

Service Manual

Tumble dryer

TD7-7, TD7-6LAC
Type N1130..



Electrolux
PROFESSIONAL

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The manufacturer reserves the right to make changes to design and component specifications.

1 Symbols

	Caution
	Caution, hot surface
	Caution, high voltage
	Warning, risk of fire / flammable material
	Danger, crush hazard
	Read the instructions before using the machine

2 Technical data

2.1 Drawing

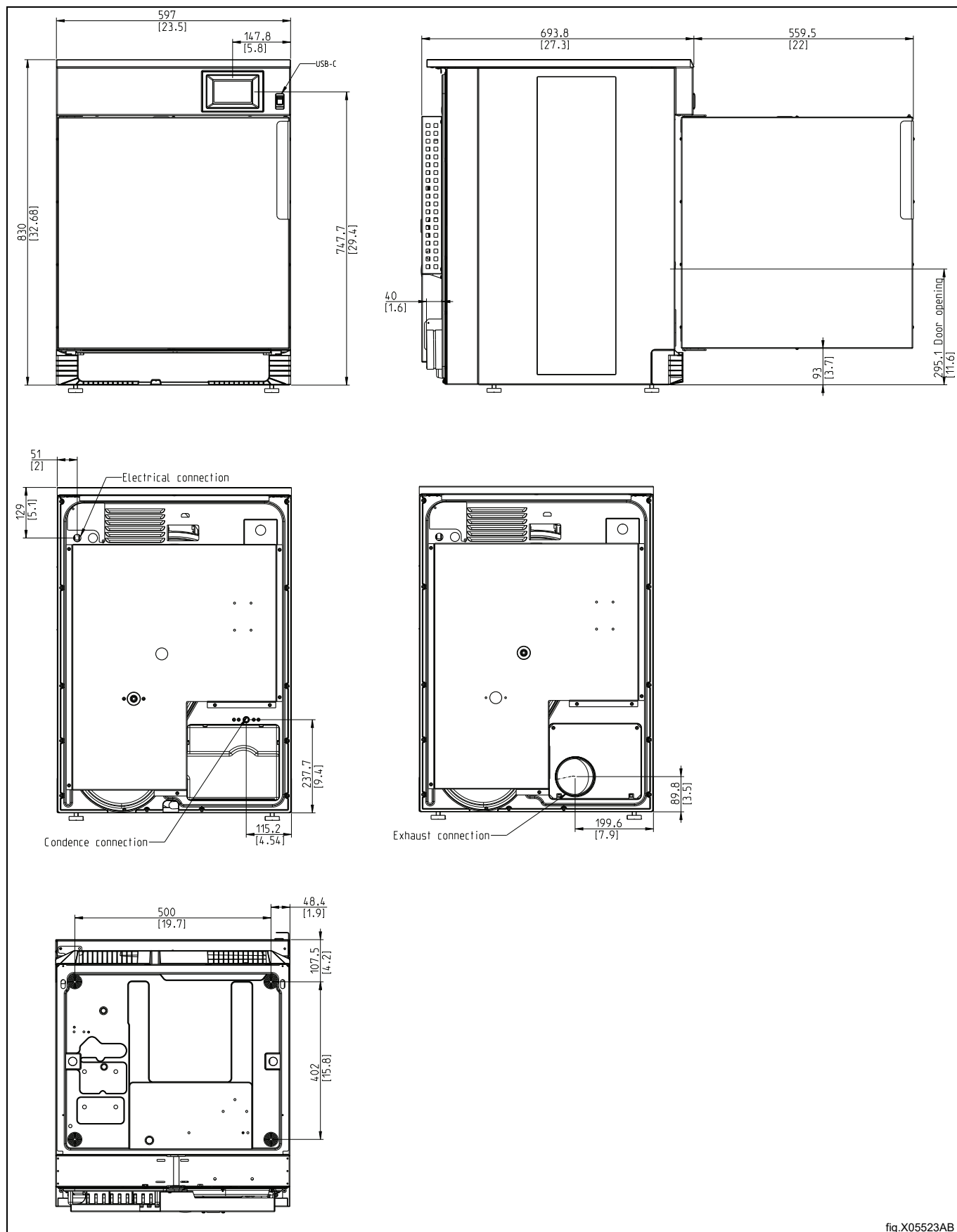


fig.X05523AB

* Adjustable height: + 25 mm.

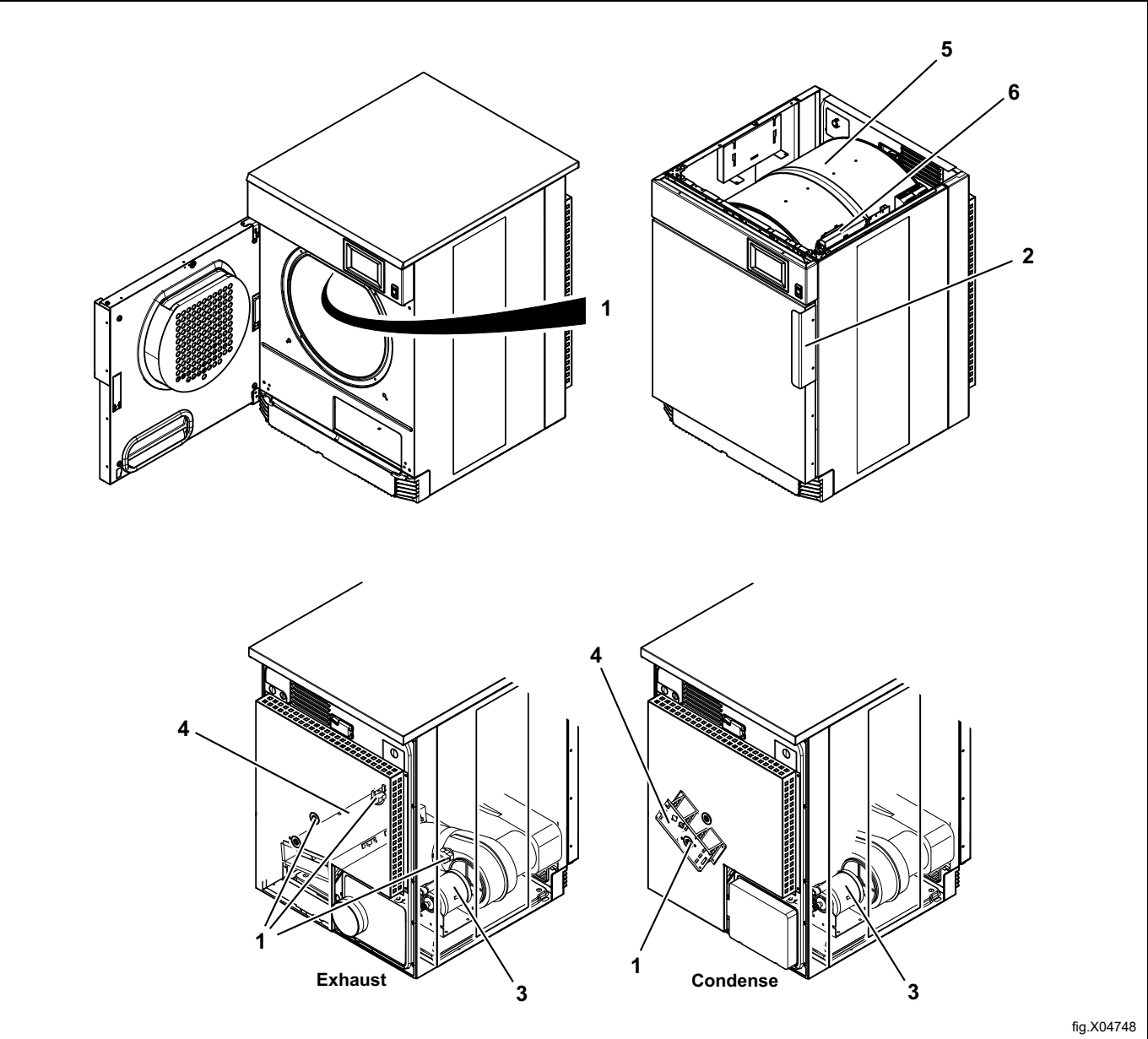
2.2 Technical data

		Exhaust	Condense
Weight, net	kg	58	57
Drum volume	litres	130	130
Drum diameter	mm	575	575
Drum depth	mm	500	500
Drum speed, medium load	rpm	53	53
G-factor, max.		0.9	0.9
Rated capacity, filling factor 1:16 (Max. load)	kg	8	8
Rated capacity, filling factor 1:22 (Recommended load)	kg	6	6
Heating: Electricity	kW	5.1	3.0
	kW	3.2	
A-weighted emission sound pressure level at working stations	dB(A)	70/70	70/70
Heat emission of installed power, max	%	15	15
Ambient operating temperature	°C	+10 – +45	+10 – +45

2.3 Connections

		Exhaust	Condense
Air outlet	ø mm	100	-
Condensate outlet		-	1/2"

3 Machine presentation



1	Sensors and overheating thermostats
2	Door unit
3	Motor
4	Heating unit
5	Drum unit
6	I/O modules

4 Function check



May only be carried out by qualified personnel.



A function check must be made when the installation is finished and before the machine can be ready to be used. Whenever a repair has been made, a function check must be performed before the machine can be used again.

4.1 Check the automatic stop of the machine

- Start the machine.
- Check if the micro switches are working properly:
The machine must stop if the door is opened.

4.2 Check the heat

- Let the machine work for five minutes on a program with heat.
- Check that the heating is working by opening the door and feel if there is heat in the drum.

4.3 Ready to use

If all tests are OK the machine is now ready to be used.

If some of the tests failed, or deficiencies or errors are detected, please contact your local service organisation or dealer.

5 Sensors and overheating thermostats

5.1 Inlet air

5.1.1 Overheating thermostat — Exhaust machines

There are two inlet overheating thermostats. One is placed at the back of the machine and one is placed on the bottom of the machine on the heating element.

The inlet overheating thermostat opens in the event of overheating and shuts off the machine.

5.1.1.1 Resetting

Disconnect the power to the machine.

Press the reset button (A) on the overheating thermostat.

Note!

Resetting must not be done before the cause for overheating is verified and resolved.

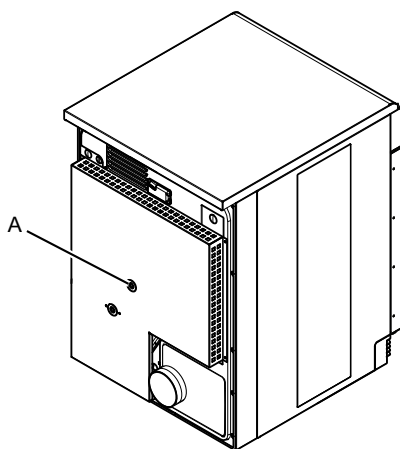


fig.X04749

5.1.1.2 Replacement of overheating thermostat

Disconnect the power to the machine.

Demount the casing over the rear panel.

Demount the cover panel over the overheating thermostat.

Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.

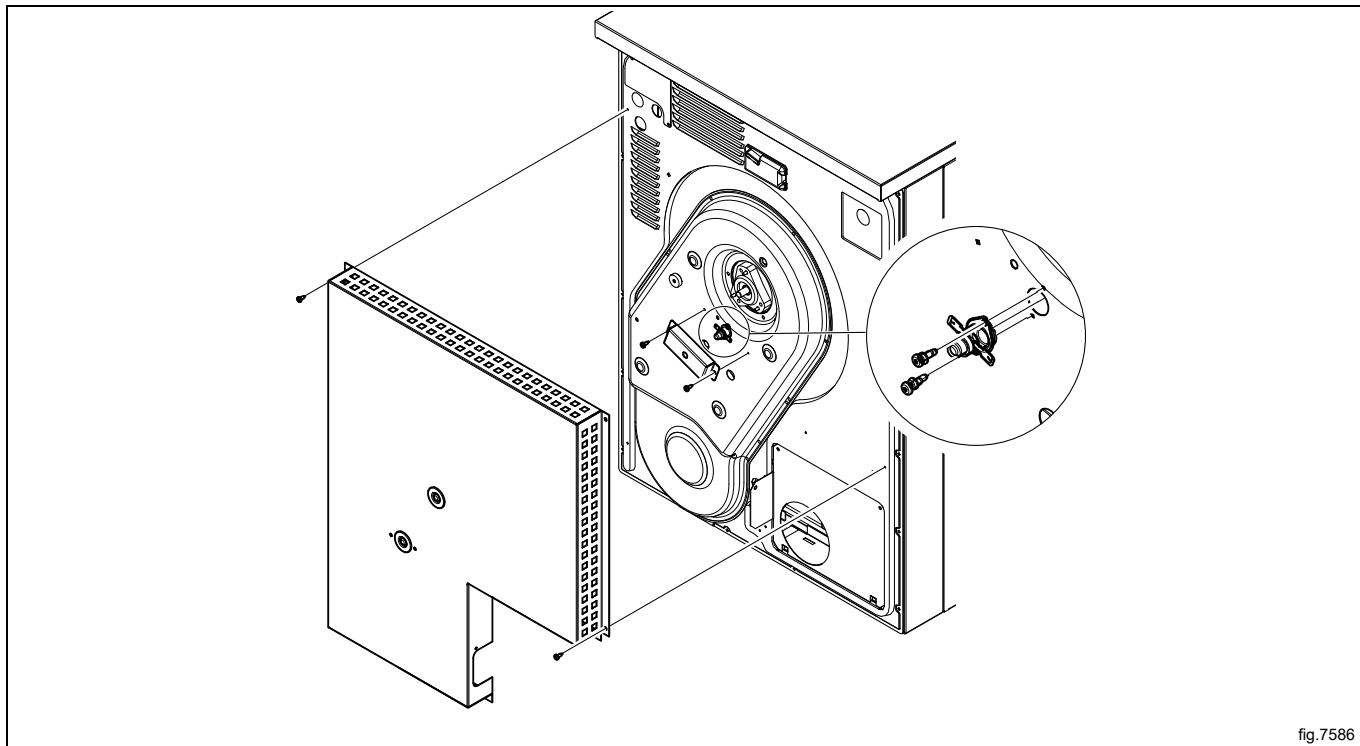


fig.7586

Remount the cover panel over the overheating thermostat and the rear panel.

5.1.2 Overheating thermostat — Condense machines

The inlet overheating thermostat is placed at the back of the machine.

The inlet overheating thermostat opens in the event of overheating and shuts off the machine.

5.1.2.1 Resetting

Disconnect the power to the machine.

Press the reset button (A) on the overheating thermostat.

Note!

Resetting must not be done before the cause for overheating is verified and resolved.

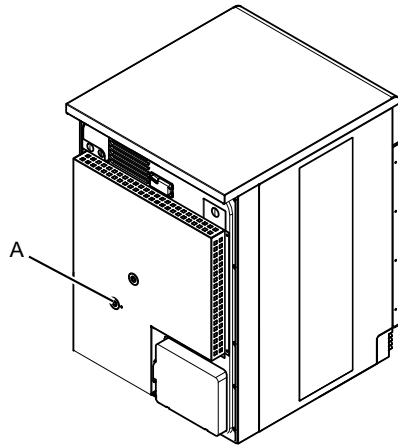


fig.X04750

5.1.2.2 Replacement of overheating thermostat

Disconnect the power to the machine.

Demount the casing over the rear panel and the plastic cover. Disconnect the air channel panel.

Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.

It is recommended to replace the complete heating element cover with the overheating thermostat on.

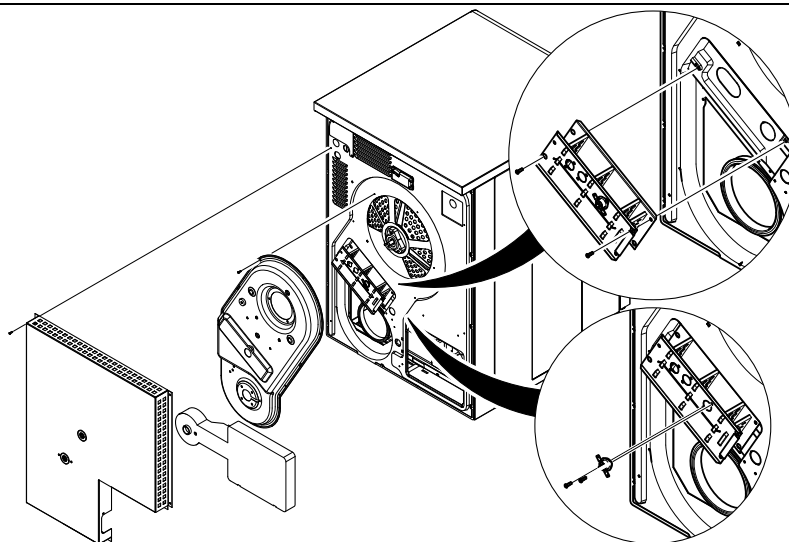


fig.7595

5.1.3 Heating sensor (PT100)

The heating sensor is placed at the back of the machine.

