Declaration of Conformity

The Manufacturer:
GRANULDISK AB
Jägershillgatan 15
SE-213 75 MALMÖ, Sweden

declares that the following machinery:

The GRANULDISK system Granule Combi®

Granule Combi is a unique Combi dishwasher which combines the award winning Granule Optimised Washing Technology with the traditional dishwashing technique for plates, cutlery and most of the crockery.

Basic conception

a) is manufactured in conformity with the Svenska Arbetarskyddsstyrelsens Författningssamling AFS1994:48. This law conforms with the COUNCIL DIRECTIVE of 22 June 1998 concerning harmonisation of member states legislation for machinery (the Machinery Directive 98/37/EG), with particular reference to Annex 1 concerning the essential health and safety requirements relating to the design and construction of the machinery.

b) is besides the provisions under a) manufactured according to the following directives: the EC Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC

c) is manufactured in conformity with the following harmonised standards: EN 60204-1:2006, EN 55014-1, EN 60335-2-58, EN 60439-1, EN 55022, EN ISO 13850:2008, EN ISO 13857:2008, EN 61000-6-3 and EN 61000-6-2

d) is manufactured in accordance with EN 1717 and fitted with a type AB back flow protection device with airgap in accordance with EN 13077:2008.

Malmö, Sweden 02.04.2009

Signed on behalf of
GRANULDISK AB

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Peter Schön
President

GRANULDISK AB
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To the user

Granule Combi is a Granule potwashing machine – a potwashing machine for commercial kitchens that is designed for washing pots and pans as well as crockery and cutlery.

This manual is your guide for the correct installation and use of the Granule Combi potwashing machine.

GRANULDISK recommends that you study the manual thoroughly to be sure that the machine is installed and used correctly and safely.

Ensure that the manual is always available during the whole life of the machine.

GRANULDISK accepts no responsibility for damage to the equipment or other damage or injury caused by not following the directions in this manual.

Safety regulations

The plastic in the Granules is approved for use in conjunction with food.

The machine uses hot water. Avoid contact with the skin as there is a risk for scalding!

There is a risk for slipping if Granules are left on the floor.

Formaldehyde, which is dangerous if inhaled, may be formed if the Granules catch fire.

Regarding the handling of detergent, please see the detergent manufacturer's instructions.

Always lock the hood in its upper position when daily cleaning is conducted.

1. Technical data

Weight	435 kg (filled machine)
Tank volume	83 litres
Granule amount	8 kg
Wash power	10 % Granule concentration
Wash water temperature	65 °C
Rinse water temperature	85 °C

Combi mode

Wash programmes	Eco	1 min, 30 s
	Short	2 min (20 sec longer with steam reduction)
	Normal	2 min, 30 s (20 sec longer with steam reduction)
Rinse water volume	4 litres/programme	
Capacity (combi mode)	33 baskets/hour (500 x 500 mm)	

Pot-washing mode

Wash programmes w Granules	Eco	2 min, 20 s
	Short	3 min, 30 s (30 sec longer with steam reduction)
	Normal	5 min, 30 s (30 sec longer with steam reduction)
Wash programmes w/o Granules	40 sec shorter than with Granules	
Rinse water volume	4 litres/ECO programme 8 litres/short, normal programme To achieve 3600 HUE according to NSF/ANSI 3 - 2007, 8 litres is necessary.	
Capacity (pot wash)	6 + 1 GN 1/1, 65 mm deep *or* 3 GN 1/1 200 mm *and* 4 GN 65 mm, or equivalent in other items	

Loading volume	190 litres (Ø 650 mm x H 570 mm)
Design	Round rotating stainless steel basket
Voltage**	400 V (standard); 3-phase, earth 230, 415 V (option); 3-phase, earth
Fuse**	400, 415 V: 25 A (cold water option 32 A) 230 V: 40 A
Frequency	50 Hz
Maximum power	12,6 kW (cold water option 17,6 kW)
Wash pump motor (pot wash)	2,6 kW
Wash pump motor (combi mode)	0,7 kW
Rinse pump motor	0,37 kW
Wash tank element*	9 kW (cold water option 14 kW)
Rinse tank element*	9 kW (cold water option 14 kW)
Encapsulation class	IP55
Hot water	½" (DN15), 55-65°C, 3-7°dH NB! Reverse osmosis water and totally softened water must not be used.
Water pressure/flow h.w.	1-6 bar, 15 litres per min
Cold water	½" (DN15), 3-7°dH
Water pressure / flow c.w.	1-6 bar, 15 litres per min (3-6 bar when option steam reduction is fitted)
Recommended ventilation capacity	500 m^3/h (without steam reduction) 150 m^3/h (with steam reduction)
Outflow	Pipe Ø 32 mm
Drain	Required capacity 100 ltr/min. The machine should not be placed directly above the drain.

* Not in use simultaneously

** For specific data regarding delivered machines, please see machine rating plate

NB; The Granule Combi is supplied with a 2,5 metres electric cable to be connected to an approved main electrical switch on the wall. Main switch is not included in the delivery.

Installation

All operations described in this chapter must only be carried out by qualified staff. All electrical components described in this chapter apply to 400 volt machines. Recalculated electrical values apply to other voltages (see technical data).

1. The Granule Gastro and Combi is delivered well packaged and placed on a pallet. Remove the packaging so that the machine is left standing on the pallet. Undo the fixing screws 8 pieces, remove the beams from front and back side. Lift the machine from the front or back using a pallet truck now you can remove the beams at the sides. Check that the machine is undamaged.

2. Place the machine in position and adjust the feet, use a spirit level to get the machines in level.

Check that there is room for the hood to go up. Total height with the hood raised is 2400 +- 25 mm, depending on how feet have been set.
Never place anything on the hood.

3. Connect the hot water and cold water supplies. This connection is located on the back of the machine – see the Overview diagram on page 7 – and is marked red. Use flexible connecting hoses with an internal diameter of no less than 9 mm. Take care to ensure that you have at least an extra 500 mm of hose so that you can move the machine forwards for servicing. Incoming water must be at a pressure of 1-6 bar when the solenoid valve is open. If the water pressure is in excess of 6 bar, a relief valve should be installed.

4. Connect the drain pipe on the right to the drain. The drain capacity should be 100 litres/minute. Place the valve in open position (shown by symbols on the side plate). Connect a plastic pipe, Ø32 mm, between the hole in the bottom plate and the drain. See the installation drawings on page
9. The drain capacity must be at least 100 litres/minute. The machine should not be placed directly over a floor drain. It is important for the drain to be accessible for cleaning.

5. The electrical connections in the electrical cabinet must be tightened before the input electricity supply is connected. Connect the electrical cable to the main switch on the wall. Check that the power supply complies with the Technical Data on the rating plate.

Detergent and rinse aid installation

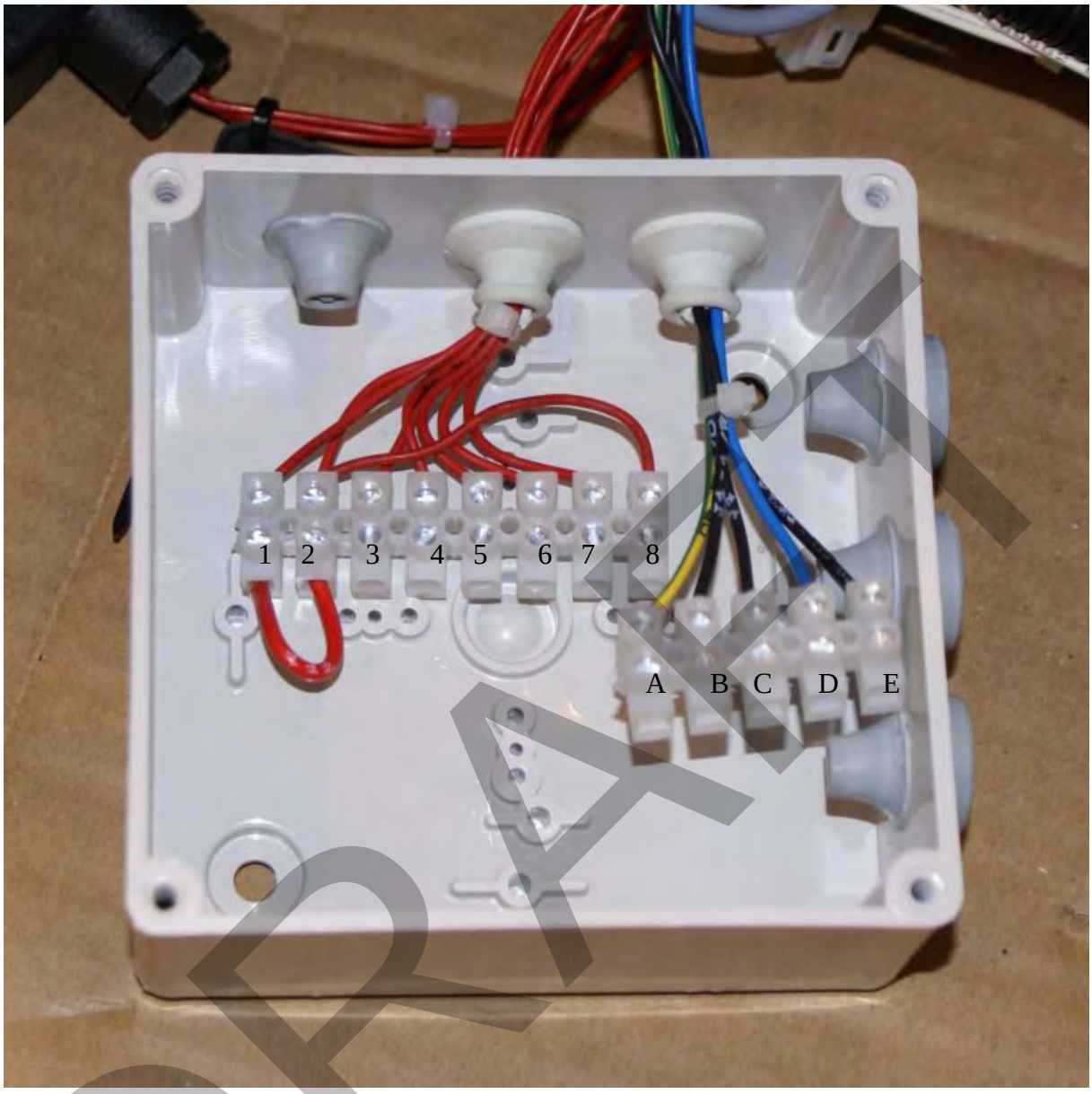
To obtain the best performance of this GRANULDISK pot washer we strongly recommend to install a sensor controlled dosing equipment and also install appropriate rinse aid.

The machine does not need to be moved, but remove the front cover and the right side cover

The 230V and the 24V supply as well as the control signals for the detergent and rinse agent equipment are located in the terminal box (A) on the right side of the wash tank. There are terminal blocks as listed below in the junction box (see pic):

1 Emergency stop J 8-8
2 Emergency stop J 8-3
3 Operations indication J 6-4
4 Central metering (full wash tank) J 8-5/TF
5 Rinse connection 24VAC J 8-4/R
6 Detergent connection 24 VAC J 8-9/D
7 Neutral 24 VAC J 16-12
8 Constant 24 VAC 113

A Earth PE
B Rinse connection 230 VAC
C Detergent connection 230 VAC J 1-7/D
D Neutral 230 VAC J 1-6
E Constant 230 VAC J 1-2



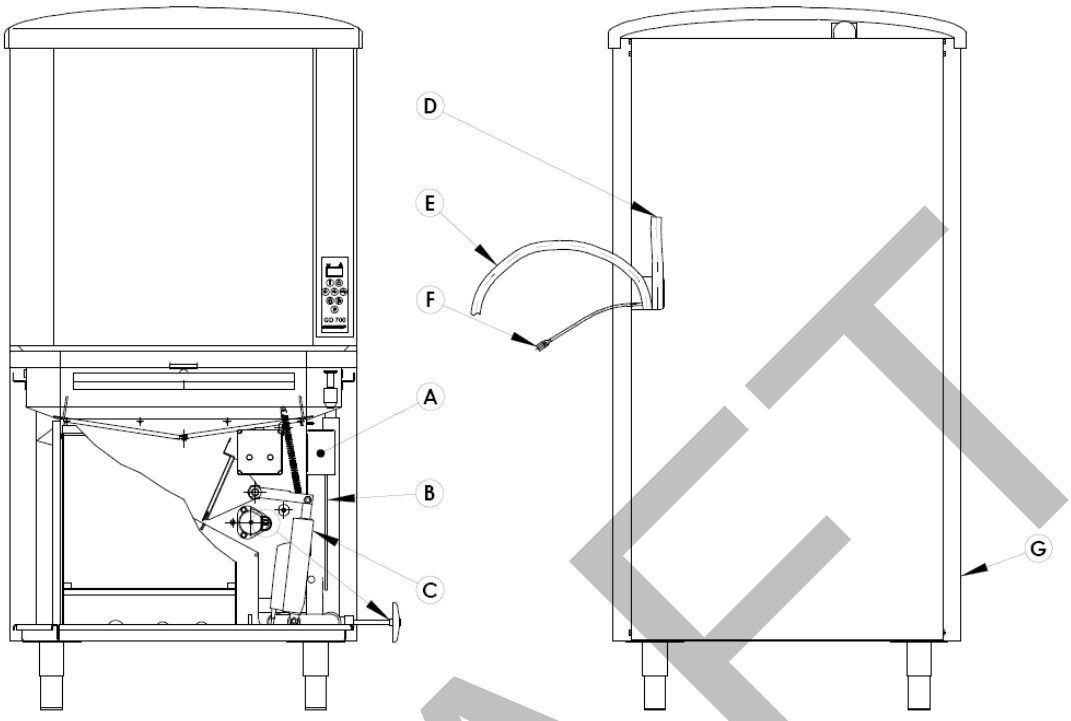


Fig. 1 Connection of detergent and rinse agent

The machine is prepared with a short pipe and a transparent hose (E) for detergent inlet. This device is located on the right hand side on the back of the machine. The transparent pipe protrudes from an opening in the back cover and it is designed to take solid style detergent. When installing liquid detergent the transparent hose have to be cut some 500 mm from the pipe and the liquid dosing hose have to be pushed in to the transparent one and strapped in position.

The machine is also prepared with a rinse aid connection (F) at the same point. The connection is 1/8" internal threads.

The pre drilled sensor hole (C) will be found on the right hand side 300 mm right of the detergent junction box and 100 mm below.. To make it easier to find, a red plastic blank fit in the hole

In case of that solid detergent has to be connected the hot water point (1/8") for the dosing equipment
is located at the machine's hot water connection.

All lead-through from outside the machine to detergent junction box has to be done trough the white flexI pipe (D), this to prevent leads from the dosing equipment to get cut by the hood lifting yoke

- It is very important that the detergent supplier is using the prepared holes so that no unnecessary holes are made in the machine.
- All dosing equipment must be fitted with a main switch.

3. Alarms and Troubleshooting

NB! Controls in this chapter may only be carried out by qualified staff.

