Repair Instructions – Laundry

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1.1 Important information

Read and observe chapter 2 "Safety" before performing any work!

1.1.1 Purpose

These repair instructions form the basis for a systematic and safety conscious procedure for the repair of domestic appliances.

These repair instructions include information about troubleshooting and repair.

1.1.2 Target group

These repair instructions are intended for persons who are familiar with equipment technology and were instructed by BSH or an authorised body:

- Service technicians for the repair of domestic appliances
- Pre-assemblers in the spare part stockroom when determining required spare parts
- Call centre employees during order acceptance

1.1.3 Other applicable documents

The following documents include additional relevant repair information:

- General repair instructions
- Error codes and service programs
- Circuit diagrams
- Exploded drawings
- Parts lists
- Repair videos

1.2 Explanation of symbols

1.2.1 Danger levels

The warning levels consist of a symbol and a signal word. The signal word indicates the severity of the danger.

Warning level	Meaning
DANGER	Non-observance of the warning message will result in death or serious injuries.
WARNING	Non-observance of the warning message could result in death or serious injuries.
CAUTION	Non-observance of the warning message could result in minor injuries.
NOTICE	Non-observance of the warning message could result in damage to property.

Table 1: Danger levels

1.2.2 Hazard symbols

Hazard symbols are symbolic representations which give an indication of the kind of danger.

The following hazard symbols are used in this document:

Hazard symbol	Meaning
	General warning message
	Danger from electrical voltage
	Risk of explosion

Hazard symbol	Meaning
	Danger of cuts
	Danger of crushing
	Danger from hot surfaces
	Danger from strong magnetic field
	Danger from non-ionizing radiation

Table 2: Hazard symbols

1.2.3 Structure of the warnings

Warnings in this document have a standardised appearance and a standardised structure.

CAUTION

Type and source of danger!

Consequences of ignoring the warning.

► Actions to protect from danger.

The following example shows a warning that warns against electric shock due to live parts. The measure for avoiding the danger is mentioned.

DANGER

Risk of electric shock due to live parts!

► Disconnect the appliance from the mains at least 60 seconds before starting the work .

1.2.4 General symbols

The following general symbols are used in this document:

Gen. symbol	Meaning
	Identification of a special tip (text and/or graphic)
Start	Identification of a key or button
[00123456]	Identification of a material number
	Identification of a condition (if ..., then ...)
	Identification of a simple tip (only text)

Table 3: General symbols

2.1 Qualification

In Germany, only qualified electricians trained by BSH or an authorised body may perform any repair work.

In other countries, only similarly trained qualified personnel is permitted to perform the repair work.

Appliances must only be repaired by persons that are qualified, **approved** and trained by BSH or an authorised body as instructed.

2.2 General safety information

2.2.1 All domestic appliances

Risk of electric shock due to live parts!
- Disconnect the appliance from the mains for at least 60 seconds before starting work.
- Do not touch the housing, components and cables.
- For tests on an energised system, use a residual current circuit breaker.
- Discharge high-voltage capacitors.

Risk of injury from sharp edges!
- Wear protective gloves.

Risk of injury when dealing with harmful substances!
- Observe the associated safety data sheet!

Risk to the appliance's safety / function!
- Only use original spare parts.

Risk of damage to electrostatically sensitive components (ESDs)!
- Before touching ESDs, use an electrostatic protection system (wristband with earth safe plug).
- Do not touch connections and conductor paths of the modules.
- Only transport ESDs in conductive materials or original packaging.
- Keep ESDs clear of electrostatically chargeable materials (i.e. plastic).

2.3 Product-specific safety information

2.3.1 Microwave ovens

Risk of scalding due to explosive escape of liquids in case of delayed boiling!
- Before heating place a metal spoon in the liquid.

Health hazard due to non-ionising radiation!
- After any work on the appliance, check the tightness with leak rate measurement.

2.3.2 Induction appliances

Induction appliances fulfil the relevant regulations for safety and electromagnetic compatibility (EN 50366).

Danger to life due to magnetic fields!
- People with pacemakers should stay clear during repairs on an open appliance!

Health hazard due to magnetic fields!
- People with medical devices (for example insulin pump / hearing aid) should stay clear of the opened appliance!

2.3.3 Gas appliances

Explosion hazard due to escaping gas!
- Cut off the gas supply before working on gas carrying connections.
- Check tightness following work on connections carrying gas.
- Only repair gas appliances with original parts that were tested and released for such use.

If you smell gas!
- Do not press any electrical switches.
- Extinguish / keep clear of open flames.
- Ensure that room is well ventilated.
- Close the gas isolating equipment.

2.3.4 Refrigerators and freezers

Risk of burns caused by refrigerants!
- Wear protective gloves and goggles.

Explosion hazard due to refrigerants!
- Do not solder pipe connections, only use Lokring connections.
- Do not press any electrical switches.
- Keep clear of thermal appliances.
- Extinguish / keep clear of open flames.
- Ensure that room is well ventilated.

2.3.5 Dryer with heat pump

Risk of burns caused by refrigerants!
- Wear protective gloves and goggles.

Explosion hazard due to refrigerants!
- Do not solder pipe connections, only use Lokring connections.
- Do not press any electrical switches.
- Keep clear of thermal appliances.
- Extinguish / keep clear of open flames.
- Ensure that room is well ventilated.

2.4 Measures after each repair

If the appliance is functional:
- Check according to VDE 0701 or country-specific regulations.
- Check external appearance, function and tightness.
- Document repair work, measured values and functional reliability.

If the appliance is **not** functional:
- Identify the appliance as “not functionally reliable”.
- Warn customers of commissioning and notify them in writing .

3.1 Safety system

3.1.1 Structure

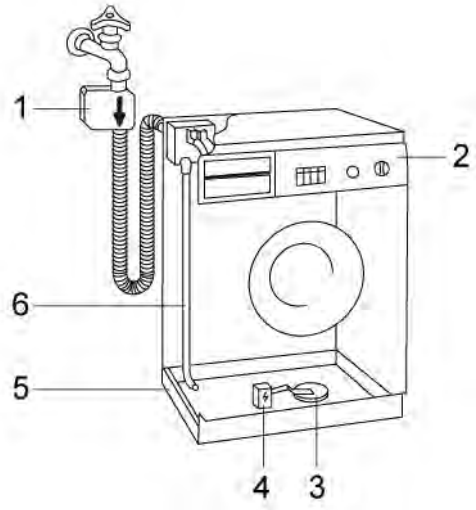


Fig. 1: Components of the safety system

1	Aquastop	4	Safety switch
2	electronics module	5	Base support
3	Float	6	Leakage water hose

The leakage water hose (6) of the Aquastop feeds into the base support (5). The safety switch (4) and the float (3) are installed in the base support.

Aquastop (1) and safety switch (4) are electrically connected to the electronics module (2).

3.1.2 Function

The safety system is active as soon as the appliance is switched on.

Water can leak from various points on the appliance:
- Leakage water hose of the Aquastop
- Outer tub
- Seal

The leaking water collects in the base support. The increasing water level in the base support lifts the float and actuates the safety switch. The electronics deactivate the Aquastop valve and stop the water supply. If there is water in the outer tub, the electronics switch the pump on. The pump pumps the water out of the tub and prevents large volumes of water from overflowing or leaking out. An error message sounds and is indicated on the display.

As long as the safety switch is actuated, the appliance is not ready for use.

3.2 Safety switch

3.2.1 Structure

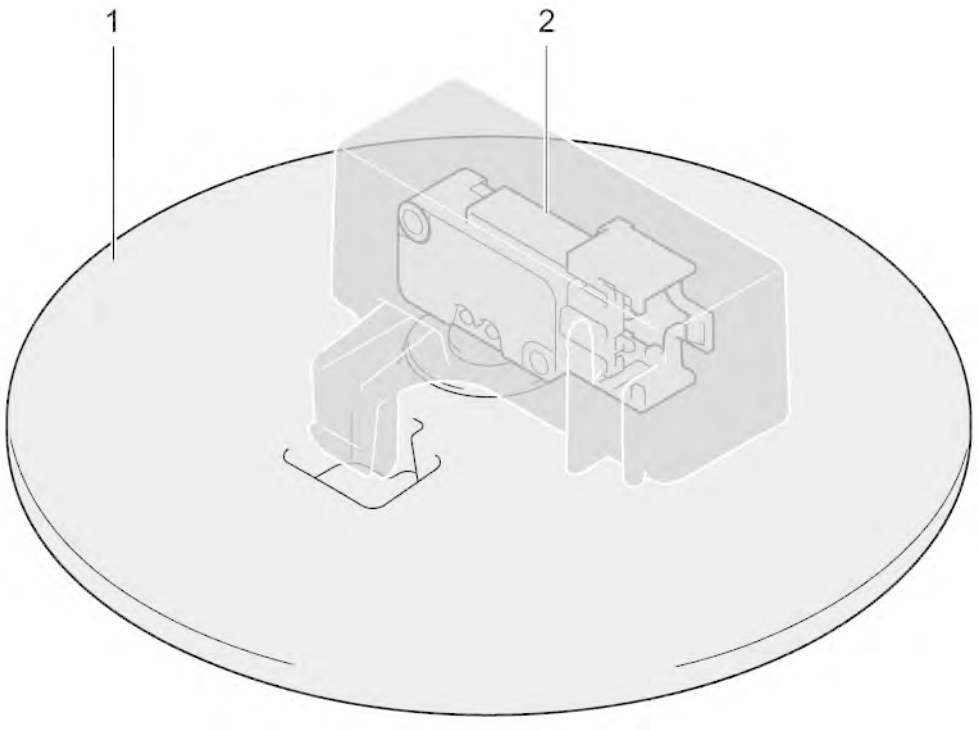


Fig. 2: Components of the safety switch

1 Float
2 Safety switch

The float (1) is in the base support. The safety switch (2) is situated above the float. The float and switching contact of the safety switch are mechanically connected to each other.

3.2.2 Function

If water infiltrates into the base support, the float rises and actuates the safety switch.

The Aquastop valve is deactivated. The wash liquor is pumped off.

3.3 Flow-through sensor

3.3.1 Structure

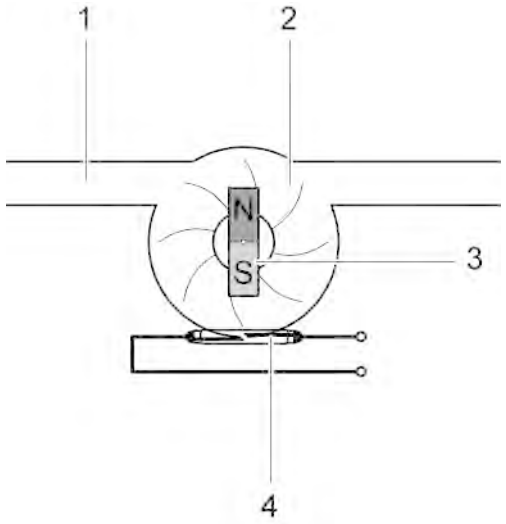


Fig. 3: Components of the flow-through sensor

1	Water inlet	3	Permanent magnet
2	Impeller	4	Reed contact switch

The impeller (2) with a permanent magnet (3) is located in the water inlet (1). The circuit board with reed contact switch (4) is outside the water inlet in the area of influence of the permanent magnet.

3.3.2 Function

Inflowing water moves the impeller and the permanent magnet. The rotating magnetic field opens and closes the reed contact switch.

The appliance electronics determine the volume of water which has flowed in based on the switching pulses of the reed contact switch.

3.4 Turbidity sensor

3.4.1 Structure

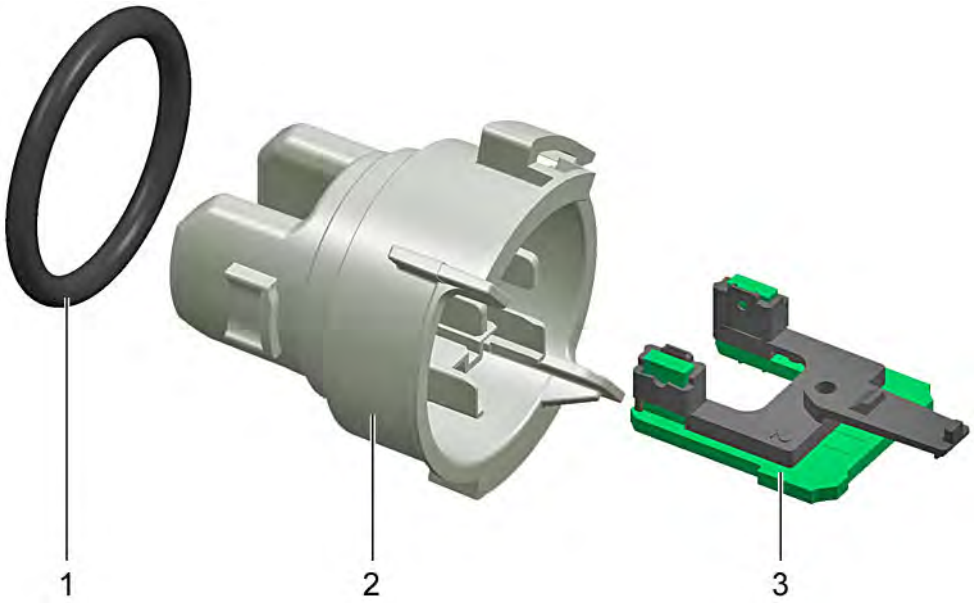


Fig. 4: Components of the turbidity sensor

1 Seal
2 Housing
3 Circuit board with light barrier

The turbidity sensor consists of a circuit board (3) on which there is a light barrier. The board is situated in a transparent housing (2) surrounded by a seal (1). The housing protrudes into the outer tub.

3.4.2 Function

The turbidity sensor operates according to the principle of a light barrier (Page 12). The water fills the space between the light-emitting diode and phototransistor of the light barrier. The turbidity of the water determines the signal strength on the phototransistor.

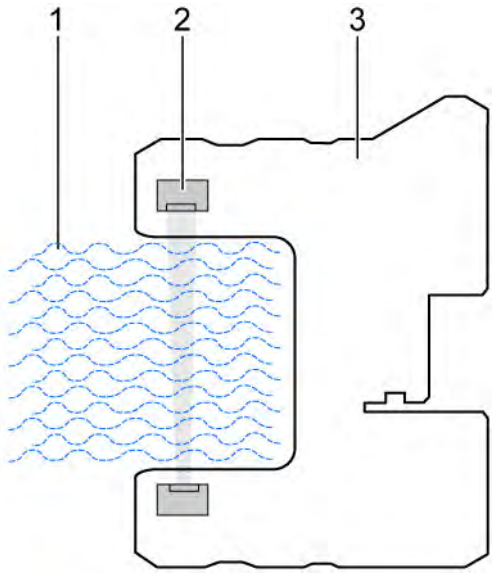


Fig. 5: Function of the turbidity sensor

1 Water
2 Light barrier
3 PCB

The turbidity sensor detects the turbidity of the water in the following programme steps:
- Prewash
- Rinse

The measured turbidity provides information about the degree of soiling and sud content in the water.

The measurement result influences the further operation of the wash programme:
- Changing the water for the main wash
- Addition of extra rinse cycles (max. 4 additional rinse cycles possible)
- Reduction of spin speed for reduced formation of suds

The turbidity sensor must be calibrated (Page 56) for the measurement.

3.5 Light barrier

A light barrier is an electronic-optical system which detects the interruption of a light beam.

3.5.1 Structure

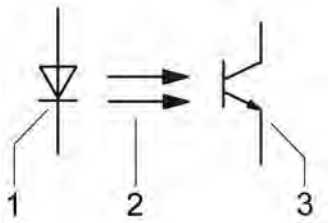


Fig. 6: Components of the light barrier

1 Light-emitting diode
2 Light beam
3 Phototransistor

In the case of a light barrier the light-emitting diode (1) and the phototransistor (3) are arranged opposite each other. The light beam (2) from the light-emitting diode hits the phototransistor.

3.5.2 Function

The infrared light-emitting diode transmits light to the light-sensitive base of the phototransistor. The phototransistor becomes conductive as a result. The voltage on the phototransistor drops.

If the light beam is weakened or interrupted, e.g. by a turbid liquid, the light is no longer adequate to activate the phototransistor.

The voltage on the phototransistor is evaluated by the electronics.

3.6 Calibrating the turbidity sensor

The sensitivity and function of the turbidity sensor may be impaired by deposits.
The turbidity sensor is calibrated before each wash programme.

- Drum must be empty
- Door is not closed
- Switch on appliance, select programme but do **not start**.

the turbidity sensor is now calibrated.

Now the washing machine is ready for use.

3.7 Anti-crease function

A lower speed during the spin interval and longer fluffing at the end of the programme will reduce creasing.

3.8 3D sensor

3.8.1 Structure

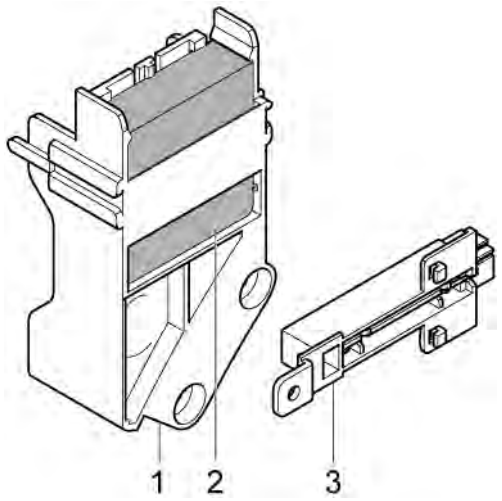


Fig. 7: Components of the 3D sensor

1 Holder
2 Permanent magnet
3 3D sensor

The 3D sensor consists of 3 Hall elements and a microcontroller. The Hall elements are arranged in such a way that the 3 spatial axes are measured.

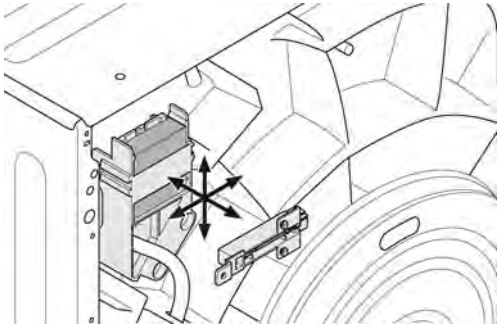


Fig. 8: Function of the 3D sensor

The permanent magnet is installed in the appliance near the 3D sensor.

3.8.2 Function

The 3D sensor uses the Hall effect.

If the drum drops due to the load or is deflected during the spin cycle, the position of the permanent magnet moves with respect to the 3D sensor. This changes the effect of the magnetic field on the Hall elements. The Hall elements generate Hall voltages. The electronics evaluate the voltages.

	In the case of appliances in which one 3D sensor and one 3G sensor are fitted, the unbalanced load detection is monitored using the 3G sensor. The 3D sensor only monitors the load of the drum.

3.9 Load detection function with 3D sensor

A washing machine load designates the amount of washing which fills the drum.

The load detection function determines the load. Depending on the load, the control optimises the volume of water and the duration of the wash programme.

The **load detection function with 3D sensor** evaluates the mass of the washing.