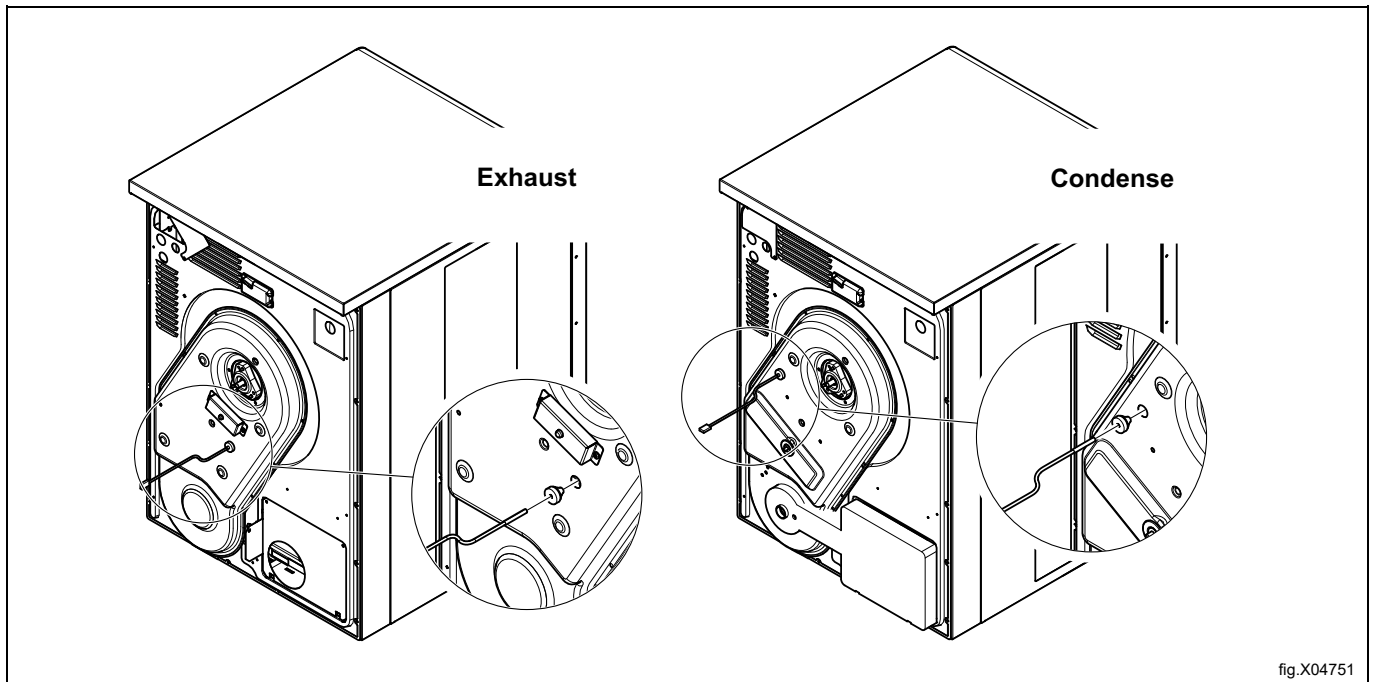
The heating sensor measures the temperature in the inlet air and the signal is returned to the CPU.

The CPU turns the heating unit off when the inlet air thermistor indicates that the required temperature has been reached.

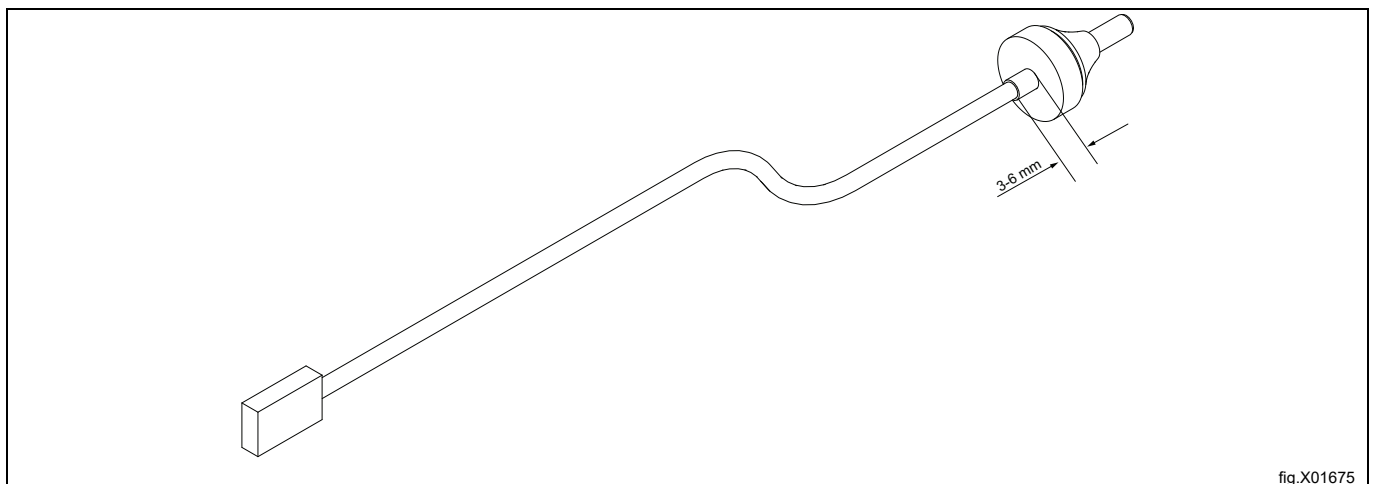
5.1.3.1 Replacement of heating sensor (PT100)

Disconnect the power to the machine.

Disconnect the heating sensor and remove it. Connect the new heating sensor.



Make sure the heating sensor is in correct position. 3–6 mm of the heating sensor shall be left outside of the rubber plug according to the figure.



5.2 Outlet air

5.2.1 Overheating thermostat — Exhaust machines

The outlet overheating thermostat is placed on the bottom of the machine on the outlet air flow.

The overheating thermostat ensures that the machine does not overheat during program operation.

The overheating thermostat opens automatically and has to be reset manually.

5.2.2 Resetting

Disconnect the power to the machine.

Demount the rear panel and the cover panel at the air outlet.

Press the reset button (A) on the overheating thermostat.

Note!

Resetting must not be done before the cause for overheating is verified and resolved.

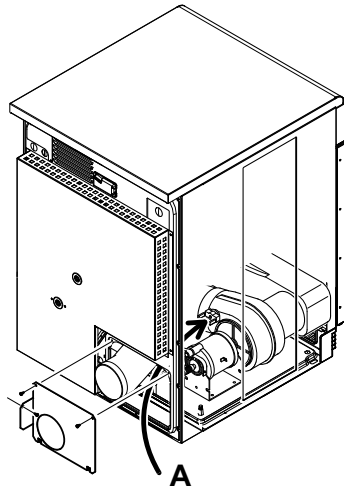


fig.X04752

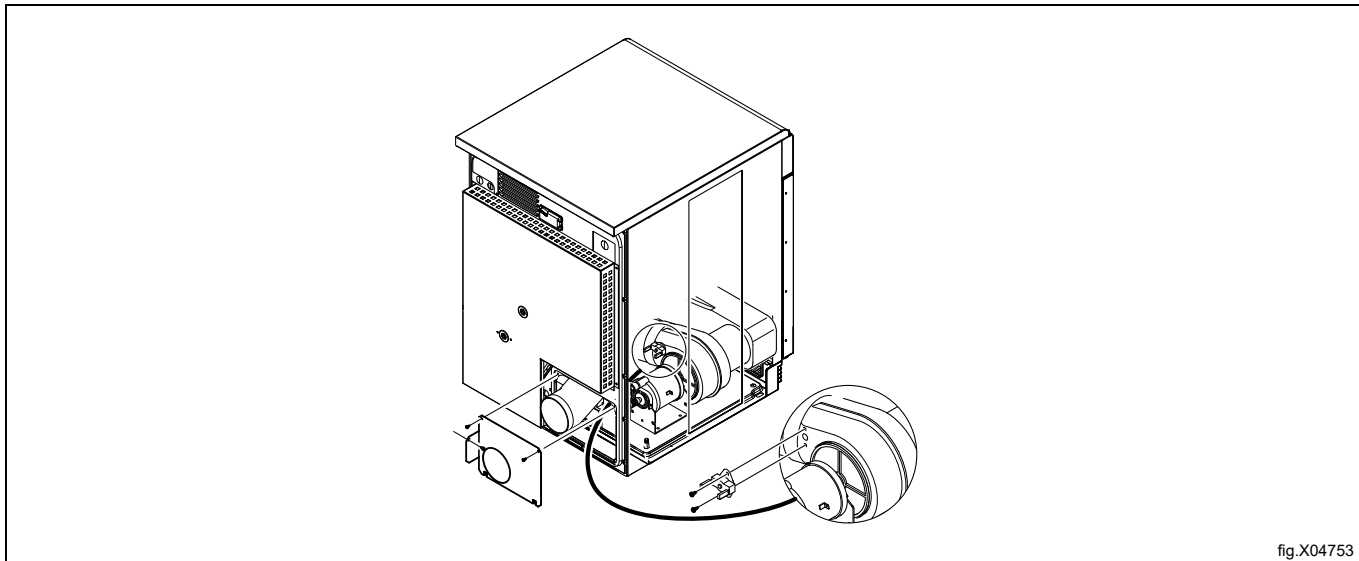
Remount the cover panel at the air outlet and the rear panel.

5.2.3 Replacement of overheating thermostat

Disconnect the power to the machine.

Demount the rear panel.

Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.



Remount the rear panel.

5.2.4 Overheating thermostat — Condense machines

The outlet overheating thermostat is placed behind the door switch.

The overheating thermostat ensures that the machine does not overheat during program operation.

The overheating thermostat opens automatically and has to be reset manually.

5.2.5 Resetting

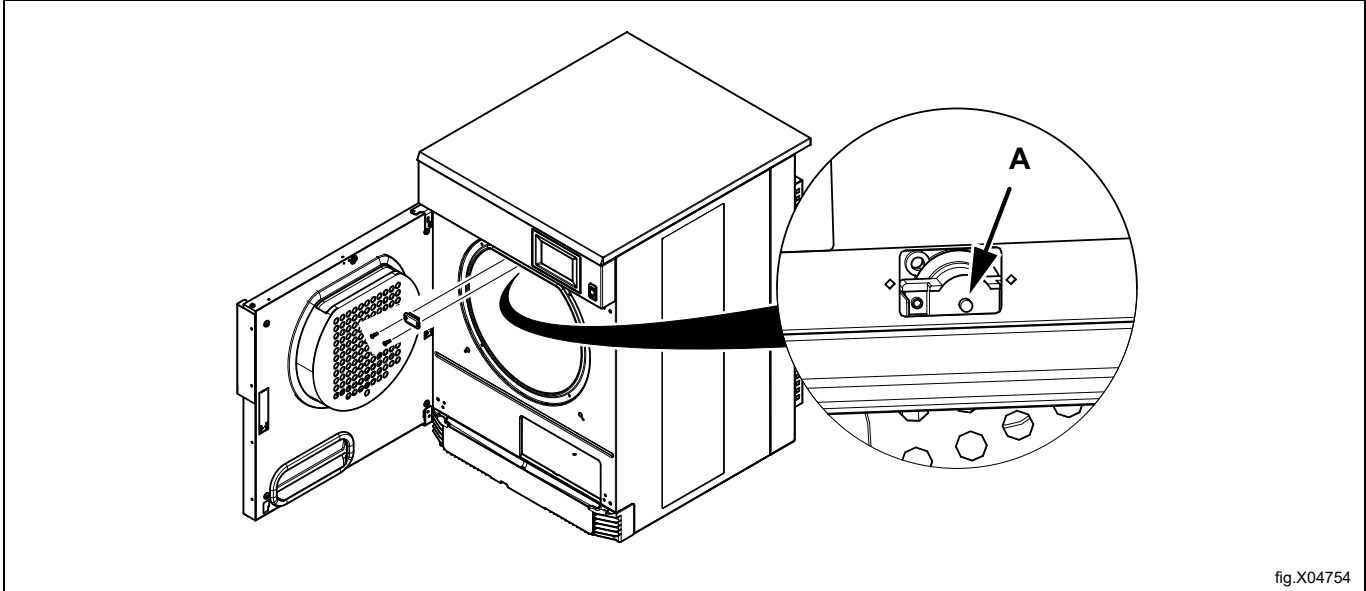
Disconnect the power to the machine.

Open the door and demount the door switch.

Press the reset button (A) on the overheating thermostat.

Note!

Resetting must not be done before the cause for overheating is verified and resolved.

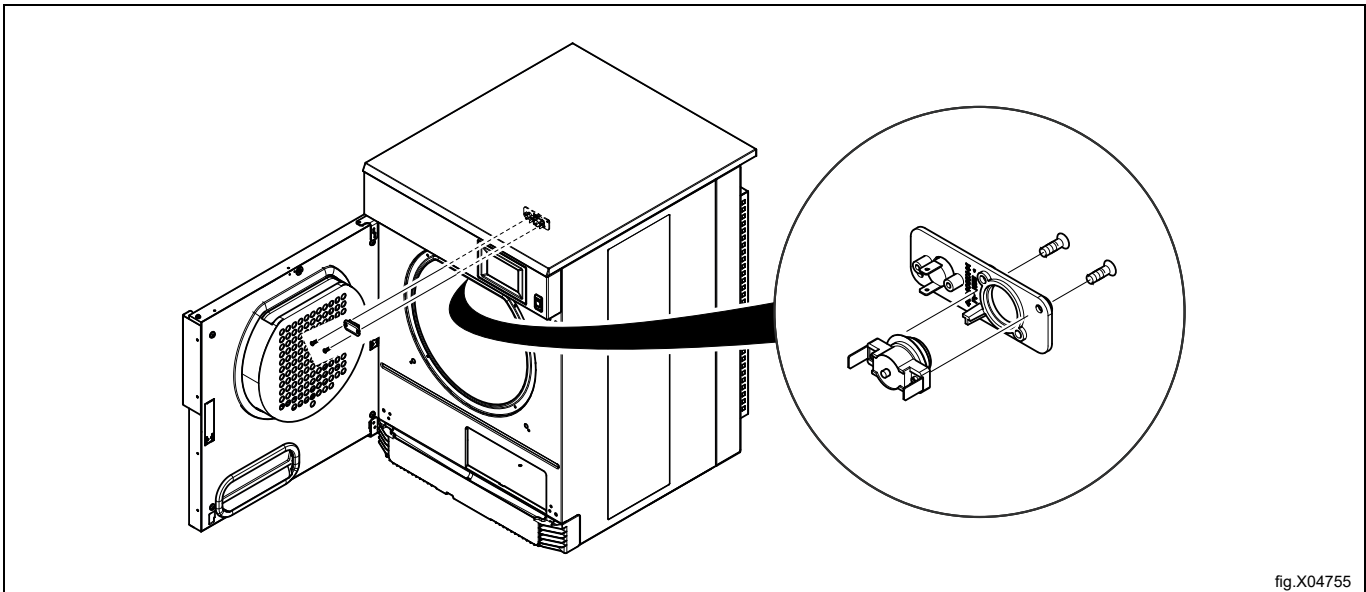


Remount the door switch.

5.2.6 Replacement of overheating thermostat

Disconnect the power to the machine.

Open the door and demount the door switch. Disconnect the overheating thermostat and remove it. Connect the new overheating thermostat.



Remount the door switch.

6 Vacuum switch — Condense machines

6.1 Replacement of the vacuum switch

- Disconnect the power to the machine.
- Demount the top panel.