FAULT	CHECK
Machine will not fill with water	1. That the inlet water valve is open. 2. That a programme has been selected. 3. That the doors are closed and the door sensors are activated. 4. That the level sensor is clean. 5. That the solenoid valve works.
The machine will not start	1. The door sensors are activated. 2. The overheating sensor has not tripped out. 3. That the motor sensor QF1 in the electrical cabinet has not tripped out. 4. That the automatic sensor F3 or the glass sensors F4 and F5 in the electrical cabinet have not tripped out. 5. That the emergency stop is not depressed. 6. That the temperature sensors are intact.
Spray pipe alarm	1.If pots or other things hinder the spray arms' movement. 2.If the drive system is catching.
No granules when washing with granules	1.That the granule level is correct. 2.If the granule valve is seated properly. 3.That water pressure to the solenoid valve is OK. 4.That the magnetic valve for the granule valve is OK. 5.That the granule valve does not leak. 6. That the dirt filter and constriction is in place.
Granules left on the items to be washed	1.That nozzles are not blocked. 2.That pots are angled correctly. 3.That no foreign material is in the bottom of the granule valve and that the sealing ring is intact. 4.That the sieve cover is fixed in place. 5.That the granule valve is properly located in its thread. 6.That the SW1 switch on the circuit board is not in the *man.* position, (checked by an electrician). 7.That there is not too much foam in the machine while washing. 8.That the spray pipe motor and link system are OK. 9.That the return water pipe is not blocked.
Machine does not wash items clean	1.That the nozzles are not blocked. 2.That the wash water temperature is approx. 65 °C. 3.That detergent dosing is correct. 4.That the right amount of granules are in the machine. 5.That there is not too much foam in the machine. 6.That the spray pipe motor and link system are OK. 7.That the pots are placed correctly. 8. That the protective grid for the pump has not been blocked.

Wash water does not maintain the right temperature	1.That automatic breaker F1 in the distribution box is in position 1. 2.That the thermistor is undamaged and the temperature is correctly set.
Final rinse water does not maintain right temperature	1.That automatic breaker F1 in the distribution box is in position 1. 2.That the thermistor is undamaged and the temperature is correctly set. 3.That inlet water is approx. 55 °C.

The meaning of the error codes can be read out from the table below.

- Error code 100, 109, 116, 118, 132 are also displayed with an Error message text shown in the Meaning column.
- When an error code is displayed, the program always is cancelled.
- After checking or taken care of the problem, the alarm can be reset by pressing the STOP-button.

Error code	Machine	Meaning	Cause	Remedy
001	All		Programme cancelled by operator.	This error code is displayed only when operating data is read in GDTdirect™ 3.x.
100	Flexi Maxi	Spray pipe alarm	Something is preventing movement of the spray pipes.	Remove whatever is preventing movement. Check the magnetic proximity switch and the magnet on the rocking arm. Check the fuse F4 on the PCB
101	Maxi Combi	Motor circuit breaker for wash pump right tripped	The motor is overloaded The impeller is blocked by granules or by small utensil	Check if the impeller turns free, reset the motor circuit breaker, start the machine and check the current of all three phases Check the volume of charged granules.
102	Maxi Combi	Motor circuit breaker for wash pump left tripped	The motor is overloaded The impeller is blocked by granules or by small utensil	Check if the impeller turns free, reset the motor circuit breaker, start the machine and check the current of all three phases. Check the volume of charged granules.
103	All	Motor circuit breaker for rinse pump tripped out.	The motor is overloaded The impeller is blocked	Check if the impeller turns free, reset the motor circuit breaker, start the machine and check the current of all three phases

104	All	Overheating protector for rinse tank tripped	The rinse tank heater element has overheated.	Check the function of the level sensors, and check that the machine is filling with water. Reset the overheating protector located to the right of the electrical cabinet.
105	All	Overheating protector for wash tank tripped out.	The wash tank heater element has overheated.	Check the function of the level sensors, and check that the machine is filling with water. Reset the overheating protector located to the right of the electrical cabinet.
106	All	Overheating protector for one of the heater elements tripped out.	One of the heater elements has overheated.	Check the function of the level sensors, and check that the machine is filling with water. Reset the overheating protector located to the right of the electrical cabinet.
107	All	Temperature not reached in wash tank	The wash water in the wash tank does not reach its preset temperature during the wash process.	Check the heating element circuit breaker and the contactor in the electrical cabinet. Can also be caused by low temperature of incoming water.
108	All	Temperature not reached in rinse tank	The rinse water in the rinse tank does not reach its preset temperature during the wash process.	Check the heating element circuit breaker and the contactor in the electrical cabinet. Can also be caused by low temperature of incoming water.
109	Flexi Maxi	Door switch	Someone has attempted to open the doors during operation.	Close the door.
110	All	Temperature sensor in wash tank or rinse tank non operational. Most probably in wash tank.	The temperature sensor in the wash tank or rinse tank is broken. Most probably in wash tank.	Replace the temperature sensor in the wash tank or rinse tank.
111	All	Temperature sensor in wash tank or rinse tank non operational. Most probably in rinse tank.	The temperature sensor in the wash tank or rinse tank is broken. Most probably in rinse tank.	Replace the temperature sensor in the wash tank or rinse tank.
112	All	Water level too low in rinse tank	The level in the rinse tank has fallen erroneously.	Check the water connections to the rinse tank. Check the condition (sensitivity value) of the upper level sensor in the rinse tank
113	All	Water level too low in wash tank	The level in the wash tank has fallen erroneously.	Check the water connections to the wash tank, as well as the drainage pipe and the drain valve

114	All	Long wash tank filling time	The level sensor in the wash tank has not been activated within 20 minutes of the solenoid valve opening.	Check the water supply to the machine, as well as the rinse pump. Clean the rinse nozzles. Check the sensitivity of level sensors
115	All	Long rinse tank filling time	The level sensor in the rinse tank has not been activated within 5 minutes of the solenoid valve opening.	Check the water supply to the machine, as well as the solenoid valve for rinse tank filling. Check the condition (sensitivity value) of level sensors in the rinse tank.
116	All	Low water level, problem with foam	Foam forming in the machine.	Avoid using detergent designed for washing up by hand. Change the wash water. Contact your detergent supplier if you still the problems with foam formation persist.
117	All	Long rinse time	The lower level sensor in the rinse tank has not indicated that the correct amount of water has been pumped out.	Check rinse pump function. Clean the rinse nozzles, and check if faulty signal from lower level sensor in rinse tank.
118	All	Drain valve not closed	The drain valve has opened during an active process in the machine.	Close the drain valve.
119	Gastro Flexi	Motor circuit breaker for wash pump tripped	The motor is overloaded The impeller is blocked by granules or by small utensils	Check if the impeller turns free, reset the motor circuit breaker, start the machine and check the current of all three phases. Check the volume of charged granules.
120	Gastro Combi	Basket drive device blocked	The basket is prevented from rotating, utensils outside of the basket.	Check if all wash gods are loaded properly in the basket, reload I necessary. Check the magnetic proximity switch and two magnets on the connection block. Check the fuse F4 on the PCB.
121	Gastro Combi	Motor circuit breaker for the booster pump tripped	The motor is overloaded	Check if the impeller turns free, reset the motor circuit breaker, start the machine and check the current of all three fazes.
122	Gastro Combi	Incorrect downwards hood movement	The hood has not reached down within 25 seconds; the security switch has not changed its status.	Check the solenoid valve for lowering of the hood. Check the condition of the hydraulic cylinder.

123	Gastro Combi	Incorrect upwards movement of the hood	The hood has not reached up within 20 seconds. The alarm is activated even if the hood remains in the up position.	Check if the tap for incoming cold water is open and the water flow is sufficient. Check the hydraulic system, especially the booster pump and the solenoid valve, hood up.
124	Gastro Combi	The crush protector has been activated	Something is preventing the hood to move down. High friction in mechanical system of the hood motion	Remove whatever is obstructing the hood movement, reload the wash gods in the basket if necessary. Check the mechanical system of the hood motion.
125	Gastro Combi	Incorrect hood movement, safety sensor	The safety sensor has not signalled to the control unit within 5 seconds of the hood being raised from the tank.	Check if the hood yoke can activate the safety sensor and if the safety sensor is intact. Check the cold water inlet to the machine and the correct rotation of the booster pump. Check the function of the solenoid valve, hood up
128, 129, 130, 131		System error, control card non operational	A control card component is broken.	
132	All	Clean Level sensor	The level sensor in wash tank may be dirty, or water in wash tank have not been totally drained at start up if the machine has been shut down for more than 4 hours.	Empty the wash tank and clean the level sensor in the wash tank.
140	All	Temperature sensor in wash tank or rinse tank non operational	The temperature sensor in the wash tank or rinse tank is broken.	Cut machine power wait 30 seconds, turn power back on. If Error persists, Replace the temperature sensor in the wash tank or rinse tank.
142	Combi	The sensor for detecting of wash ware out of order	No signal or false signal from the proximity switch detecting the basket.	Check the distance between the proximity switch and the magnets build in the plastic basket ring. Check the condition of the magnetic proximity switch

How to safely disconnect the power when performing maintenance.

- A separating switch must be installed next to the machine. This must be in off-position. The rinse aid and detergent installation must also be put out of circuit, unless it is supplied from the GRANULDISK machine.
- The separating switch must be fitted with a safe-guard against switching on, preferably by locking.
- A sign that is prohibiting any operation of the switch must be posted at the separation point. The sign must be mounted securely in such a way that is remains mounted the duration of the work.
- Ensure the machine is dead by undoing the front cover, the lid to the electrical cabinet and measure the incoming voltage on Q1. There must not be any voltage between any of the phases or between any of the phases and protective earth.

Preselected values in servicemenu 3.0

Text no.	Text	Flexi	Maxi	MaxiSH	Gastro	GC
32.	Eco wash time	60	60	60	60	60
33.	Short wash time	180	180	180	120	120
34.	Normal wash time	300	300	300	240	240
35.	Eco fine wash time					60
36.	Short fine wash time					90
37.	Normal fine wash time					120
38.	Separation time	60	60	60	30	40
39.	Time control the rinse pump Potwash Eco	YES	YES	YES	YES	YES
40.	Time control the rinse pump Potwash Other	NO	NO	NO	NO	NO
41.	Eco Rinse time	20	20	20	20	20
42.	Other Rinse time	40	40	40	40	40
43.	Eco fine Rinse time					20
44.	Other fine Rinse time					20
45.	Steam reduction equipment	YES	YES	YES	NO	NO
46.	Steam reduction time Eco-program	0	0	0	0	0
47.	Steam reduction time Other program	60	60	60	30	30
48.	Steam reduction time Fine Eco-program					0
49.	Steam reduction time Fine Other program					20
50.	Wash tank temperature	65	65	65	65	65
51.	Rinse tank temperature	85	85	85	85	85
52.	Temperature block in the wash tank	YES	YES	YES	YES	YES
53.	Temperature block in the rinse tank	YES	YES	YES	YES	YES
54.	Type of rinse aid dosage	Per cycle	Per cycle	Per cycle	Per cycle	Per cycle
55.	Sensitivity on level detectors	500	500	500	500	500
56.	Prescavenging at program start	Interval	NO	NO	NO	NO
57.	Impulse time on the pump during prescavenging	200	200	200	200	200
58.	Alarm Low water level	20	20	20	20	20
59.	Alarm Wash temperature not reached	30	30	30	30	30
60.	Alarm Rinse temperature not reached	15	15	15	15	15
61.	Alarm Long fill time in the wash tank	20	20	20	20	20
62.	Alarm Long fill time in the rinse tank	5	5	5	5	5
63.	Change water after	20	20	20	20	20
64.	Run test program					
65.	Load factory settings					
66.	Value on the level sensors					
67.	Read operation data					
68.	Read accumulated values					

Preselected values in servicemenu 3.0

Text no.	Text	Flexi	Maxi	MaxiSH	Gastro	GC
32.	Eco wash time	1:00	1:00	1:00	1:00	1:00
33.	Short wash time	3:00	3:00	3:00	2:00	2:00
34.	Normal wash time	5:00	5:00	5:00	4:00	4:00
35.	Eco fine wash time					1:00
36.	Short fine wash time					1:30
37.	Normal fine wash time					2:00
38.	Separation time	1:00	1:00	1:00	0:30	0:40
39.	Time control the rinse pump Potwash Eco	YES	YES	YES	YES	YES
40.	Time control the rinse pump Potwash Other	NO	NO	NO	NO	NO
41.	Eco Rinse time	0:20	0:20	0:20	0:20	0:20
42.	Other Rinse time	0:40	0:40	0:40	0:40	0:40
43.	Eco fine Rinse time					0:20
44.	Other fine Rinse time					0:20
45.	Steam reduction equipment	YES	YES	YES	NO	NO
46.	Steam reduction time Eco-program	0:00	0:00	0:00	0:00	0:00
47.	Steam reduction time Other program	1:00	1:00	1:00	0:30	0:30
48.	Steam reduction time Fine Eco-program					0:00
49.	Steam reduction time Fine Other program					0:20
50.	Wash tank temperature	65	65	65	65	65
51.	Rinse tank temperature	85	85	85	85	85
52.	Temperature block in the wash tank	YES	YES	YES	YES	YES
53.	Temperature block in the rinse tank	YES	YES	YES	YES	YES
54.	Type of rinse aid dosage	Per cycle	Per cycle	Per cycle	Per cycle	Per cycle
55.	Sensitivity on level detectors	500	500	500	500	500
56.	Prescavenging at program start	Interval	NO	NO	YES	NO
57.	Impulse time on the pump during prescavenging	200	200	200	200	200
58.	Alarm Low water level	0:20	0:20	0:20	0:20	0:20
59.	Alarm Wash temperature not reached	0:30	0:30	0:30	0:30	0:30
60.	Alarm Rinse temperature not reached	0:15	0:15	0:15	0:15	0:15
61.	Alarm Long fill time in the wash tank	0:20	0:20	0:20	0:20	0:20
62.	Alarm Long fill time in the rinse tank	0:05	0:05	0:05	0:05	0:05
63.	Change water after	0:20	0:20	0:20	0:20	0:20
64.	Run test program					
65.	Load factory settings					
66.	Value on the level sensors					
67.	Read operation data					
68.	Read accumulated values					

Sw ver. 3.0 **Vectorchoice servicemenu** Bold=Preselected values (all machines)

32. Eco wash time	20	30	40	50	**60**	70	80	90	100												
33. Short wash time	20	30	40	50	60	70	80	90	100	110	**120**	150	**180**	240	300	360					
34. Normal wash time	100	120	150	180	210	**240**	**300**	360	420												
35. Eco fine wash time	20	30	35	40	45	50	**60**	70	80	90											
36. Short fine wash time	40	50	60	70	75	80	**90**	100	110	120	130	140									
37. Normal fine wash time	80	90	100	110	**120**	130	140	150	160	170											
38. Separation time	**30**	**40**	50	**60**	70	80	90	100													
39. Time control the rinse pump Potwash Eco	NO	**YES**																			
40. Time control the rinse pump Potwash Other	**NO**	YES																			
41. Eco Rinse time	15	**20**	25	30	35	40															
42. Other Rinse time	15	20	25	30	35	**40**															
43. Eco fine Rinse time	15	**20**	25	30	35	40															
44. Other fine Rinse time	15	**20**	25	30	35	40															
45. Steam reduction equipment	**NO**	**YES**																			
46. Steam reduction time Eco-program	**0**	10	15	20	30	40	50	60													
47. Steam reduction time Other program	0	10	20	**30**	40	50	**60**	70	80	90	100										
48. Steam reduction time Fine Eco-program	**0**	10	15	20	30	40	50	60													
49. Steam reduction time Fine Other program	0	10	15	**20**	30	40	50	60													
50. Wash tank temperature	6	10	20	30	40	50	60	61	62	63	64	**65**	66	67	68	69	70				
51. Rinse tank temperature	20	30	40	50	60	70	80	81	82	83	84	**85**	86	87	88	89	90				
52. Temperature block in the wash tank	NO	**YES**																			
53. Temperature block in the rinse tank	NO	**YES**																			
54. Type of rinse aid dosage	**Per c**	Per l of water																			
55. Sensitivity on level detectors	300	400	**500**	600	700																
56. Prescavenging at program start	**NO**	YES		**Interv**	Constant	<--GD600															
57. Impulse time on the pump during prescavenging	50	100	150	**200**	300	400	500	600													
58. Alarm Low water level	10	**20**	30	40																	
59. Alarm Wash temperature not reached	20	**30**	40	50	60	70	80	90	100												
60. Alarm Rinse temperature not reached	10	11	12	13	14	**15**	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
61. Alarm Long fill time in the wash tank	10	15	**20**	25	30	35	40	45	50	55	60	65									
62. Alarm Long fill time in the rinse tank	**5**	10	15	20	25	30	35	40	45	50	55	60									
63. Change water after	15	**20**	25	30	35	40															
64. Run test program																					
65. Load factory settings																					
66. Value on the level sensors																					
67. Read operation data																					
68. Read accumulated values																					

ECO
Service manual

4. Programming

Flashloader 3.x)*

With this PC-program you can:

- Updgrade the software and language-file.
- Troubleshooting with the in- & output on the circuit board.
- Reset Granule- & Service time.
- Change date & time in the machine.
- Put in Service phone number.