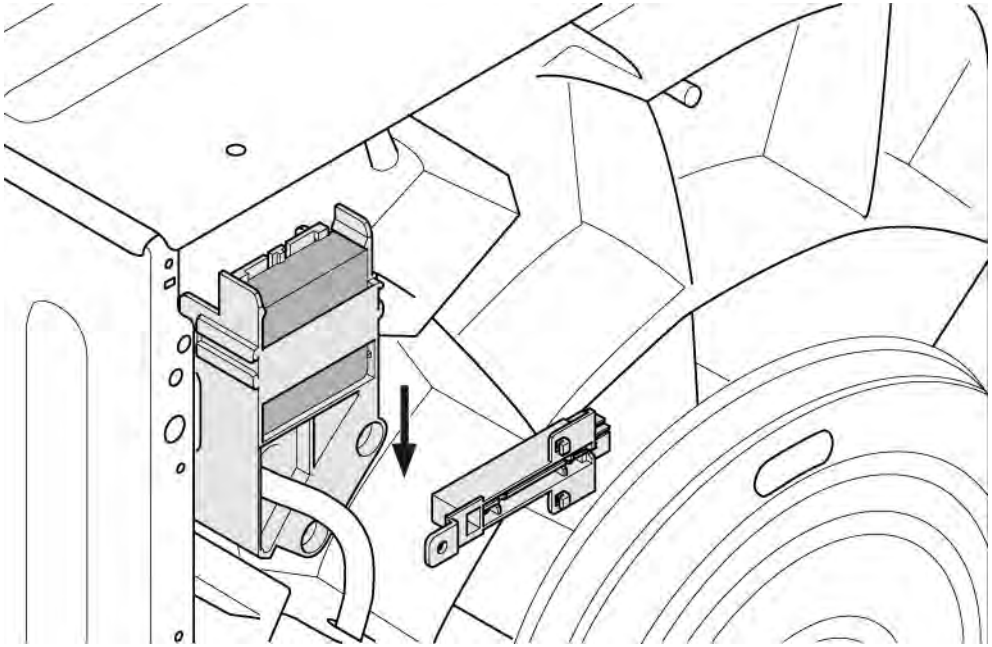


Fig. 9: Principle of the load detection function with 3D sensor

The sensor measures how far the oscillation system drops when the drum is loaded with washing.

The load is calculated based on the measurement result.

	The 3D sensor is calibrated when the appliance is switched on. To do this, the door must be closed and the appliance empty.

3.10 3G sensor

The 3G sensor consists of 3 Hall elements and a microcontroller. The Hall elements are arranged in such a way that the 3 spatial axes X, Y and Z are measured.

3.10.1 Structure of the 3G sensor

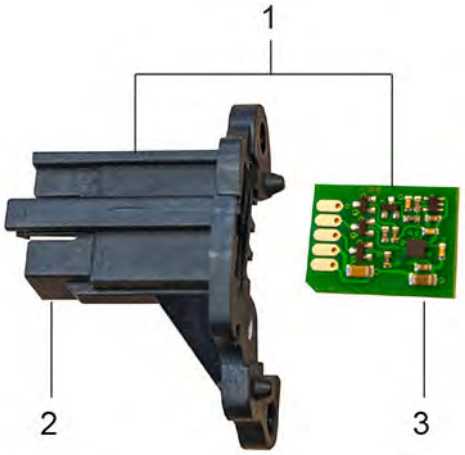


Fig. 10: Components of the BLDC 3G sensor

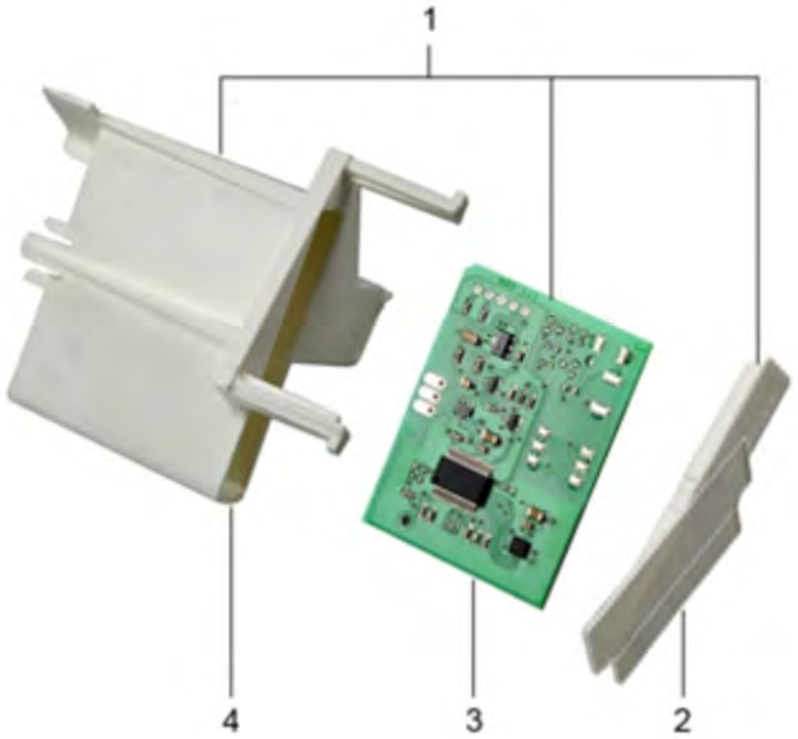


Fig. 11: Components of the UMAC 3G sensor

1	Complete 3G sensor	3	PCB
2	Cover	4	Housing

3.10.2 Measurement axes

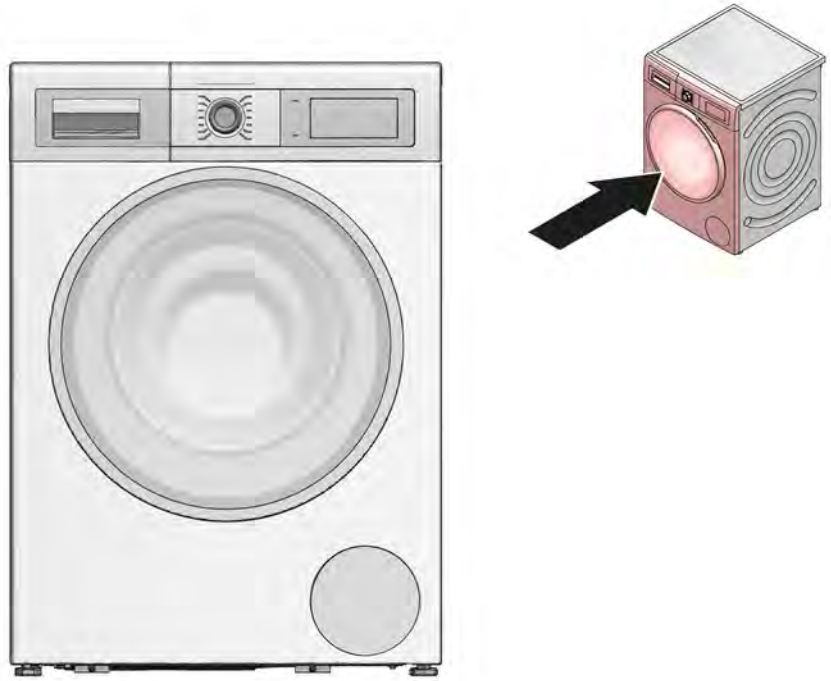


Fig. 12: Measurement axis X

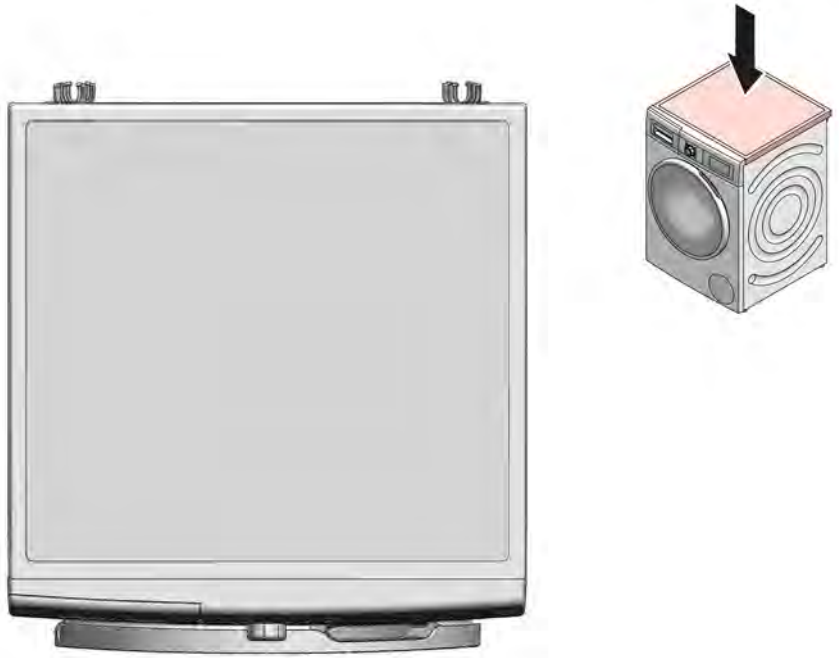


Fig. 13: Measurement axis Y

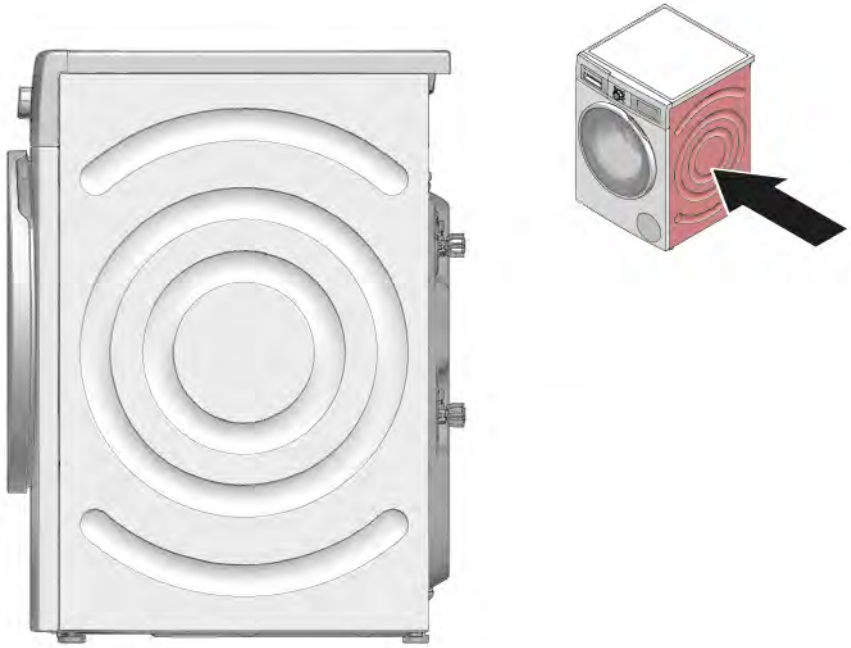


Fig. 14: Measurement axis Z

3.11 Unbalanced load detection

Unbalance occurs in rotating bodies whose mass is not distributed in a rotationally symmetrical manner. The loaded drum of a washing machine always experiences unbalance, as the laundry items are never optimally distributed around the axis of rotation. If the unbalance cannot be offset by the oscillating system of the washing machine, damage to the appliance and its installation location may occur.

The **unbalanced load detection** monitors unbalance in the drum during the spin cycle start-up. If an unbalance occurs which is too high, the control unit reduces the rotary speed of the drum. Damage caused by high unbalance is avoided in this way. In order to measure the unbalance, the motor is accelerated to a constant rotary speed for a specific time period. Appliances in newer model series measure unbalance at various rotary speeds. The multilevel unbalance detection is more accurate and ensures that the unbalance limit value provided is not exceeded for the spin speed selected.

There are various procedures for measuring the unbalance:
- Determination of asynchronous motor operating values
- Determination of the drum deviation

Appliances with 3D/3G sensor determine the unbalance before acceleration to the spin speed in 3 consecutive measurements.

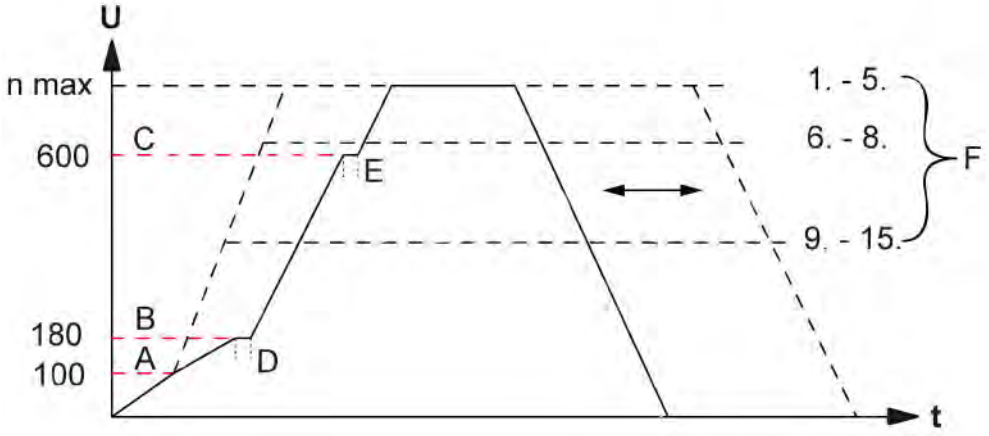


Fig. 15: Unbalance measurement process schematic with 3D/3G sensor

A Measurement 1
B Measurement 2
C Measurement 3
D Duration of measurement 2
E Duration of measurement 3
F Decreased rotary speed after start-up attempt

Mea-sure	Measurement system	Measurement rotary speed	Duration of measurement	Measured quantity
1	Motor tachome-ter	100 rpm	20 seconds	Rotary speed fluctuation
2	3D/3G sensor	180 rpm	10 seconds	Maximum ampli-tude of the oscil-lating system
3	3D/3G sensor	600 rpm	10 seconds	Maximum ampli-tude of the oscil-lating system

Table 4: Measurements

If measurement 1 or 2 determines an impermissible unbalance, the control unit reduces the rotary speed of the drum in order to improve the distribution of the laundry. Then, measurement 1 is restarted.

A maximum total of 15 start-ups to the rotary speed are possible for measurements 1 and 2. For the wool wash programme, unbalance recognition is limited to 2 start-up attempts.

Measurement 3 starts after successful operation of measurements 1 and 2. The unbalance detected determines the rotary speed of the spin cycle approved for the range 1000 rpm ≤ U ≤ 1550 rpm.

In case of high unbalance during measurement 3, the spin cycle is cancelled.

	If the 3D/3G sensor is faulty, the appliance spins at a maximum of 1000 rpm.

Appliances with no 3D/3G sensor solely determine the unbalance with measurement 1. If measurement 1 determines an impermissible unbalance, the control unit limits the rotary speed of the drum in order to improve the distribution of the laundry. Then, measurement 1 is restarted.

A maximum of 15 start-ups to the rotary speed are possible for the measurement.

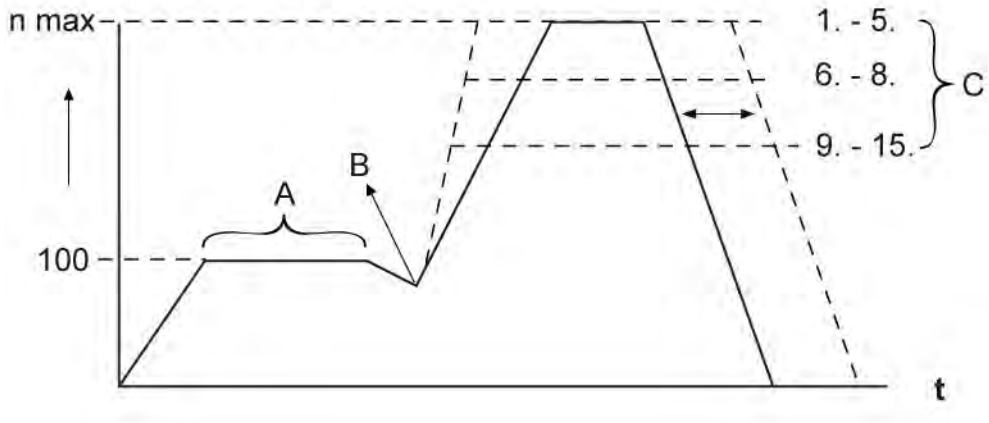


Fig. 16: Process schematic for unbalance measurement without 3D/3G sensor

A Measurement 1
B Reduction of the rotary speed
C Decreased rotary speed after start-up attempt

The unbalance determined specifies the rotary speed during the spin cycle and the duration of the acceleration to the rotary speed. If there is a high unbalance, the appliance will spin with reduced rotary speed and shorter acceleration.

	The electronics offset the decreased rotary speed with the longer duration of the spin cycle.

3.12 Heater with boil-dry protection

3.12.1 Structure

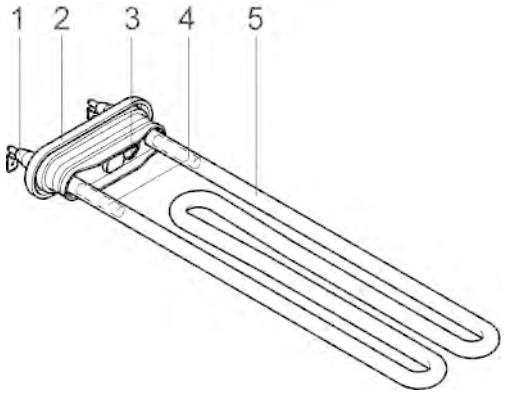


Fig. 17: Components of the heater

1 Electrical connection
2 Flange
3 Holder opening for NTC
4 Fuse
5 Heating element

The heating element (5) consists of a resistance heater, consisting of a heating wire and insulation, and a fuse (4). If appliances have a stainless steel tub, the heating element contains one fuse; if appliances have a plastic tub the heating element contains 2 fuses.

The electrical connections (1) for the power supply and the protective conductor connection are on the heater flange (2). In the flange of some appliances there is a holder opening (3) for the NTC.

3.12.2 Function

The resistance heater generates heat and heats the water. The insulation separates the electric circuit of the resistance heater from the water.

The fuse interrupts the circuit if the heating element overheats, e.g. if there is no water in the tub during heating (boil-dry protection).

The plugs integrate the heater in the electric circuit.

3.13 Siphon

3.13.1 Siphon is integrated in the connection hose

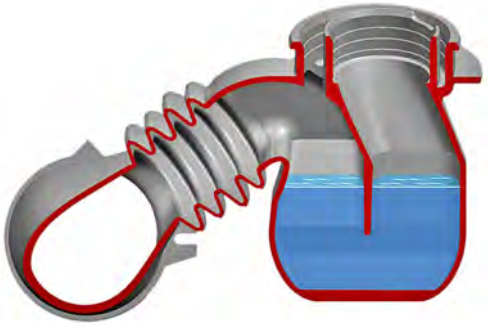


Fig. 18: Connection hose with siphon

The siphon is a trap consisting of pipe systems and receptacles. The siphon operates on the principle of an S-shaped pipe, the lower bend of which always remains filled with water and therefore impedes the passage of vapours and odours. At the same time, however, liquid can flow out through the siphon.