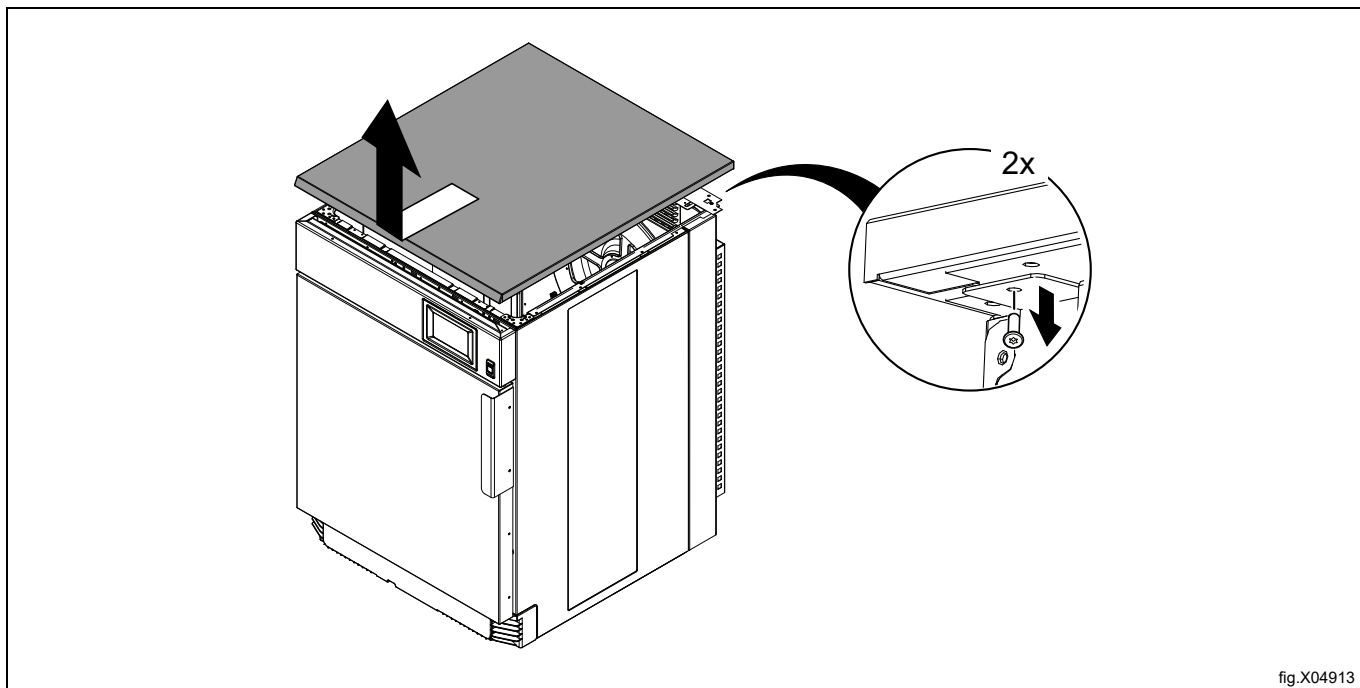


fig.X04913

- Disconnect the wires to the vacuum switch. Disconnect the vacuum hose. **Note the position of the wires.**
- Remove the screw (A) and disconnect the vacuum switch.
- Connect the new vacuum switch. Connect the vacuum hose and the wires. **Make sure that the art. No. on the new vacuum switch is the same as the old one.**

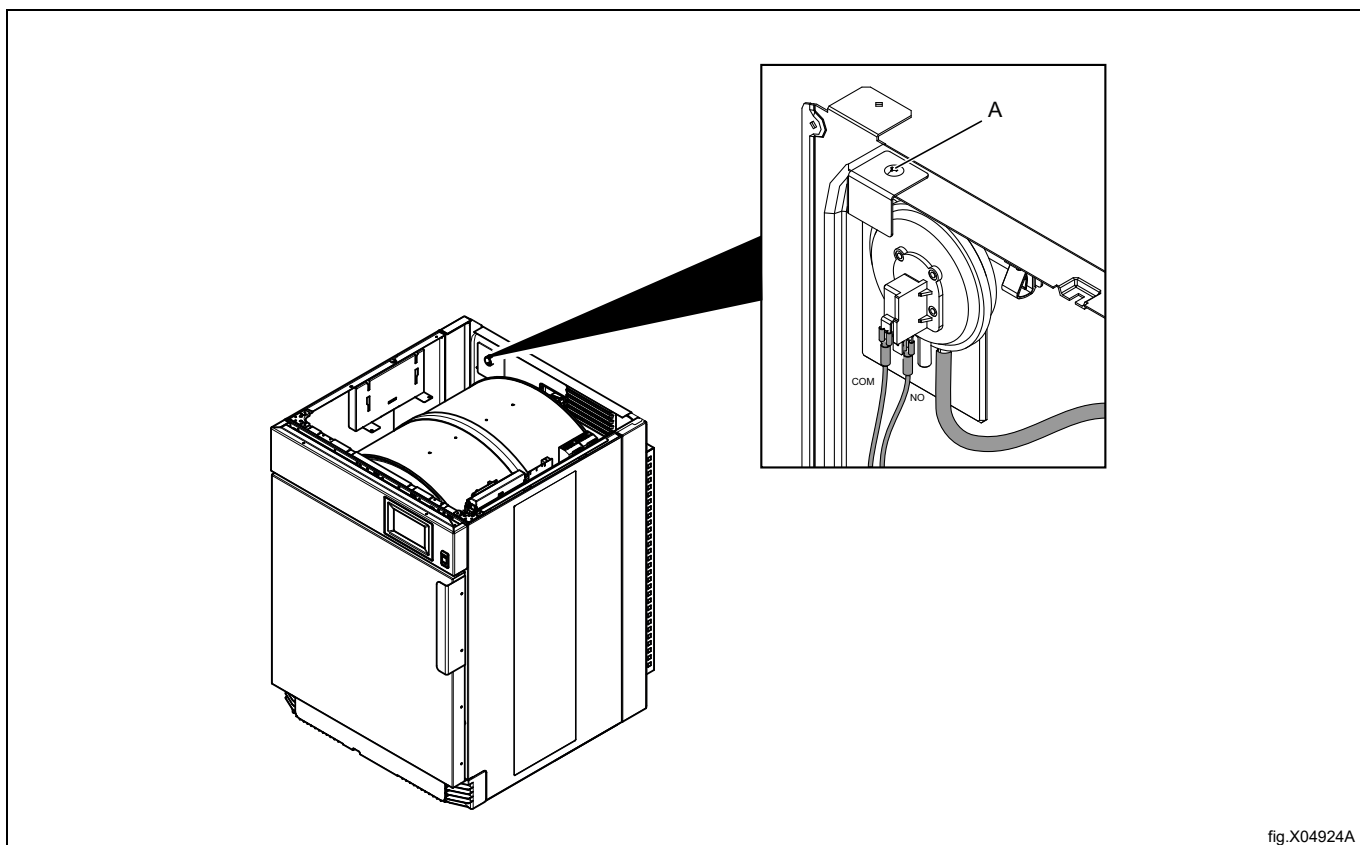


fig.X04924A

7 Door unit

7.1 Door switch

The door switch (A) ensures that the machine stops automatically if the door is opened during operation.

If the machine does not stop when the door is opened or if the door is closed and the error code **DOOR IS OPEN** is displayed (and the machine is unable to start), for example, the door switch needs to be replaced.

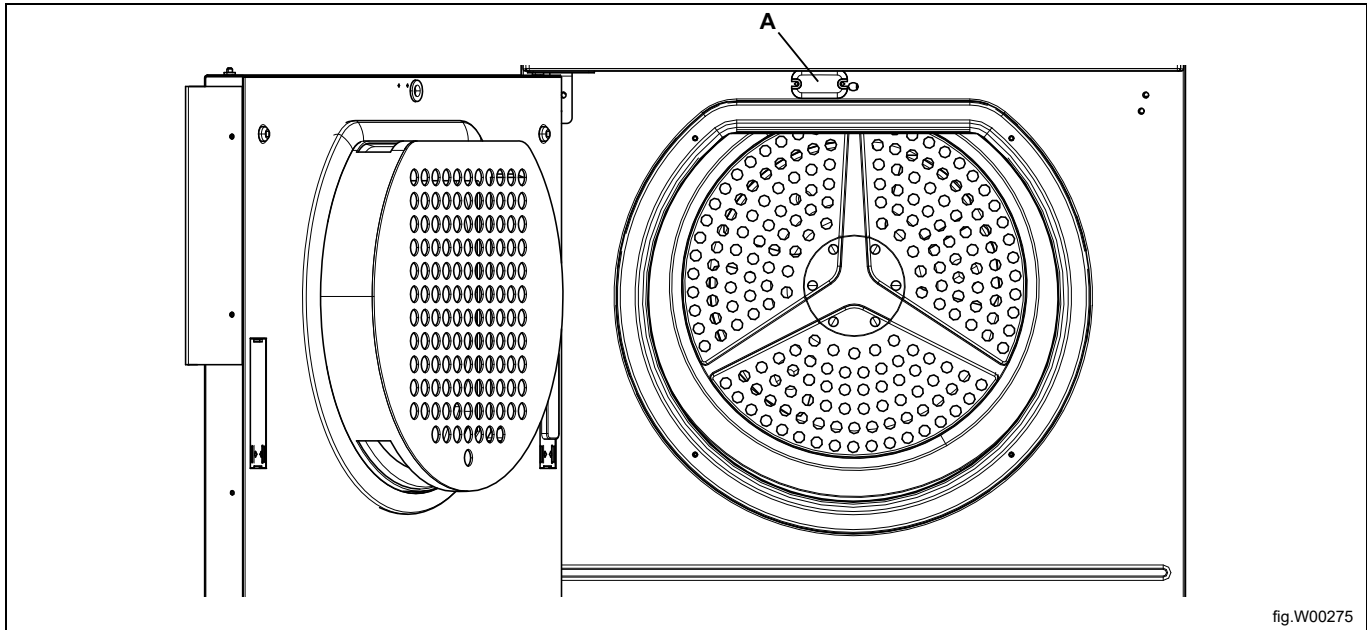


fig.W00275

7.1.1 Replacement of door switch

- Disconnect the power to the machine.
- Demount the top panel.
- Cut the cable tie holding the door switch cable.
- Open the door and demount the door switch and the door switch cable and mount the new one.

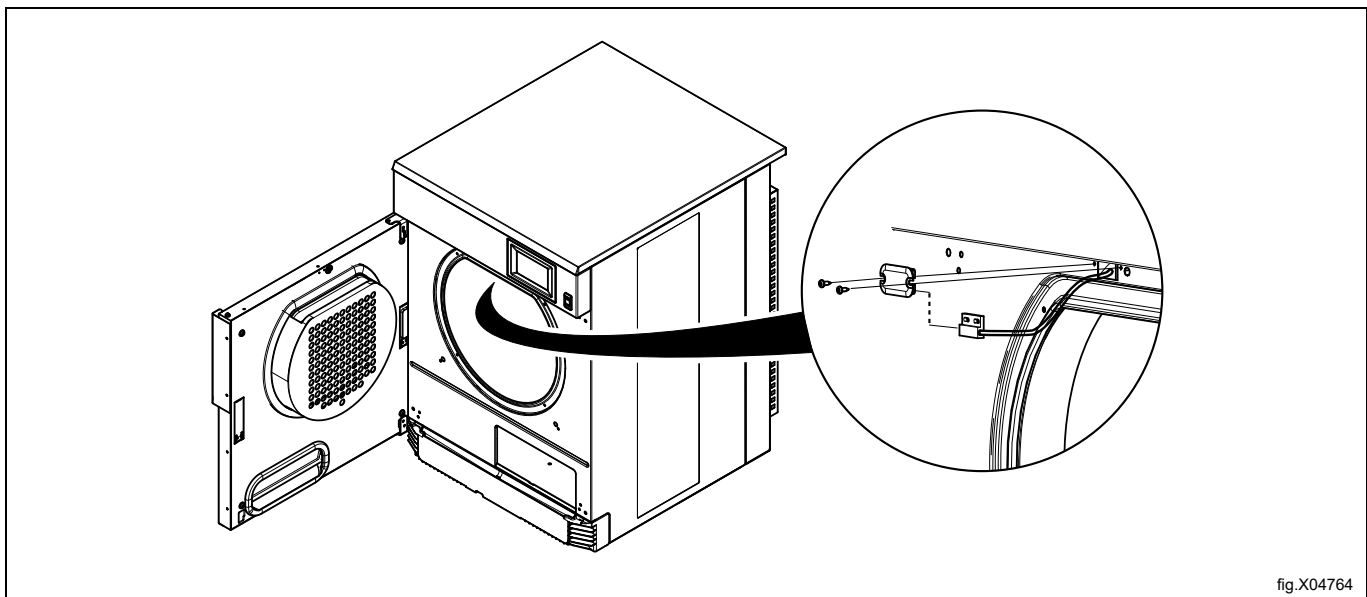


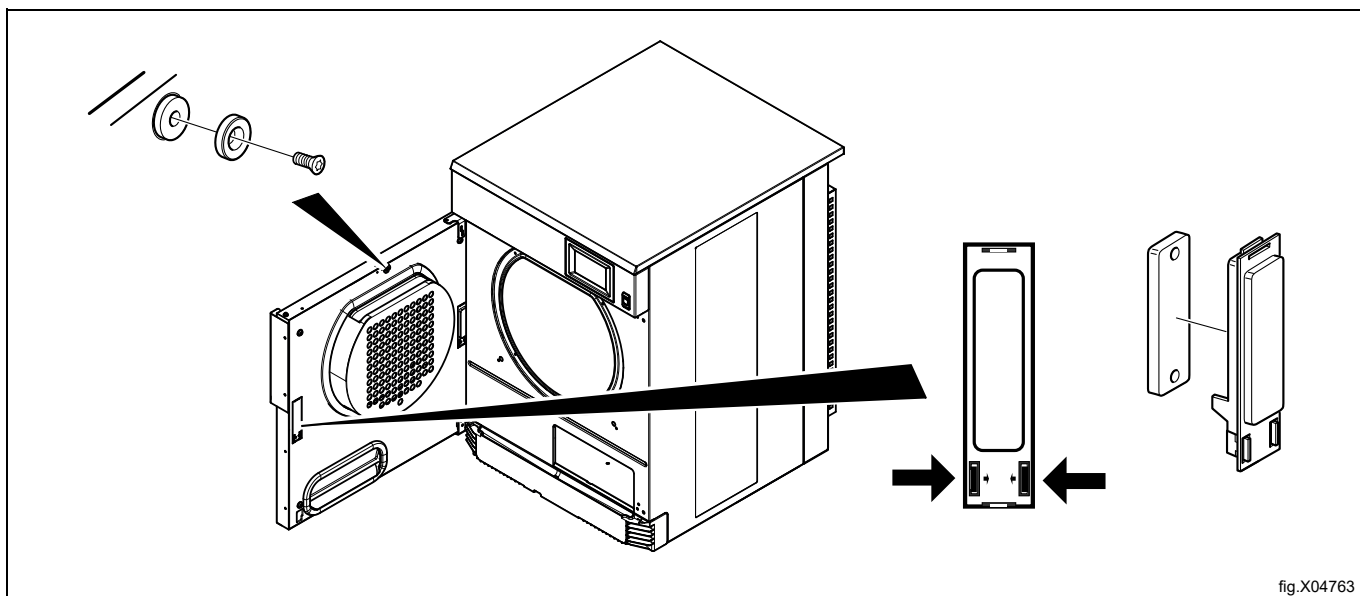
fig.X04764

- Remount the top panel.

7.2 Door magnets

7.2.1 Replacement of door magnets

- Remove the magnet to be replaced and mount the new one.



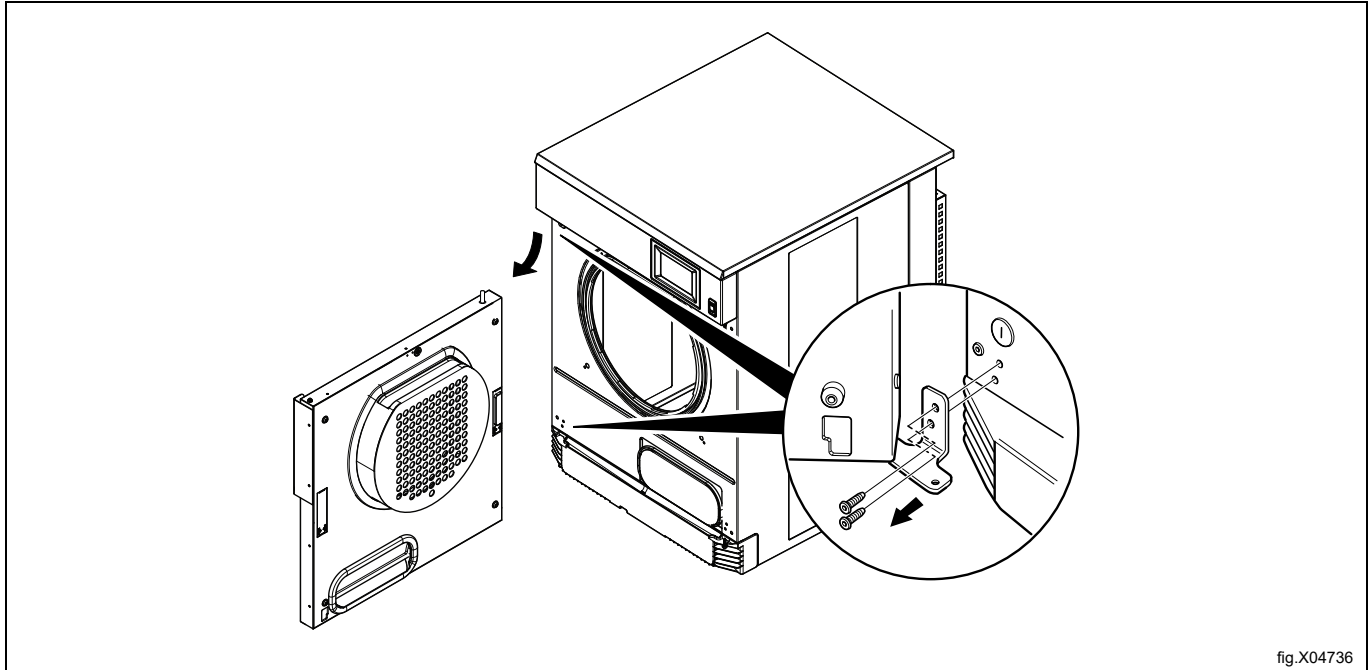
7.3 Reversing the door

- Disconnect the power to the machine.
- Demount the lower hinge and lift off the door.