Installation

The program can be supplied on a CD or by E-mail and is installed as follows:

1. Create and name a folder for the program on the hard disk. Use “Explorer” in the computer’s office program.
2. Insert the CD and click the program file Flashloader 3.x.zip on the CD. Save the files in the folder you have just created on your hard disk.
3. Tip: create a shortcut on the desktop to make it easier to find the program when you need to start it

Cable Connection

Connect a serial RS-232 cable(straight) between the machine serial connector and a computer serial port. If the computer does not have a serial port, what is known as a USB/serial adapter can be used. For information on what is suitable for your particular computer, contact your IT specialist. The cable is connected to the 9-pole contact at the detergent junction box for the machine. Check that the internal cable is connected in the machine’s electrical cabinet to the J11 terminal on the control card. This cable is then laid to the selected computer via the kitchen’s normal communication paths and connected to a free COM port.

Use

1. Start the program by double-clicking the program file Flashloader 3.x.exe in the folder you created on the hard disk or by clicking the icon you created on the desktop.
2. Select serialport, by click on Communication/Ports , and select the port to which the potwashing machine is connected. (Flashloader remember this setting next time the Flashloader start.
3. Put the wash machine in stop mode by pressing STOP-button.
4. Press “Connect”.
5. <u>For Troubleshooting</u>:
   Press “Run from Flash”, and when the field “Outports” is white you can operate the machine manually, and at the same time see what is happen to the inputs in the “InPorts” field.
   The time, temperature settings, and tank-levels is displayed at the top.

In this mode no info is displayed in the machine display.
For updateing and uploading:
Press “Run from Flash”.
Update date and time to the PC-settings, by pressing “Set Time”.

Upload software and language file by pressing “Program” when this button is highlighted.
Select software version e.g. Washprog 3.x.bin , and select language file e.g. SvEn 3.x.spk.
Then press “Upload”. When the programming is ready a window “Upload ready” appears.
If you will upload again close the program window, and start over by pressing “Run from Flash”.
If a wrong language file is selected or the software don’t fit the machine-type, there will be an error message.

Update EEprom with Granule programs and wash programs, by write the right values and press “Update”.
Updating Service phone number, by write the number and press “Save”.

After troubleshooting and updateing (not uploading), you have to press “Run from Machine” to put the machine in the ordinary mode again.

To end Flashloader press”X” in upper right corner.

GDTdirect™ 3.x)*

The GRANULDISK® Documentation Tool, GDTdirect™ 3.x, is an integrated function for documentation of the potwashing machine's operating parameters and critical hygiene control points, HACCP. The function can be utilised in two different ways. The operating data for the 100 most recent wash programmes can be read off directly in the control panel window. For complete storage of all historical data, an external computer can be connected to the machine and operating data can be stored in separate files. The system requirements for the connection of external computers are Windows 2000 or Windows XP.

Reading Data off the Control Panel

1. Press the STOP button and release it, and wait for 3 seconds.
2. Press button 4, "Select short programme", 5 times.
3. Scroll with button 3, "Select eco programme", or button 5, "Select normal programme", until "Read operating data" is displayed in the window. Confirm your selection by pressing the OK button.
4. Operating data for the most recent programme is displayed in the window, for example:

050121 15:19 SG 65/85 OK

The information is read as follows:

1 • Date – 050121 (21/01/05)
2 • Time – 15:19
3 • Programme type –
E = Eco programme
S = Short programme
N = Normal programme
4 • G = Washing with Granules selected
space is blank = Washing without Granules selected

- 65 – indicates the start value of the temperature in the wash tank during washing.
- 85 – indicates the start value of the temperature in the rinse tank during the final rinse.
- OK – indicates that the rinse water volume is correct in accordance with the factory values. If the set values have been changed, NA (not applicable) is displayed instead.

If the wash programme has been interrupted on account of a handling error or a technical fault, the temperature indication is omitted and replaced by "Error:" and an error code. See the example below. For the most frequent potential errors, the error message is written in plain text. For other errors, please see the manual.

050121 15:19 SG Error 103

5. To obtain information about previous programmes, you can scroll forwards and backwards in the list with button 3, "Select Eco programme", and button 5, "Select normal programme".
6. To finish scrolling and exit the list, press the STOP button.

Storing Data on an External Computer

To store complete operating data for the machine, it needs to be connected to an external computer via a serial cable. Software is installed on the computer which gradually collects and stores operating data from every wash programme run.

*) x is current version-number and begins with 0.

For continuously storage to take place, the computer has to be switched on and the documentation program has to be active. Data is transferred and stored in the selected folder on the computer after every programme run. This program can be active without stopping the computer being used normally.

It is also possible to download the last 100 programmes by selecting “Washer/Get all log data” if the computer has not been connected. Note: Duplicates may appear in this mode.

Cable Connection

Connect a serial RS-232 cable(straight) between the machine serial connector and a computer serial port. If the computer does not have a serial port, what is known as a USB/serial adapter can be used. For information on what is suitable for your particular computer, contact your IT specialist. The cable is connected to the 9-pole contact at the detergent junction box for the machine. Check that the internal cable is connected in the machine’s electrical cabinet to the J11 terminal on the control card. This cable is then laid to the selected computer via the kitchen’s normal communication paths and connected to a free COM port.

Program Installation

The program can be supplied on a CD or by E-mail and is installed as follows:

1. Create and name a folder for the program on the hard disk. Use “Explorer” in the computer’s office program.
2. Insert the CD and click the program file gdt-direct 3.x.zip on the CD. Save the files in the folder you have just created on your hard disk.
3. Tip: create a shortcut on the desktop to make it easier to find the program when you need to start it.

Starting the Program

1. Start the program by double-clicking the program file gdt-direct 3.x.exe in the folder you created on the hard disk or by clicking the icon you created on the desktop.
2. When the program has started, you have to select the port to which the potwashing machine is connected. Click Ports and select the correct port. GDTdirect™ 3.x will remember this setting for the next time GDTdirect 3.x™ startup.
3. Then select Washer and then Connect.
4. A window appears on the monitor and you have to select where you want to save the log file. Select the folder created under “Program Installation” above and give the file a name.

Tip: name the file after the week or month so that it is easy to find the operating data stored. Example: “HACCP-w.17-2005”. New data is saved in the same file after data saved previously until you choose to give the file a new name. Rename the log file at regular intervals so that the list does not become unnecessarily long.

5. Data is displayed directly on the computer monitor. The view has a fixed size that cannot be changed, and table headings in English. The columns can be widened by placing the mouse cursor in the table header and dragging it out.

From left to right, the following information can be read out:

Date; Time; Programme type – Eco, Short, Normal ; Granules – G/washing with Granules or NO/Washing without Granules; Temperature in wash tank; Temperature in rinse tank; Information on final rinse sufficient – OK or NA if the rinse volume was reduced.

To read out all data continuously, the program must be active and connected to the pot washing machine.

Data Processing

Data can be processed by selecting View in the menu and then Log file. To read out data saved in older files, use “Explorer” to find and click the file name in the folder in which the files are saved. From Log file, the information can be cut and pasted in, for example, Excel for statistical processing. Saved files can also be placed on a common server or be emailed to a central HACCP manager.

GD Memo™

GD Memo is an integrated function which informs the user of the machine’s most important maintenance requirements. With GD Memo, it is possible to ensure optimum wash results, avoid stoppages under high loads and maintain the lowest possible operating costs. This function is integrated in the control panel and keeps the user informed as follows:

1. Time to change wash water

The “Washing without Granules” button (7) flashes and the message “Change water” is shown in the display. This information disappears once the water has been changed or can be reset by pressing button (7) five times. This reminder appears after every 25 wash cycles in preset. The number of washes is changeable between 15 and 40 washes.

2. Time to change granules – to maintain the wash power in the machine. The “Washing with Granules” button (6) flashes and the message “Change granules” is shown in the display. This information disappears once the granules have been changed and this has been acknowledged by pressing the granule button (6) nine times and the normal program button (4) once. A granule change reminder appears after every 2500 wash cycles.

3. Time for periodical service

Press Stop ,
The STOP button (2) flashes and the message “Service” is shown in the display. An annual service reminder appears after every 8000 programs or one year, whichever occurs first. There are two different service kit, one for 8000 cycles (1 year), and one for 16000 cycles (2 years).
After performed service, this information should be reset.

User menu entrance

Press the STOP button and release it, and wait for 3 seconds, then press the following combination Short x 5 .

Choice servicemenu

Bold=Preset values

Eco wash time	20	30	40	50	**60**	70	80	90	100												
Short wash time	20	30	40	50	60	70	80	90	100	110	**120**	150	180	240	300	360					
Normal wash time	100	120	150	180	210	**240**	300	360	420												
Eco fine wash time	20	30	35	40	45	50	**60**	70	80	90											
Short fine wash time	40	50	60	70	75	80	**90**	100	110	120	130	140									
Normal fine wash time	80	90	100	110	**120**	130	140	150	160	170											
Separation time	30	**40**	50	60	70	80	90	100													
Time control the rinse pump Potwash Eco	NO	**YES**																			
Time control the rinse pump Potwash Other	**NO**	YES																			
Eco Rinse time	15	**20**	25	30	35	40															
Other Rinse time	15	20	25	30	35	**40**															
Eco fine Rinse time	15	**20**	25	30	35	40															
Other fine Rinse time	15	**20**	25	30	35	40															
Steam reduction equipment	**NO**	YES																			
Steam reduction time Eco-program	**0**	10	15	20	30	40	50	60													
Steam reduction time Other program	0	10	20	**30**	40	50	60	70	80	90	100										
Steam reduction time Fine Eco-program	**0**	10	15	20	30	40	50	60													
Steam reduction time Fine Other program	0	10	15	**20**	30	40	50	60													
Wash tank temperature	6	10	20	30	40	50	60	61	62	63	64	**65**	66	67	68	69	70				
Rinse tank temperature	20	30	40	50	60	70	80	81	82	83	84	**85**	86	87	88	89	90				
Temperature block in the wash tank	NO	**YES**																			
Temperature block in the rinse tank	NO	**YES**																			
Type of rinse aid dosage	**Per c**	Per l of water																			
Sensitivity on level detectors	300	400	**500**	600	700																
Prescavenging at program start	**NO**	YES																			
Impulse time on the pump during prescavenging	50	100	150	**200**	300	400	500	600													
Alarm Low water level	10	**20**	30	40																	
Alarm Wash temperature not reached	20	**30**	40	50	60	70	80	90	100												
Alarm Rinse temperature not reached	10	11	12	13	14	**15**	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Alarm Long fill time in the wash tank	10	15	**20**	25	30	35	40	45	50	55	60	65									
Alarm Long fill time in the rinse tank	**5**	10	15	20	25	30	35	40	45	50	55	60									
Change water after	15	**20**	25	30	35	40															
Run test program																					
Load factory settings																					
Value on the level sensors																					
Read operation data																					

Read accumulated values

4. HACCP Hygiene and Operation Documentation

GRANULDISK Documentation Tool, GDTdirect™, is an integrated function for the documentation of the dishwashing machine's operating parameters and critical hygiene control points, HACCP.

- Operating Data for the last 100 wash programmes run can be viewed directly in the control panel window.
- An external computer can be linked to the machine and operating data stored in separate files so that all historical data can be saved. Windows 2000 or Windows XP is a system requirement for connecting an external computer. Please contact your dealer for more information and installation.

Reading the Data through the control panel

1. Press STOP button (2), release it and wait 3 seconds.
2. Press "short programme" (4), five times.
3. Use button "eco programme" (3) or button "normal programme (5) until you see "read operating data" in the display. Confirm your choice by pressing Confirm button (1).
4. Operating data for the last programme run is shown in the display;

090121 15:19 SG 65/85 OK

The information is defined as follows;

- Date; 090121 2009, January, 21st
- Time; 15.19 3.19 p.m
- Programme type; E, S, N equivalent to ECO, Short and Normal programmes.
- For combi mode the programmes are indicated by CE, CS and CN, for combi ECO, combi Short and combi Normal.
- Washing with Granules; indicated by means of a "G", otherwise this box is left blank.
- 65; indicates the average temperature in the wash tank during washing.
- 85; indicates minimum temperature in the rinse tank during rinsing.
- OK; indicates that the rinse water volume is correct in accordance with factory values; if the set values have been changed, NA (not applicable) is displayed.

NB! If the wash programme has been cancelled due to an operating error or technical error, the temperature indication is not included and "error" plus an error code appears in its place.

090121 15:19 SG Error 103

5. To view information on programme run previously, scroll backwards and forwards in the list using button "eco programme" (3) or button "normal programme" (5).
6. To end scrolling and leave the list, press Confirm button (1).
7. Press the STOP button (2) to return to operating mode.

6. Routines for a shutdown

Routine for storing granules not in daily use.

1. Collect the granules in the machine with the granule collectors.
2. Rinse the granules with plenty of water so all the dirt is
removed.
3. Fill a sink with dishwashing detergent solution (2ml detergent / liter water) Place the granule collector with the granules in that solution overnight.
4. Drain the machine
5 Perform an extra careful daily cleaning of the machine
6 lubricate the hood seal and granule valve gasket with rubber grease
7 Shut the isolator and the inlet water supply
8 Next day, drain the detergent solution from the sink where the Granules has been stored overnight
9 Rinse the granules with plenty of water. Shake well to remove
as much water as possible.
10. Store the clean granules in the granule collectors.
11. Place the granule collectors in the machine.
12. Leave the machine with the hood in top position
13 Service #1 have to be carried out if the machine has been stored for more that 3 months. Service #2 have to be carried out if the machine has been stored for more than 9 months

7. Warranty

The following requrements apply for a valid GRANULDISK product warranty:

The standard warranty is valid for 12 months from commissioning or at the most 15 months from the date the goods are delivered from GRANULDISK AB in Malmö, Sweden.

The warranty is valid only if the product has been utilized for normal and proper use in a catering kitchen, or similar, and is correctly installed according to instructions and requirements supplied by GRANULDISK AB.

GRANULDISK AB shall remain liable for a period of twelve (12) months (warranty period) for the removal and replacement of any parts of the goods suffering from “Epidemic failure”. The notification of such a defect shall be done by the Distributor prior to the end of the guarantee period.

“Epidemic failure” is understood to be a defect which has appeared in any consecutive 12-month period in 10 % of any parts of the goods of a similar type and nature of each other.

The warranty does not include compensation for personal injury, loss of production, loss of profit or any other indirect damage.

The warranty is valid ONLY if periodic Maintenance has been performed by an authorized Service Partner and reported to the local GRANULDISK representative. The GRANULDISK Product will on the Operator display prompt for when Service is needed.

Periodic Maintenance and parts dedicated for this is not included in the Warranty

The warranty does not cover wear metal and consumable supplies, such as light bulbs, filters, fuses, gaskets etc.

The distributor shall monthly supply GRANULDISK AB with a list of spare parts which have been exchanged under warranty, specifying machine number and information about the defect. The **GRANULDISK Service Warranty** document is to be used.