3.13.2 Siphon is integrated in the detergent dispenser

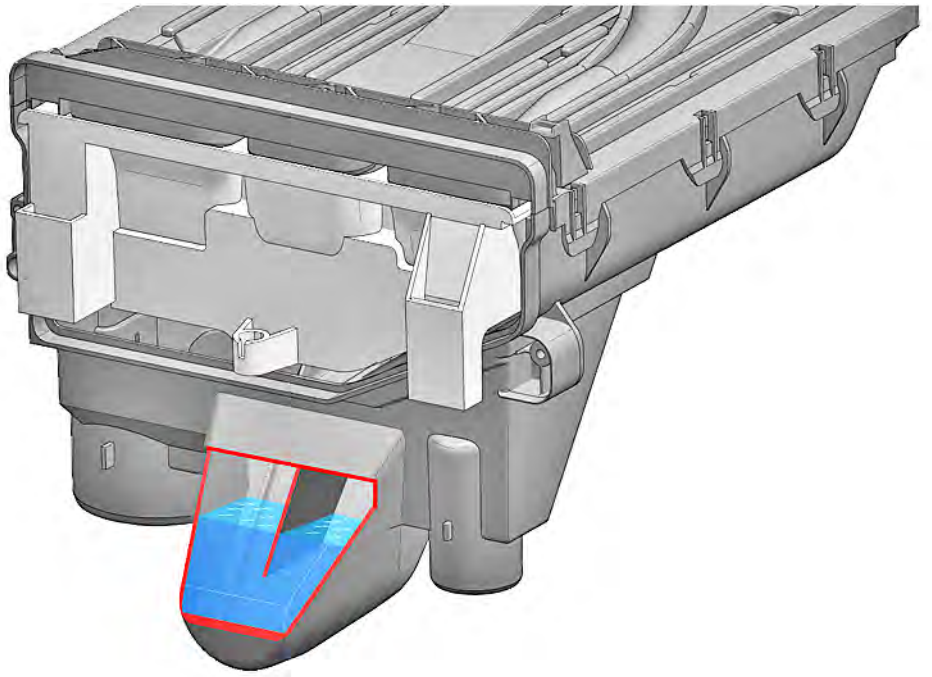


Fig. 19: Detergent dispenser with siphon

3.14 Drip rail

3.14.1 Layout

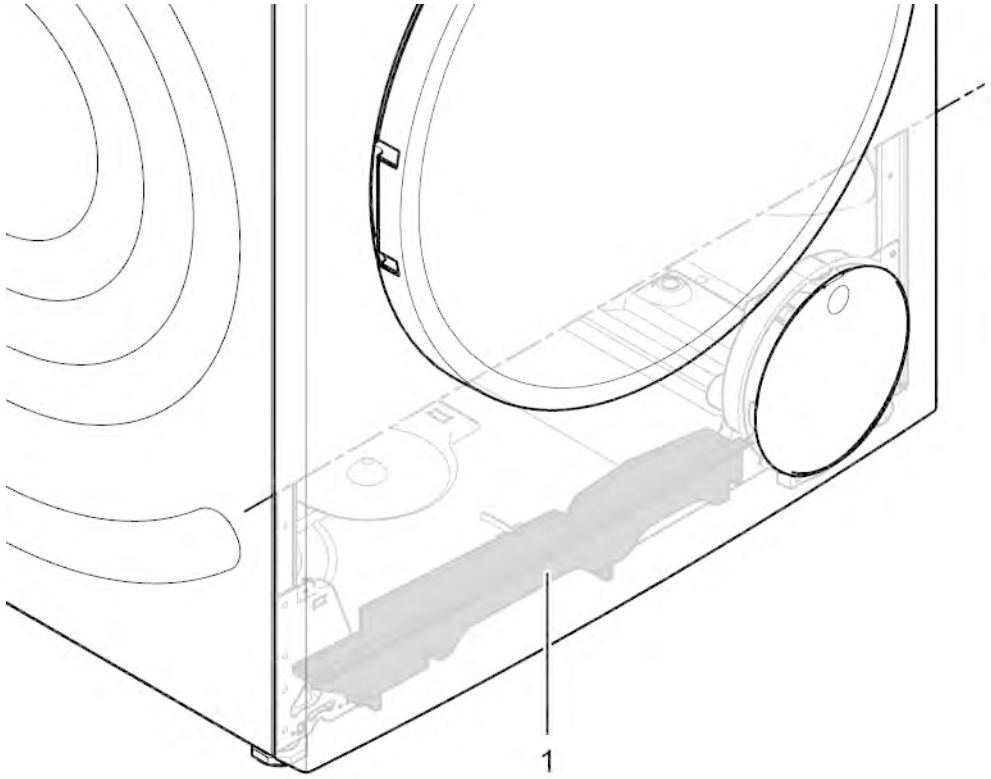


Fig. 20: Drip rail

1 Drip rail

3.14.2 Function

If the gasket is leaking, the drip rail conveys the escaping water into the bottom group. The increasing water level in the bottom group lifts the float and actuates the safety switch.

3.15 Drain pump

3.15.1 Structure

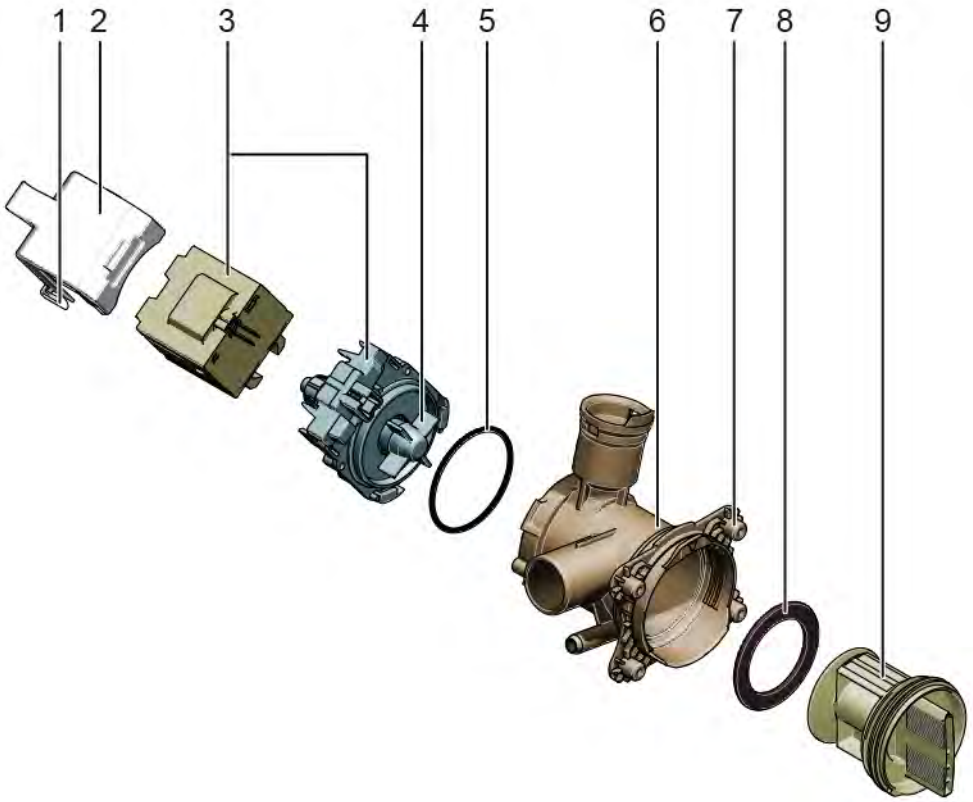


Fig. 21: Components of the drain pump

1 Cable clip
2 Housing (splash guard)
3 Drain pump motor
4 Impeller
5 Sealing ring
6 Pump housing
7 Holding points
8 Lint trap seal
9 Lint trap, complete

3.15.2 Function

The drain pump motor drives the impeller. The liquor is extracted from the front opening, through the lint trap, via the rear opening in the drain pump housing and into the outlet hose.

Voltage is supplied by the power electronics.

The thermal protection on the drain pump actuates when the power consumption is too high. The thermal protection switches back independently.

If there is a blockage in the drain pump >90 sec., an error message is displayed.

3.16 Aquastop

3.16.1 Structure

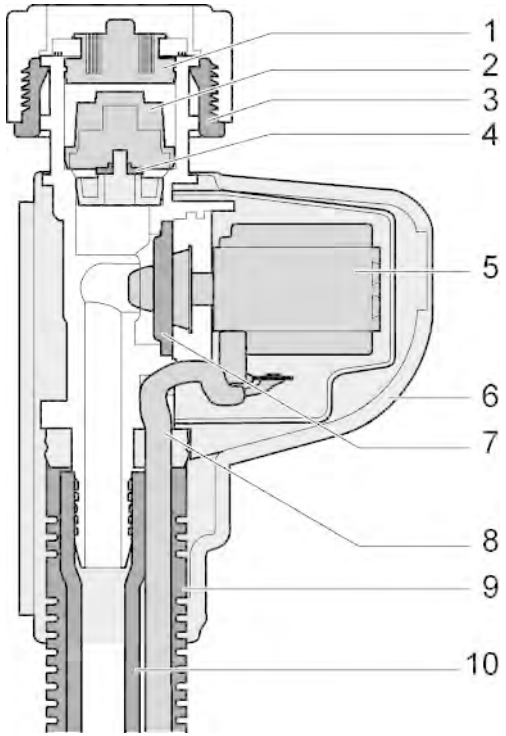


Fig. 22: Components of the Aquastop

1	Coarse filter	6	Housing
2	Fine filter	7	Seal (valve)
3	Screw connection	8	Control lead
4	Flow limiter	9	Leakage water hose
5	Coil (valve)	10	Inlet hose

In the screw connection (3), the coarse filter (1) and the fine filter (2) are arranged consecutively. The flow limiter (4) is situated under the filters. The electromagnetic valve, consisting of the coil (5) and the seal (7), is located behind. After the seal, the water duct of the Aquastop leads out into the inlet hose (10). The Aquastop is enclosed within a housing (6).

The screw connection connects the Aquastop to the tap. The leakage water hose (9) contains the control lead (8) and the inlet hose (10). The control lead (8) connects the valve to the electronics.

3.16.2 Function

The Aquastop combines several functions:

The **coarse filter** and the **fine filter** filter particles out of the inflowing water and prevent them from getting into the water circuit of the appliance.

The **flow limiter** reduces the flow cross-section of the water inlet depending on the water pressure of the water connection.

The **valve** is an electromechanical safety valve. The valve coil is actuated by the electronics. When voltage is applied to the coil, the water inlet seal is opened. When the electronics switch off the voltage on the coil, the seal closes the water inlet.

The **leakage water hose** feeds water into the base support which escapes in the event of a malfunction in the area of the Aquastop or the inlet hose.

3.17 Door lock (electromagnetic)

3.17.1 Structure

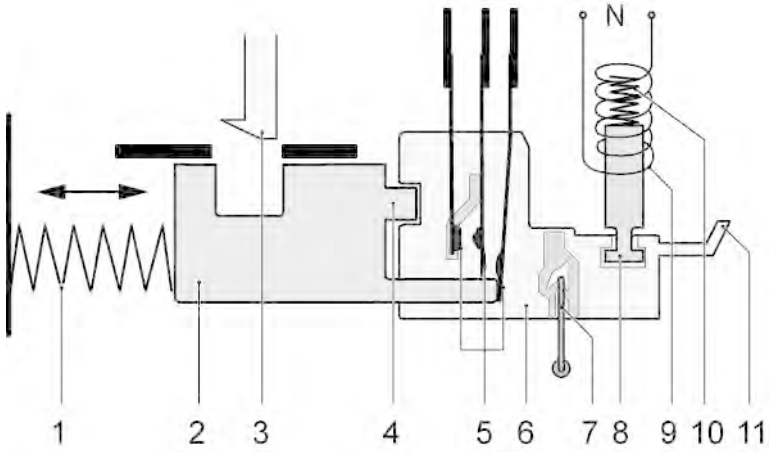


Fig. 23: Components of the door lock

1	Pressure spring of the lock bolt	7	Guiding rod
2	Lock bolt	8	Armature
3	Locking hook	9	Coil
4	Limit stop	10	Pressure spring of the coil
5	Switching contacts	11	Emergency unlock
6	Switching block		

The electromagnetic door lock consists of a locking hook (3) and a movable bar (2) in which a stop (4) is integrated. The switching block (6) is connected to the armature (8) of the coil (9). A guiding rod (7) grips the guide groove of the switching block. Shaped elements of the lock bolt and switching block press against the spring-loaded switching contacts (5).

Pressure springs (1, 10) stabilise the position of the lock bolt and armature.

The door can be manually unlocked via the emergency unlock mechanism (11).

3.17.2 Function

The electronics detect the 3 states of the door via the switching contacts of the door lock:

- Door open
- Door closed and not locked
- Door closed and locked

When the **door is open**, the lock bolt and switching block are in the home position. The guiding rod holds the switching block in position via the guide groove.

When the **door is closed**, the locking hook moves the lock bolt and hooks into the housing of the door lock. The movement of the lock bolt closes the 1st switching contact. The electronics detect the closed state of the door.

The door is locked when:

- The drum rotates for longer than 2 s at over 60 rpm.
- The liquor temperature is over 60 °C.
- The water level is above the level of the door lock.

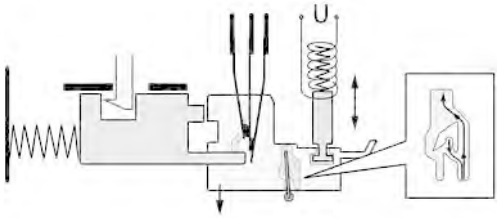


Fig. 24: Function of the door lock: locking

To **lock** the door, voltage is applied briefly to the coil. The magnetic field pulls the armature into the coil. The armature simultaneously moves the switching block. When the coil is de-energised again, the compression spring moves the armature out of the coil. The switching block and guiding rod move into the locking position. The lock bolt stop is fixed and the 2nd switching contact closed.

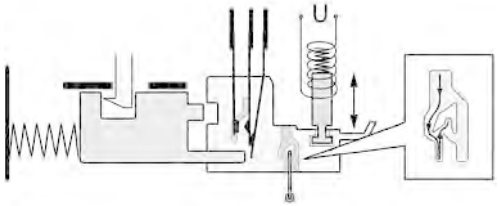


Fig. 25: Function of the door lock: unlocking

To **unlock** the door, voltage is applied briefly to the coil again. The switching block and guiding rod return to the home position. The lock bolt stop is free and the 2nd switching contact is opened.

The door lock can be mechanically unlocked via the emergency unlock mechanism.

3.17.3 Emergency unlock application

Pull the emergency unlock downwards with a tool and release. The door can then be opened using the handle.

3.18 NTC

3.18.1 Structure

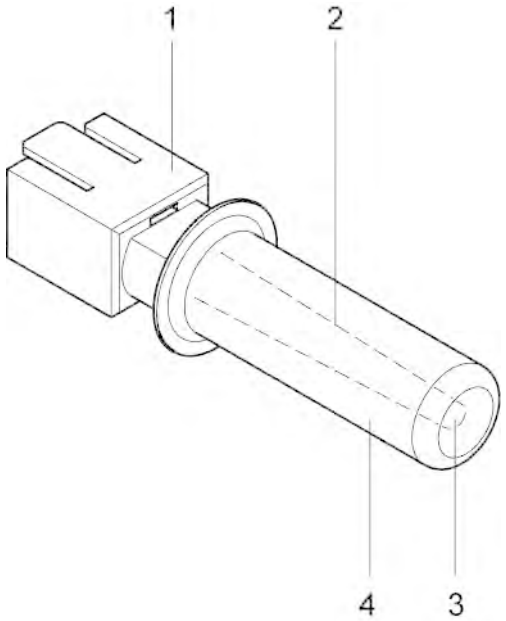


Fig. 26: Components of the NTC

1 Electrical connection
2 Connecting cables
3 Semi-conductor resistor
4 Housing

The NTC is an electrical component. The housing (4) encloses the semi-conductor resistor (1) and the connecting cables (2). Semi-conductor resistor and housing touch each other.

The electrical connection (1) of the NTC is designed as a plug or socket.

3.18.2 Function

NTC resistors are conductive materials with a negative temperature coefficient (**N**egative **T**emperature **C**oefficient = **NTC**). As the temperature rises, the electrical resistance of the NTC drops.

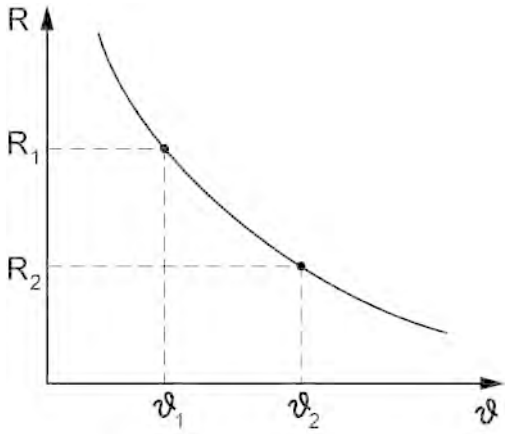


Fig. 27: The function of the NTC

The NTC converts the temperature in the detergent solution to electrical resistance. The electronics evaluate the resistance of the NTC and actuate a switching process if the setpoint temperature of the detergent solution is exceeded or drops below the minimum.

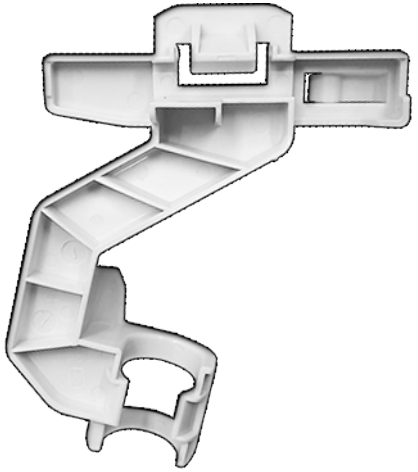
3.18.3 Work area

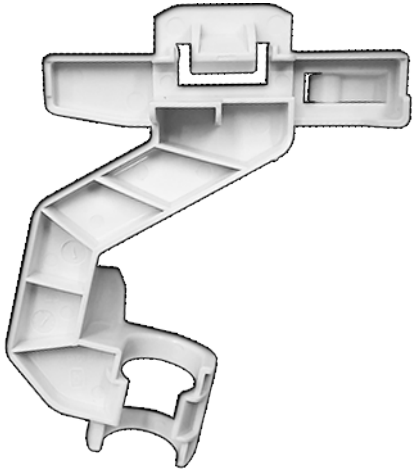
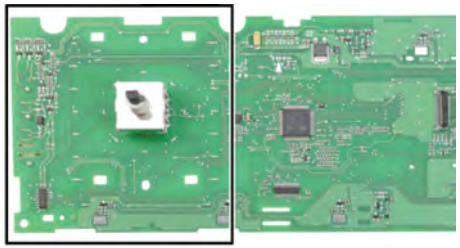
The operating range is 0–99 °C

	Measured values see circuit diagrams

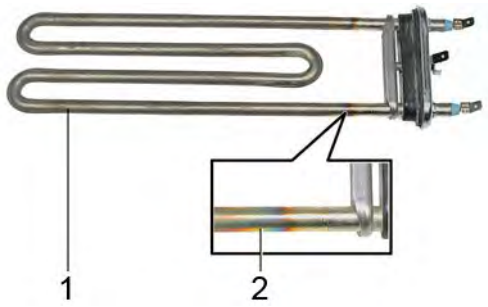
4.1 Malfunctions

Fault	Possible cause	Troubleshooting
Gap between control panel and worktop too large 	Deviations in dimensional accuracy	► Adjusting gap (Page 58)

Fault	Possible cause	Troubleshooting
Drum lighting not functioning	Electrical connection damaged through friction 	► Install lamp retainer[00631842] .   ► Replace electrical connection [00613760] . ► Gasket damaged/leaking (Page)

Fault	Possible cause	Troubleshooting
Gasket leaking *Drum lighting leaking*	Gasket leaking due to friction on lighting 	► Install lamp retainer [00631842] up to FD9310.  ► Replace gasket
Appliance won't switch on/off *Main switch jammed*	Main switch on electronics jams Manufacturing period FD 9401 -FD 9409 	► Control module (OU) must be replaced. ► Control panel and jog dial **must not** be replaced.
Pump off *No or inadequate draining.*	Foreign objects under the drum.	► Remove foreign objects
	Foreign objects in the pump.	► Remove foreign objects
	Blockage in the pump sump	► Remove blockage from the pump sump.
	Drainage hose kinked	► Install drainage hose without kinks.
	Blockage in the water outlet	► Check drainage hose for blockage. ► Siphon blocked
	Water level sensor defective	► Replace water level sensor.