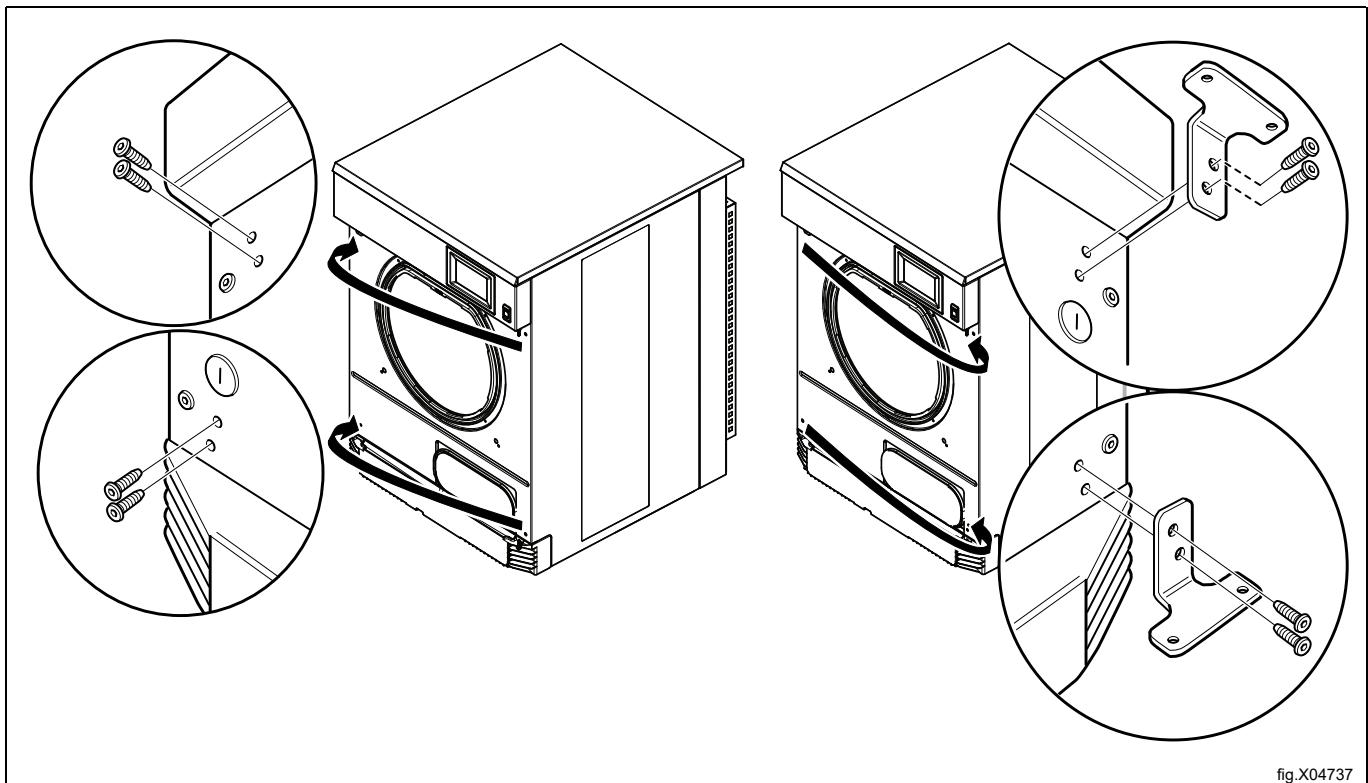
Note!

Make sure to hold the door in position when loosening the hinge mounting.

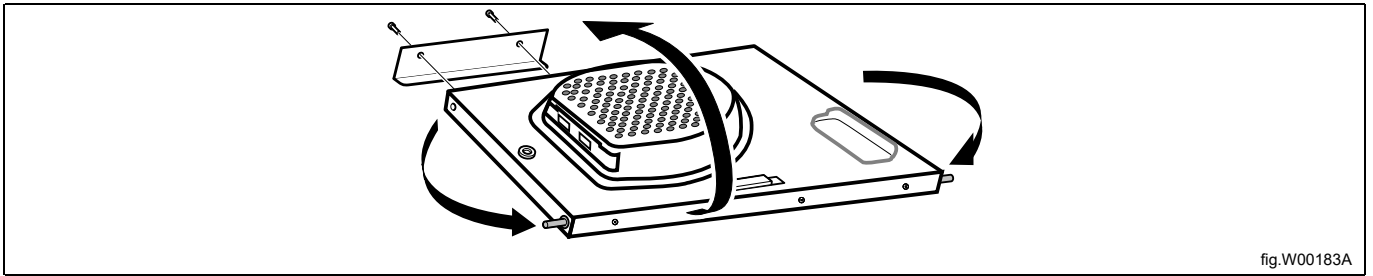
- Demount the upper hinge.



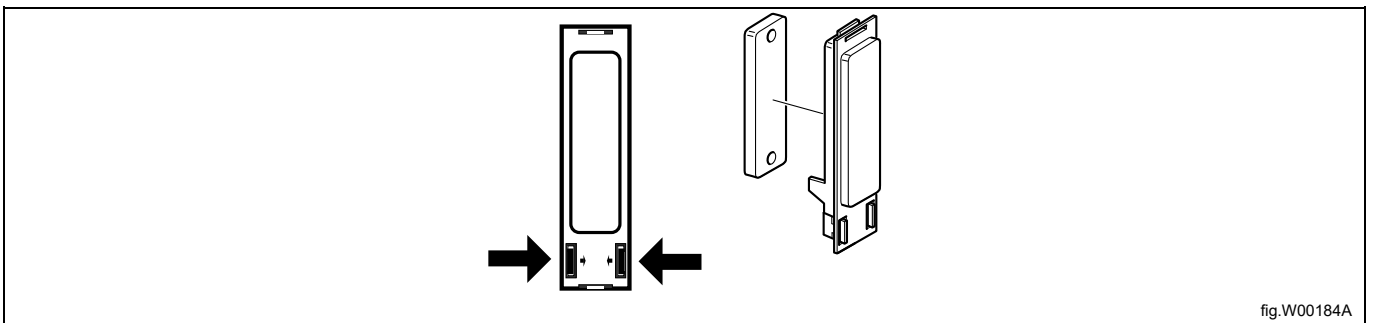
- Demount the cover screws on the other side and mount them where the hinges was. Mount the hinges on the other side where the cover screws was. Mount the lower hinge soft, with one screw first, in order to make it easier to place the door back in position.



- Demount the door handle and remount the screws. Mount the door handle on the opposite side using the existing screws.
- Remove the upper and lower pivot and mount them at the opposite side.



- Demount the locking panels by loosening the barb with a screwdriver.
- Press out the locking panels, swap them over and press into position.



- Mount the door on the other side. Push the door and the top pivot into the upper hinge and then adjust the lower pivot into the lower hinge. Mount the remaining screw when the lower pivot is in correct position. Tighten the screws.
- Connect the power to the machine.
- Test run the machine.

8 Motor

8.1 Replacement of motor

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed, continue as follows.

- Disconnect the ground cable and the motor cable.

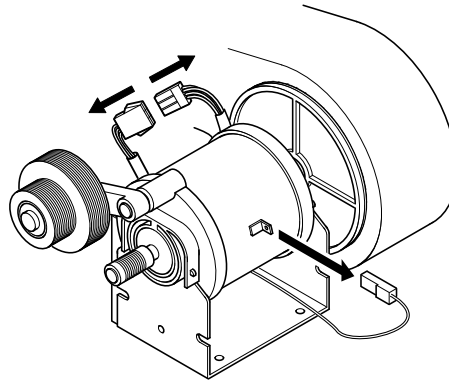


fig.7539

- Carefully tilt the machine backwards and remove the four screws under the machine.
- Remove the motor with the fan.

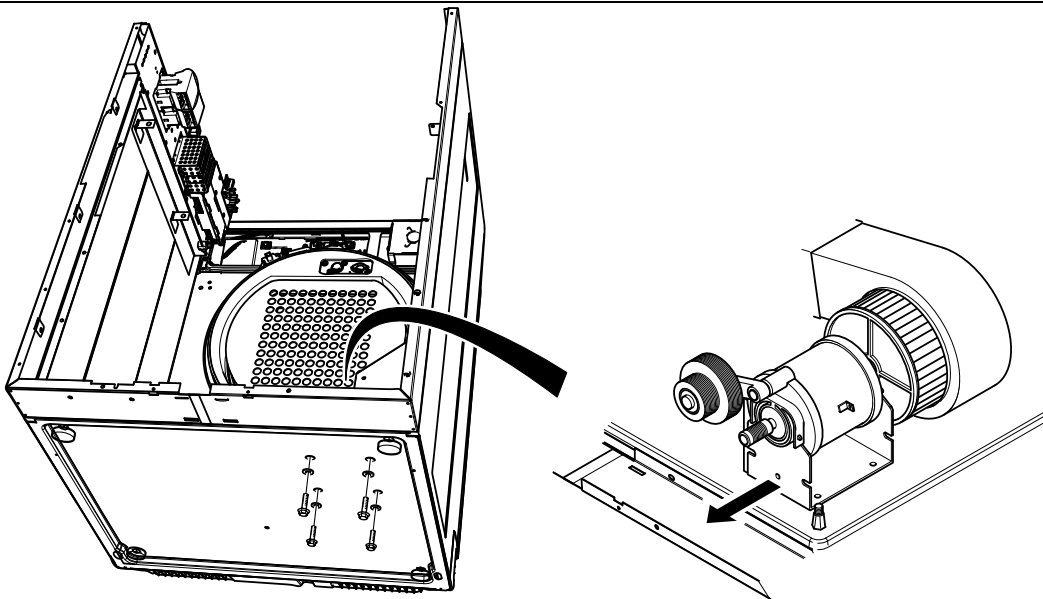
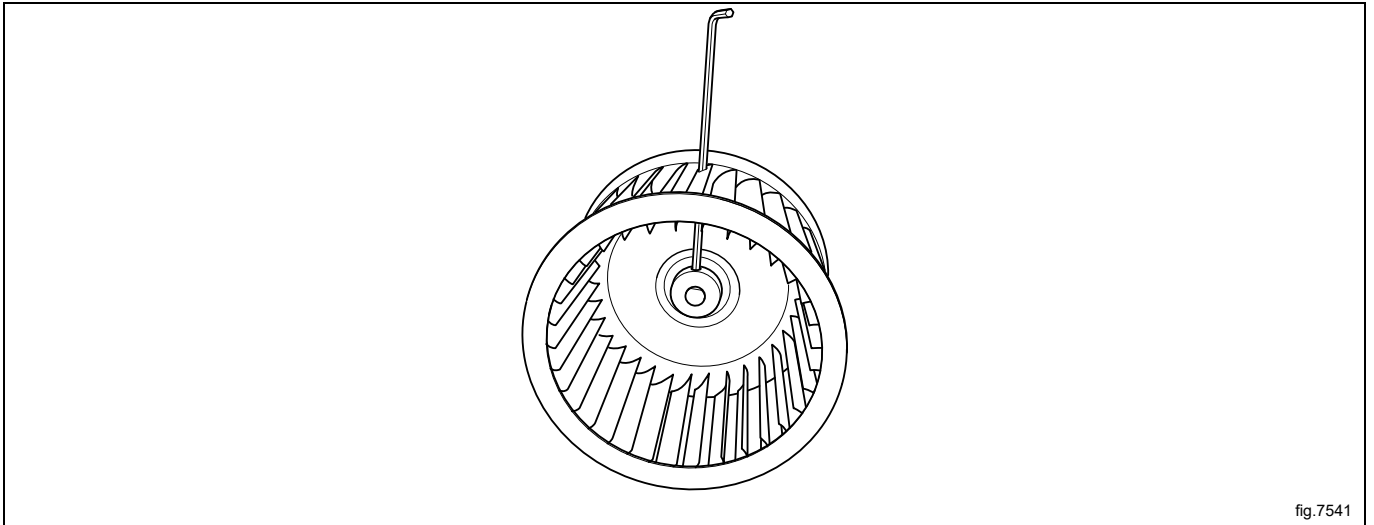


fig.7540

- Demount the fan from the motor by loosening the set screw. The set screw can be accessed through a hole in one of the blades.



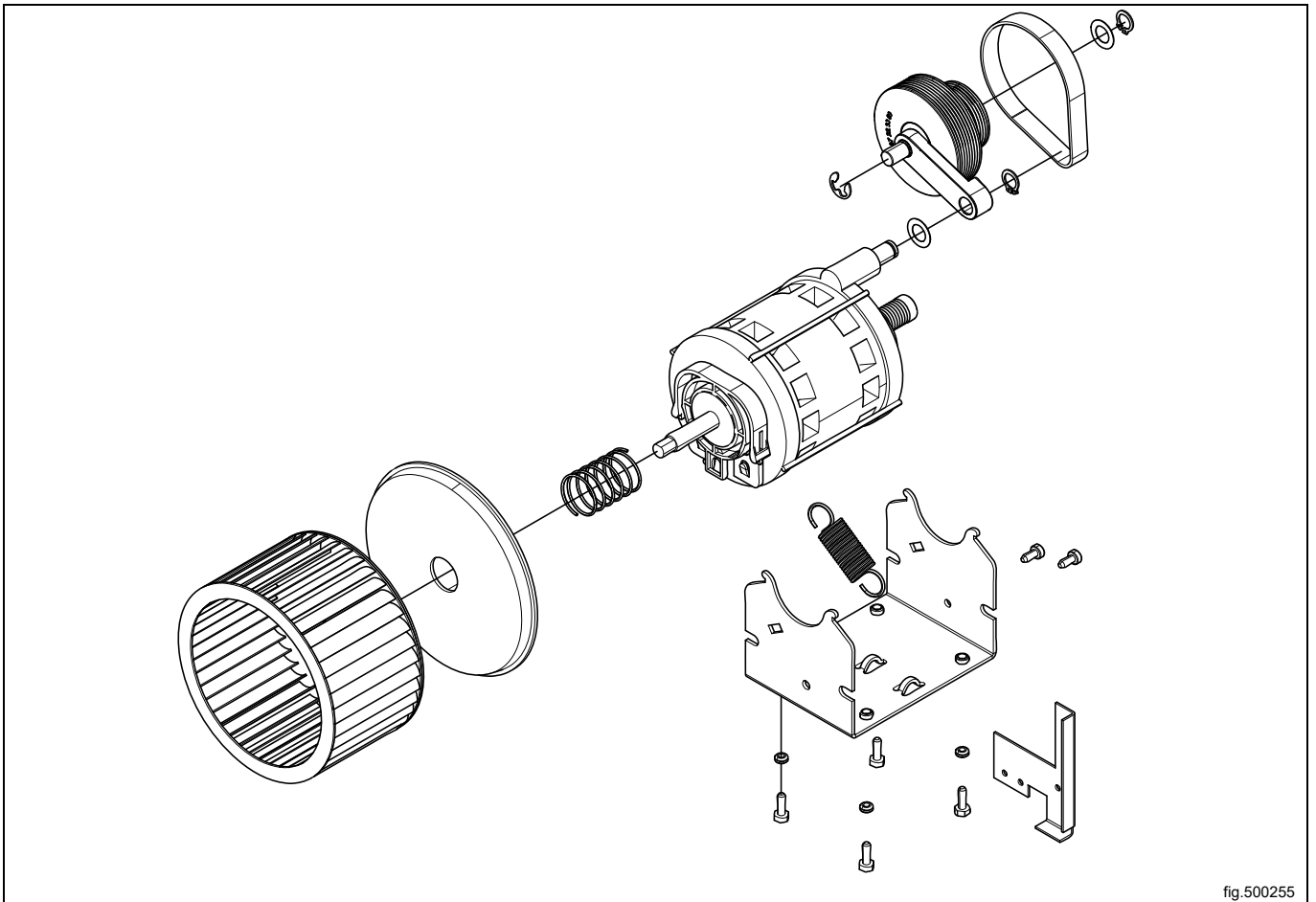
- Mount the fan on the new motor and mount the new motor with the fan in the machine.
- Fasten the four screws under the machine.

Continue to re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

8.1.1 Other replacing parts on the transmission

When the motor with the fan is demounted from the machine; it is also possible to change single parts by the motor.



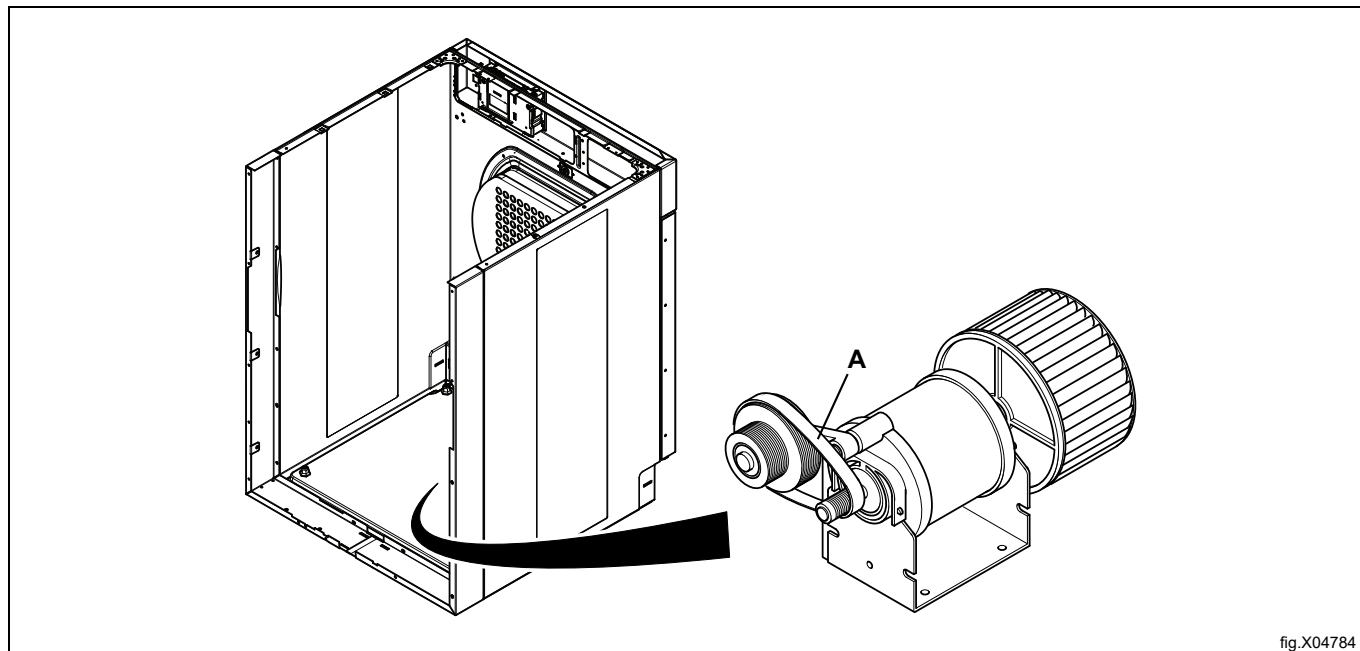
8.2 Replacement of the belt around the motor pulley

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed, continue as follows.