GRANULDISK AB decides which replaced spare parts will have to be sent back to for examination at GRANULDISK.

Incomplete documentation of the above can cause the warranty to be void.

Returning of warranty parts must be approved by your local GRANULDISK After Sales representative and clearly labelled with the “**GRANULDISK Service Warranty**” documentation.

The warranty is valid only if GRANULDISK AB Granules and spare parts are being used and if a completed and signed Site Survey /Installation Protocol is returned to GRANULDISK AB.

Compensation for working hours in connection with the warranty repair will not be covered by GRANULDISK AB.

The warranty covers faults caused by defects in construction, materials or fabrication.

GRANULDISK

Service record 1 year service	
Customer:	
Machine type	Gastro □ Granule Combi □
Serial no	
Service performed by:	
Name	Company:

Check point		Passed	Failed	Notes
1. Incoming water	Check operation. Leaks in the pipes, connections, solenoid valve, water filter.	□	□	
2. Tank level	Check the level sensor. Clean.	□	□	
3. Basket drive	Exchange the basket drive seals According to Service instructions 1 year service, point 2-6. Check movement and any leaks.	□	□	10930, 5321, 6005034
4. Granule damper	Exchange seals according to service instructions, point 7.Check operation. Seals, closed and open.	□	□	5360, 11594
5. Spray pipes and final rinse pipe	Check wash and final rinse nozzles.	□	□	
6. Overflow drain/main drain	Check the self-closing operation and that no granules come out of the machine. Spring and the bracket for spring. Clean the drain pipe.	□	□	
7. Main seals	Check the hood seal and back seal.	□	□	
8. Water hydraulics	The set values for the cut-out device and safety switches. Check crush protection and safety switch according to service manual.	□	□	
9. Hood movement	Check guide wheel and guide bearings for hood movement.	□	□	
10. Granules	Amount and wear.	□	□	
	Fill the machine with water and granules. And make a test run.			
11. Control panel	Check the main cable, panel buttons as well set programme values. Check temperature blocks. Check rinse time normal time =40 s. (non Eco mode).	□	□	
12 Heater wash tank and rinse tank	Check that the current the same to all three leads. Measure by the contactor.	□	□	

13. Pumps / hoses	Check for unusual sounds, pressure, leaks.	☐	☐	
14. Other leaks	Check welds, gaskets etc. Check basket dive for leaks. Check hood alignment and for leaks. If needed adjust according to service manual.	☐	☐	
15. Distribution box	Check cable fittings, absence of damp and visual check of components.	☐	☐	
16. Check wash ware sensor (GC only)	Function of sensor, fine/pot wash	☐	☐	
17. Detergent and rinse aid dosing	Dosing correct/food fat dissolves/foam in the wash water.	☐	☐	
18. User manual and wall manual.	Is it available?	☐	☐	
19. Wash basket and accessories	Check they are not broken and for any wear on the guides.	☐	☐	
20. Water filter	Clean cold water filter.	☐	☐	

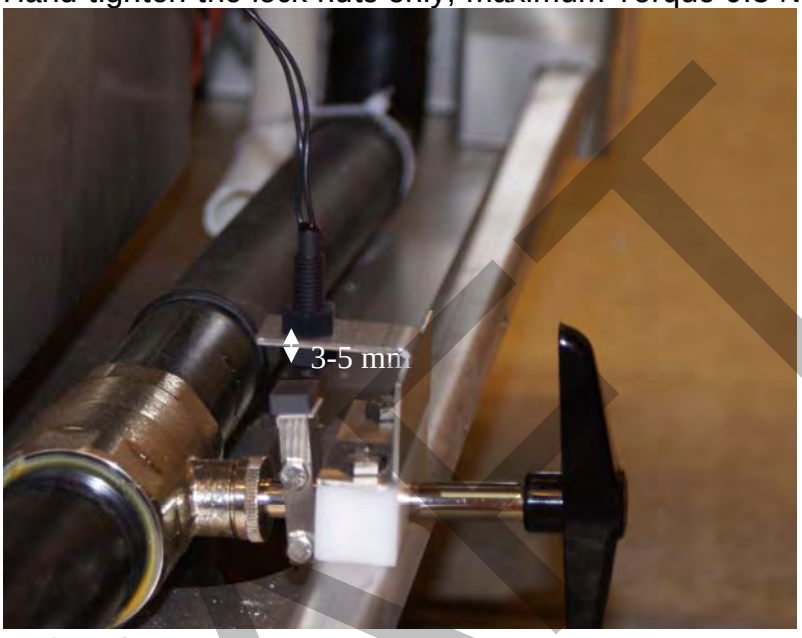
Service record 2 year service	
Customer:	
Machine type	Gastro □ Granule Combi □
Serial no	
Service performed by:	
Name	Company:

Check point		Passed	Failed	Notes
1. Incoming water	Check operation. Leaks in the pipes, connections, solenoid valve, water filter.	□	□	
2. Tank level	Check the level sensor. Clean.	□	□	
3. Basket drive	Exchange the basket drive seals According to Service instructions 1 year service, point 2-6. Check movement and any leaks.	□	□	10930, 5321, 6005034
4. Granule damper	Exchange seals and spring according to service instructions, point 7.Check operation. Seals, closed and open.	□	□	5360, 11594, 5600
5. Spray pipes and final rinse pipe	Change wash and rinse nozzles according to 2 year service instructions point 5 and 6.	□	□	20014, 101044
6. Overflow drain/main drain	Check the self-closing operation and that no granules come out of the machine. Spring and the bracket for spring. Clean the drain pipe.	□	□	
7. Main seals	Exchange main hood seal and back seal according to 2 year service instructions point 3 and 4.	□	□	19919
8. Water hydraulics	The set values for the cut-out device and safety switches. Check crush protection and safety switch according to service manual.	□	□	
9. Hood movement	Check guide wheel and guide bearings for hood movement.	□	□	
10. Rinse tank level detector upper	Clean, exchange if necessary.	□	□	
11. Granules	Amount and wear.	□	□	
	Fill the machine with water and granules. And make a test run.			
12. Control panel	Check the main cable, panel buttons as well set programme	□	□	

	values. Check temperature blocks. Check rinse time normal time =40 s. (non Eco mode).			
13 Heater wash tank and rinse tank	Check that the current the same to all three leads. Measure by the contactor.	☐	☐	
14. Pumps / hoses	Check for unusual sounds, pressure, leaks.	☐	☐	
15. Other leaks	Check welds, gaskets etc. Check basket dive for leaks. Check hood alignment and for leaks. If needed adjust according to service manual.	☐	☐	
16. Distribution box	Check cable fittings, absence of damp and visual check of components.	☐	☐	
17. Check wash ware sensor (GC only)	Function of sensor, fine/pot wash	☐	☐	
18. Detergent and rinse aid dosing	Dosing correct/food fat dissolves/foam in the wash water.	☐	☐	
19. User manual	Is it available?	☐	☐	
20. Wash basket and accessories	Check they are not broken and for any wear on the guides.	☐	☐	
21. Water filter	Clean cold water filter.	☐	☐	

Adjustments and exchange of parts GD Gastro/GC

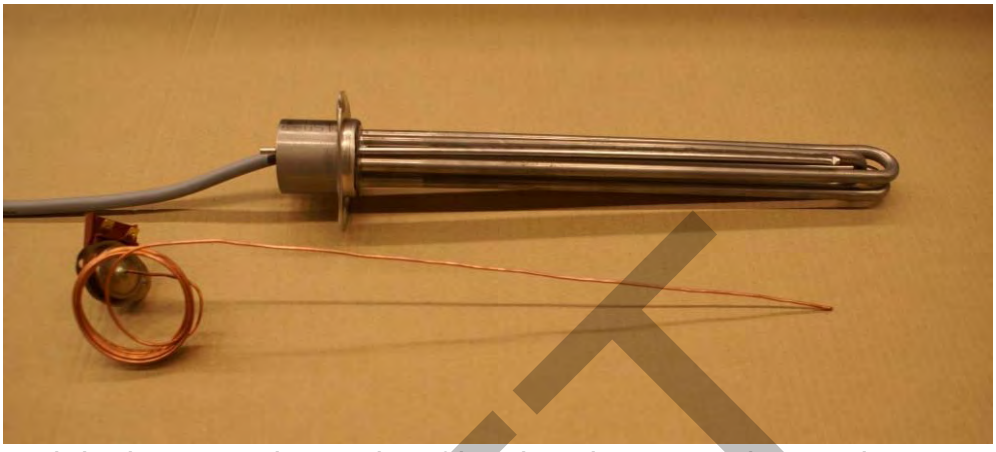
1. Wash system:
    a. Adjustment of drain valve sensor.
        1. Adjust distance between magnet and sensor to 3-5 mm. Hand tighten the lock nuts only, maximum Torque 0.3 Nm.



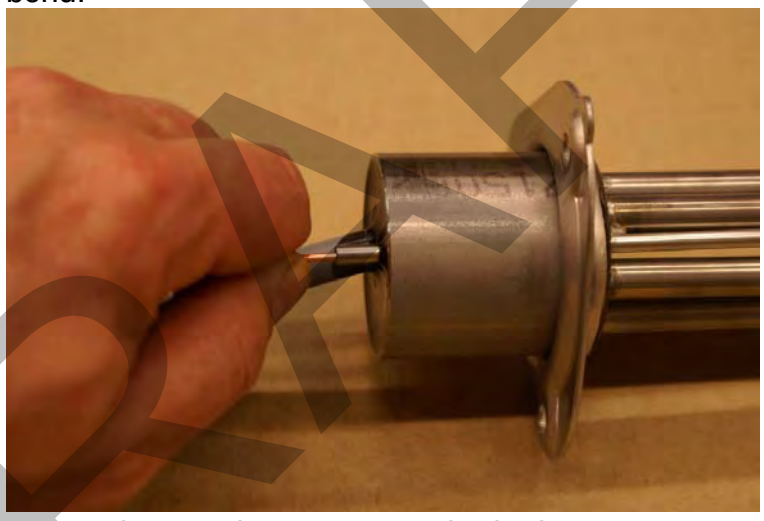
    b. Exchange of wash pump
    c. Exchange of wash tank heater.
    d. Exchange of wash tank over heat protector.
        1. Turn off the electrical supply.
        2. Open the over heat protector connection box.

        3. Undo the electrical connection.
        4. Retract the sensor tube from heater.

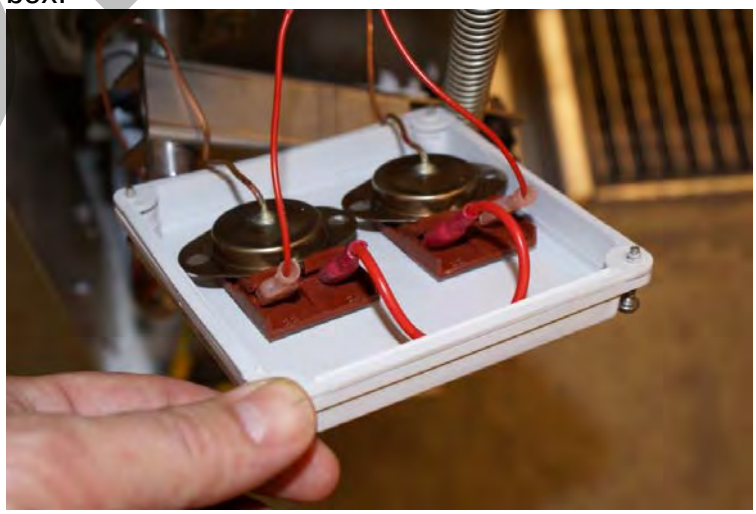
5. Straighten the new sensor tube before it is inserted into the heater.



6. Push in the sensor in to tube of heating element. Make sure it is **fully inserted**. When inserting grip the tube close to the heater and insert a small piece at a time. Otherwise it might bend.



7. Fasten the over heat protector in the box.
8. Connect the new over heat protector electrically. And close the box.



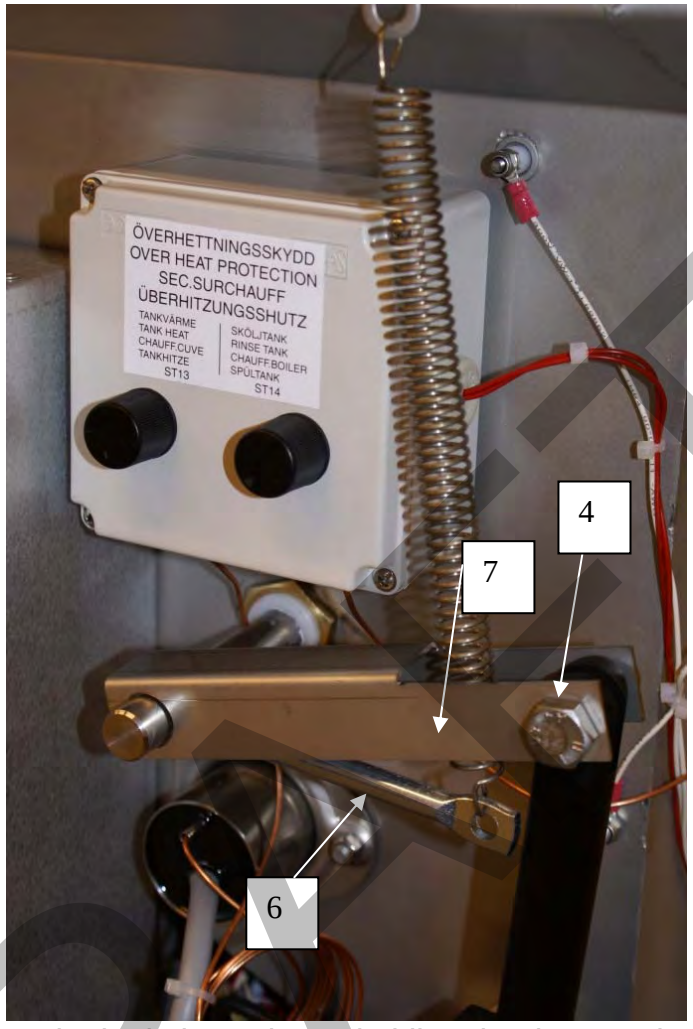
9. Strap the rest of the sensor tube to the heater cable.

e. Exchange of wash tank temperature sensor.
    1. Make sure that the wash tank is empty.
    2. Turn of the electrical supply.
    3. Undo the sensor by undoing the bolt.
    4. Cut the cable into several pieces so it can be retracted from the cable ties. **Note placement of cable the new sensor must be strapped in the same place.**
    5. Mount the new sensor using a new O-ring.
    6. Strap the cable to the harness where the old cable was strapped. The cable has to be strapped on the outside of the hoses going into the electrical cabinet. Push the connector through the conduit entry and connect it to the pcb. (**Do NOT strap the sensor cable to the high voltage cables.)**
    7. Turn on the machine. Make sure that the water supply is on. The display will now show “Detect sensors?”. Press “OK”, (black) 1 button.
    8. The machine will now start detecting sequence (“Detecting sensors” on display). The machine will start heating the rinse tank. When temperature is 90 °C the detection is now ready and the machine starts working as normal.