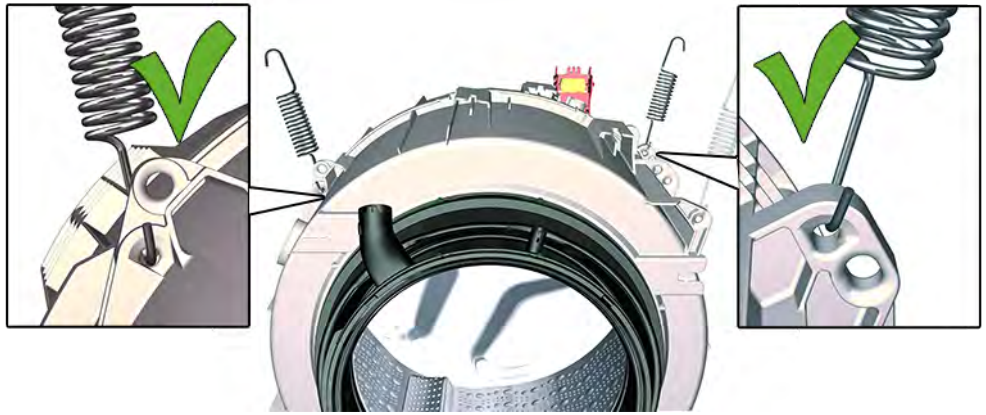
Fault	Possible cause	Troubleshooting
Does not use fabric softener with extra rinse *Laundry does not smell fresh*	Bug in the software. If **extra rinse** is selected after a programme preceded by fabric softener dispensing, fabric softener will not be added.	► We are working on a solution
Water runs in constantly.	Aquastop valve / solenoid valve mechanically blocked (always open).	► Replace Aquastop valve / solenoid valve.
	Water level sensor mechanically blocked.	► Replace water level sensor.
	Water level sensor does not switch or switches after a delay.	► Replace water level sensor.
	Sensor hose leaking	► Check sensor hose for blockage or replace.
	Flow sensor mechanically blocked.	► Replace flow sensor. ► Insert flow sensor correctly.
	Module defective (Aquastop valve / solenoid valve permanently actuated).	► Replace power module.
	Earth fault / short-circuit in the cable harness (supply line to Aquastop valve / solenoid valve).	► Measure insulation resistance / resistance of the lines in the cable harness. Measure insulation resistance / resistance of a line too low ► Replace cable harness.
	Interruption in the cable harness (supply line to water level sensor / flow sensor) (R00)	► Replace cable harness.
	Water pressure too low	► Optimum water pressure in the mains must be between 100-1000kPa (1 to 10bar). When the tap is turned on, the flow rate must be at least 8 l / min). If the water pressure is more than 10 bar (10 at.), a pressure reducing valve must be installed. ► See operating instructions
Water leakage.	Water-conducting component leaking	► Replace water-conducting component.
	Detergent dispenser blocked	► Clean detergent dispenser.
	Water runs in constantly (appliance overflows)	► Check that inlet valve functions, if required replace. ► Check sensor hose for blockage or clean.
Takes too much water.	Sensor system blocked	► Cleaning hose from the sensor system ► Cleaning the sensor system housing
	Water runs in constantly	► Check sensor system (hose) for leaks, if required replace
Takes fabric softener immediately.	Water jet deflected by burr on the upper part of the detergent dispenser	► Clean upper part of detergent dispenser. ► Remove burr.
	Too much fabric softener dosed (siphon drains fabric softener dispenser early)	► Refer customer to mark (Max) in the fabric softener compartment.

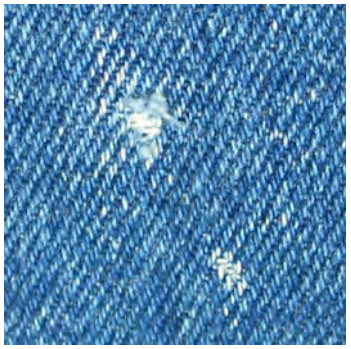
Fault	Possible cause	Troubleshooting
Option buttons do not function	When the display was mounted on the operating module, the contact springs were not positioned correctly.	► (Page 82) ► Detach display from the operating module, put contacts in the correct position. Reinstall module.
Display dark *Display blank*	3-D sensor has caused a short circuit.	► Replace 3-D sensor.
	Thermal fault in 3-D sensor	► Replace 3-D sensor
	At temperatures >60° C display goes out	► Replace 3-D sensor
	Possible EMC influences from mobile phones, microwaves, power supply units, tooth brushes.	► If possible, remove electrical radiation sources such as microwave, tooth brush, mobile phone, charging station for electrical appliances from worktop and direct vicinity.
	Frequency fluctuations due to photovoltaic systems.	► No remedial action currently available. Advise customer.
Appliance is not functioning *Display / drum lighting flickers dark*	Aquastop short circuit	► Replace Aquastop and PU (power module).
	PU (power module) OU (operating module) 3D sensor	► See technical information assigned to the appliances [58300000179405]
	Programme selector turned very slowly	► Switch off appliance and unplug for 5 s.
Laundry is wet	3D sensor	► See technical information assigned to the appliances [58300000179405]
No spin cycle	3D sensor	► See technical information assigned to the appliances [58300000179405]
Programme interrupted	3D sensor	► See technical information assigned to the appliances [58300000179405]
E57 / E59	3D sensor	► See technical information assigned to the appliances [58300000179405]
Appliance does not heat up	---	► Start test programme to narrow down fault (see circuit diagrams).
	Thermal fuse of heater has tripped (heater has run dry).  	► Test water level sensor using test programme (see circuit diagrams). ► Replace heater. ► Replace defective water level sensor.

Fault	Possible cause	Troubleshooting
	Earth fault/short-circuit in heater. 	► Replace heater. ► Advise customer: *The detergent dosage must always be dispensed as described in the instructions. Not just 30 °C programmes should be selected, but also programmes with higher temperatures.* *This fault can be avoided if the appliance is occasionally treated with machine cleaner [00311610] .*
	NTC is interrupted. NTC supplies incorrect measured values. (For measured values of NTC see circuit diagrams)	► Check NTC. (Page 51) ► Replace defective NTC.
	Earth fault/short-circuit in NTC.	► replace NTC.
	Water level sensor interrupted.	► Replace water level sensor.
	Cable harness is interrupted.	► Repair interruption in wire with connector. ► Replace interrupted wire in the cable harness. ► Replace cable harness.
	Module defective (heater relay is hanging, undervoltage, …).	► Replace module.
	Component on module has become unsoldered.	► Replace module.

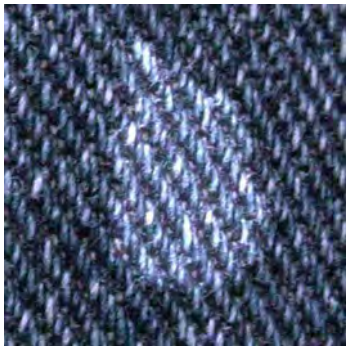
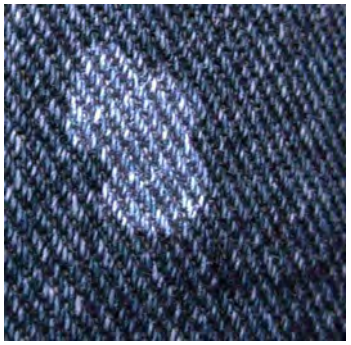
4.2 Result faults

Fault	Possible cause	Troubleshooting
Appliance is not spinning adequately *Poor spin/no spin*	No draining: drain pump or outlet hose blocked.	► Clean drain pump or outlet hose. ► Check drain pump and replace if required.
	Check alignment of appliance.	► Align appliance with a spirit level.
	Drum underloaded. Uneven distribution of the load causes the spin cycle to stop.	► Advise customer of correct load/capacity.
	Imbalance system defective E:59 in error memory E:57 in error memory	► Remove 3D sensor. ► Remove 3G sensor. ► Run motor test programme. ► Check electrical connection ► See the technical information assigned to the appliances [58300000179405] ► 3D sensor not functioning, replace. ► 3G sensor not functioning, replace. ► Replace motor electronics and/or power module. ► Do not replace BLDC motor
	Water level sensor defective.	► Run test programme for water level sensor. ► Replace water level sensor.
	Shock absorber defective.	► Check shock absorber. ► Replace shock absorber.

Fault	Possible cause	Troubleshooting
	Outer tub not fitted correctly	► Check installation position of outer tub ► Insert springs into the correct suspensions 
Creased laundry	Type of textiles	► Select suitable wash programme. ► Pay attention to the load of the drum ⓘ Select crease protection function: a lower speed during the spin interval and longer fluffing at the end of the programme will reduce creasing.
	Washing was not taken out of the appliance as soon as the programme ended.	► Preferably take washing out of the appliance as soon as the programme ends.
Damaged washing / foreign objects *Due to foreign objects*	Foreign objects in outer tub or drum. Seal defective. Sharp-edged burrs on / in the drum.	► Check outer tub and drum for foreign objects, e.g. paper clips, bra underwires. ► Check seal and replace if required. ► Advise customer: *Wash underwear in a washing net* ► Check drum with a nylon stocking.

Fault	Possible cause	Troubleshooting
Damaged washing / holes *Holes in the washing*	Use of washing. Navel piercing Fabric damaged by knife   	► Avoid possible damage to fibres due to body jewellery ► Avoid possible damage to fibres due to knife cuts

Fault	Possible cause	Troubleshooting
Damaged washing / grease *Due to grease*	Effect of skin grease, sun oil, cosmetics or minerals from thermal baths (swimwear)	► Observe the amount of oil and cream used. ► Advise customer: *Observe correct dosage, temperature and detergent.* *Also run prewash programme*
Damaged washing / colour fading *Colour fading on the washing.*	Mechanical stress on the washing	► Colour fading on denim is caused by mechanical stress. This stress occurs when the washing is used or washed ► Example:  ► Treatment: ► The only option is to redye the washing. ► Prevention: ► This stress can be greatly reduced during the wash cycle by using the correct detergent and the correct wash programme and by closing zips and pulling the washing to the left.
Damaged washing / elastane content *Elastane content of the washing dis-coloured or damaged.*	Bleaching agents / fabric softeners were used	► Observe washing labels ► Unsuitable wash programme ► Unsuitable drying cycle
Washing damaged by grease	Effect of skin grease, sun oil, cosmetics or minerals from thermal baths (swimwear)	► Observe correct temperature and dosage

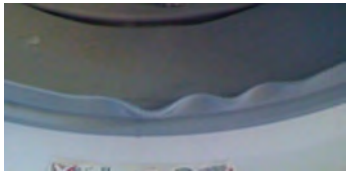
Fault	Possible cause	Troubleshooting
Damaged washing (light stains) *Local colour loss (light stains)*	The so-called clean stains may occur by selective cleaning of dirty washing. The bleach stains which may occur by improper use of bleaching agents (e.g. sprinkling bleaching agent onto a soaking item of washing).  	► Wash washing at the indicated temperature and with correct dosage of detergent ► Bleach stains can be eliminated only by redyeing the washing
Damaged washing (matted) *Washing matted*	Unsuitable detergent	► Advise customer: *Use only mild woollens detergent for woollens*
	Unsuitable wash programme	► Advise customer: *Excessive mechanical stress on the wool will mat the wool fibres* *Unsuitable spin cycle*

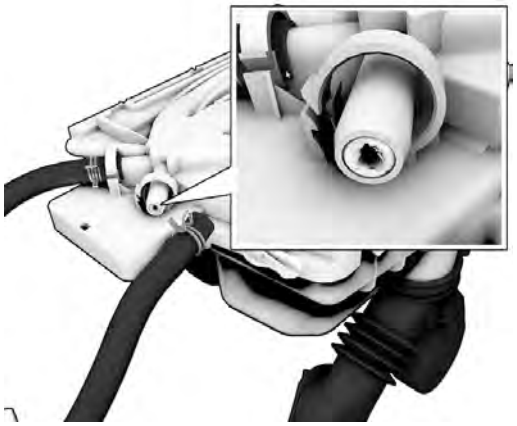
Fault	Possible cause	Troubleshooting
Damaged washing (washing discoloured) *Washing discoloured*	Type of textiles Excessively high washing temperatures or unsuitable items washed together.  	► Treatment: Redyeing may be possible ► Advise customer: *Check the fastness of the dyeing by wetting an item of clothing in an inconspicuous location, placing a white cotton cloth on the item and pressing on the cloth with a hot iron. Textiles which lose colour should be washed separately with a mild detergent by hand or in the machine below 30 °C or cleaned by dry cleaning.*
	NTC defective (heats too much)	► Replace NTC.
	Heating relay permanently closed (heats too much)	► Replace power module.
Damaged washing (washing shrunk) *Washing shrunk*	Type of textiles	► Unsuitable wash programme
	Heats too much NTC defective	► Replace NTC.

Fault	Possible cause	Troubleshooting
	Heating relay permanently closed (heats too much)	► Replace power module.
Damaged washing (torn) *Washing torn.*	Foreign objects in outer tub or drum. Seal defective. Sharp-edged burrs on / in the drum.	► Check outer tub and drum for foreign objects, e.g. paper clips, bra underwires. ► Check seal and replace if required. ► Advise customer: *Wash underwear in a washing net* ► Check drum with a nylon stocking.
High detergent consumption	Detergent chamber overfilled. If it is filled to the Max. line, a siphon effect may occur.	  ► Only fill the detergent chamber to below the Max. line.

Fault	Possible cause	Troubleshooting
Poor rinsing result	Detergent chamber overfilled. If it is filled to the Max. line, a siphon effect may occur.	  ► Only fill the detergent chamber to below the Max. line.

4.3 Leaks

Fault	Possible cause	Troubleshooting
Door glass leaking	Deposits on the inside of the door glass	► Clean area between seal and door glass.
Seal leaking	Seal torn by zips or eyelets on items of laundry.  	► Replace seal
Seal deformed (leaking)	Very high grease levels  	► Observe detergent dosing. ► Wash laundry at a high temperature. ► Use washing powder.

Fault	Possible cause	Troubleshooting
Leak between housing of detergent dispenser tray and magnetic valves	Hose has come off due to limescale deposits 	► Clean nozzles in top part of detergent dispenser tray ► Replace top part of detergent dispenser tray
	Hose has burst open	► Clean nozzles in top part of detergent dispenser tray. ► Replace top part of detergent dispenser tray ► Replace hose
Detergent dispenser leaking	Detergent dispenser leaking due to detergent residue.	► Advise customer: *Regularly clean detergent dispenser and cover (see: Instructions for use)*
Foam coming out of detergent dispenser	Unsuitable wash programme/detergent dosage	► Advise customer: *Dose detergent correctly (see Instructions for use/(I-Dos setting)).*
Drainage hose leaking	Drainage hose damaged.	► Replace drainage hose.
	Drainage hose incorrectly fitted to the outlet.	► Connect drainage hose correctly. See installation instructions

Fault	Possible cause	Troubleshooting
Eliminate	Detergent chamber overfilled. If it is filled to the Max. line, a siphon effect may occur.	  ► Only add detergent to below the Max. line.

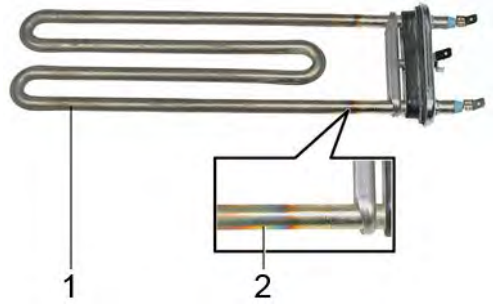
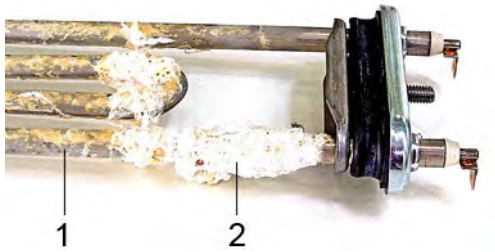
4.4 Noises

Fault	Possible cause	Troubleshooting
Noises *Noises during the draining process.*	Air in the pump	► Normal noise
	Switching pump during start-up	► Shaking function of the pump anti-clockwise/clockwise start-up
	Foreign objects in the pump	► See instruction manual, "Cleaning the pump"
Noises when drum rotating *Noise when drum rotating*	Structural design of the friction damper	► A load which occurs during operation may cause a noise in the friction damper. ► Advise customer: *Normal operating noise, not a fault.*
	Starting current of the motor	► On AC / DC motors check the rotor for damage.
	Carbon brushes worn	► Replace carbon brushes.
	High speed of motor	► Normal running noise when motor accelerates
	Deceleration of the motor	► When starting, the motor draws a very high current. The high current generates a powerful magnetic field. The laminated core, which forms the core of the motor winding, oscillates under the influence of the magnetic field. A droning noise is generated. ► Advise customer: *Normal operating noise, not a fault.*
	Screws on the weight loose	► Tighten screws; replace screws if required.
	Weight broken	► Replace weight.
	Deformation of the belt if the appliance is not used.	► If the appliance is not used for a prolonged period, the belt is deformed by the strong curvature of the pulley on the motor shaft. The deformed belt causes noises when the drum rotates, particularly during the spin cycle. During normal operation of the appliance the deformation regresses ► Advise customer: *Normal operating noise, not a fault.*
	Foreign objects under the drum	► Clean outer tub and waste water routes.
	Components are resting against the housing (optional)	► (Page 85)
Noises during the spin cycle.	Appliance vibrates/jumps/wanders	► Check that appliance is positioned correctly (Page 54) ► Have the height-adjustable feet been locked? ► Have the transportation protection devices been removed?
Noises when water runs in.	Solenoid valve of the water inlet is opening or closing	► Normal noises not a fault
	Water flow through the solenoid valve	► Normal noises not a fault

4.5 Odours/biofilm

Fault	Possible cause	Troubleshooting
Chemical odour	Detergent	► Change detergent, if required use scent-free detergent (suitable for allergy sufferers) ► Change fabric softener or do not use any fabric softener
Plastic odour	Plastic / plastic parts used	► Advise customer: *Plastic / plastic parts may emit an odour; this odour is not detrimental to health and diminishes with increasing age of the appliance. The odour should be described as a typical new odour.*
Scorching odour *Smell of burning*	Contacts / components scorched Appliance is connected to a triple socket Insulation resistance / resistance too low / too high.	► Replace plugs/components. ► Appliance must not be operated via a triple socket or extension. ► Measure insulation resistance / resistance of the components
	Check appliance for leaks.	► Eliminate leaks and replace affected components
Rotting/musty/stale odour	Foreign object in appliance (under the drum, in the pump, in the gasket, in the pump sump)	► Remove foreign object(s), recommend laundry net to customers for small items [461036]
	Appliance connected behind the siphon	► Connect appliance in front of the siphon ► Carry out washing cycle with stain remover (bleach) and at a high temperature.
	Constant washing without bleach (e.g. with colour/liquid detergent)	► Increase dosage, observe dosage recommendation
	Underdosage Not washed for a long time or only with a maximum temperature of 30 °C	► Wash 1x a week using a high water temperature of 60-90 °C and with a standard detergent containing bleach. Most bacteria are killed by using a standard detergent with bleach
	Residue in the detergent dispenser tray due to use of detergent containing enzymes or poor drainage characteristics	► Advise customers that the detergent dispenser tray may be removed for cleaning.

Fault	Possible cause	Troubleshooting
	Residues on the gasket may be: Mould deposits  Detergent residues 	► Clean gasket with disinfectant [00080524] ► Wipe out gasket with warm water

Fault	Possible cause	Troubleshooting
	Heater circuit interrupted	ⓘ The heater in a washing machine can malfunction due to different causes. ⓘ Due to dry heating (image 1) ⓘ Due to a calcified heater (image 2)  
Detergent odour	Odour of detergent / fabric softener	► The odour of detergent / fabric softener varies depending on the product. Each manufacturer adds different fragrances to his product. ► Change detergents / fabric softeners or use unscented detergents / fabric softeners. ► Detergents / fabric softeners suitable for allergy sufferers are usually unscented.

5.1 Check NTC

Prerequisite:
NTC has been removed.

5.1.1 Check NTC at room temperature

1. Measure temperature of the ambient air.
2. Operating range 0–99 °C
3. Measure resistance value of the NTC at room temperature.
4. measurement of the resistance is approx. 0 Ω
   ► replace NTC. (Page 69)
5. measurement of the resistance is infinite
   ► replace NTC. (Page 69)
6. 

   In the circuit diagrams select resistance setpoint values which are near the room temperature.

   Compare measured value of the resistance with the setpoint values of the circuit diagrams.
7. the measured value of the resistance deviates significantly from the setpoint values
   ► replace NTC. (Page 69)
8. The measured value of the resistance corresponds to the setpoint values, see circuit diagrams.

5.1.2 Check NTC as the temperature rises

Required tools:
🔧 Heat source

1. Heat NTC.
2. Measure change in the resistance of the NTC as the temperature rises.
3. the measured value of the resistance does not drop as the temperature rises
   ► replace NTC. (Page 69)
4. the measured value of the resistance drops as the temperature rises
   ► Continue diagnosing the fault.