- Remove the belt (A) and put the new belt in position.



Re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

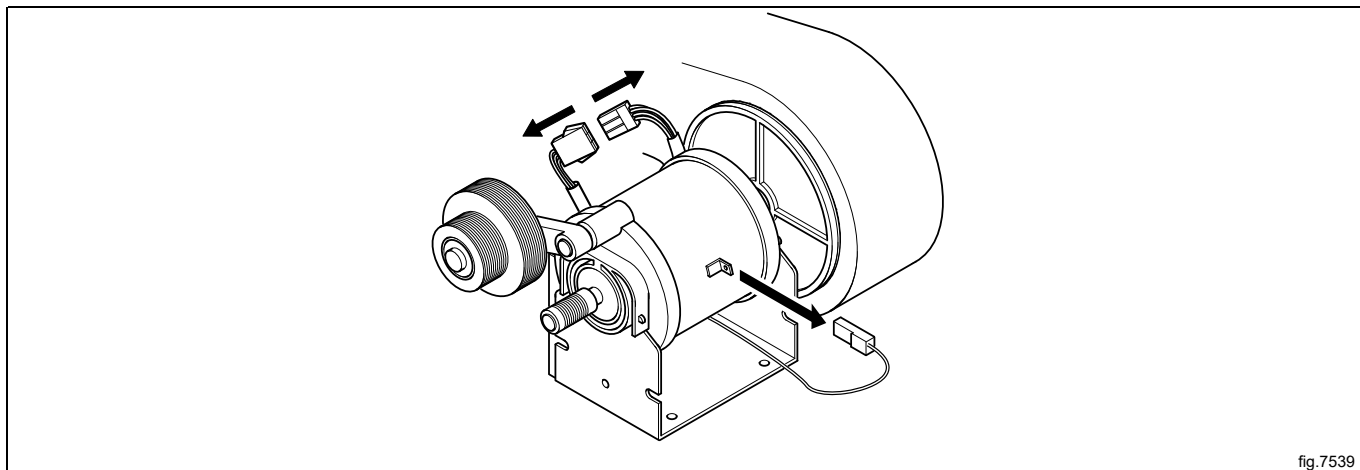
8.3 Replacement of fan

Demount the drum.

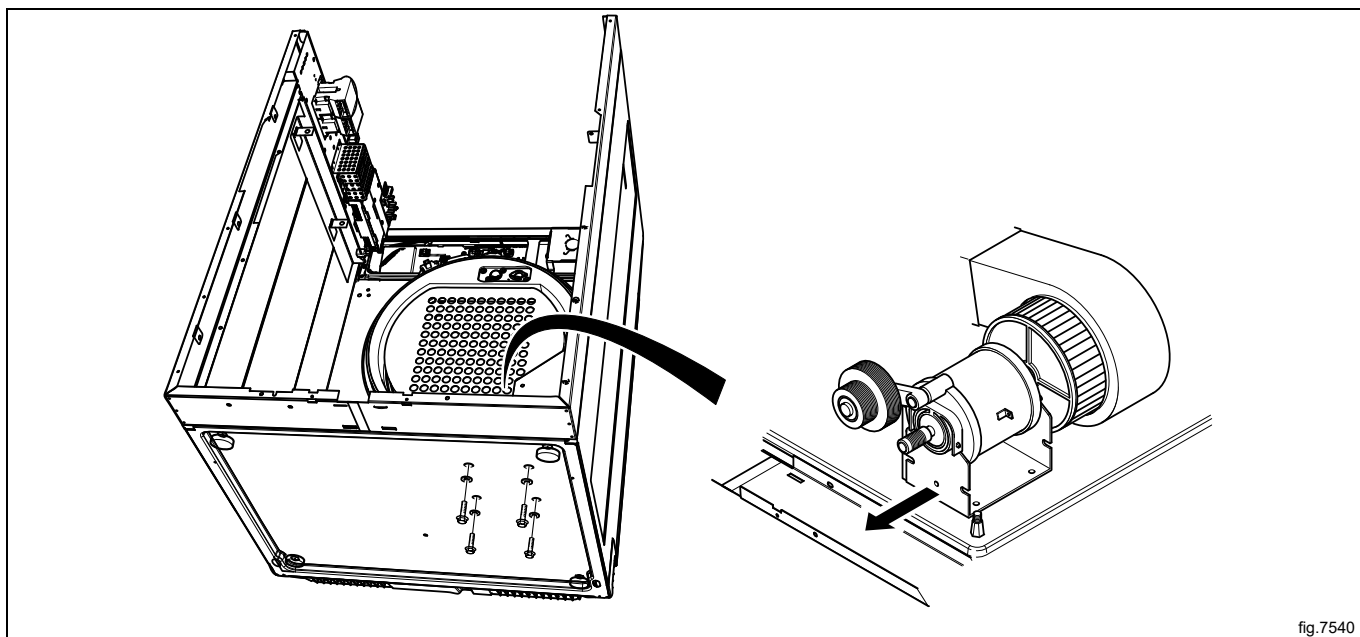
Please refer to section [Removal of the drum](#)

When the drum is removed, continue as follows.

- Disconnect the ground cable and the motor cable.



- Carefully tilt the machine backwards and remove the four screws under the machine.
- Remove the motor with the fan.



- Demount the fan from the motor by loosening the set screw. The set screw can be accessed through a hole in one of the blades.

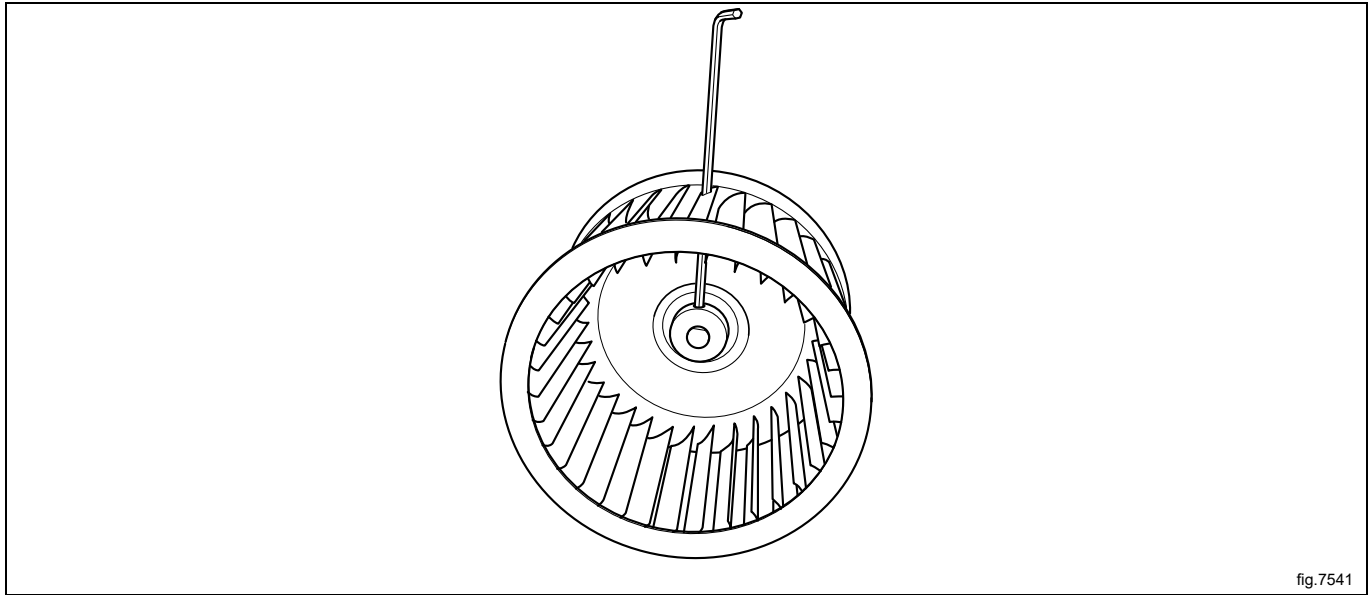


fig.7541

- Use a puller to remove the fan from the motor.
- Mount the new fan on the motor. Make sure the air cover and the pressure spring gets in position.
- Mount the motor with fan in the machine.
- Fasten the four screws under the machine.

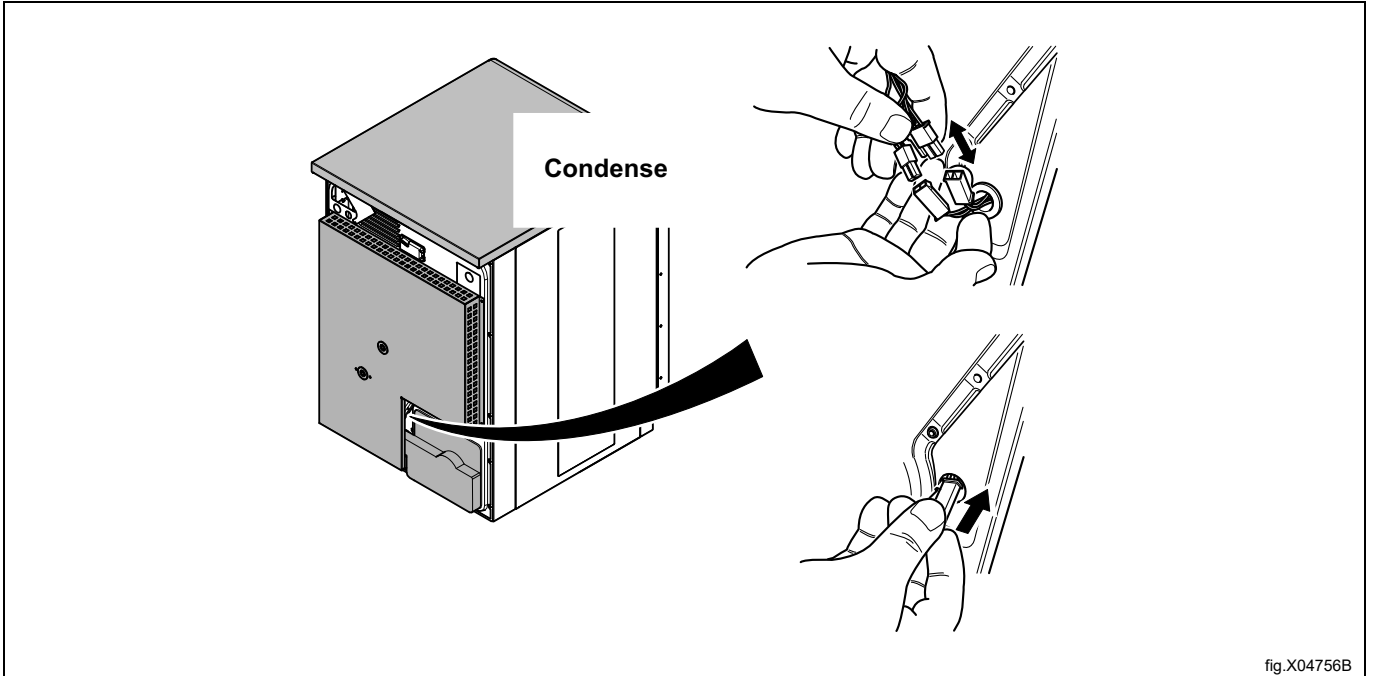
Continue to re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

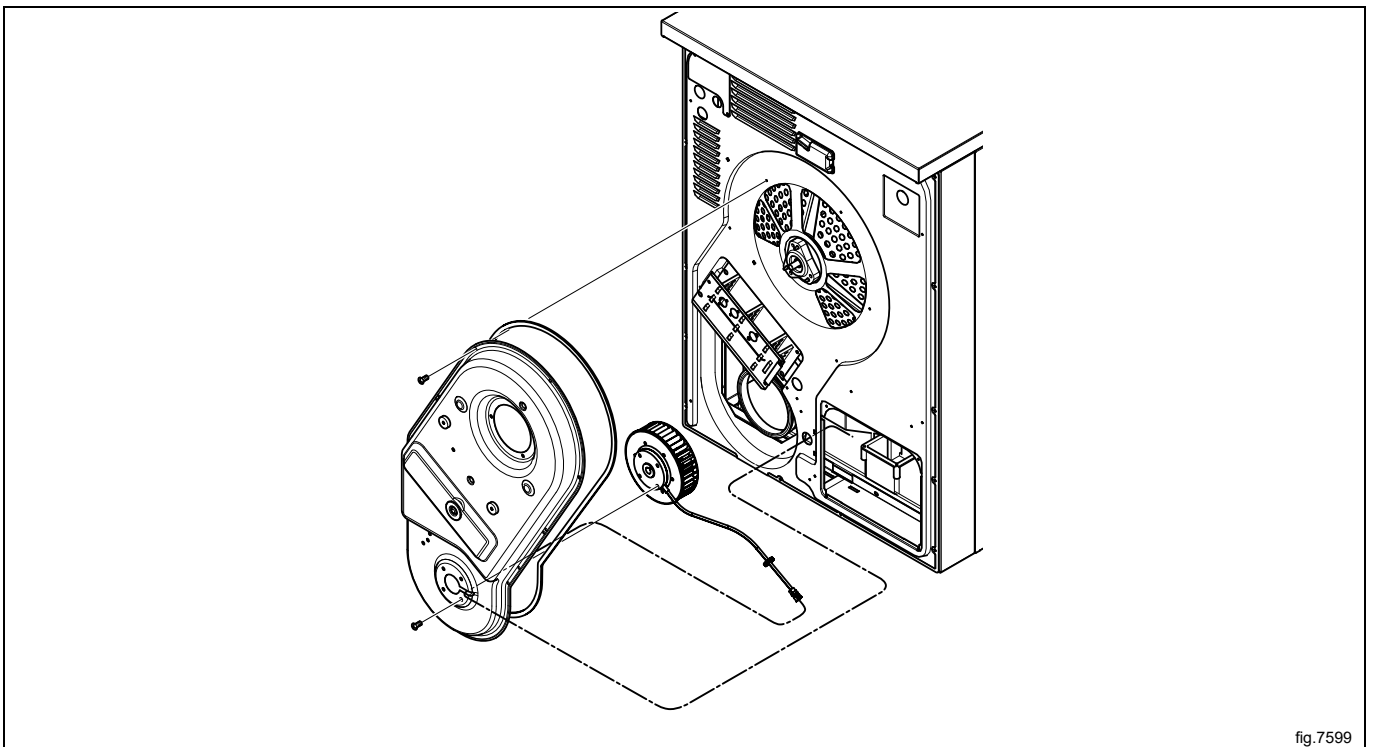
8.4 Replacement of fan motor

8.4.1 Only for condense machines

- Disconnect the power to the machine.
- Demount the casing over the rear panel and the cover panel at the air outlet.
- Disconnect the overheating thermostat and the heating sensor and push the connections into the hole.



- Demount the plastic cover and the air channel panel.
- Disconnect the fan motor and replace the fan motor with the new one and connect it.



- Mount the air channel panel and the plastic cover.
- Connect the overheating thermostat and the heating sensor.
- Mount the cover panel at the air outlet and the casing over the rear panel.

9 Heating system, electric

Spare part number, effect and voltage are printed on each heating element.

9.1 Replacement of heating element

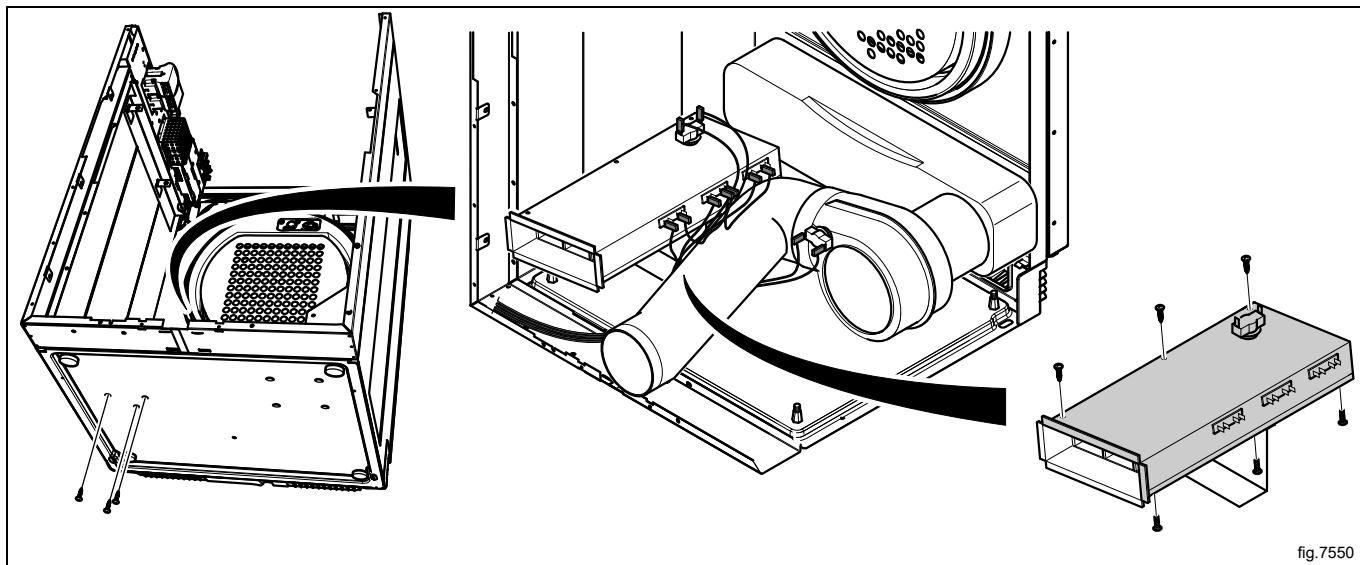
9.1.1 Exhaust machines

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed the heating element can be replaced.