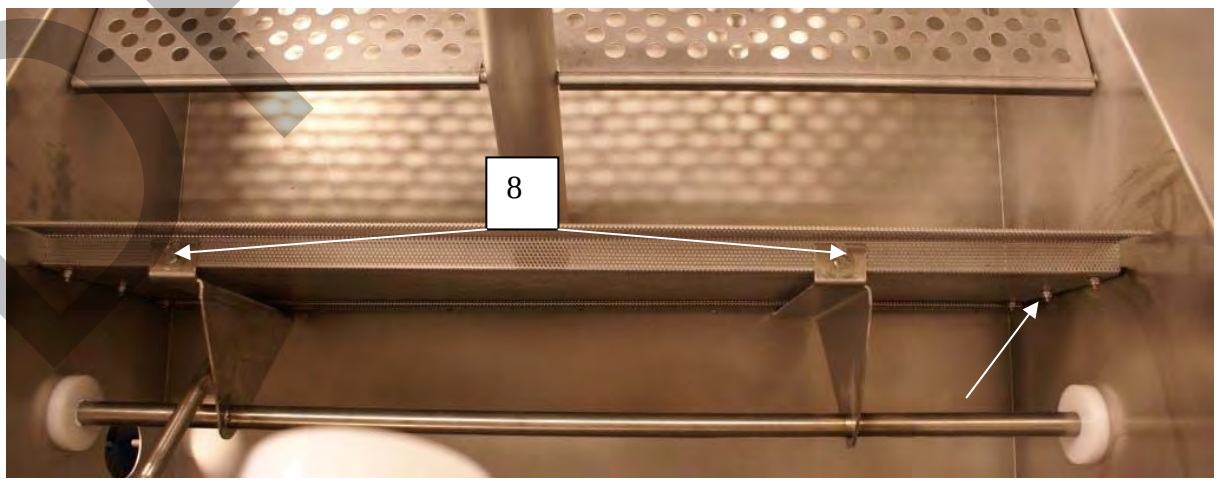
f. Exchange of wash tank level sensor.
    1. Turn off the electrical supply.
    2. Make sure the water level in wash tank is well below the level sensor.
    3. Disconnect the cable from the level sensor.
    4. Undo the level sensor from within the wash tank.
    5. Clean the treads if necessary with a tread tap, 1/8”R.
    6. Apply suitable tread seal on the new sensor.
    7. Mount the new sensor.
    8. Connect the cable on the level sensor.
    9. Turn on the electrical supply.
    10. Check value on the level sensor when the level is below the sensor (correct value approx 0) and with full tank (correct value 4096). Use the operators menu. (0 and 5 times middle program).

g. Exchange of granule damper and linear actuator.
    1. Collect the granules and empty the machine from water.
    2. Undo the front plate and lift out the tank grids.
    3. Disconnect electrical connection to the linear actuator.
    4. Undo the screw and nut in both ends of the actuator.
    5. Unhook the spring from the arm.
    6. Unscrew the bolt going into the shaft.

7. Undo the arm from the shaft.



8. Undo the bolts and nuts holding the damper sieve to the shaft. Dismount the complete damper sieve.



9. Undo the brass nut holding the front bearing. Push in the front bearing. Undo the damper shaft by pulling it forward and lift it out.
   Assembling:

10. If the back bearing is to be replaced. Undo the brass nut and replace the bearing and mount it with a new o-ring. Mount the o-ring dry, no grease.
11. Put the front bearing on the shaft with the o-ring. Mount the o-ring dry, no grease. Put the shaft through the front hole in the wash tank.
12. Fasten the bearing with the brass nut. Do not over tighten.
13. Push the shaft forward and replace the o-rings.

Lubricate with suitable grease.

14. Pull back the shaft and mount the damper.
15. Mount the actuator on the lower attachment with screw and nut. Only tighten until the screw is through the locking plastic.
16. Remount the arm on the shaft.
17. Remount the screw on the damper shaft.
18. Fold up the linear motor and fasten it to the arm again with nut and screw. Only tighten until the screw is through the locking plastic.

19. Hook up the spring again.
20. Remount the cover plates and refit the tank grids.

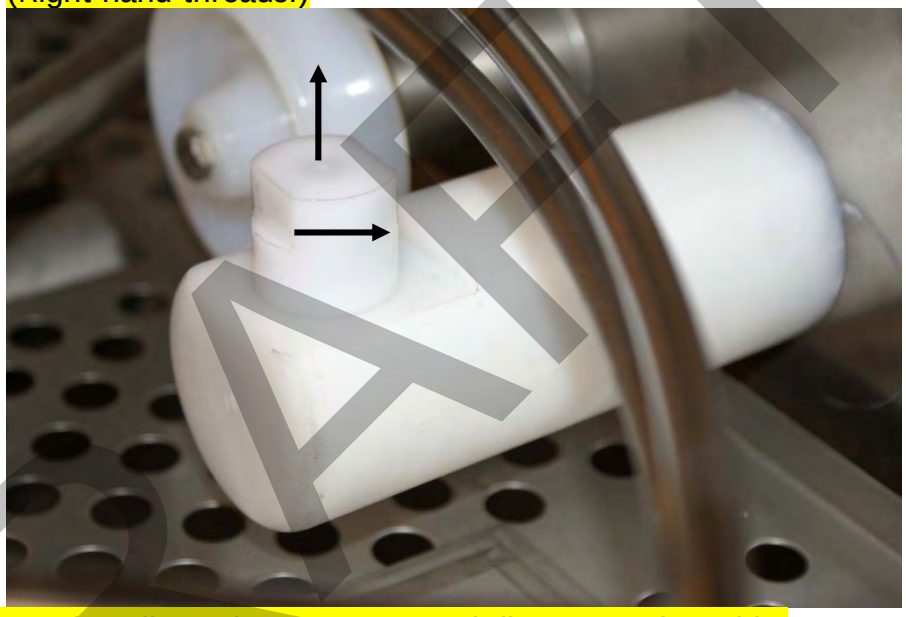
h. Exchange of basket drive.

1. Open the hood and secure it with the safety pin.
2. Turn off the electrical supply.
3. Undo the left side plate.
4. Disconnect the magnetic sensor.
5. Disconnect the motor electrically.
6. Rotate the wash basket wheel anti clock wise until the shaft is totally free from the coupling.
7. Undo the motor retainer screws.
8. Take out the motor.
9. Undo the magnetic sensor from the motor.
10. Undo the clamp screws on the coupling.
11. Make sure the shaft on motor/gearbox is clean (dry surface). Mount the coupling on the new motor. Lubricate the screws with some anti seize paste or similar. Tighten the screws to 9 Nm.

12. Mount the magnetic sensor on the motor.
13. Mount the motor on is bracket.
14. Hold up the motor so the treads on the coupling meet the treads of the shaft. Turn the wash basket wheel clock wise until the threads of the shaft is fully in the coupling.
15. Connect the motor and magnetic sensor electrically.

i. Exchange of wash ware sensor.

1. Secure the hood with the safety pin.
2. Mark the position of the feet.
3. Move the machine out so that the back is accessible.
4. Undo the back plate.
5. Undo the sensor head by unscrewing it from the housing. (Right hand threads.)



6. Gently pull out the connector and disconnect the cable.
7. Connect the cable and gently pull the cable as the sensor is put back into the housing, this to avoid that the cables are jammed in the treads.
8. Put stretch the cable and bundle it so no loops can get caught by the hood mechanism.
9. Put the machine back in its original place, check levelling and hood alignment.
10. Check function of the wash ware sensor.

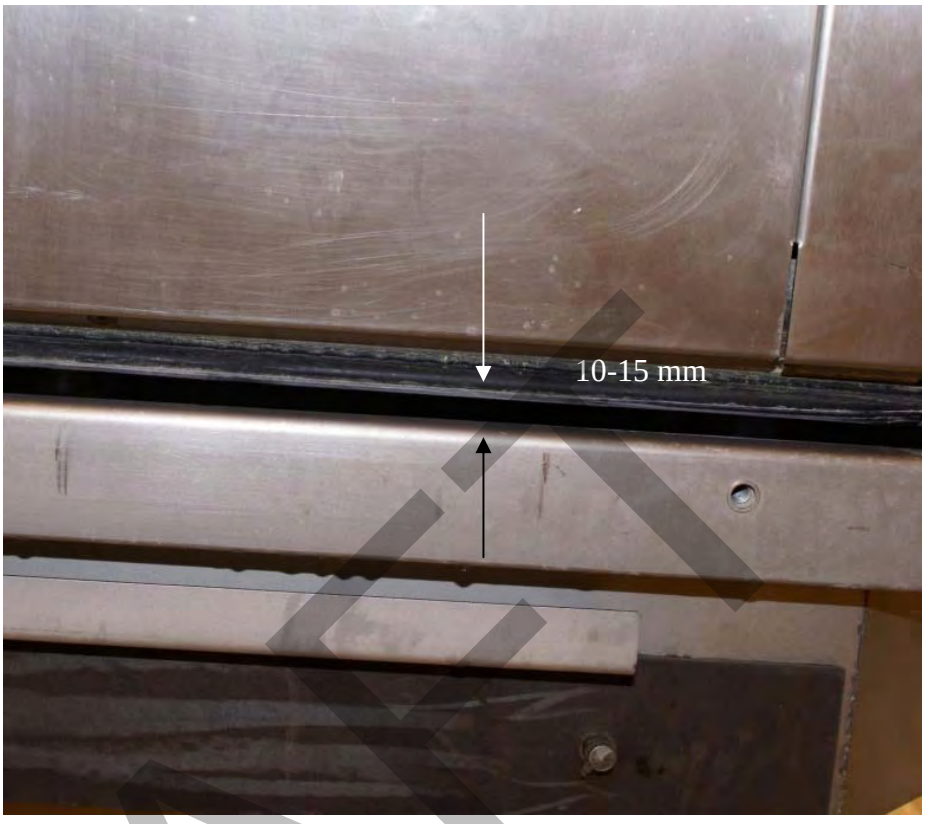
2. Hood

a. Adjustment of hood.

Make sure that the machine is in level.

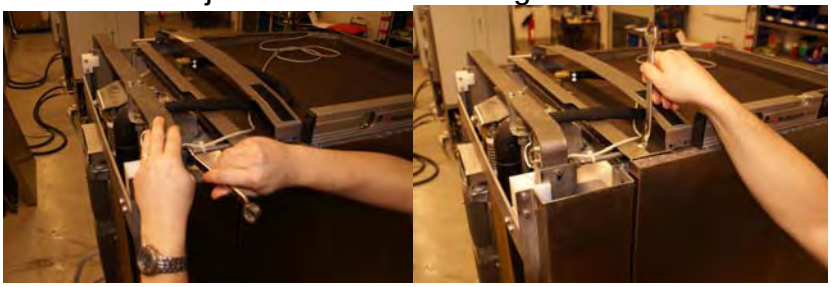
1. Adjust feet until machine is totally in level. Check left. right and front.

2. Fill the machine and check levelling again.
    a. Adjust if necessary.
3. Run down the hood until 10-15 mm remains until it is fully closed. Stop the hood by pressing the hood button.



4. Adjust the hood until it is parallel to the tank.

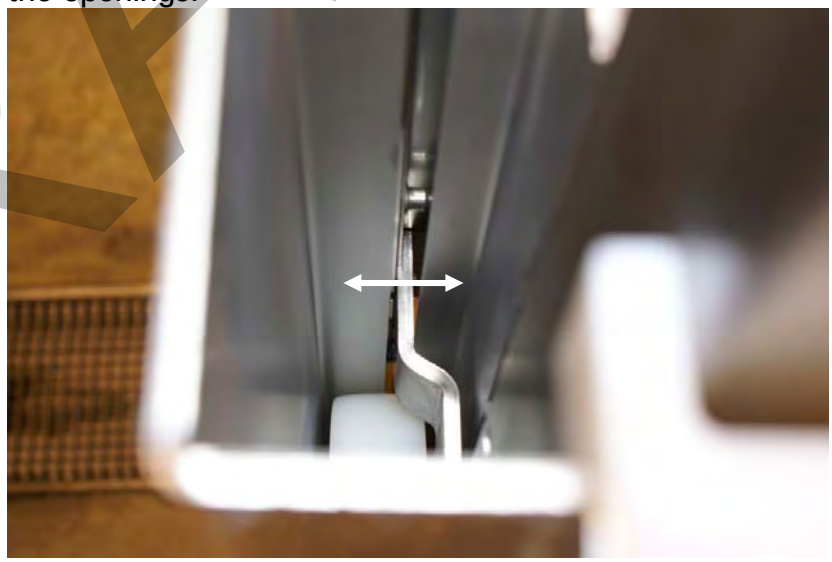
Unlock and adjust. Lock the screw again.



5. Perform point 4 on the right side as well

6. 
Check that the screws are not in contact with back of the machine. If the screws are in contact adjust outwards until they go clear. It is more important to that the screws go clear than the hood is in level.

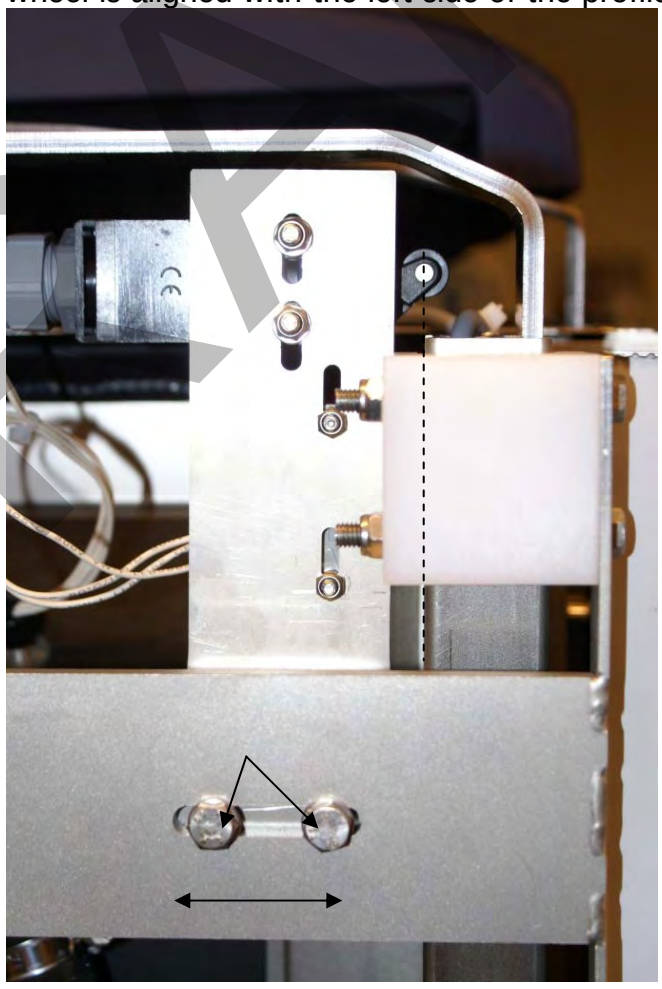
7. Check alignment of upper wheel bracket.
   a. Check that the bracket is not touching the walls of the openings.



   b. If the bracket is grinding against the wall adjust by undoing the Allen key screws a few turns. Move the bracket, secure it again. Adjust until the brackets are not touching the walls during the up and down motion.

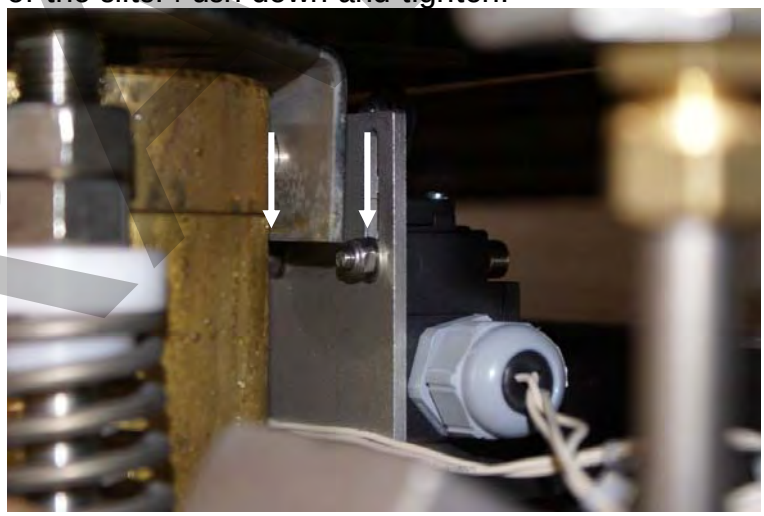
b. Adjustment of crush protection system.