5.2 BLDC motor

The BLDC motor is rarely defective!

A defect is very rare due to the high wear resistance of the BLDC motor. The motor bearing is the only wear part of the motor.

When the appliance is switched on, the motor module checks functioning of the module and motor. If there is a malfunction, a fault display will appear.

No replacement of BLDC motor with the following fault profiles:

- Fault display E 52, E 57, E 75, E 78.
- Appliance does not spin.
- Laundry creased.
- Time leaps in programme sequence.
- Error in programme sequence.
- Squeaking noises.
- Drive belt slipping.
- Drive belt dropped off.

5.2.1 Test BLDC motor

Replacement of BLDC motor **is only permitted after testing**. See below for a description of the prerequisites for testing and replacement of the motor.

Prerequisite:

- The appliance is switched off for 5 min.
- The drive belt has been removed.
- The motor connector has been removed.

To allow the motor to rotate freely, remove the motor connector!

Due to their design brushless motors do not rotate freely if the motor connector is still in position and the appliance switched on.

1. Turn the motor pinion with your hand.
   Result:
   The motor pinion does not turn easily or does not turn at all (blocked).
2. Check the motor pinion for damage.
   Result:
   The motor pinion is damaged. Indicator: There are scratch marks on the rear panel in the area of the motor pinion.
3. Test the motor for noise by turning with your hand.
   Result:
   The motor makes a clattering or scraping sound. (**Any jerking is OK**)
4. Check the smell of the BLDC motor.
   Result:
   The BLDC motor gives off a scorched or burned smell.
5. Measure the motor winding on the motor connector at the measuring points X 2.1-X 2.2, X 2.2-X 2.3, X 2.1-X 2.3.
   Result:
   The resistance is unequal to +/-10 % of the value shown in the circuit diagram.

6.1 Siting the appliance

The appliance can be installed in combination with a dryer.

The following points must be ensured in order to guarantee a safe connection:

- Use original connection sets, see instruction manual.
- Use a suitable worktop (not a glass one)

Prerequisite:
- None

1. Place the appliance on a level and firm surface.
2. Align appliance horizontally by turning the height-adjustable feet.
3. Check horizontal alignment of the appliance using a spirit level.

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If the appliance is installed on a base, the appliance must be attached with the attachment kit ([080451]).

An under-counter appliance may only be installed under a worktop.

6.2 Aligning the appliance

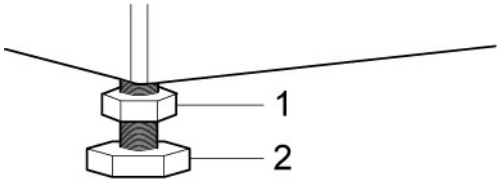


Fig. 28: Adjustment points on the appliance foot

1 Lock nut
2 Appliance foot

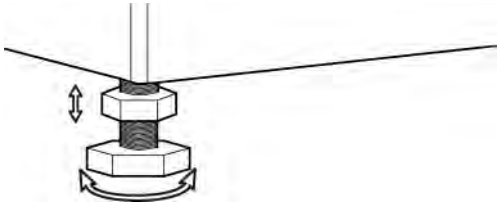
Required tools:

Spirit level

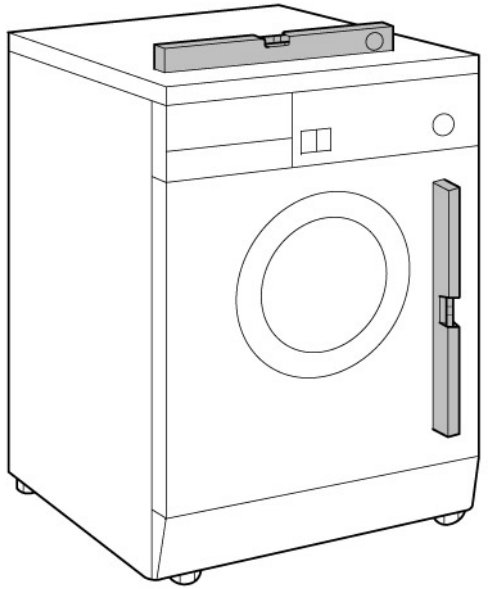
Prerequisite:

- Installation location has a solid floor and is dry.

1. Loosen lock nut on the appliance foot clockwise using a socket wrench.
2. Change height by turning the appliance foot.



3. Check horizontal alignment of the appliance using a spirit level and, if required, correct.



4. Check the stability of the appliance diagonally from corner to corner.
   Result:
   All 4 appliance feet are firmly on the floor.
   Appliance does not wobble.
5. Fix appliance foot and tighten lock nut anti-clockwise towards the housing.
   Result:
   Lock nuts on all 4 appliance feet are screwed tightly against the housing.

6.3 Calibrating the load sensor

Prerequisite:
- The appliance is switched off
  Door is closed.
- Drum has been emptied.

► Turn on the appliance by choosing a programme, but do not start it.

Result:
Load sensor is calibrated.
Laundry can be loaded.

6.4 Turbidity sensor calibration

.

Deposits may have an impact on the sensitivity and function of the turbidity sensor. The turbidity sensor is calibrated before each wash programme.

2. 1) The drum must be empty
   2) Door is sealed
   3) Switch on appliance and set programme, **do not start**

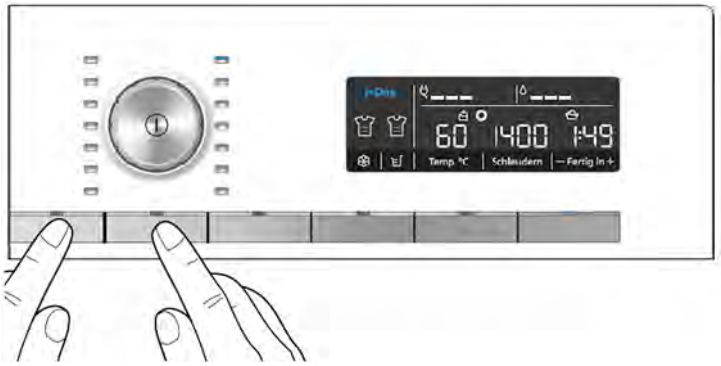
Result:
After approx. 5 seconds, the turbidity sensor will be calibrated.

6.5 Starting/ending the demo programme

6.5.1 Starting the demo programme

	The demo programme must be activated within 15 s after switching on the appliance.

1. Switch on the appliance

2. Press and hold the SpeedPerfect and EcoPerfect buttons for 5 s
3. 
4. The demo programme starts automatically

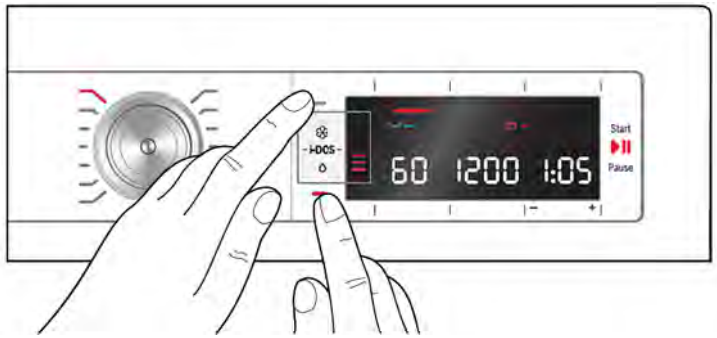
6.5.2 Starting/ending the Bosch demo programme

.

	The demo programme must be activated within 15 s after switching on the appliance.

2. Switch on the appliance

3. Press and hold the SpeedPerfect and EcoPerfect buttons for 5 s



4. .

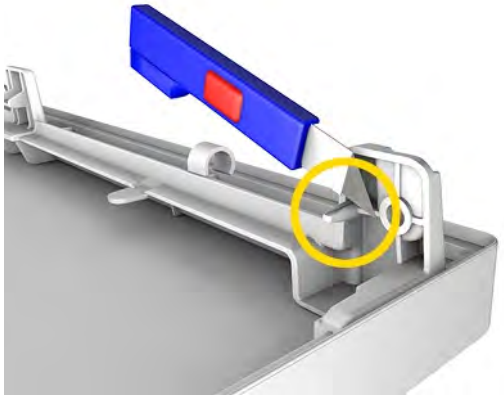
Result:
The demo programme starts automatically
Switch off the appliance. The demo programme ends.

6.6 Correcting the gap

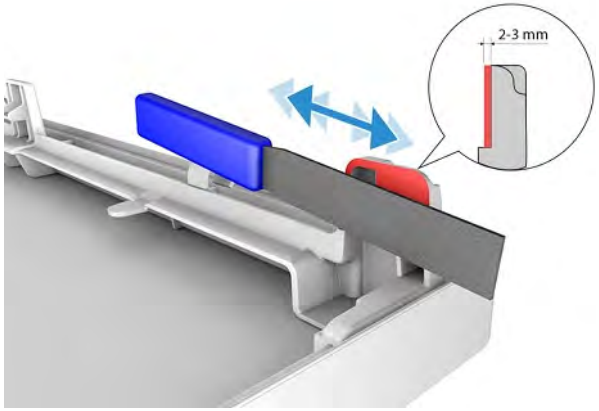
1. Gap too large

2. Removing worktop

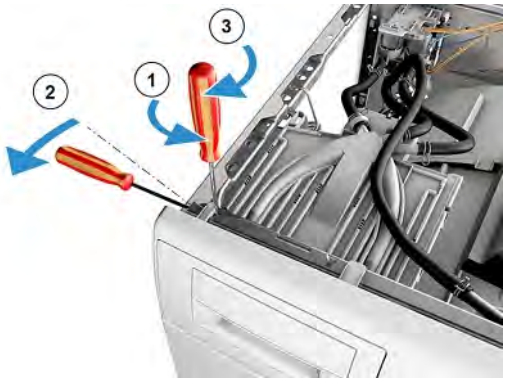
3. Removing installation aid



4. Adjusting retainer on the worktop



5. Adjusting cross-beam if required



Result:
Gap has been adjusted

6.7 Lengthening the inlet hose

Upon delivery, the inlet hose with Aquastop is approx. 150 cm long.

The inlet hose can be extended in 2 ways:
- Install Aquastop extension ([670596]) between the water connection and the Aquastop.
- Refit appliance with longer inlet hose with Aquastop.

The Aquastop may only be connected in protection area 1. If the Aquastop is in water, the socket must lie in protection area 3 or higher and be secured with a 30 mA FI circuit breaker.

6.7.1 Inserting extension hose

► Connect extension hose.

6.7.2 Refitting inlet hose with Aquastop

1.

In the case of some appliances, the Aquastop, inlet hose, flow-through sensor and injection valves constitute a spare part. In this case, the spare part must be completely replaced with the longer variant.

Remove inlet hose with Aquastop.

2. Attach longer inlet hose with Aquastop.

6.8 Extending outlet hose [432060]

	The outlet hose may be extended up to maximum 400 cm. The outlet hose must be on the floor and must not have more than one connection point.

1. Push sleeve onto the end of the outlet hose.
2. Also push outlet hose extension into the sleeve.
3. Connect outlet hose extension to the waste water connection according to the local conditions.

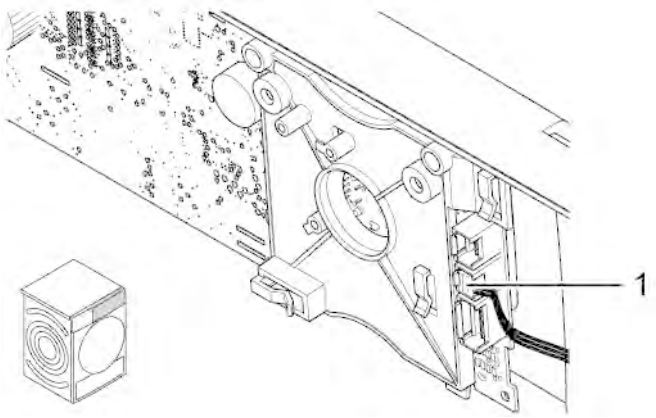
6.9 Flashing the operating module and power module

	Always flash both the operating module and power module. When doing so, always flash the power module before the operating module.

Required tools:
- IS (BSH I-Service software)
- UDA kit ([341247])

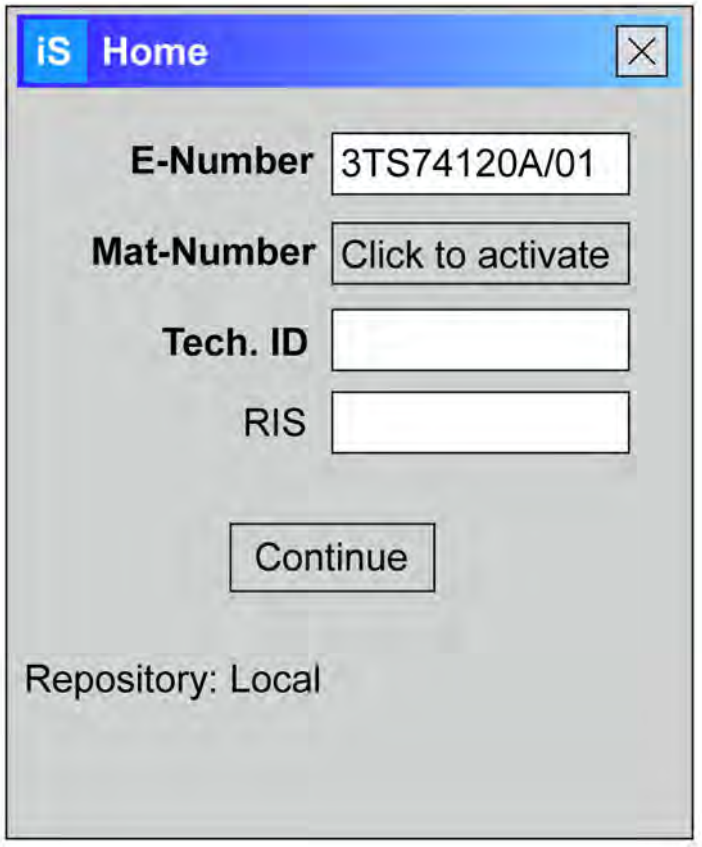
Prerequisite:
- I-Service software has been installed on the customer service PC.
- Worktop has been removed.
- New operating and/or power module has been installed.
- Control panel has been detached.

6.9.1 Connecting UDA to the appliance

1. 

2. Connect data cable with D-Bus connection to KD-IS connection on the operating module.
3. Connect appliance to the power supply and switch on.

6.9.2 Flashing module with I-Service

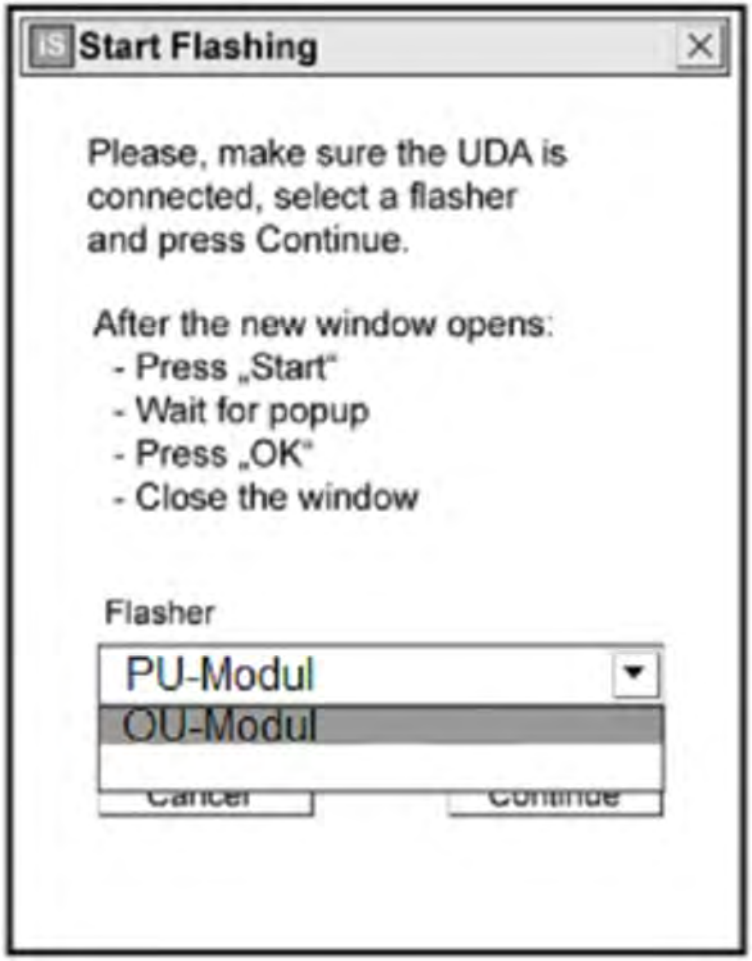
1. Start I-Service software on the customer service PC.
2. Enter E-number of the appliance in the [E-number] field.
3. 

4. Confirm entry by pressing [Continue] button.
   Result:
   [Flash] window is displayed.

5.

6. Press [Flash] button.
Result:
[Start flashing] window is displayed.

7.



8. Select operating module in the drop-down list and confirm selection with [Continue] button.
Result:
[Smart OneClick FP] window is displayed.

9.

	Electrically disconnect the 3D sensor before flashing. Connect the 3D sensor again after flashing has been successfully concluded.

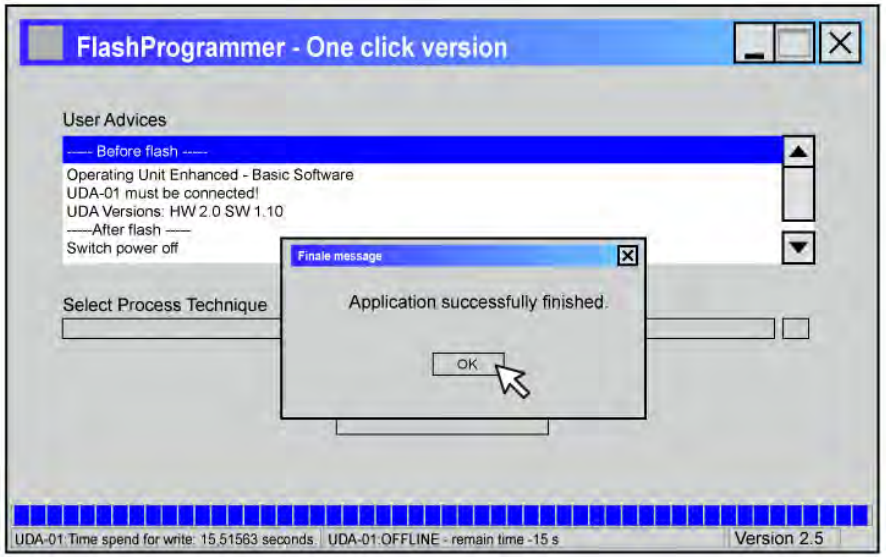
Press [Start] button and wait until flashing is complete (see progress bar).

Result:
After the flashing process, the remaining time until the **Final message** is displayed.

.

	If flashing is not successful, an error message is displayed. Termination may occur for the following reasons: • Electrical connection between UDA and electronics faulty. • Appliance not switched on or no power supply. • 3D sensor was not electrically disconnected.

11.



12. Conclude flashing of the operating module by pressing the [OK] button.

6.10 Replacing motor

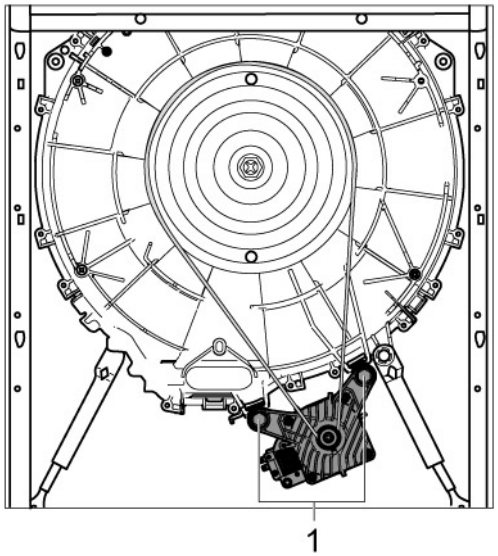


Fig. 29: Attaching/connections of the motor

1 Bolts

Prerequisite:
- Rear panel has been removed.

