via the instrument cluster.
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- The micro switches are located on the right hydraulic cylinder.
- The operating principle of the micro switches differs (NO or NC contacts)

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Remove micro switches



1. Unscrew fastening screws –2– for holder, micro switch –1– on the right hydraulic cylinder (4 screws) and remove holder.



2. Press the micro switch carefully out of the bracket using a screwdriver.
3. Open the protective sleeve of the wiring harness by a few centimetres and cut wiring of micro switch using a pair of side cutters.

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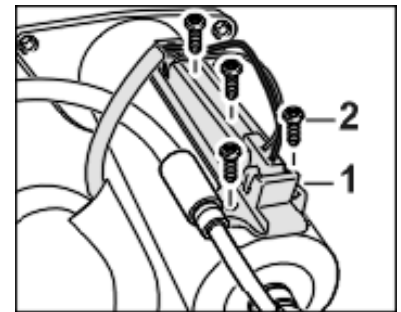
Installing micro switches

1. Carefully push the new micro switch into the holder –1– . The micro switch with the blue lead at the top and the micro switch with the grey lead at the bottom.

The operating principle of the micro switches differs (NO or NC contacts)

2. Join wires using crimp connector and crimping tool. => [Tools](#)

- Cut off lines to different lengths (due to the shrink connection).
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- Shrink shrink-fit hoses with a hot-air gun. It is essential that all wires are watertight.
- Wrap commercially available PVC tape all around the area of the connection points.



3. Position holder with micro switch –1– on the hydraulic cylinder. Fastening screws –2– Tightening torque: 0.5 Nm.(0.5 ftlb.)

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Tools

Item	Designation of the special tool	Explanation
1	Repair set for wiring harness 155-1	Workshop Equipment Manual, Gr. 2.4

996420, 996421, 996450, 996451