1. Perform hood alignment according to 2a.
2. Adjust safety switch. Adjust it sideways until the small wheel is aligned with the left side of the profile.

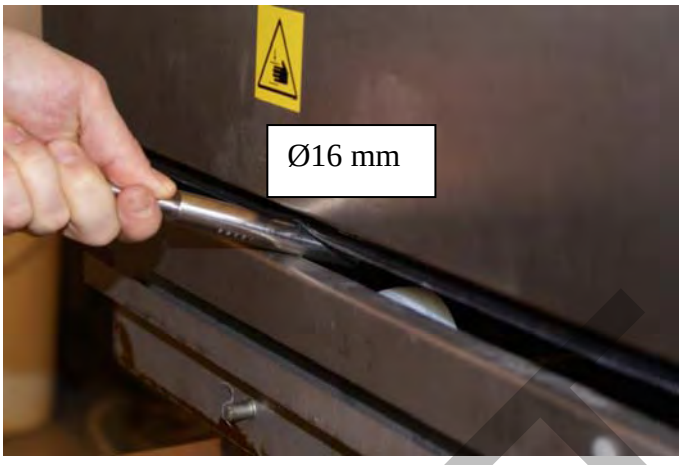


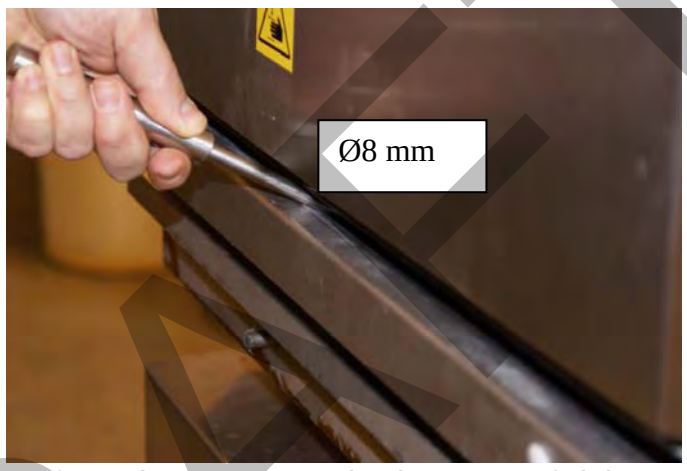
3. Adjust the springs in the crush protection until the distance is 37 +/-1 mm on both sides. Undo the lock nut and adjust until the distance is correct. Tighten the nuts again.

4. Adjust the crush protection switch.
    a. Make sure that the switch is seated in the bottom of the slits. Push down and tighten.



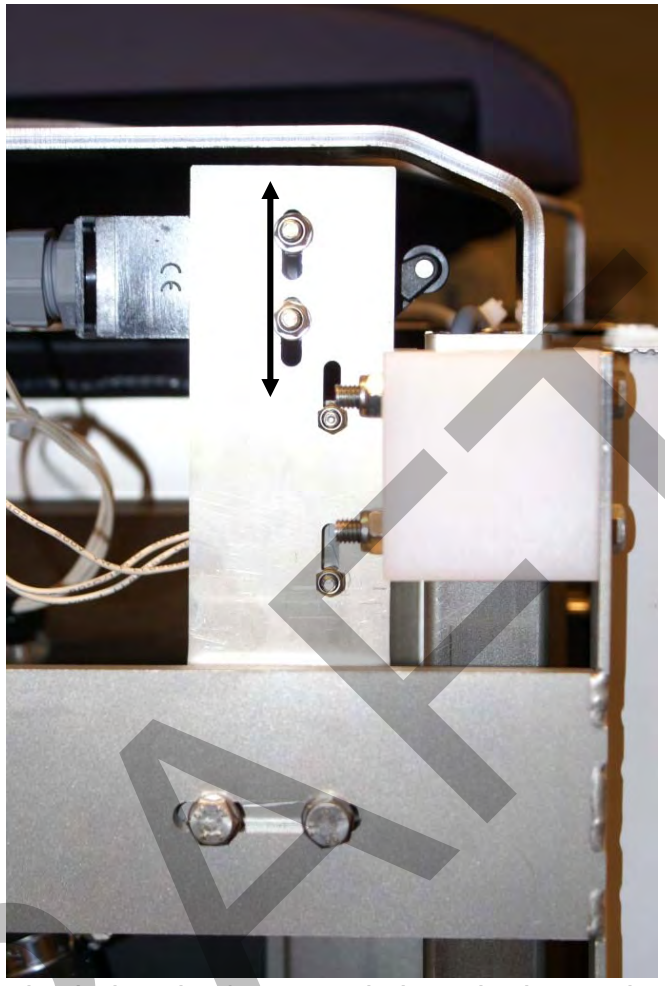
5. Check the safety switch adjustment. **All checking of the safety switch and crush protector switch has to be performed with the roof on.**
   The error code 122 is issued in case the 16 mm gauge is used. (Crush protection in action, hood goes up again.) Check that no alarm is given and the hoods stay down when the 8 mm gauge is used.



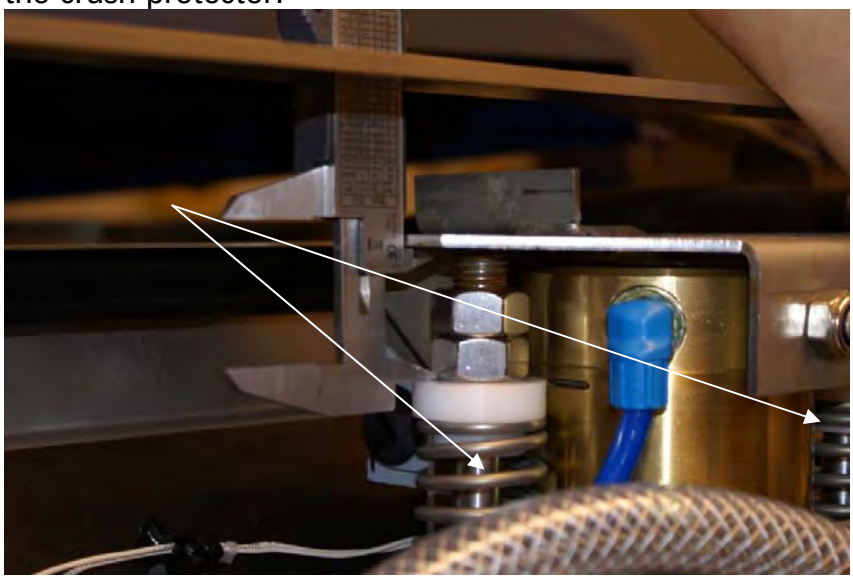


Perform the same test also in centre of right and left side
If hood fails this test adjust on the safety switch upwards

or downwards.



6. Check that the force needed to trip the crush protector is between 140-160 N. The plastic roof has to be on.
    a. Adjust if necessary on the springs, equal on both sides.
    Compression of spring will give less force to trip the crush protector.

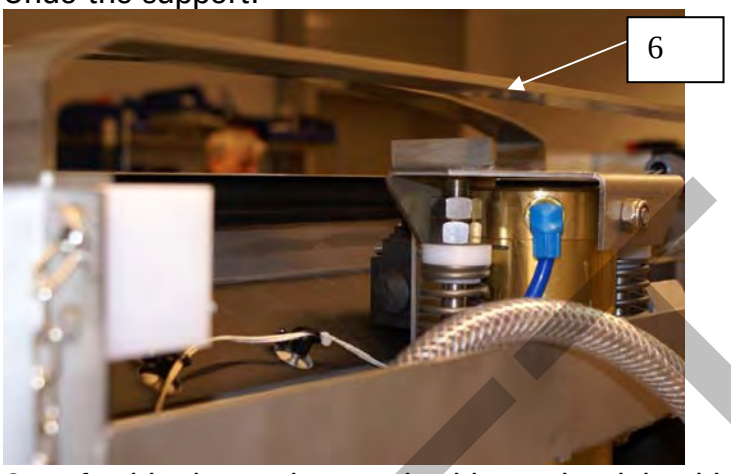


c. Dismounting and mounting of hood cover plates.
    1. Lift off the roof.
    2. Undo the front plate by lifting it up. One side at the time.

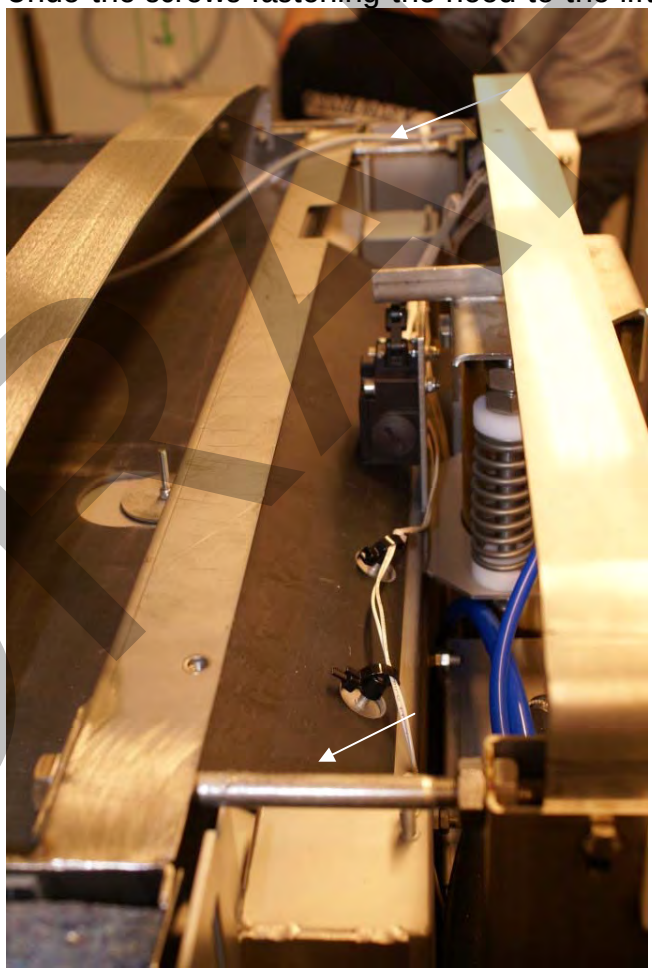
    3. Undo the electrical connection on the display pcb.
    4. Undo the two retaining nuts and undo the side plate.
    5. Repeat on the other side.
    6. Assembly:
    7. Mount the side plates. Push the side plates forward as the nuts are tightened.
    8. Connect display pcb.
    9. Mount front plate one side at the time.
    10. Mount roof.

d. Exchange of wheels on lift yoke.
    1. Make sure the machine is empty of water.
    2. Pull the machine forward on a pallet pump truck.
    3. Undo the roof.
    4. See section Dismounting and mounting of hood cover plates.

5. Undo the back plate. Note the left hand side screw is fixed (welded).
6. Undo the support.

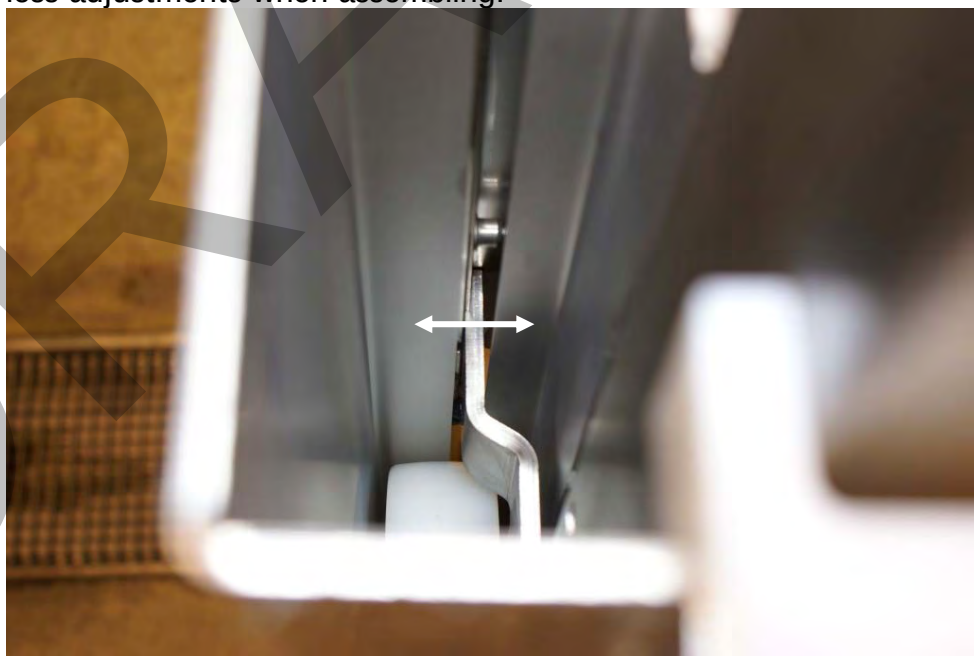


7. Cut of cable ties to the panel cable on the right side.
8. Undo the screws fastening the hood to the lift yoke.



9. Undo the two screws fastening the hood to the upper wheel brackets on right and left side of the hood.

10. Important: Note the approximate position of the bracket where it goes through the slits into the wash tank compartment. For less adjustments when assembling.



Undo the 4 screws retaining the upper wheel brackets to the

lift yoke.

11. Put something under the lift yoke, block of wood or plastic hammer. Big enough to stop the lift yoke from hitting the floor. The yoke could otherwise sever the panel cable when released in the next point.

12. Undo the retaining bolt for piston. And lower the lift yoke to the support put under the lift yoke in previous point.

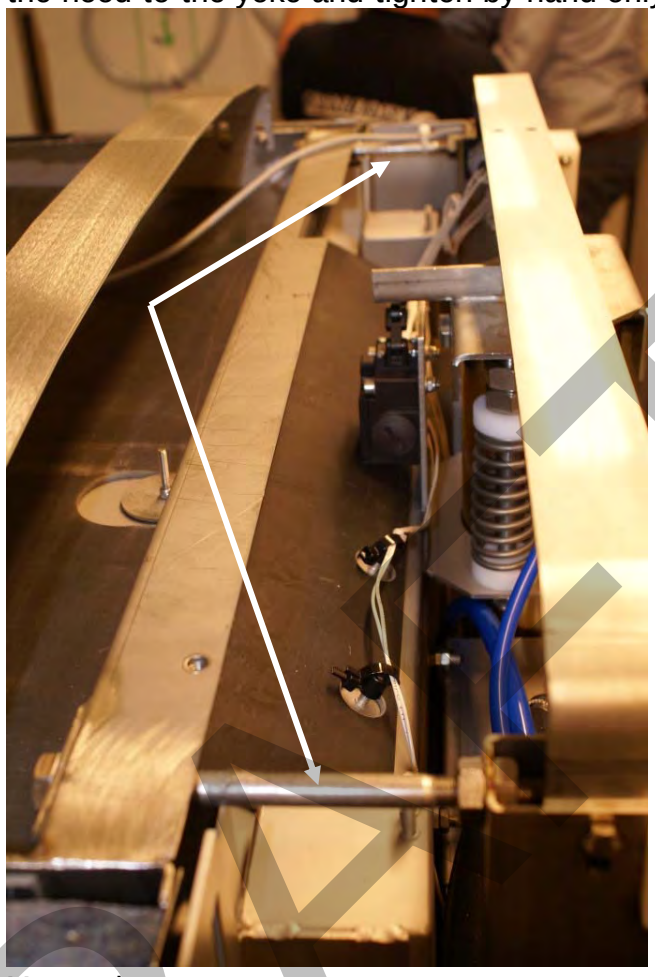
13. Be careful with the cables to safety switch if steam reduction is installed.