6.10.1 Removing motor

1. Remove belt.
2. Remove the electrical connection.
3. Remove screws from the motor attachment.
4. Take motor out of the appliance.

6.10.2 Installing motor

► Install motor in reverse sequence.

6.11 Removing/installing the 3G sensor

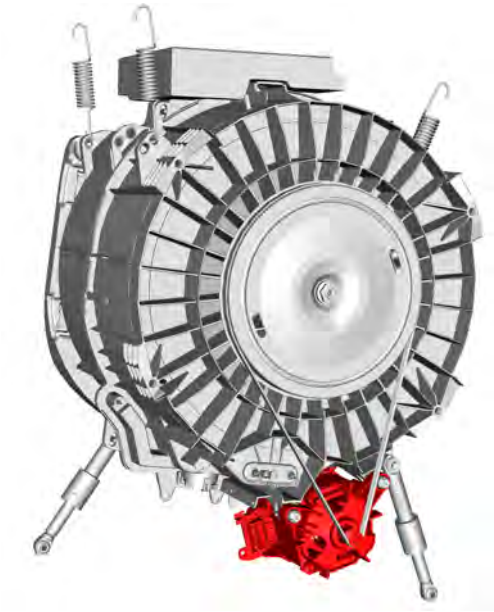


Fig. 30: Position of 3G sensor

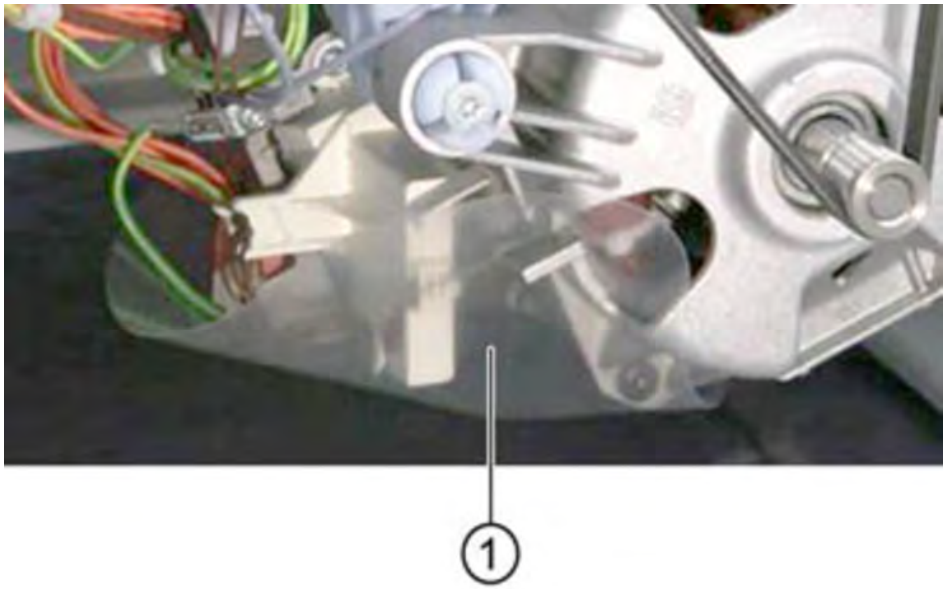
1 3G sensor with protective cover

Prerequisite:

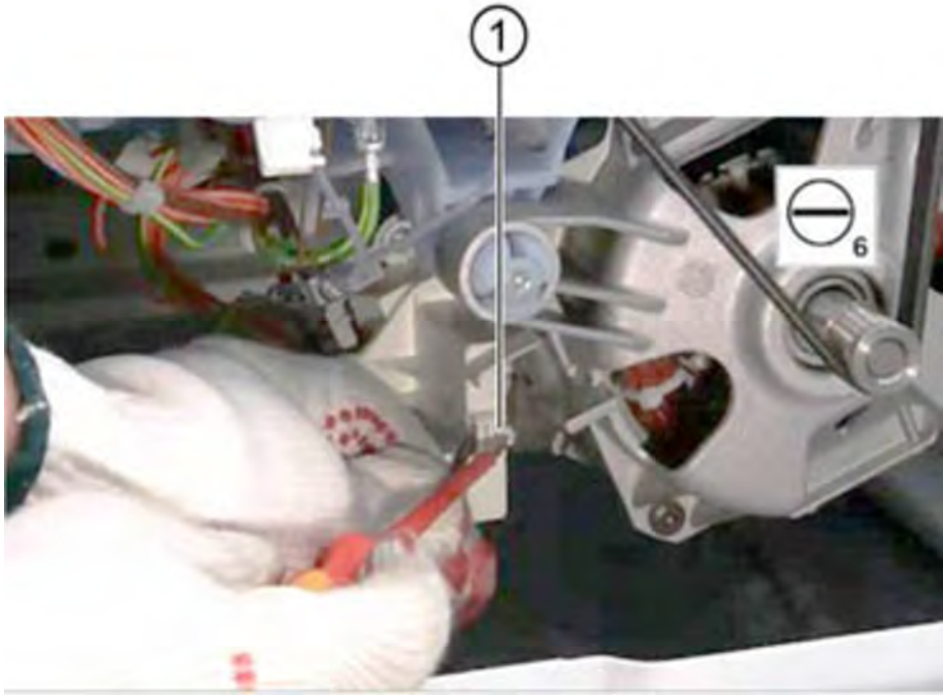
- Rear panel of housing has been removed.

6.11.1 Removing the 3G sensor

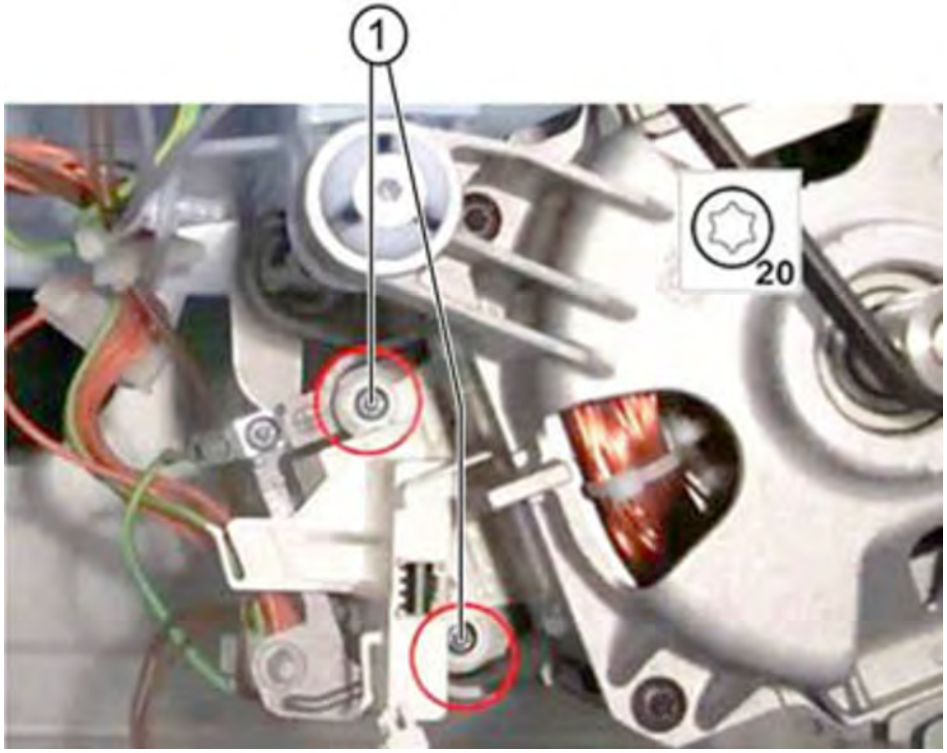
1. Remove the protective cover.



2. Switch off the electrical connection (1).



3. Remove the retaining screws (1) and remove the 3G sensor.



6.11.2 Installing the 3G sensor

► Install the 3G sensor in the reverse sequence.

6.12 Replacing heater

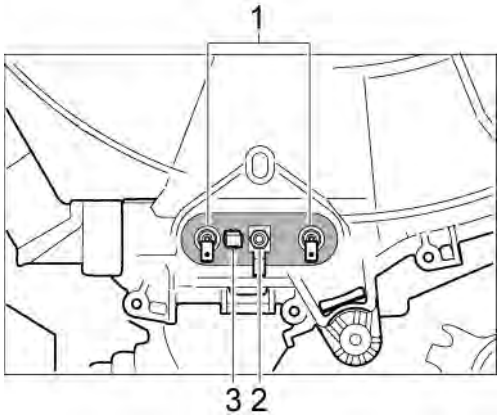


Fig. 31: Attaching / heater connections

1 Electrical connections of the heater
2 Hexagon-head nut (10 mm) with retaining clamp
3 Electrical connection NTC

Prerequisite:
- Rear panel has been removed.
- Electrical connections have been removed.

6.12.1 Removing heater

1. Release hexagon-head nut.
2. Press retaining clamp and detach to the rear.
3. Pull out the heating element.
4. Pull out NTC sensor and transfer in the new heater.

6.12.2 Installing the heater

► Install heater in reverse sequence.

6.13 Replacing NTC sensor

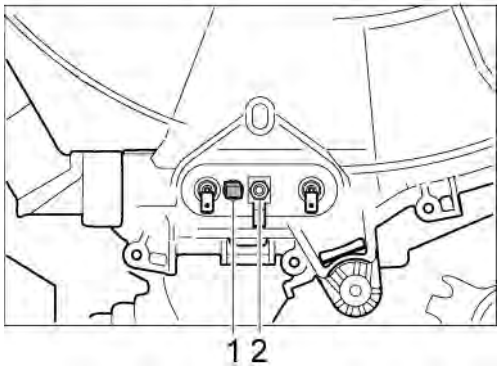


Fig. 32: Attachment/connections of the NTC sensor

1 Electrical connection
2 Hex nut (10 mm)

Prerequisite:
- Rear panel has been removed.

6.13.1 Removing NTC sensor

1. Disconnect electrical connection.
2. Loosen hex nut.
3. Pull NTC sensor out of the heater flange.

6.13.2 Installing NTC sensor

► Install NTC sensor in reverse sequence.

6.14 Replacing belt pulley

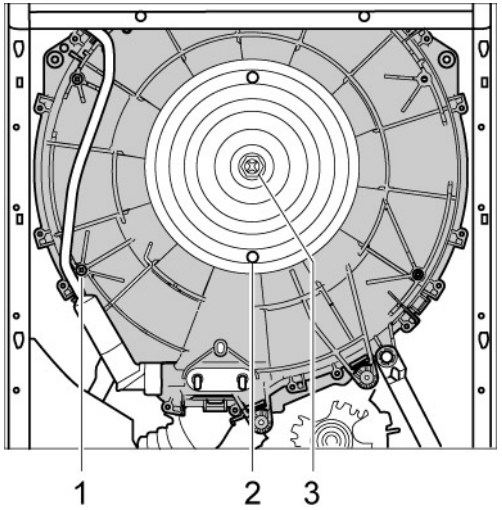


Fig. 33: Tub and pulley

1 Mounting hole for special tool on tub
2 Mounting hole for special tool on pulley
3 Collar nut

Required tools:
- Open-ended spanner WAF 24/27 [00341201]
- Double-ended ring spanner WAF 24/27[15000301]
- Double-ended ring spanner WAF 25/28 for 1600 oscillating system [15000304]
- Special tool [341238]

Prerequisite:
Rear panel has been removed.

6.14.1 Removing pulley

1. Remove belt.
2. Attach the pulley to the tub using the special tool.
3. Remove collar nut.
4. Remove pulley from the axle.

6.14.2 Installing pulley (without torque)

1. Place pulley on axle.
2. Place collar nut on axle and screw on hand-tight.
3. Attach the pulley to the tub using the special tool.
4. Tighten collar nut with a 50°rotation.
5. Remove auxiliary tool.
6. Mount belt.
7. Check correct seating of belt.

6.14.3 Installing pulley (with torque)

Required tools:
- Torque wrench [341222]
- Socket wrench insert WAF 24[341223]
- Socket wrench insert WAF 27[15000302]
- Socket wrench insert WAF 28 for 1600 oscillating system [15000303]

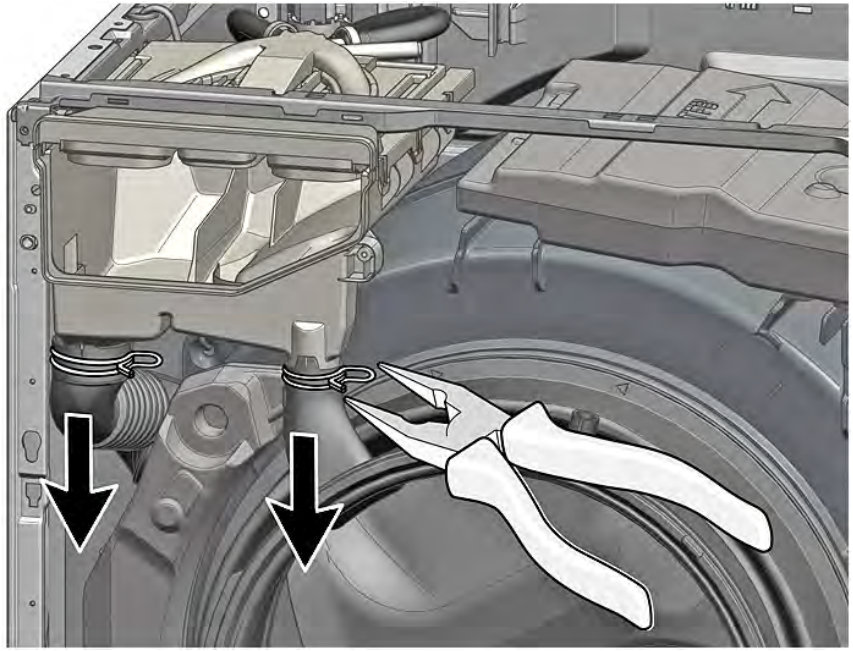
1. Place pulley on axle.
2. Screw collar nut onto axle hand-tight.
3. Attach pulley to the tub using auxiliary tool.
4. Tighten collar nut to 90 Nm .
5. Remove auxiliary tool.
6. Mount belt.
7. Check correct seating of belt.

6.15 Replacing the soap drawer

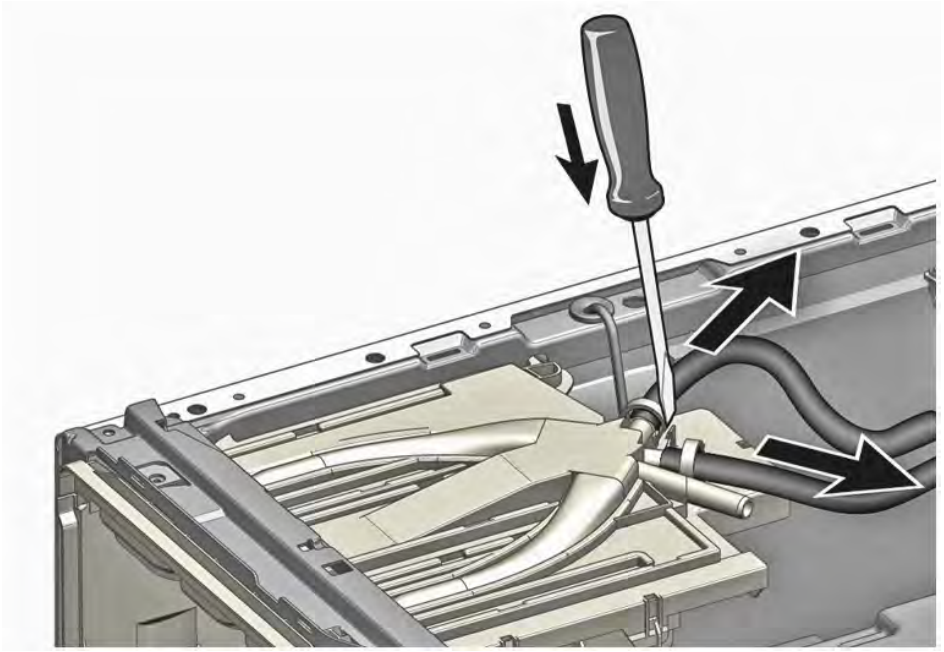
Prerequisite:
- Worktop / VDE cover sheet has been removed
- Control panel has been removed
- Front panel has been removed

6.15.1 Removal of the soap drawer

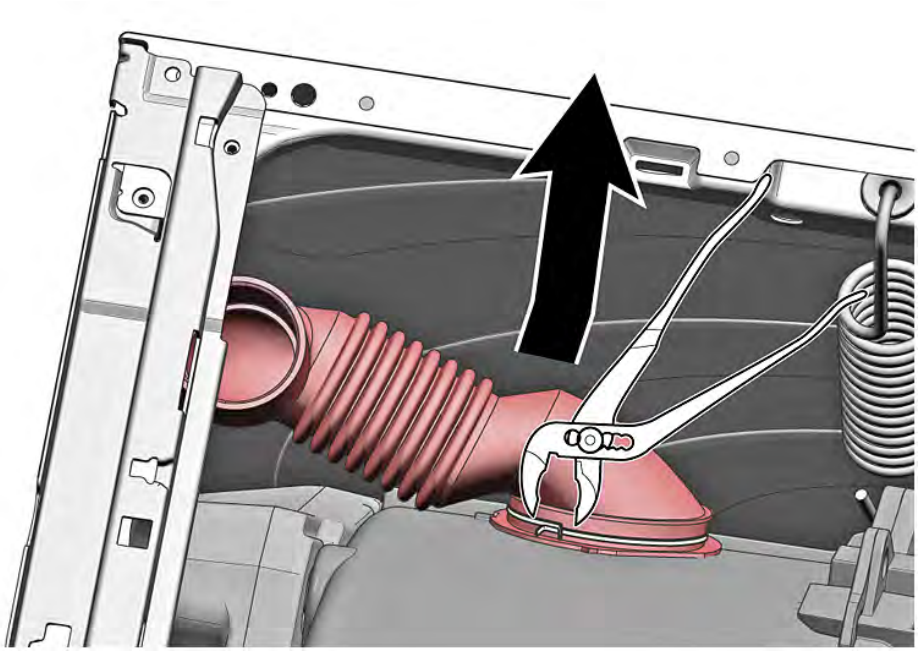
1. Remove the hose clamps



2. Remove the water inlet hoses



3. Remove the housing of soap drawer



Result:
The housing of soap drawer is removed

6.16 Install repair set of soap drawer steam leakage

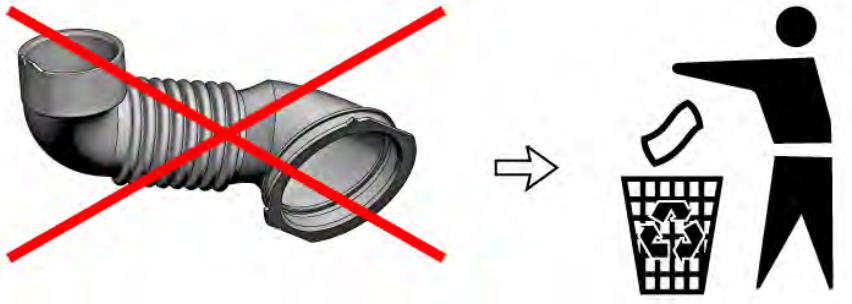
- Housing of soap drawer complete
- Siphon hose
- Hose clamp

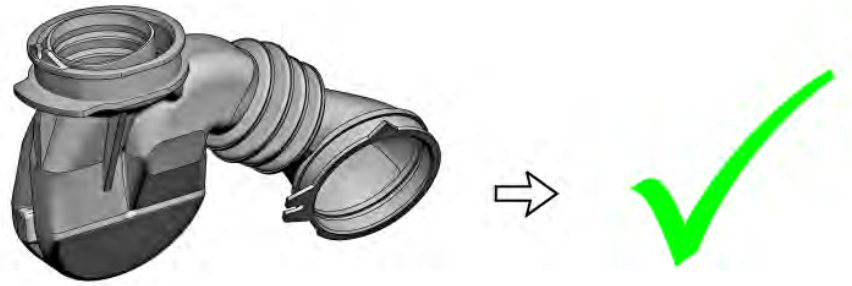
Required tools:
[744966]