- Carefully tilt the machine backwards and remove the three screws under the machine to release the lower element cover panel.
- Disconnect the wires, demount the cover panels and remove the heating element.



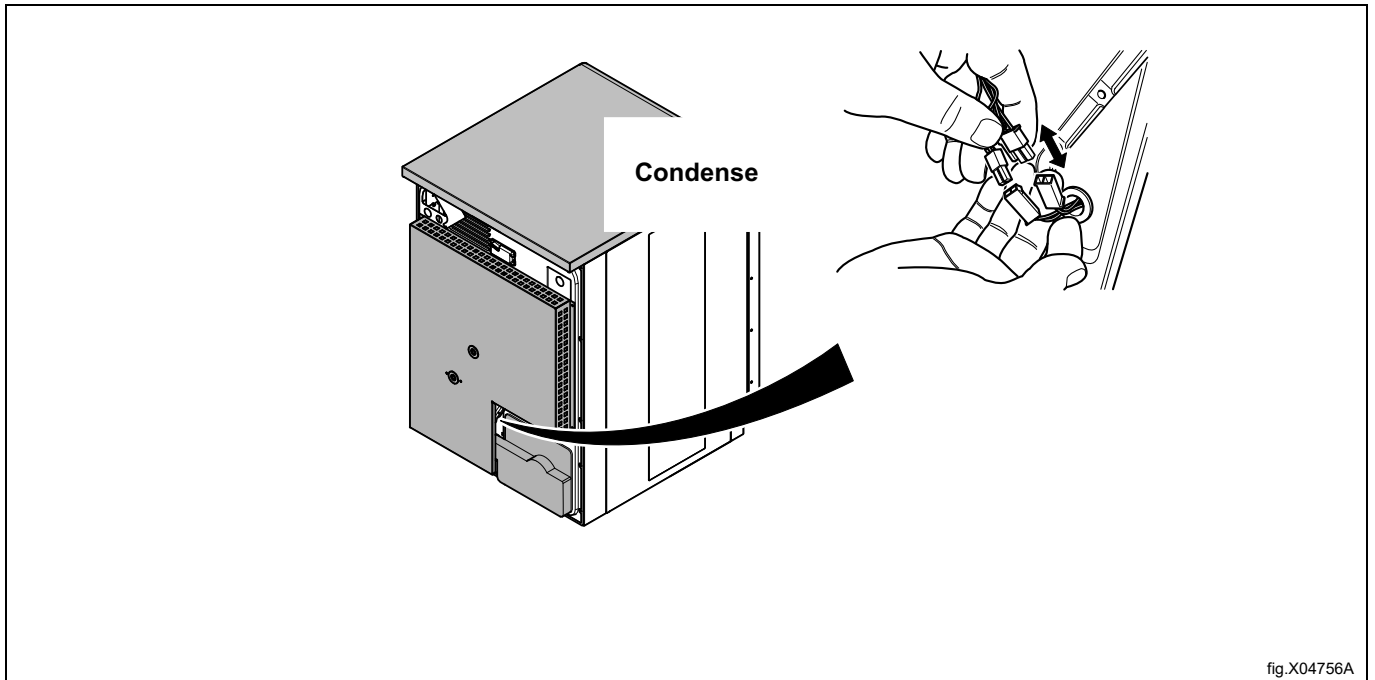
- Connect the new element. Reconnect the wires as before, use the electric schematic supplied with the machine.
- Mount the element unit back in the machine and fasten the three screws under the machine.

Re-assemble the machine.

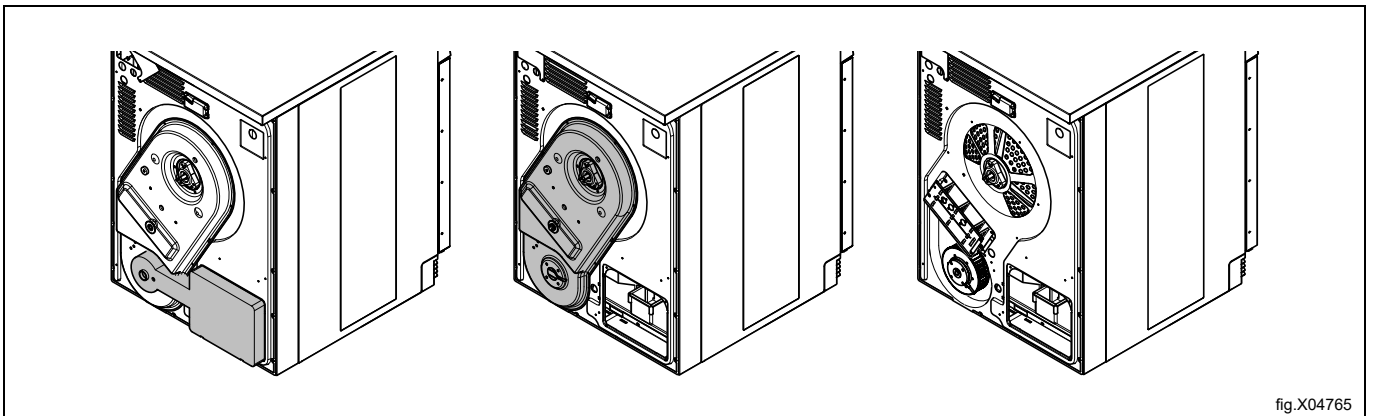
Please refer to the section [Remounting of the drum and assembling of the machine](#)

9.2 Condense machines

- Disconnect the power to the machine.
- Demount the casing over the rear panel.
- Disconnect the overheating thermostat and the heating sensor and push the connections into the hole.



- Demount the plastic cover and the air channel panel.
- Unscrew the screws to the heating element cover. Disconnect the wires and remove the heating element.



- Connect the new element. Reconnect the wires as before, use the electric schematic supplied with the machine.
- Mount the air channel panel and the plastic cover.
- Connect the overheating thermostat and the heating sensor.
- Mount the casing over the rear panel.

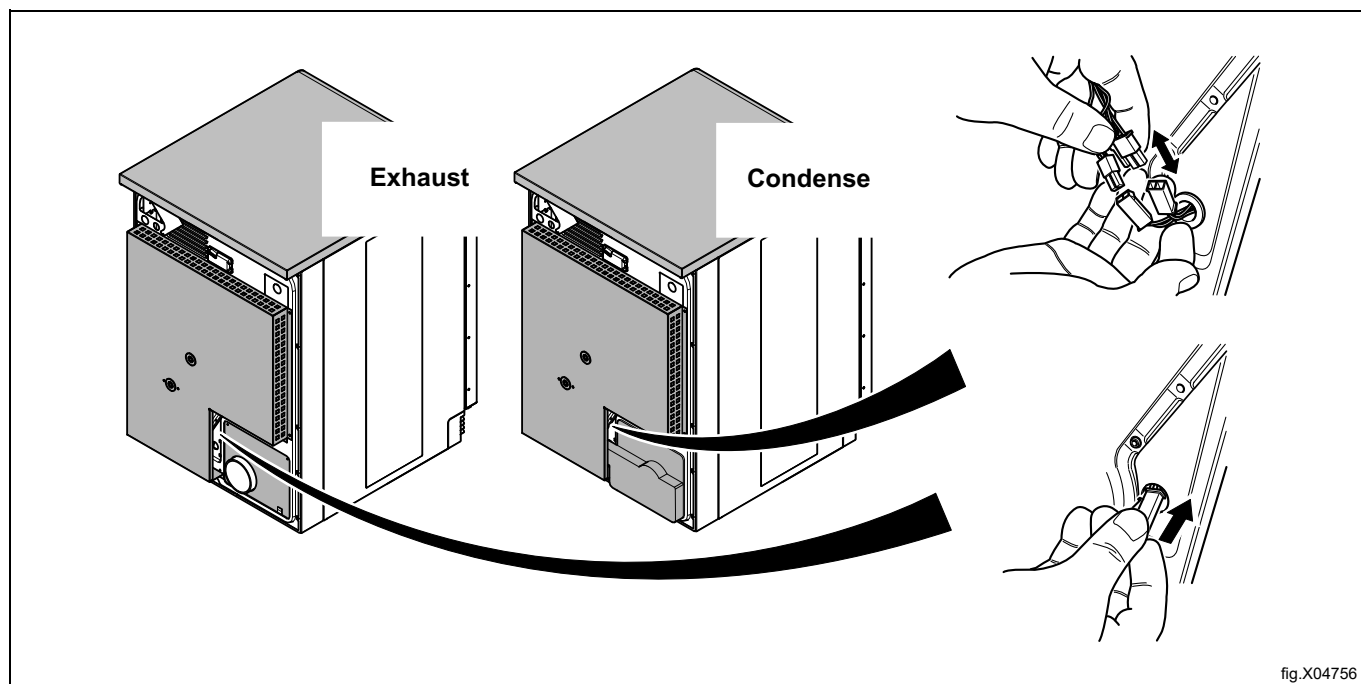
10 Drum unit

10.1 Replacement of drum

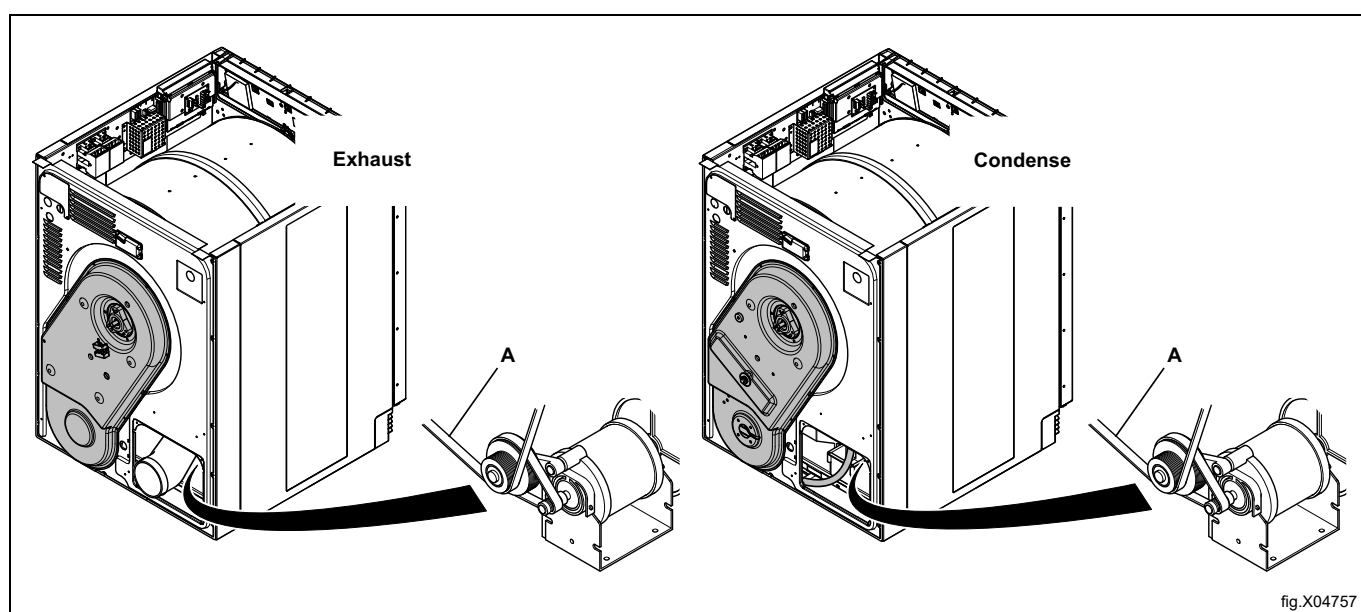
10.1.1 Removal of the drum

In order to remove the drum, the following needs to be demounted / removed:

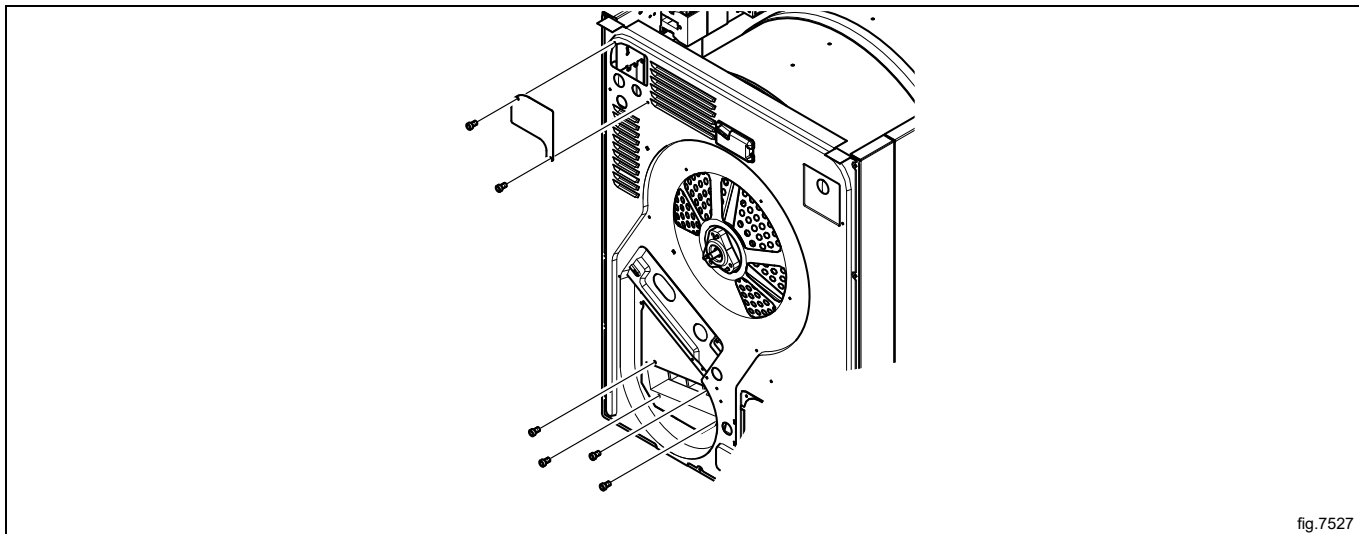
- Disconnect the power to the machine.
- Demount the casing over the rear panel and the cover panel at the air outlet.
- Demount the top panel.
- Disconnect the overheating thermostat and the heating sensor and push the connections into the hole.



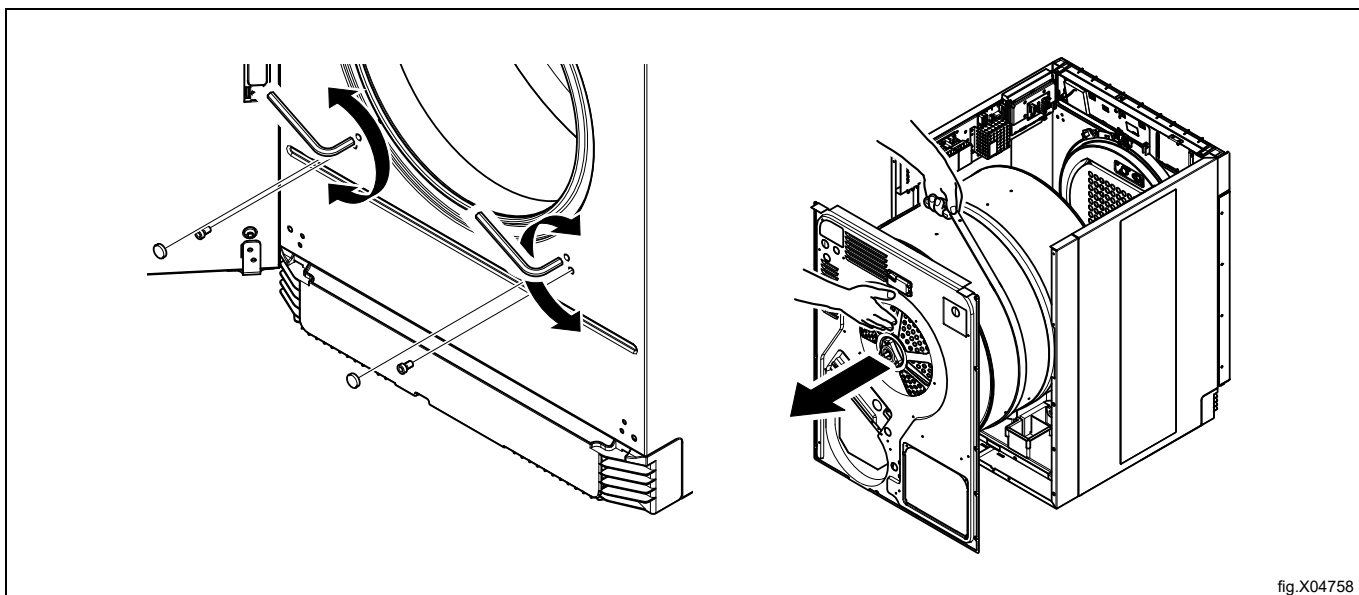
- Demount the air channel panel.
 - On condense machines: Pull out the hose to the drain from its upper connection.
- Loosen the belt around the drum (A).