14. Undo the lower wheels.
15. Undo the wheel brackets and wheels from the lift yoke.

Assembling:

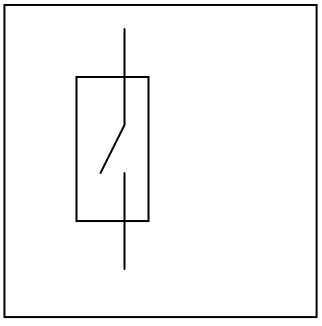
16. Put the upper brackets and wheels back (replace if necessary) into place.
17. Put (if needed, replace) the lower wheels back.
18. Fasten the screws for the brackets without tightening them.
19. Fasten the screws between the brackets and the hood.
20. Put the brackets in the same position as before. (see point 10) and tighten the screws. Put back the screws back that fasten

the hood to the yoke and tighten by hand only.

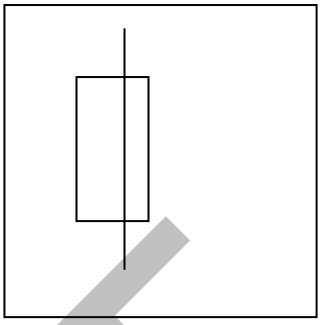


21. Mount the support.
22. Adjust the hood according to section “Adjustment of hood”.
23. Fasten the cable to display, make sure it can move freely when the hood makes it up and down movement.
24. Check the crush protection according to the section “Adjusting crush protector”.

e. Magnetic switch.
   1. Function:
      1. When the hood is up the switch is no connection.



2. When the hood is in any other position the switch is connected.



f. Renovation of lift cylinder.

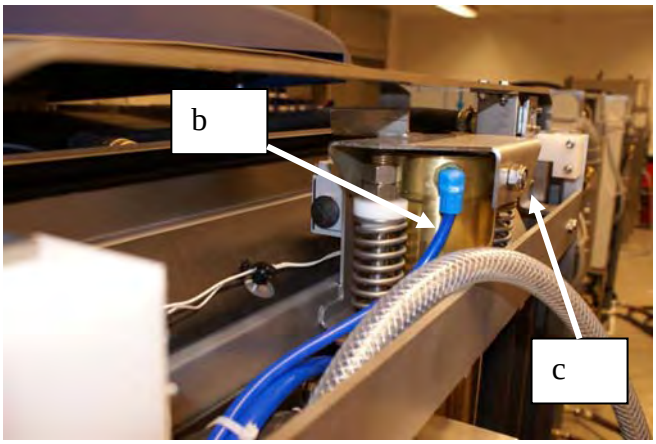
1. Use Kit, reference number **14646** contents:

Piston gasket	1 pc
Shaft gasket	1 pc
Wiper	1 pc
Slide plastic bearing	1 pc
O-ring	2 pcs
Lubrication grease	

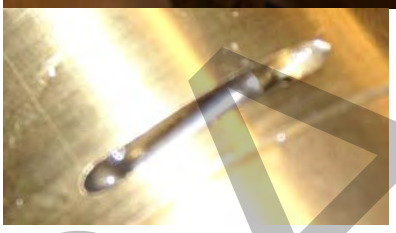
2. Mounting instructions:

The machine has to be switched-off, water inlets closed, hood down and back side accessible.
Remove the rear cover plate, release the piston shaft from lower yoke and release booth hoses from the T-coupling on the hydraulic cylinder.
The cylinder can preferably be removed from machine.

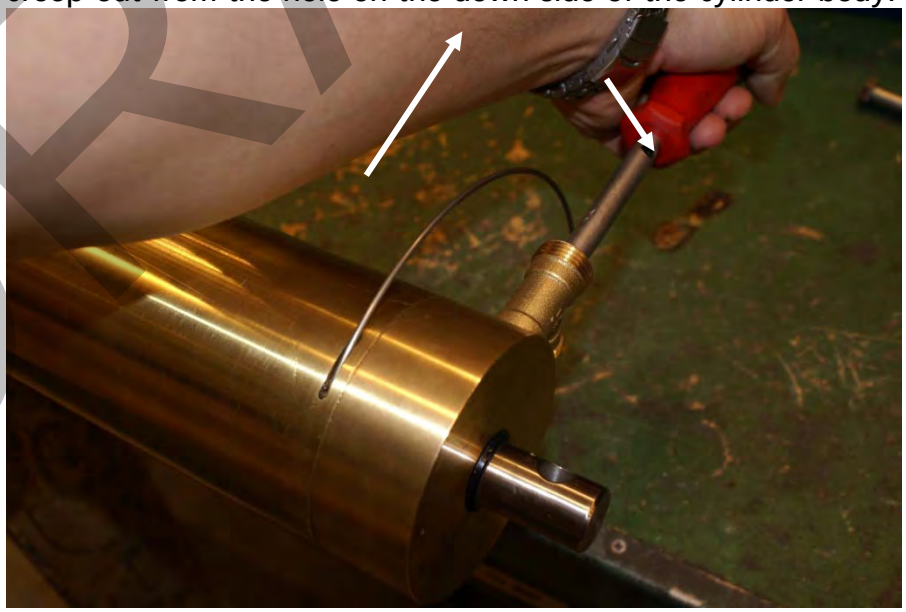
a. Undo the shaft from yoke by undoing the screw and nut.
b. Undo the blue leakage tube.
c. Undo the retaining nut; lift the cylinder until the retaining screw can be taken out.
d. Take out the cylinder downwards.



3. Turn lower cylinder gable anti-clockwise until a sound of click hears. Fix the body of the cylinder if this turns together with the gable.



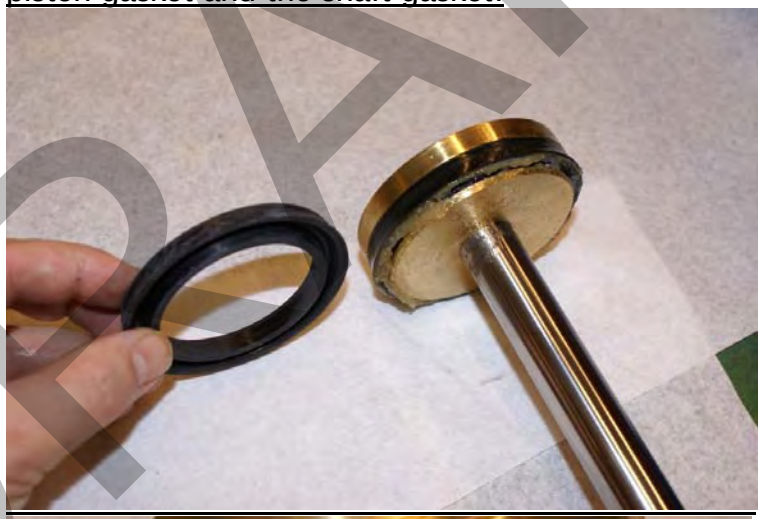
Turn lower cylinder gable clockwise. The locking spring should creep-out from the hole on the down side of the cylinder body.



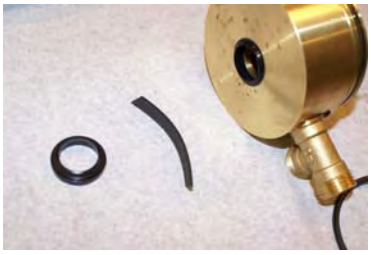
If necessary, loose and turn the T-coupling to horizontal position to give a free way to the locking spring.

4. Remove the locking spring and pull-out the gable and the piston from the cylinder.

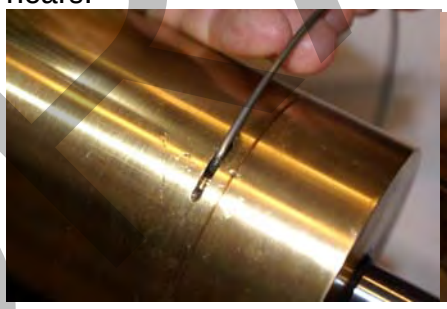
5. Remove the piston gasket from the piston and all other parts from the gable. **Important:** Note a correct position of the piston gasket and the shaft gasket!



6. Clean all grooves for new parts and apply a little lubrication grease.
7. Assembly new parts on the piston and on the gable.
   Important: Note a correct position of the piston gasket and the shaft gasket! (The second O-ring belongs to the upper gable; replace this only in a case of leakage between upper gable and the cylinder body.)



8. Apply the lubrication grease on new parts (richly on the piston gasket) and finish assembly of the cylinder. The holes for the locking spring in the gable and the cylinder body have to be positioned the same point, to pull this spring in easily. The gable has to be turned anti-clockwise until a sound of click hears.




9. Connect both hoses to the T-coupling and attach the piston shaft to the yoke.
10. Start the machine and check the hood motion, function of the security switch and crush protection. (Section 2/b)

g. Exchange of panel.

3. Rinse system
   a. Cleaning of rinse system.
      1. Make sure the machine is turned off.
      2. Run the rinse pump using Flashloader software to empty the rinse tank
      3. Empty the last water through the rinse plug. Deflect the water out of the machine. (**Caution content may be hot.**)

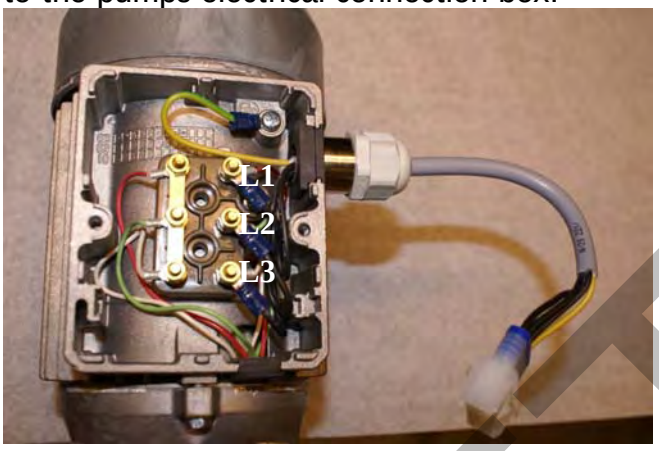
4. Clean the tank by rinsing it with a hose through from the top.
5. Refit the drain plug.
6. Reconnect the machine and undo all rinse nozzles.
7. Fill the machine with water through normal procedure.
    1. The wash tank is filled through the rinse system.
8. Inspect the rinse nozzles, clean from precipitation and dirt. If necessary replace.
9. Refit the rinse nozzles.

b. Exchange of rinse pump.

1. Turn off hot water supply and electrical supply.
2. Run the rinse pump using Flashloader software to empty the rinse tank
3. Empty the last water through the rinse plug. Deflect the water out of the machine. (**Caution content may be hot.**)
4. Perform “Cleaning of rinse system” (section 3/a/4)

5. Undo the hose clamps on the pump.
6. Disconnect the motor at the electrical connector.
7. Undo the 4 screws fastening the pump. Undo the pump.
8. Undo the necessary tube connections on the pump and fit them on the new pump using suitable thread sealant.

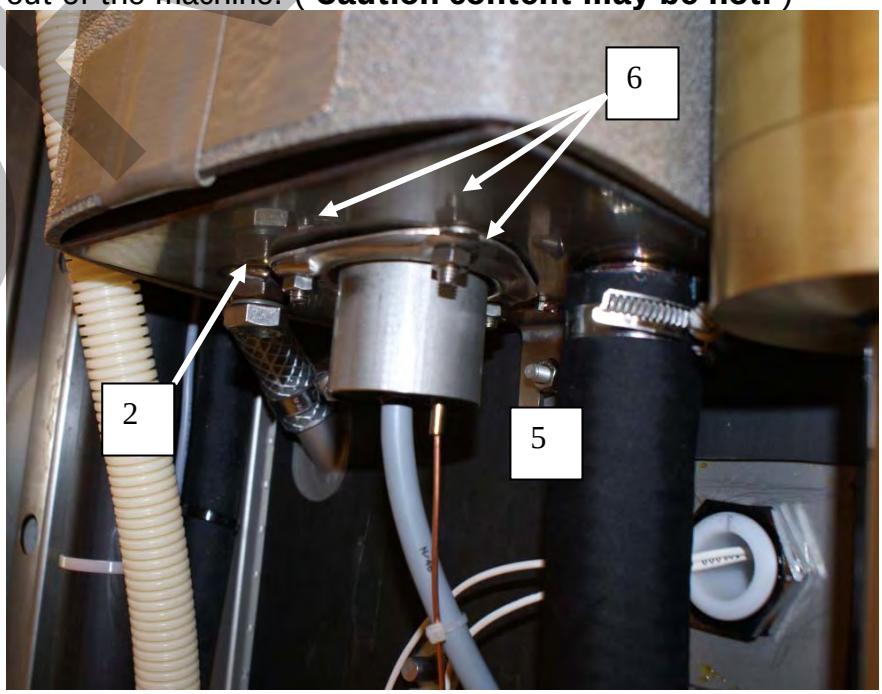
9. Fit the cable with connector, which is supplied with the pump, to the pumps electrical connection box.



10. Fit the new pump and tighten the retaining screws.
11. Connect the pump to the tubes using new hose clamps and connect the electrical connector.
12. Refit all cover plates.
13. Reposition the machine and turn on the water supply.
14. Turn on electrical supply and water supply.
15. Refill the machine. Make at least one test run. Check for leaks. Check that no error codes are issued. Normal rinse time should be 40 seconds. Alarm is issued after 50 seconds.
    1. If error code is issued perform “Cleaning of rinse system”

c. Exchange of heating element rinse tank

1. Turn off hot water supply and electrical supply.
2. Run the rinse pump using Flashloader software to empty the rinse tank
3. Empty the last water through the rinse plug. Deflect the water out of the machine. (**Caution content may be hot.**)



4. Undo the electrical connection in the electrical cabinet.
5. Remove cable ties that are necessary to remove the heater cable.
6. Remove the overheat protector from the heater.