Prerequisite:
- Worktop has been removed
- Control panel has been removed
- Front panel has been removed
- Housing of soap drawer is removed
- Hose between soap drawer housing and outer tub is removed

6.16.1 Only install new siphon hose

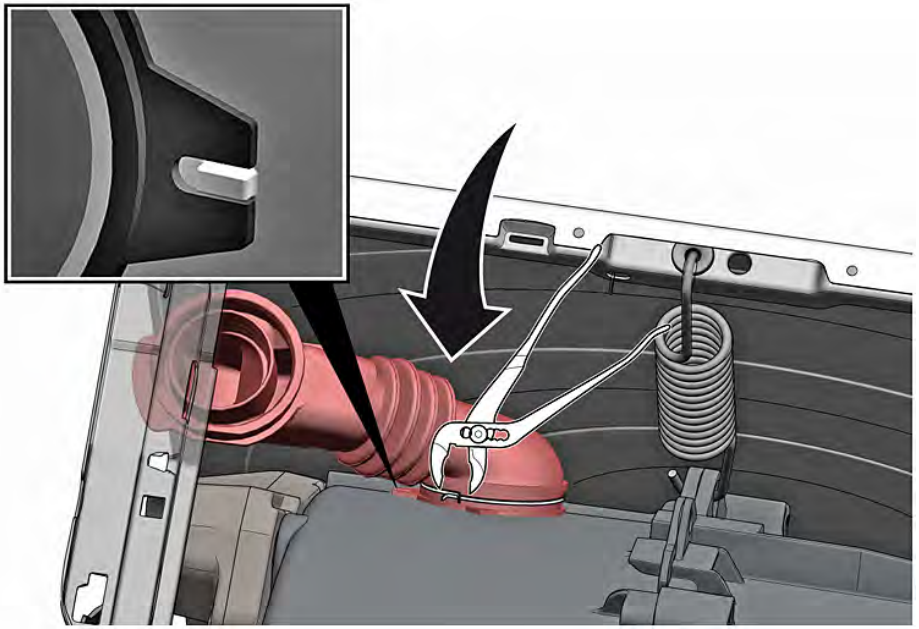
►



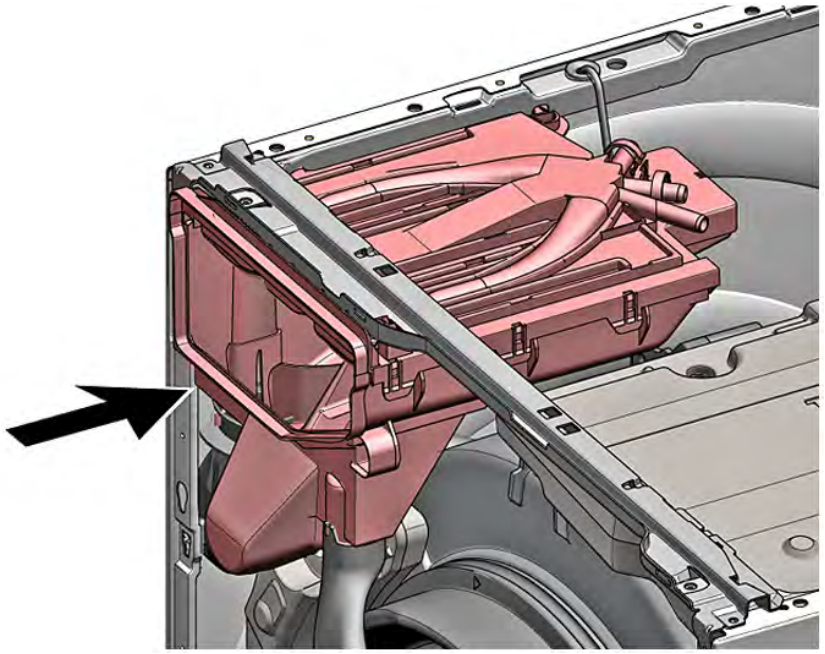


6.16.2 Install siphon hose and soap drawer housing

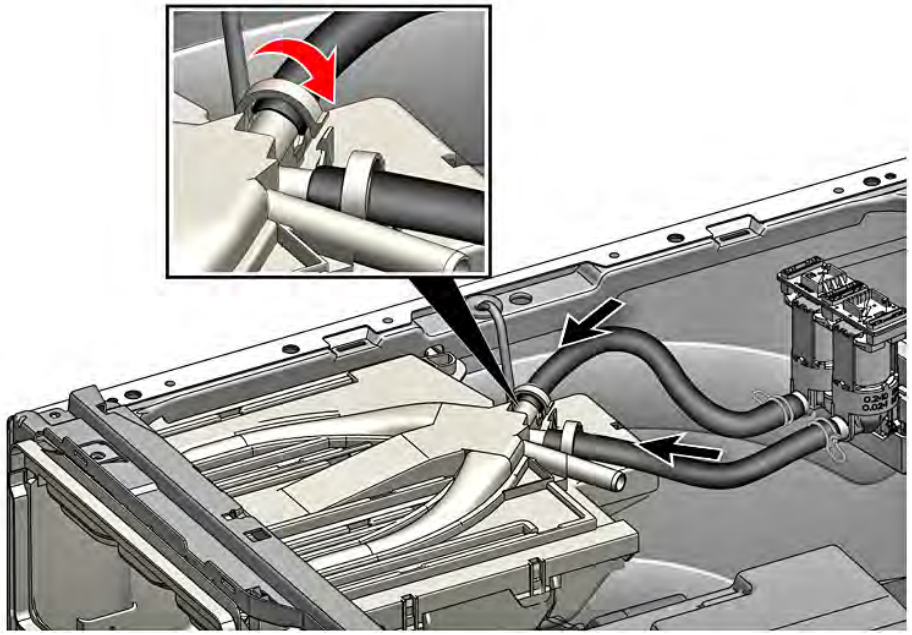
1. Install siphon on outer tub.



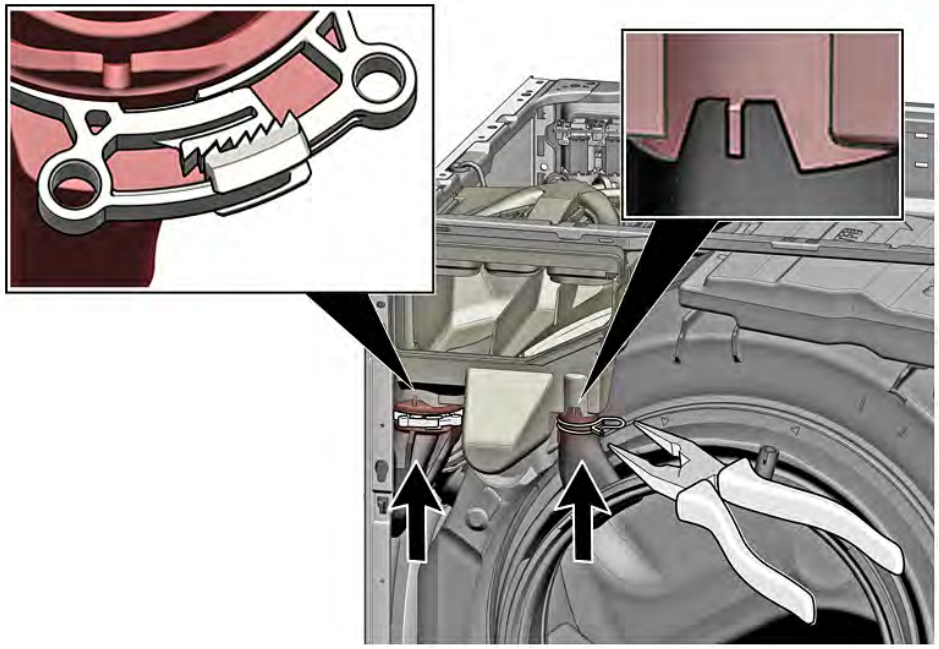
2. Install soap drawer housing



3. Make hose connections



4. Make hose connection to outer tub and seal. Secure clamp in 4th catch



Result:
Soap drawer housing and hoses are installed.

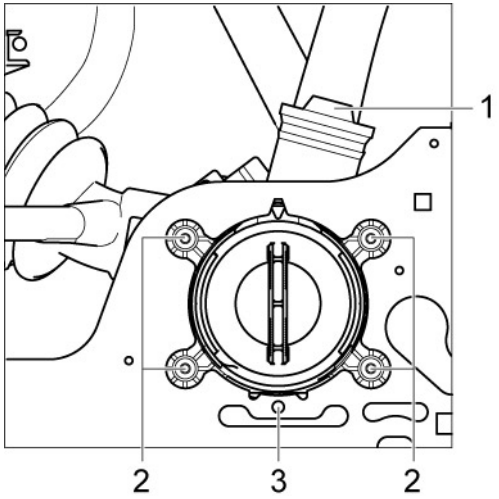
6.17 Replacing the drain pump

	The pump, which was supplied with the appliance, is attached with a screw. The pump, which is supplied as a spare part, is attached with 4 screws. The rubber buffers on the mounting points of the screws decouple the new pump from the housing and thereby muffle the noises during pumping.

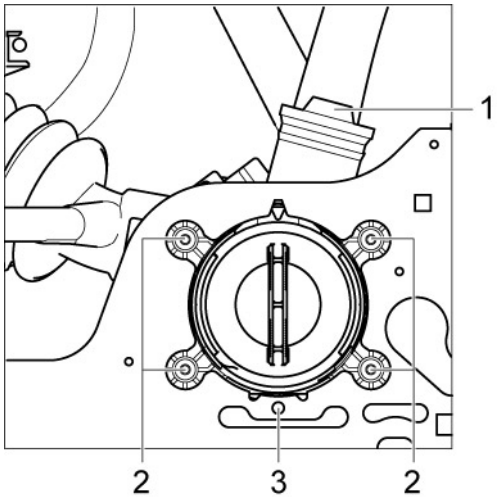
Prerequisite:
- Front panel has been removed.

6.17.1 Removing the drain pump

1. Drain residual water via the emergency drainage hose.
2. Remove screws [2] and fastenings from the pump.



3. Press the pump out of the holder.
4. Remove the electrical connection.
5. Loosen drainage hose [1] by turning it and pull out of the pump.



6.17.2 Installing the drain pump

► Install drain pump in reverse sequence.

6.18 Removing/installing front panel

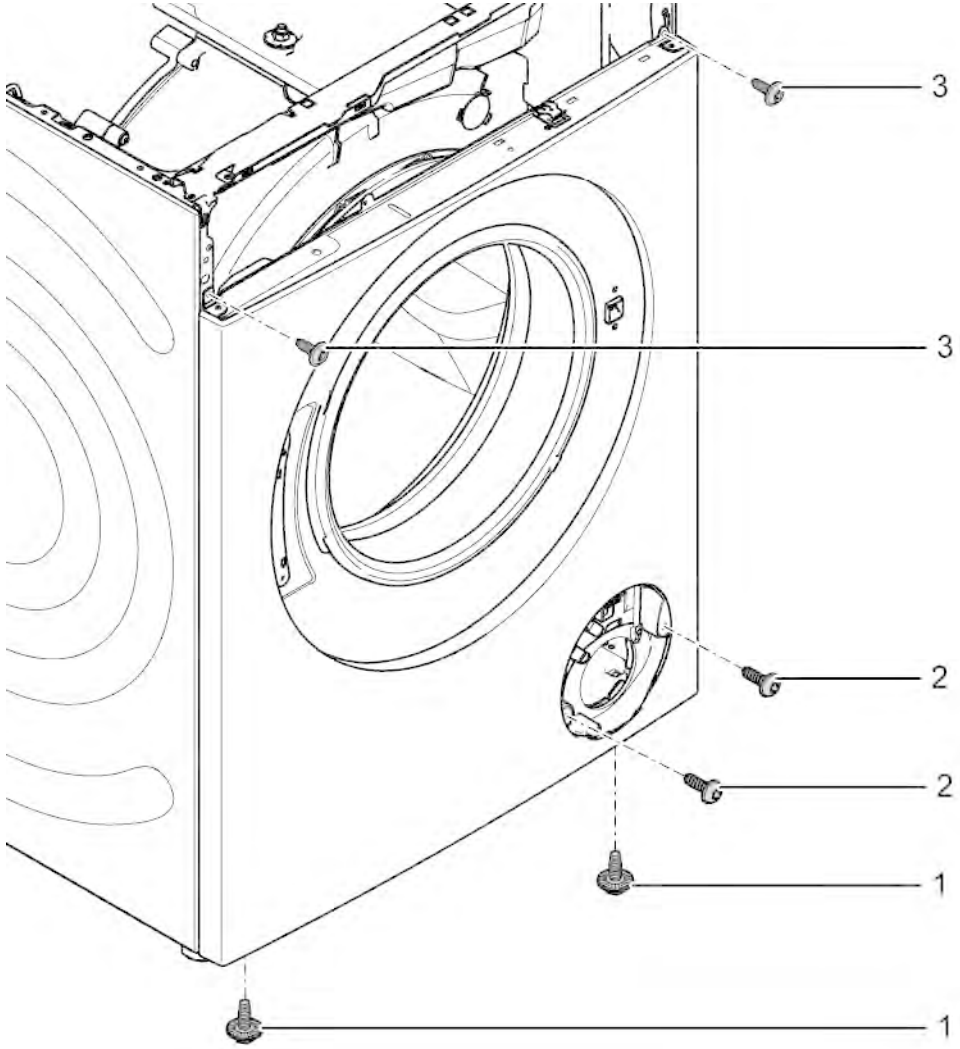


Fig. 34: Attachment of the front panel

1 Screw
2 Screw
3 Screw

Prerequisite:
- Worktop has been removed.
- Control panel has been removed.
- Door has been removed.

6.18.1 Removing front panel

1. Unhook and remove cover flap from the fluff trap.
2. Detach the door seal.
3. Remove screws (1) with ratchet spanner.
4. Remove screws (2).
5. Remove screws (3).
6. Detach front panel on the left side.
7. Unhook front panel on the right side and remove.

6.18.2 Installing the front panel

► Install front panel in reverse sequence.

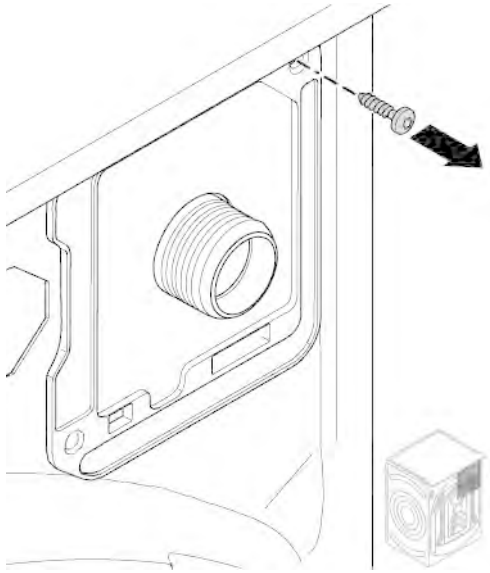
6.19 Replacing injection valves

	Aqua Stop, supply hose, flow sensor and injection valves together form a spare part which is replaced in case of a defect.

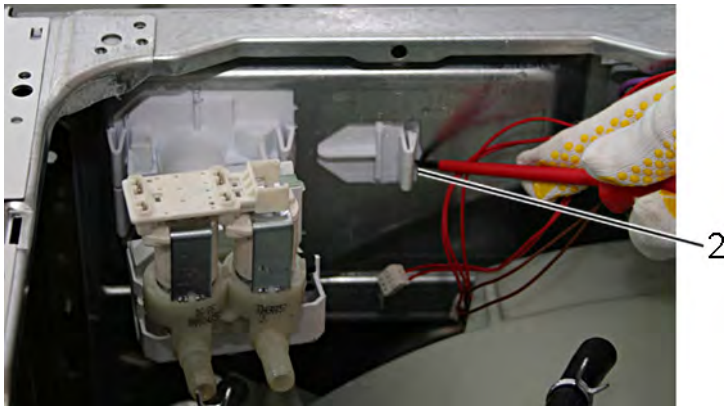
Prerequisite:
- Aqua Stop has been removed.
- Worktop has been removed.

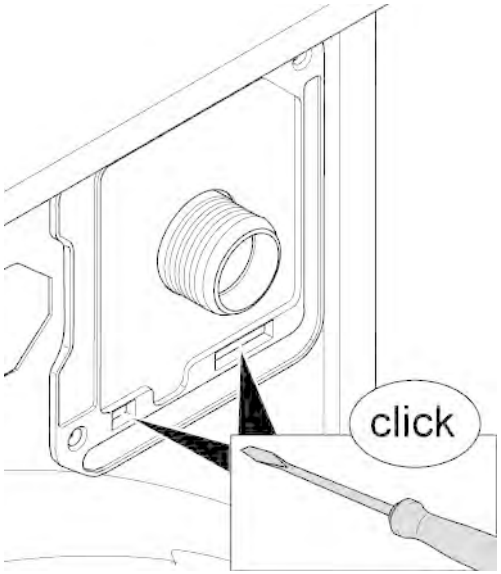
6.19.1 Removing injection valve

1. Remove cable tie.
2. Remove electrical connections.
3. Loosen hose clips and remove hoses.
4. Remove the retaining screw

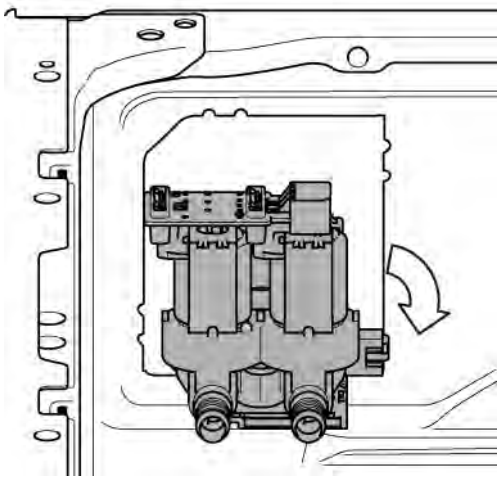


5. Disengage catch element (2).

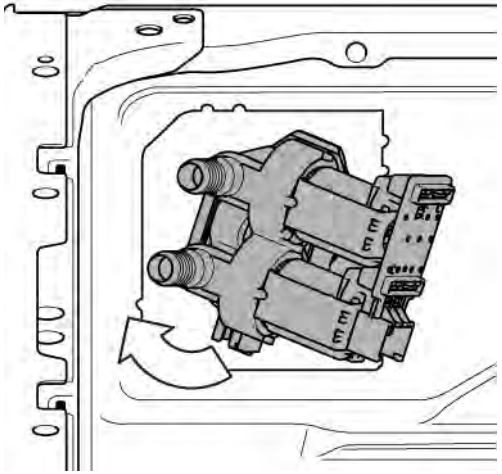




6. Unhook injection valve and rotate by 90°.



7. Remove injection valve through the rear panel.



6.19.2 Installing injection valve

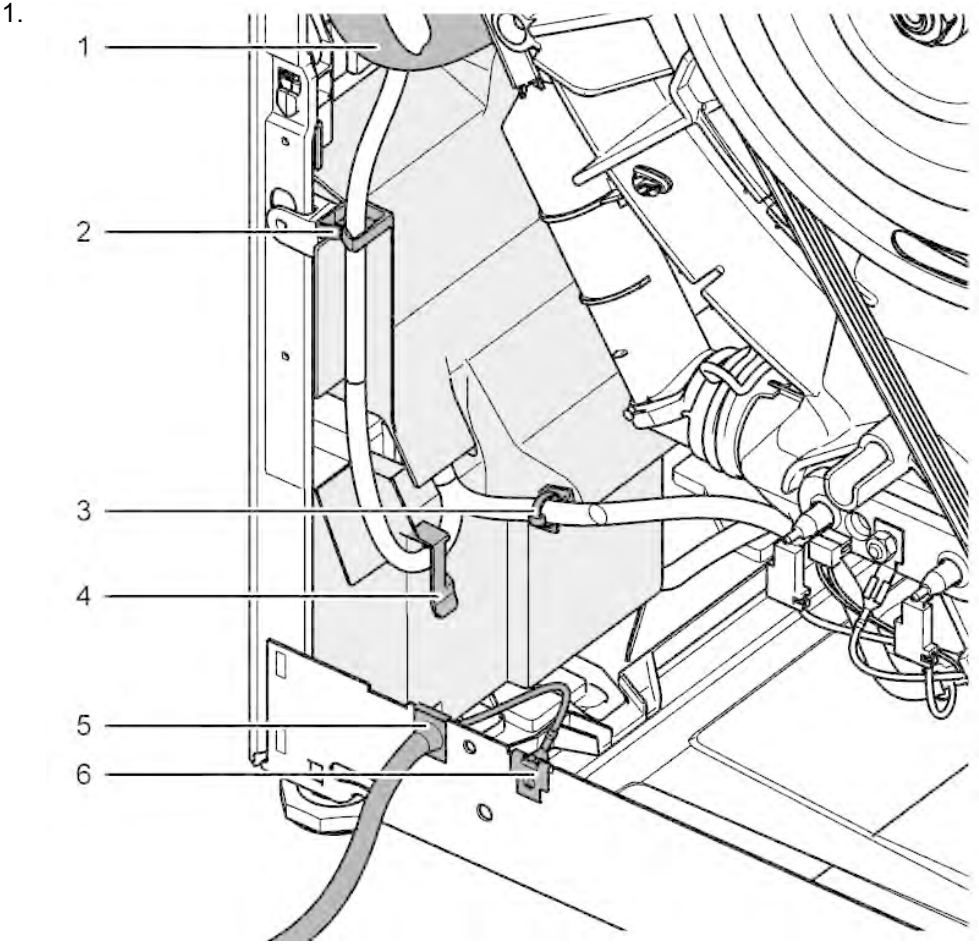
► Install injection valve in reverse order.