- Unscrew the four screws at the panel around the heating element.
- Demount the cover panel to the electrical connections and disconnect all wires.



- Unscrew the rest of the screws on the panel.
- Disconnect the RMC and cut the cable ties. If there is a “FREE” connection, disconnect it.
- At the front of the machine: Open the door and remove the two plugs and screws. Use an L-key to turn counter clockwise until they stop to move down the support rollers.
- Remove the complete drum package with the rear panel by lifting in the drum belt.
- Carefully put the drum package on the floor with the rear panel facing upwards.



- Remove the bolt and washer from the bearing to release the drum. Remove the rear panel from the drum. Mount the rear panel with the bearing on the new drum.

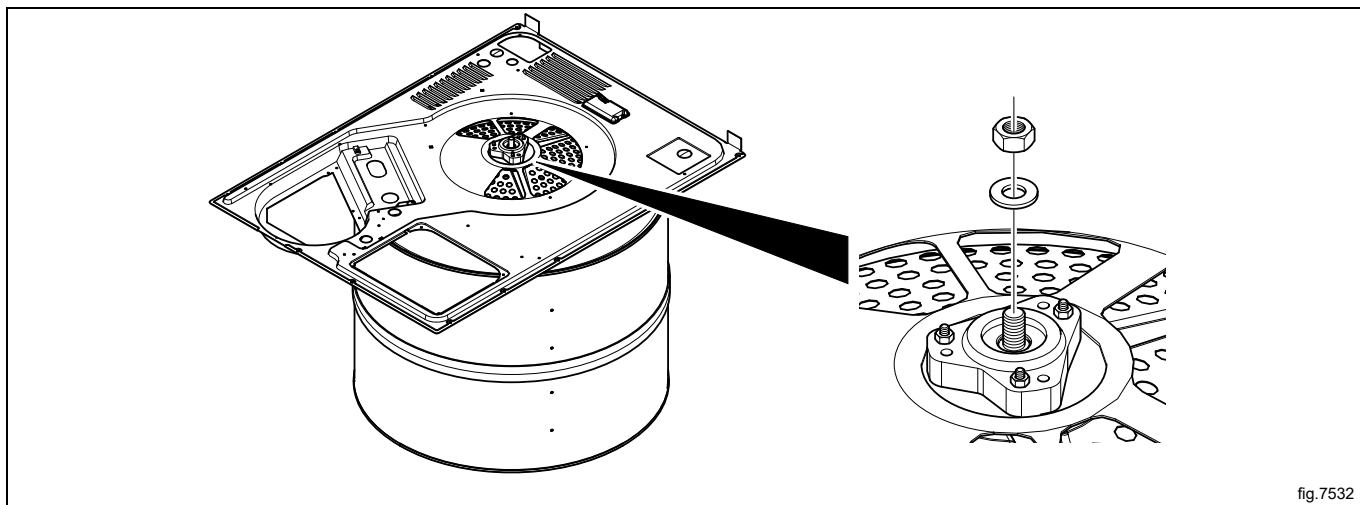


fig.7532

10.1.2 Remounting of the drum and assembling of the machine

- Mount the rear panel with the bearing on the drum.
- Carefully put the drum package back in the machine.
- Fasten the support rollers at the front of the machine.
- Connect the RMC and the "FREE" connection if disconnected.
- Connect the wires and mount the cover panel to the electrical connections.
- Fasten the four screws at the panel around the heating element and the rest of the screws on the panel.
- Fasten the belt. Rotate the drum to make sure that the belt is in position.
- Mount the air channel panel. On condense machines: Refit the hose before mounting the air channel panel.
- Connect the overheating thermostat and the heating sensor.
- Mount the top panel, the cover panel at the air outlet and the casing over the rear panel.

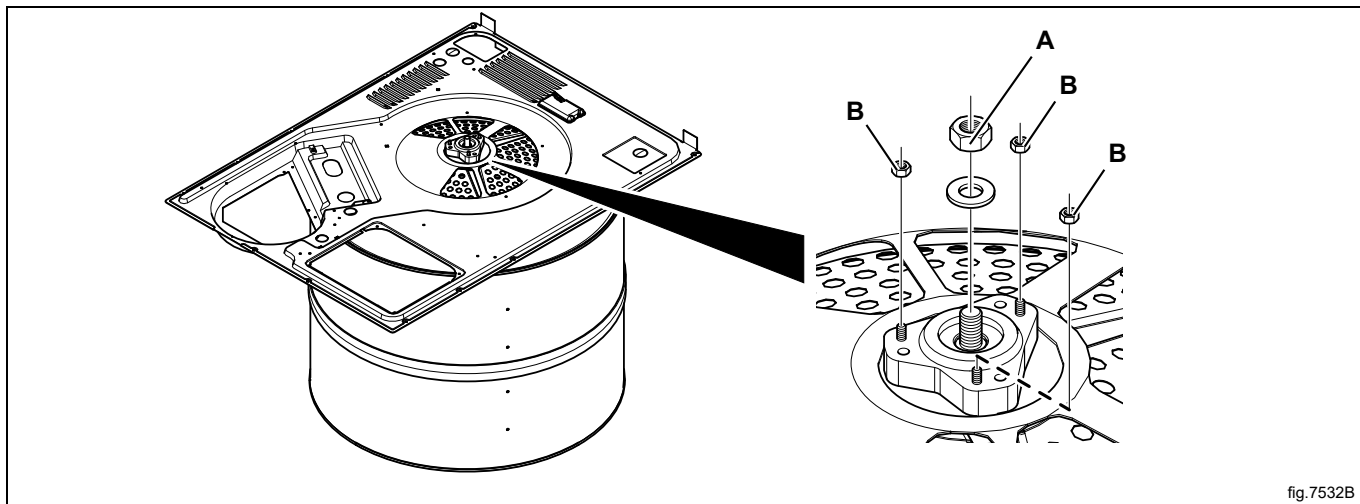
10.2 Replacement of bearing

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed the bearing can be replaced.

- Remove the screws, bolt and washer on the bearing. Remove the bearing and mount the new one. Use tightening torque 27-38 Nm for nut A and 1.8-2.5 Nm for nuts B.



Re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

10.3 Replacement of the belt around the drum

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed the belt around the drum can be replaced.

- Remove the belt from the outer drum.
- Put the new belt temporarily in position on the outer drum and carefully put the drum package back in the machine.

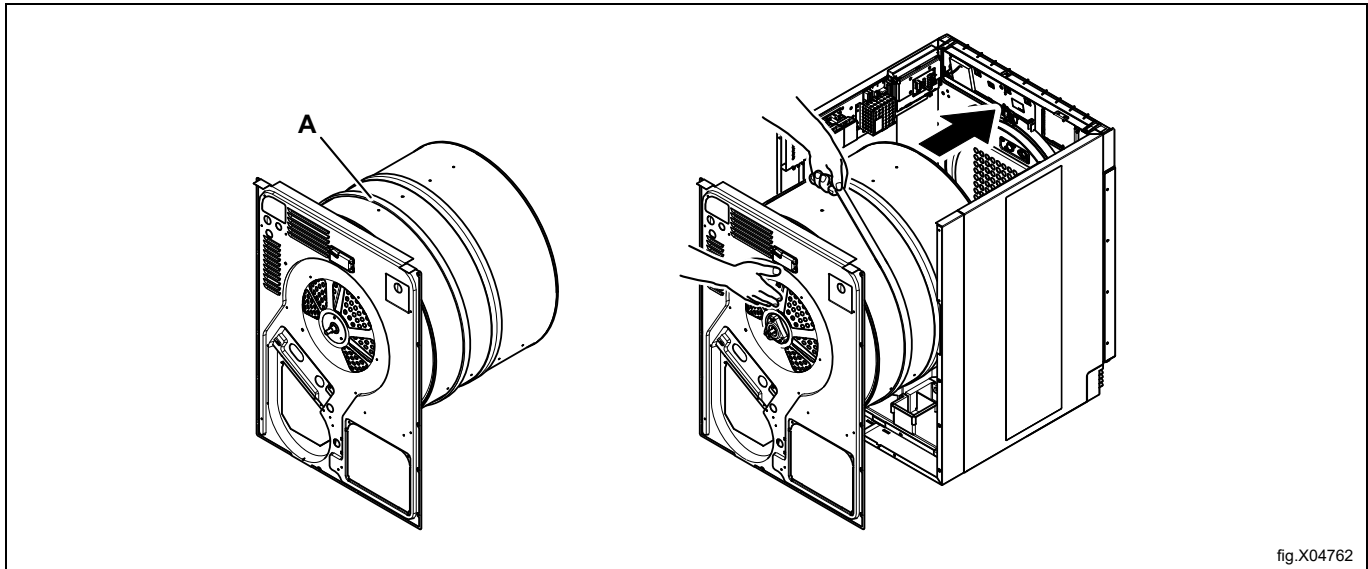


fig.X04762

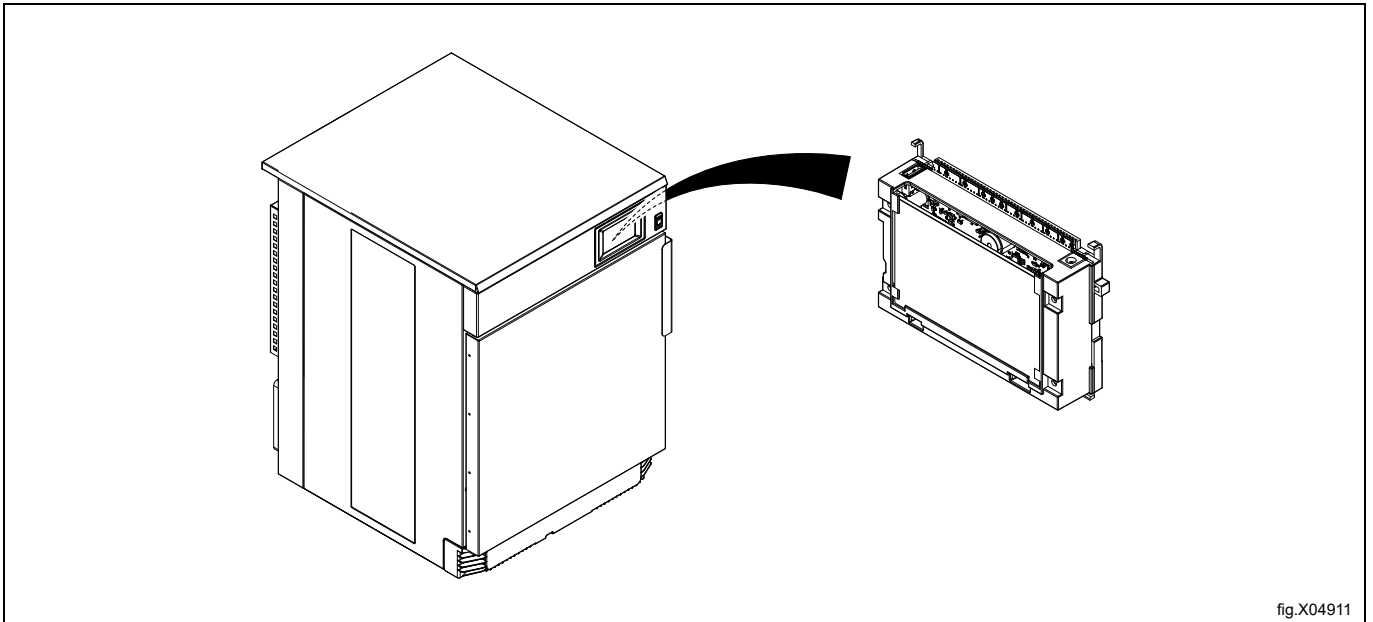
Re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

11 Display and control unit

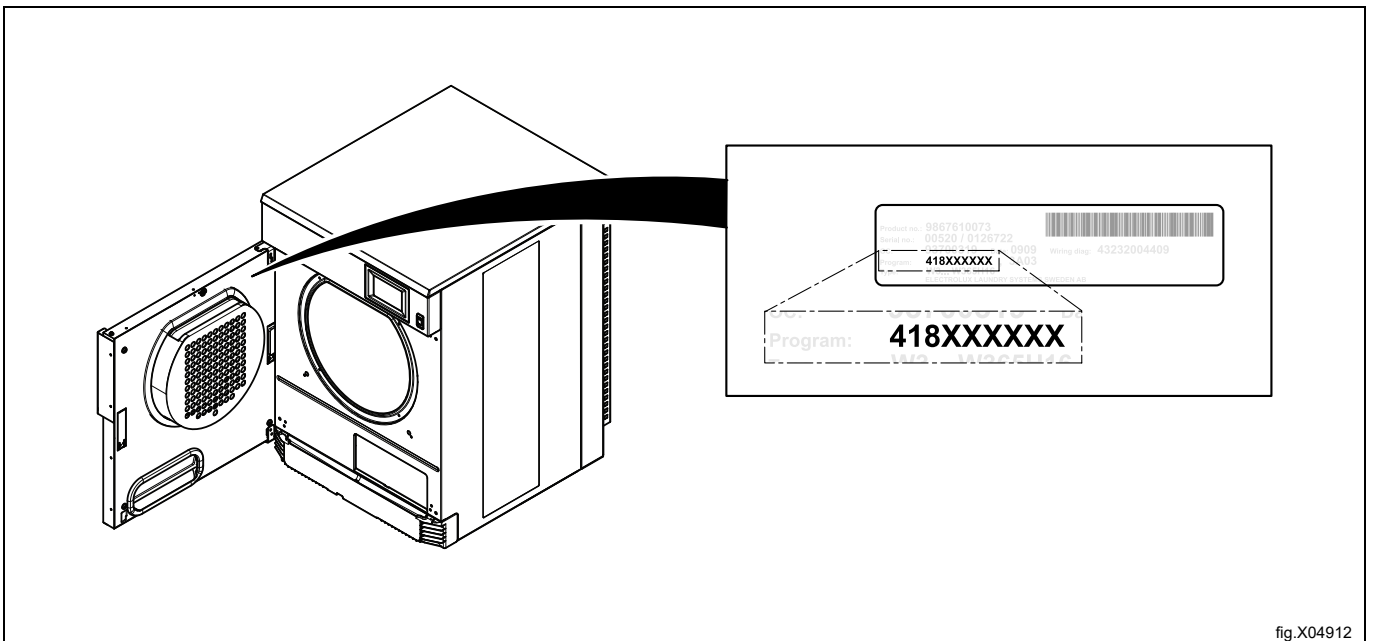
The control unit (CPU) is electronic with a 4.3" display and a capacitive touch panel and comprises a circuit board containing microprocessor, program memory, serial interface to the motor control, I/O-boards etc.

The control unit receives 12V DC power from a separate power supply unit which is mounted in the rear control unit.



The control unit receives information about inputs like temperature sensors, RMC, vacuum, door status etc, and activates outputs like drum, fan and heat control.

Every CPU-software is available for download on the official website after log-in. The parameter software installed in the machine's program device on delivery is printed at the front and back of the machine. Using this Article number, you can find the program designation and thereby identify I/O module function options on the web.