7. Undo the three nuts holding the element.
8. Replace the element with a new o-ring.
9. Tighten the nuts evenly.
10. Mount a new overheat protector in the overheat protection box and connect it electrically. See section 1/a
11. Connect the heating element in the electrical cabinet. Replace the cable ties.

d. Exchange of rinse tank over heat protector.
   1. See section 1/d

e. Exchange of temperature sensor in rinse tank
   1. Undo back plate.
   2. Lower level in rinse tank.
      1. By undoing the bottom plug (**caution content may be hot**) and deflecting the water out of the machine.
      2. Connect the computer and lower the level by using FlashLoader software by running the rinse pump until the level is be low the sensor.
      3. Undo the sensor by undoing the bolt.
      4. Cut the cable into several pieces so it can be retracted from the cable ties. **Note placement of cable the new sensor must be strapped in the same place.**
      5. Mount the new sensor using a new O-ring.
      6. Strap the cable to the harness where the old cable was strapped. The cable has to be strapped on the outside of the hoses going into the electrical cabinet. Push the connector through the conduit entry and connect it to the

pcb. (**Do NOT strap the sensor cable to the high voltage cables.)**

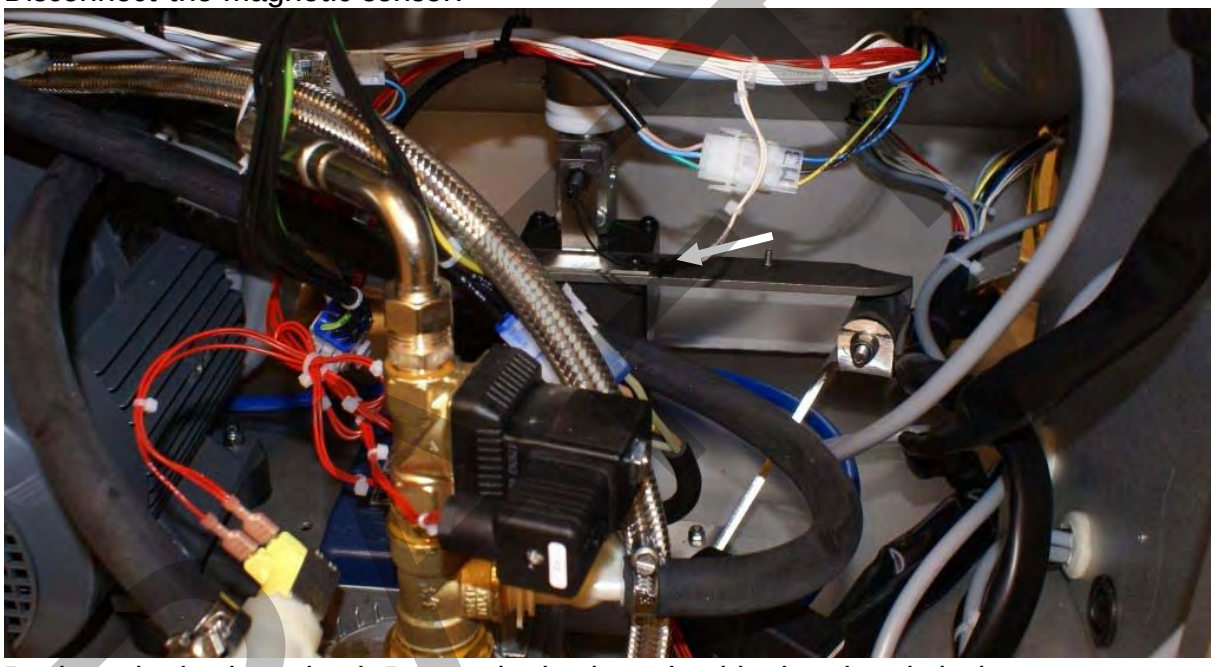
7. If the bottom plug was removed earlier, put it back. Turn on the machine. Make sure that the water supply is on. The display will now show “Detect sensors?”. Press “OK”, (black) 1 button.
8. The machine will now start detecting sequence (“Detecting sensors” on display). The machine will start heating the rinse tank. When temperature is 90 °C the detection is now ready and the machine starts working as normal.

f. Exchange of level sensor.
g. Exchange of warm water valve.

4. Steam reduction
   a. Exchange of steam reduction valve
   b. Exchange steam reduction nozzles.

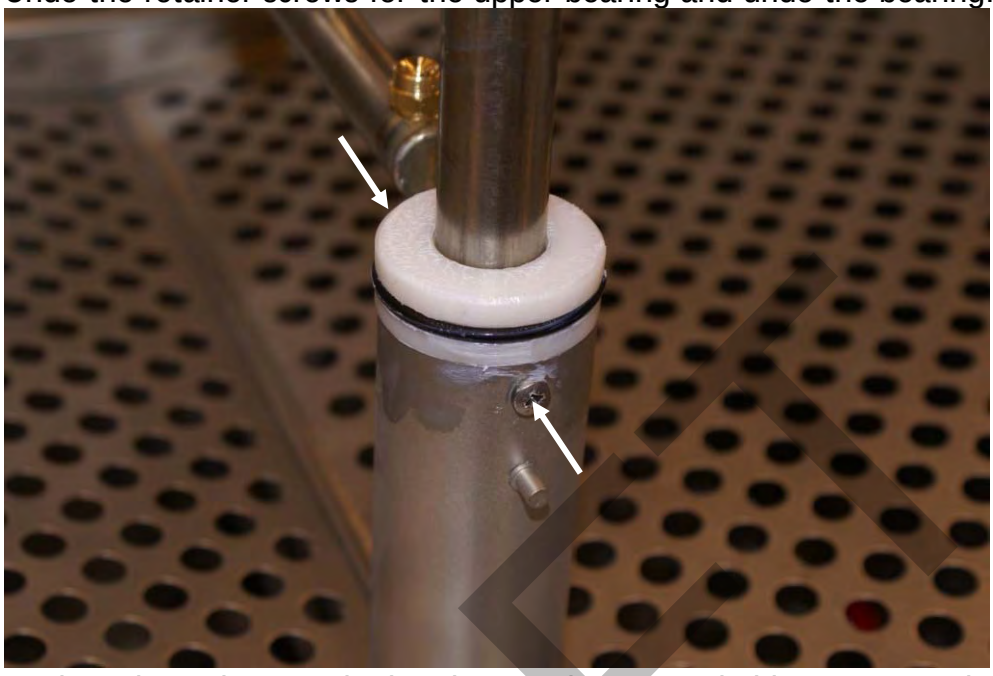
Service instructions GD gastro/GranuleCombi 1 year service. (8000 Cycles).

1. Note serial number of the machine.
2. Check that the machine is drained and empty of granules.
3. Open the hood and secure it in upper position with the mechanical locking pin.
4. Lift out the wash basket and the basket wheel.
5. Lift out the tank grids left and right.
6. Exchange the basket drive seals:
    a. Undo left and front lower cover plates.
    b. Disconnect the magnetic sensor.



    c. Replace the basket wheel. Rotate the basket wheel by hand anti clock wise until the shaft is completely free from the coupling.
    d. Lift up the shaft.

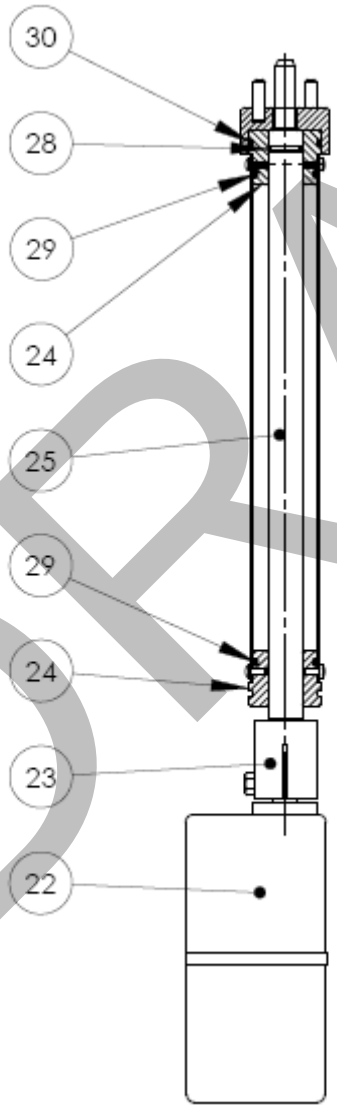
e. Undo the retainer screws for the upper bearing and undo the bearing.



f. Replace the o-rings on the bearing; apply some suitable grease on the o-rings when mounting.

g. Replace the o-ring on the shaft.

h.

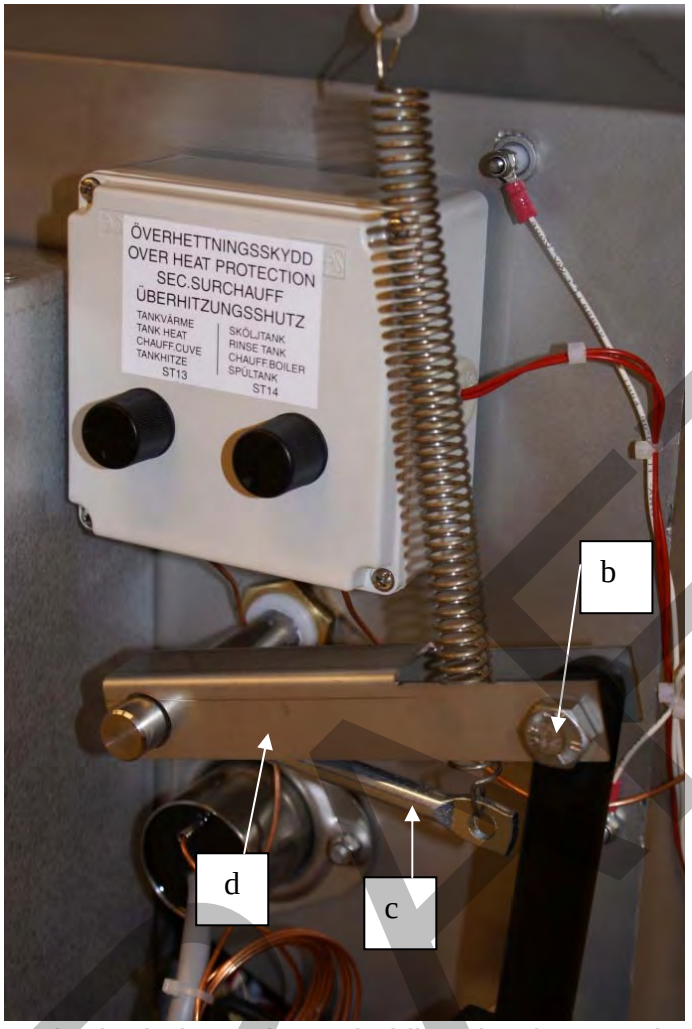


i. Refit the bearing and the retainer screws.

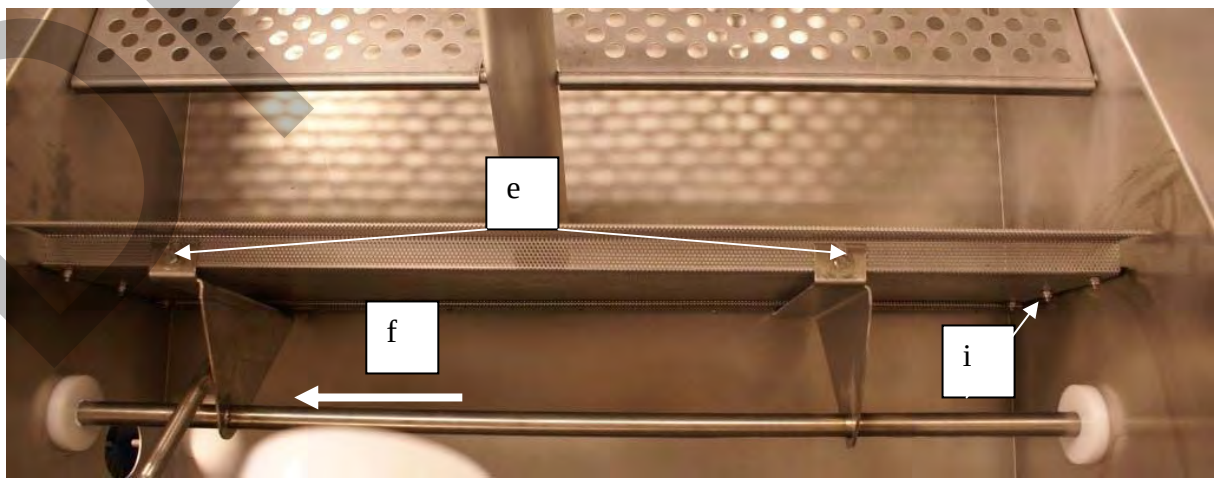
j. Replace the shaft and basket wheel.
k. Lift up the motor until shafts treads meets the threads on the coupling. Rotate the basket wheel clock wise until all treads are in the coupling.
    i. **Note: Never use any tread lock liquids or similar on the treads. If needed apply small amount of grease on the treads.**
l. Reconnect the magnetic sensor.

7. Replace Granule damper seal and granule damper shaft seal:
    a. Unhook the spring.
    b. Undo the bolt through the linear motor and fold away the linear motor.
    c. Unscrew the bolt going into the shaft.

d. Undo the arm from the shaft.



e. Undo the bolts and nuts holding the damper sieve to the shaft. Dismount the complete damper sieve.



f. Push the shaft outwards so the o-rings become visible.

g. Undo the o-rings and replace them with new ones. Mount the new o-rings well greased.
h. Push the shaft back in its original place.
i. Replace the damper seal on the sieve. Undo the nuts and screws that are holding the support frame. Replace the seal and mount the frames with screws and nuts.
j. Remount the sieve on the damper shaft.

k. Remount the arm on the shaft.
l. Remount the screw on the damper shaft.

m. Fold up the linear motor and fasten it to the arm again with nut and screw.

n. Hook up the spring again.

8. Remount the cover plates and refit the tank grids.

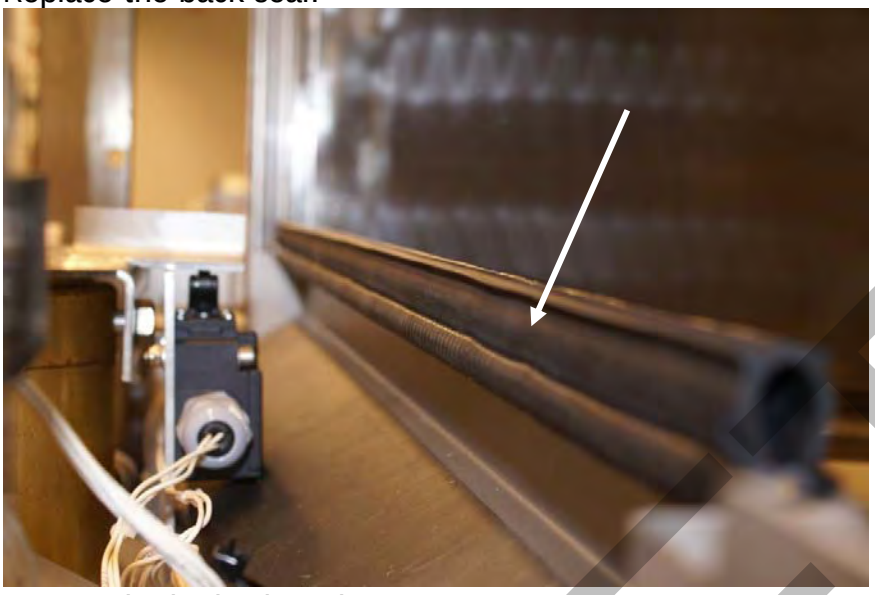
Service instructions GD Gastro/GranuleCombi 2 year service. (16000 Cycles).

1. Note serial number of the machine.
2. Perform 1 year service (8000 h service) according to this manual.
3. Replace the hood seal:
   a. Open the hood and secure with the safety pin.
   b. Undo the screws holding the support lists a few turns.

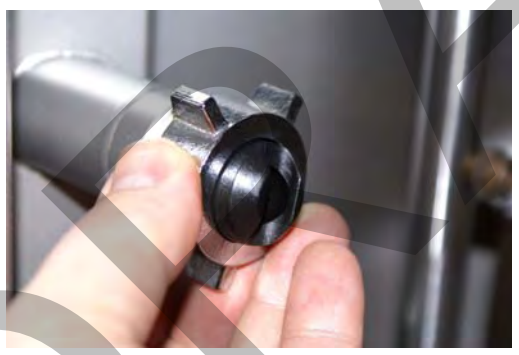
c. Take off the old seal.
d. Apply a small amount of suitable grease on the surface where the seal is mounted.
e. Fixate the first list with a screw driver and fit the seal so it has a snug fit against the back of the machine.

f. Press in position using thumbs.
g. Move the screw driver as the seal is fitted.
    i. Do not stretch the seal.
h. Adjust the length so it has a snug fit against the back of the machine.
    i. Excess seal will be used as back seal.

4. Replace the back seal:



   a. Undo the back seal.
   b. Fit the new seal. (Excess seal from hood seal.)
   c. Trim the length for good fit.
5. Change all wash nozzles:
   a. Undo the clamp nuts.
   b. Check tubes for any dirt or debris. Clean out if necessary.
   c. Fit the clamp nuts with new nozzles.



   d. Tighten firmly without excess force.
6. Change all rinse nozzle:
   a. Undo the rinse nozzles.
      i. If any signs of granules in the rinse nozzles, clean the rinse system according to instruction in this manual.
   b. Fit new rinse nozzles