6.20 Removing/installing the power module

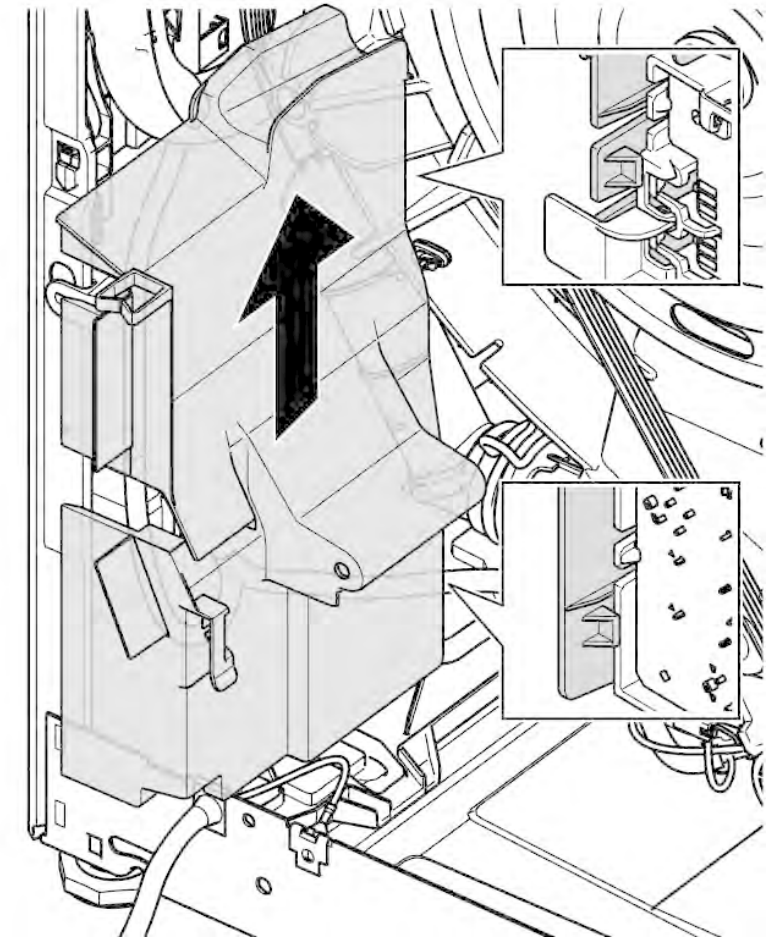
Prerequisite:
- Back panel has been removed.

6.20.1 Removing the power module

1.



2. Release outlet hose (1) from the holders.
3. Remove cable strap (3).
4. Release protective conductor connections (6).
5. Release power cord (5) from the holder.
6. Using a suitable tool, disengage catch element (2).
7. Disengage the catch element (4).
8.



9. Push power module with cover upwards and remove from the inner wall of the appliance.

10.

The cover can only be removed from the power module inside the appliance.

Detach cover and remove from the power module.

11. Place cover aside within the appliance.

.

NOTICE

Destruction of or damage to the electronics due to improper handling!

- ► Do not touch contacts and components.
- ► Use earthing armband [00341216] .

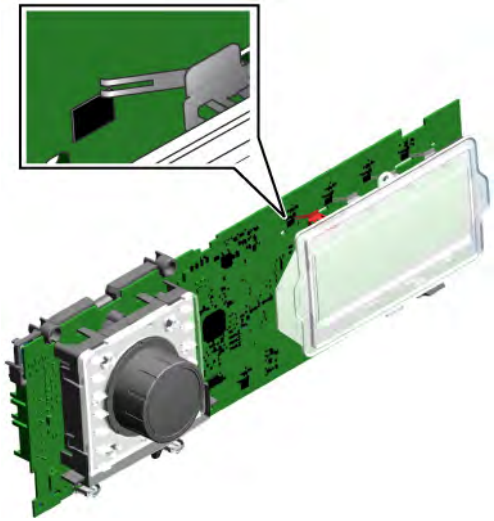
13. Release electrical connections.
14. Detach power module from the plug-in frame.

6.20.2 Installing the power module

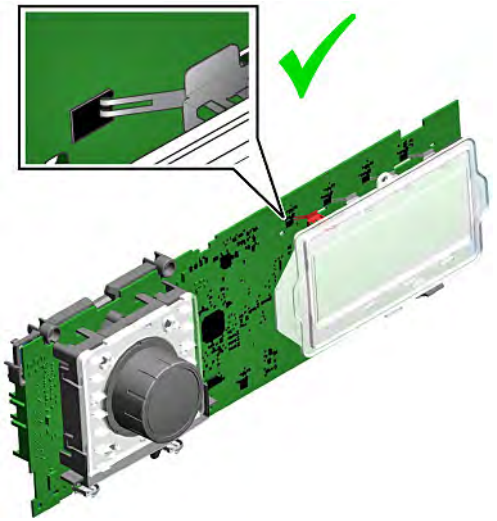
1. Attach power module to plug-in frame.
2. Mount electrical connections.
3. Attach cover to power module. Ensure that the cables are routed correctly.
4. Place power module with cover at bottom into the guide rail.
5. Attach power module with cover at top.
6. Attach power module with cover at bottom.
7. Mount power cord in the holder.
8. Mount protective conductor connections.
9. Mount cable strap.
10. Mount outlet hose in the holders.

6.21 Incorrect and correct installation location of display module

1. Incorrect installation location



2. Correct installation location



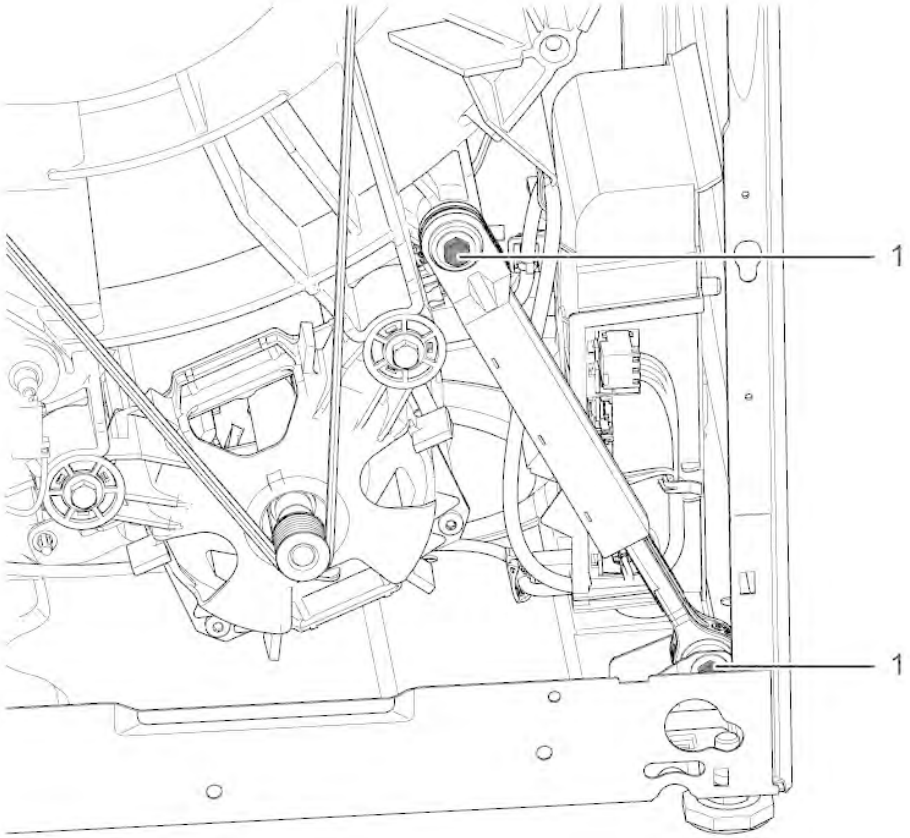
Result:
When carrying out repairs, the contacts must be situated correctly on the contact points

6.22 Removing/installing the inverter module

Prerequisite:
- Rear panel has been removed.

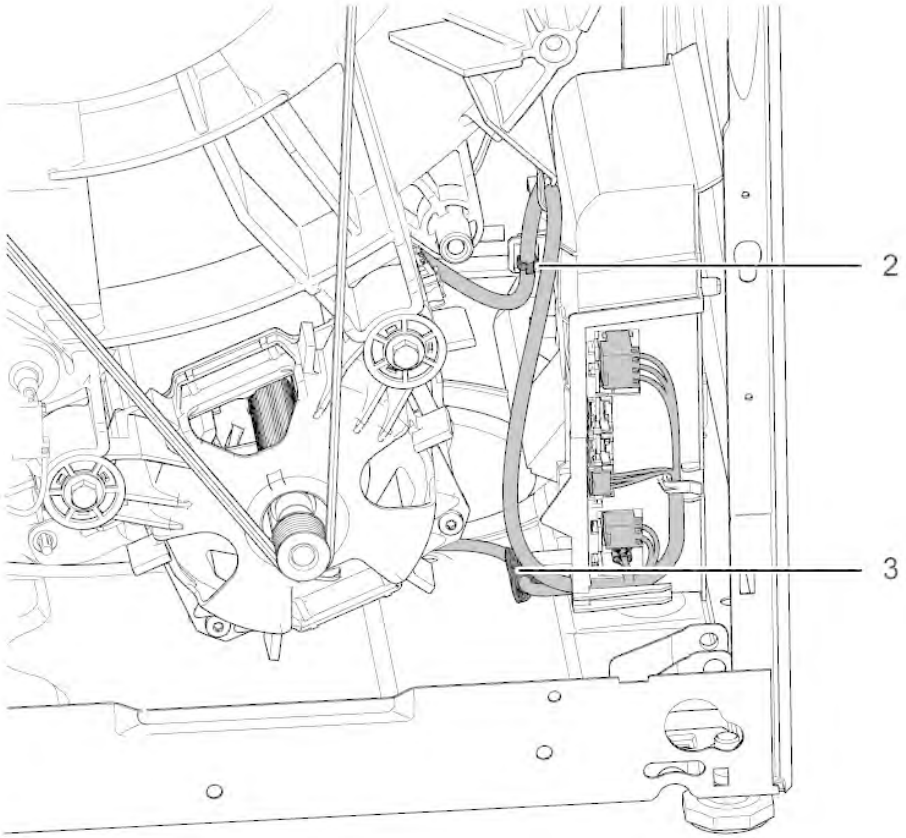
6.22.1 Removing the inverter module

1.



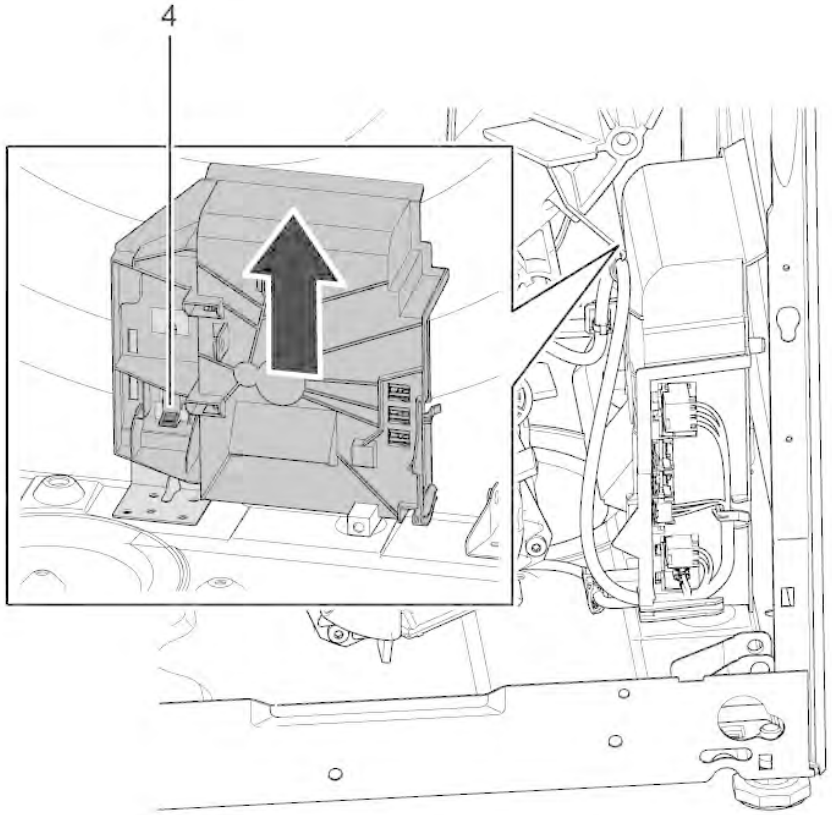
2. Remove screws (1).
3. Remove frictional damper.

4.



5. Remove cable strap (2).
6. Loosen fixing elements (3).

7.



8. Loosen locking hook (4).
9. Push inverter module in direction of arrow and take out of the appliance.

6.22.2 Installing the inverter module

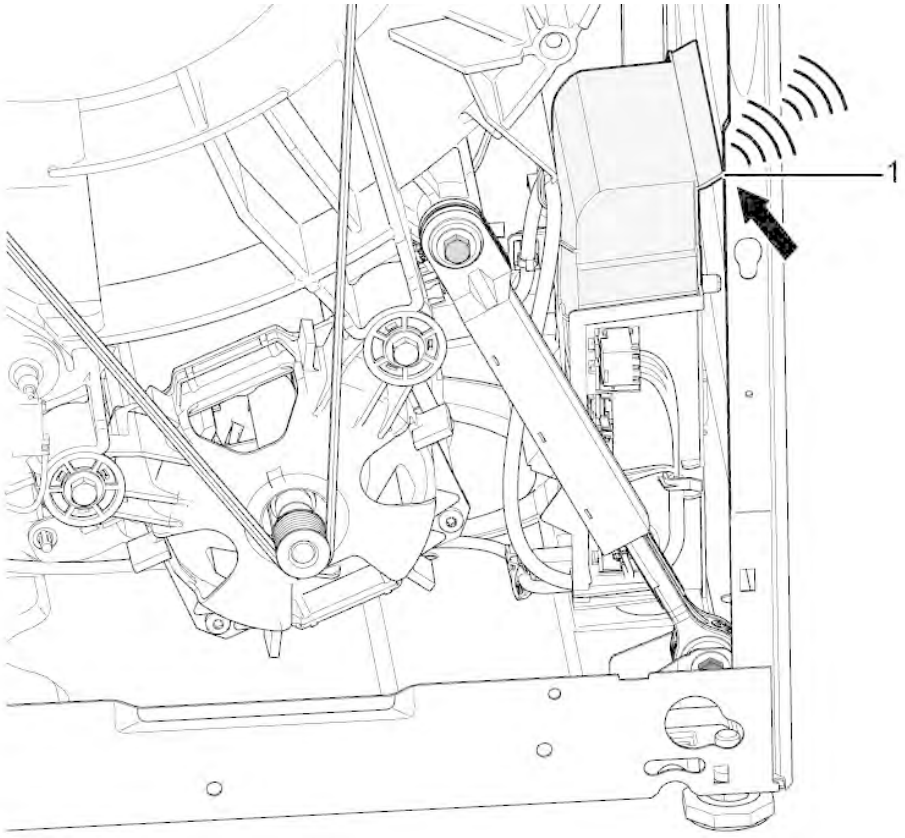
► Install inverter module in reverse sequence.

6.23 Optionally Noises in inverter area

Prerequisite:
Rear panel has been removed

6.23.1 Inverter module noises

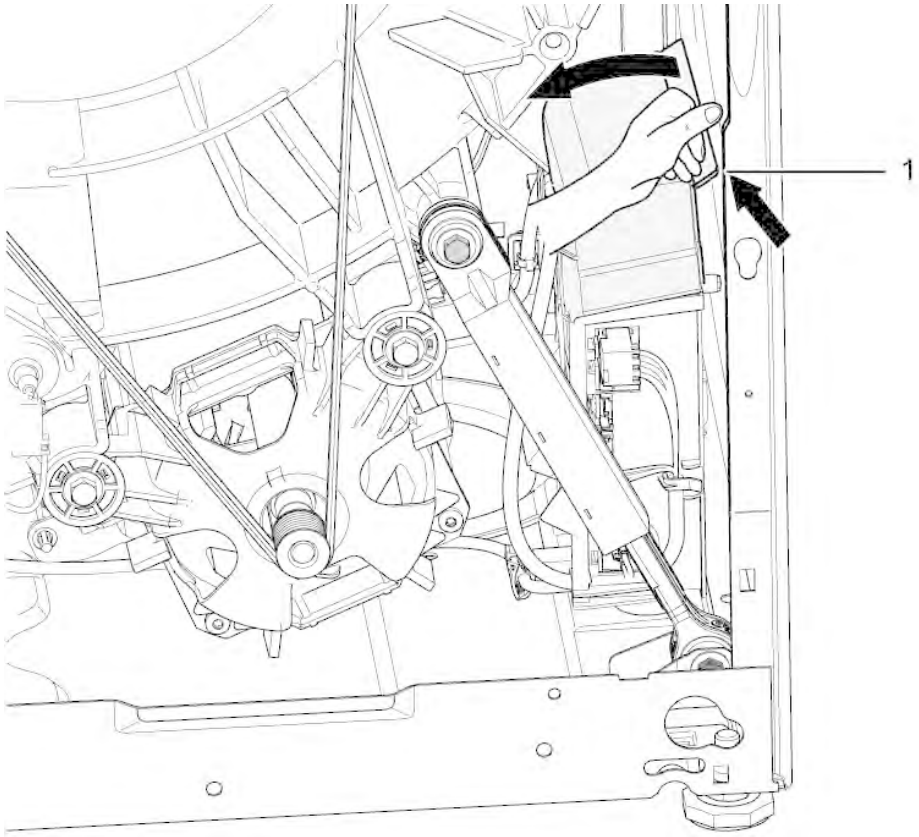
►



Result:
Inverter module (1) is touching the housing

6.23.2 Eliminating inverter module noise

►



Result:
Eliminate noise by pulling the inverter module (1) to the left