11.1 Connections

The control system CPU has the following connections:

Pos	Board connector	Function	Internal connector
1	PWM	(Not in use)	J17
2	RS485	Communication (Heat pump unit)	J6
3	RS485/MCOM	Communication (Not in use)	J9
4	INP2	Input 2 (Not in use)	J13
5	INP1	Input 1 Mechanic coin meter	J12
6	RS232	Serial communication (Protocol Payments; Electronic coin meters / card readers)	J7
7	RS232	Serial communication (Connectivity / ELS / IOT)	J8
8	DBUS	Databus	J5
9	DBUS	Databus	J3
10	SB	Start request (Start confirmation)	J11
11	USB TYPE A	Connection for software/service download	J14
12	-	Display	J15, J18
13	-	(Not in use)	J10
14	-	Service button	PL1

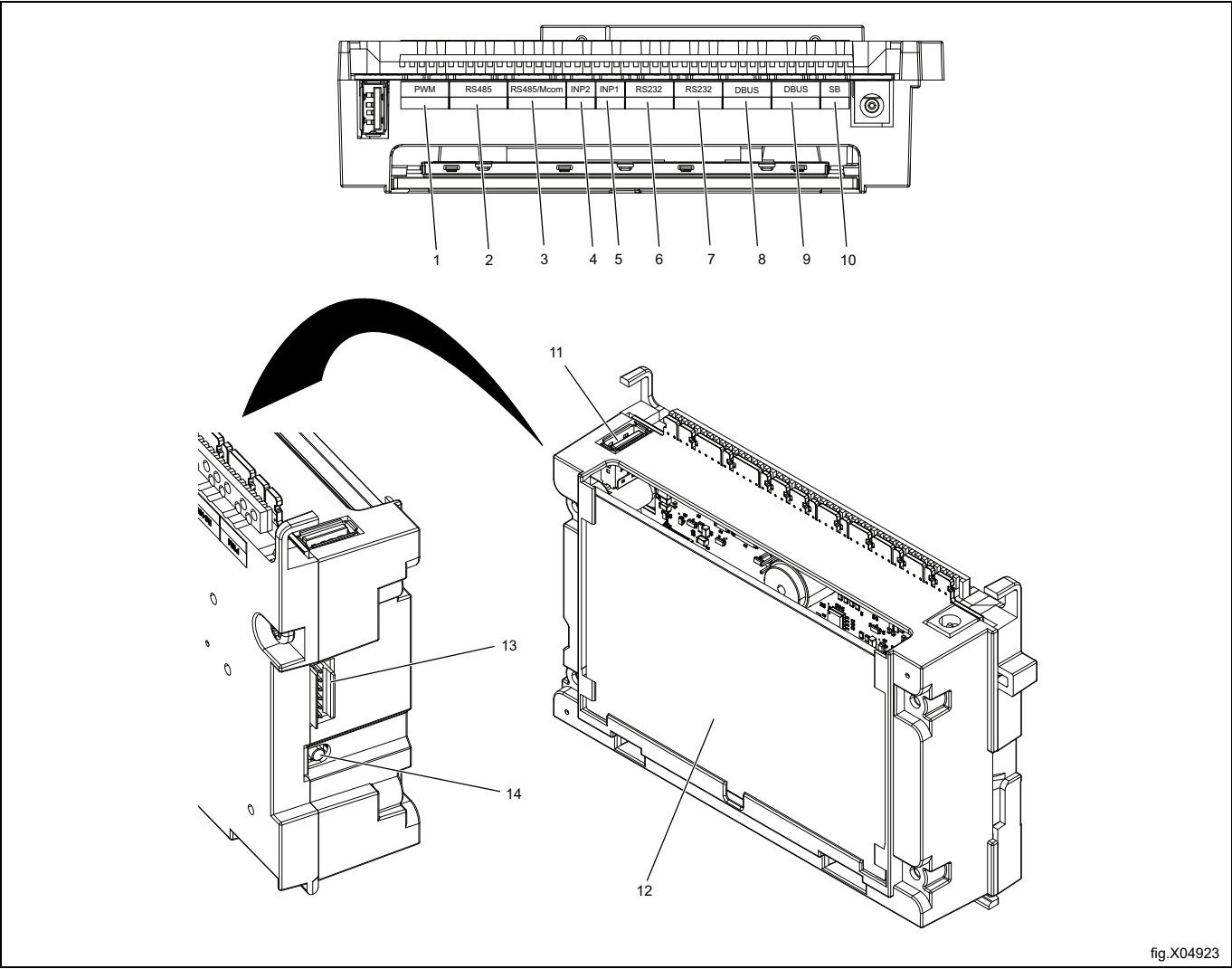
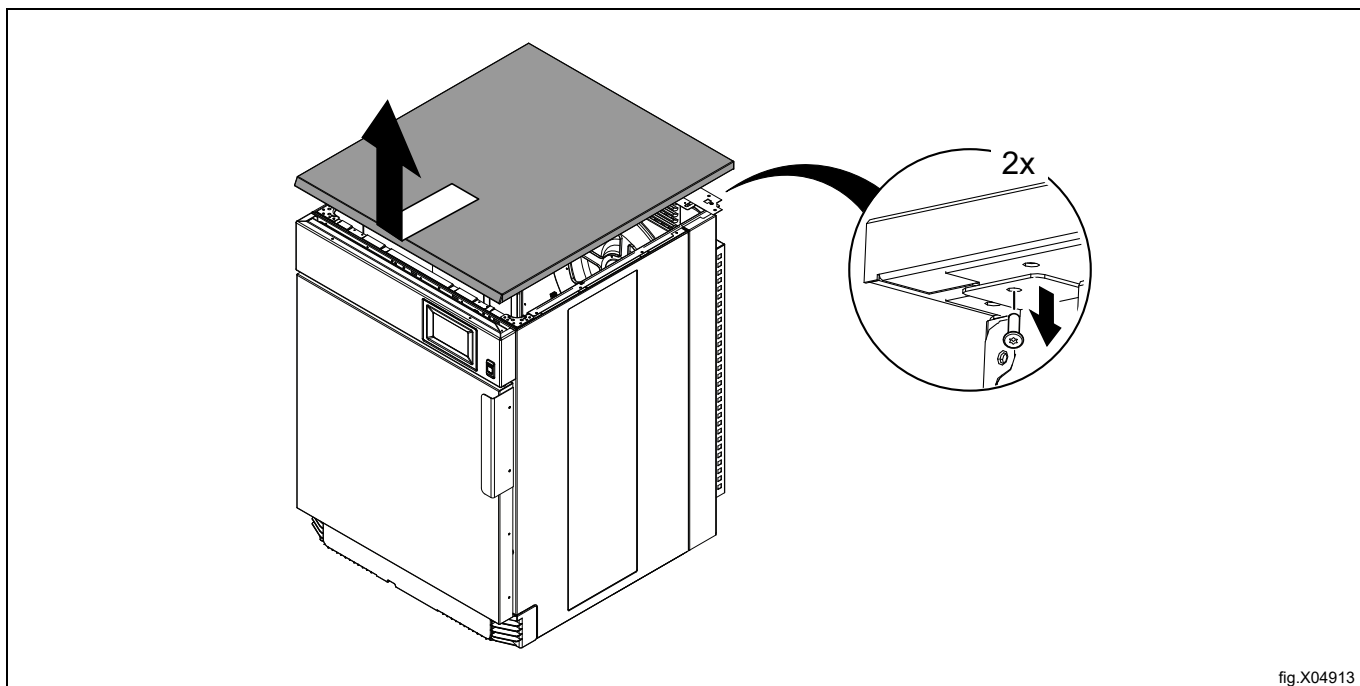


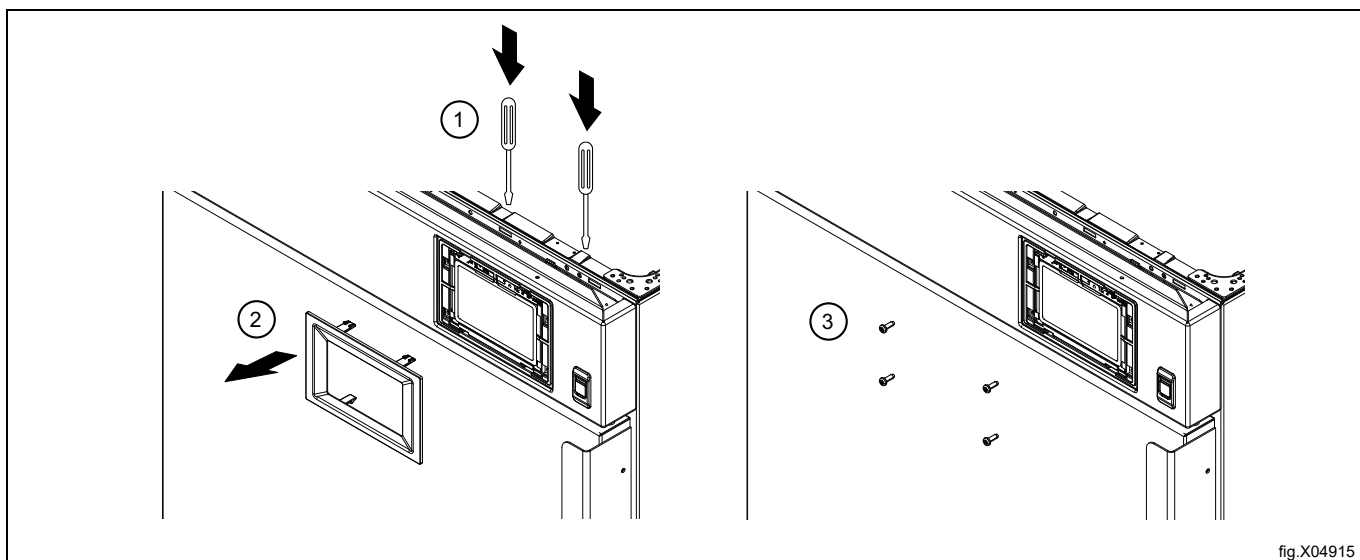
fig.X04923

11.2 Replacement of the control unit

- Disconnect the power to the machine.
- For gas heated machines: Turn off the gas to the machine.
- Demount the top panel.



- Disconnect the cables to the control unit.
- Demount the CPU frame from the control panel by pressing the 2 hooks (1) then pull it out (2).
- Demount the screws (3) to release the control unit from the control panel.



Demount the control unit from inside of the machine.

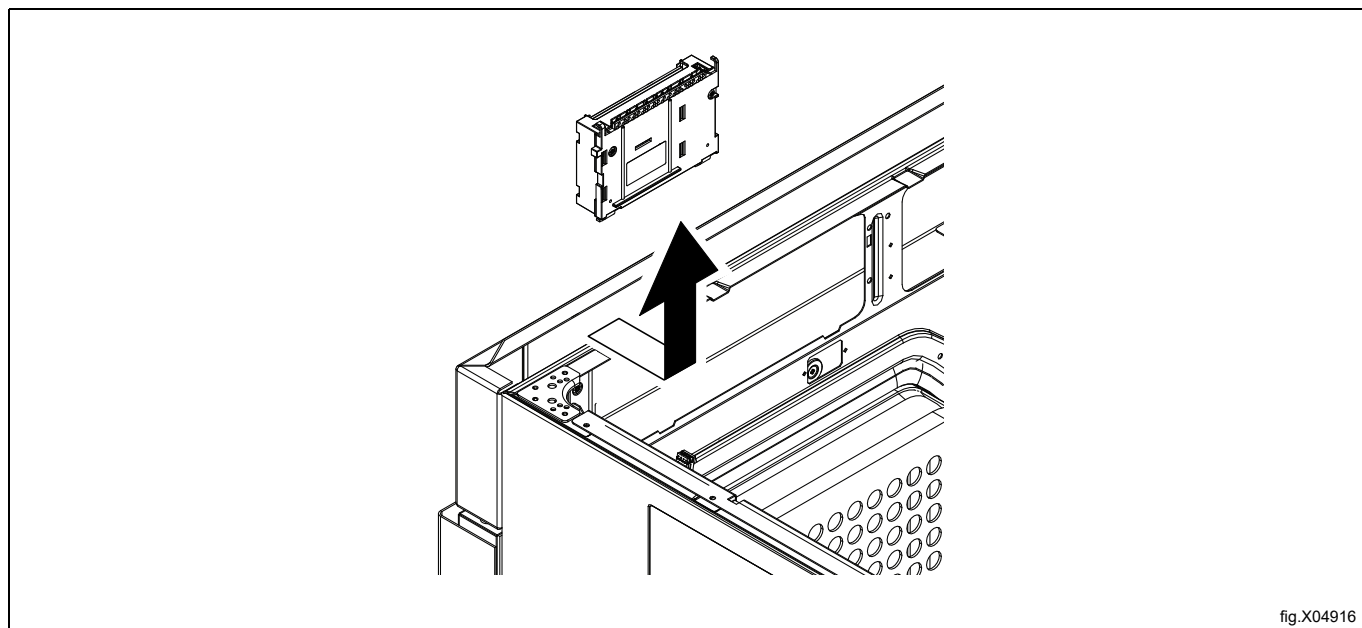


fig.X04916

See the parameter software installed in the machine's control system on delivery. This is specified at the front and back on the machine.

Using this article number, you can find the program designation and thereby identify I/O module function options on the web.

Download the latest software from the web.

Connect the power to the machine.

For gas heated machines: Turn on the gas to the machine.

Use the CST to install the software to the machine.

Set the machine's PNC and serial No. by using the "Set serial number" menu in the CST.

Re-address the I/O board for function options. (e.g. I/O 122j).

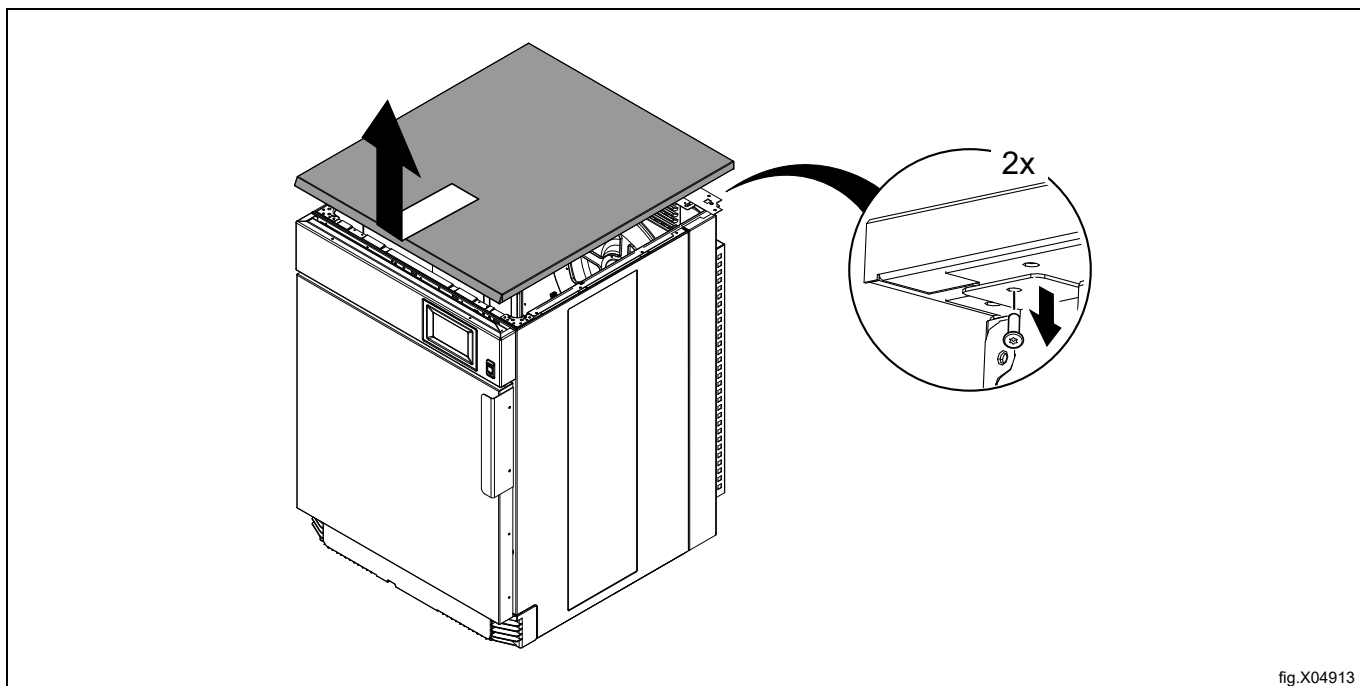
Correct the machine address if it is necessary e.g. the machine is connecting to LMIS system.

Disconnect the power to the machine for a short time and connect it again, to restart the node (Machine interface board) if the machine is connected to connectivity or any IOT boards.

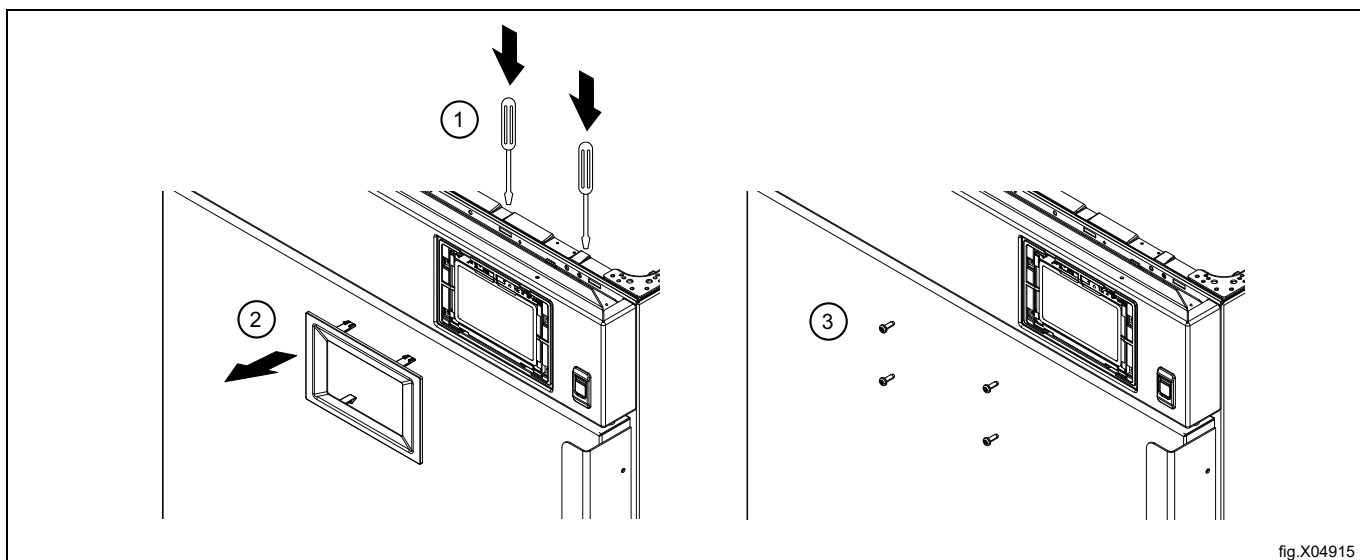
Test run the machine.

11.3 Replacement of the display

- Disconnect the power to the machine.
- For gas heated machines: Turn off the gas to the machine.
- Demount the top panel.



- Disconnect the cables to the control unit.
- Demount the CPU frame from the control panel by pressing the 2 hooks (1) then pull it out (2).
- Demount the screws (3) to release the control unit from the control panel.

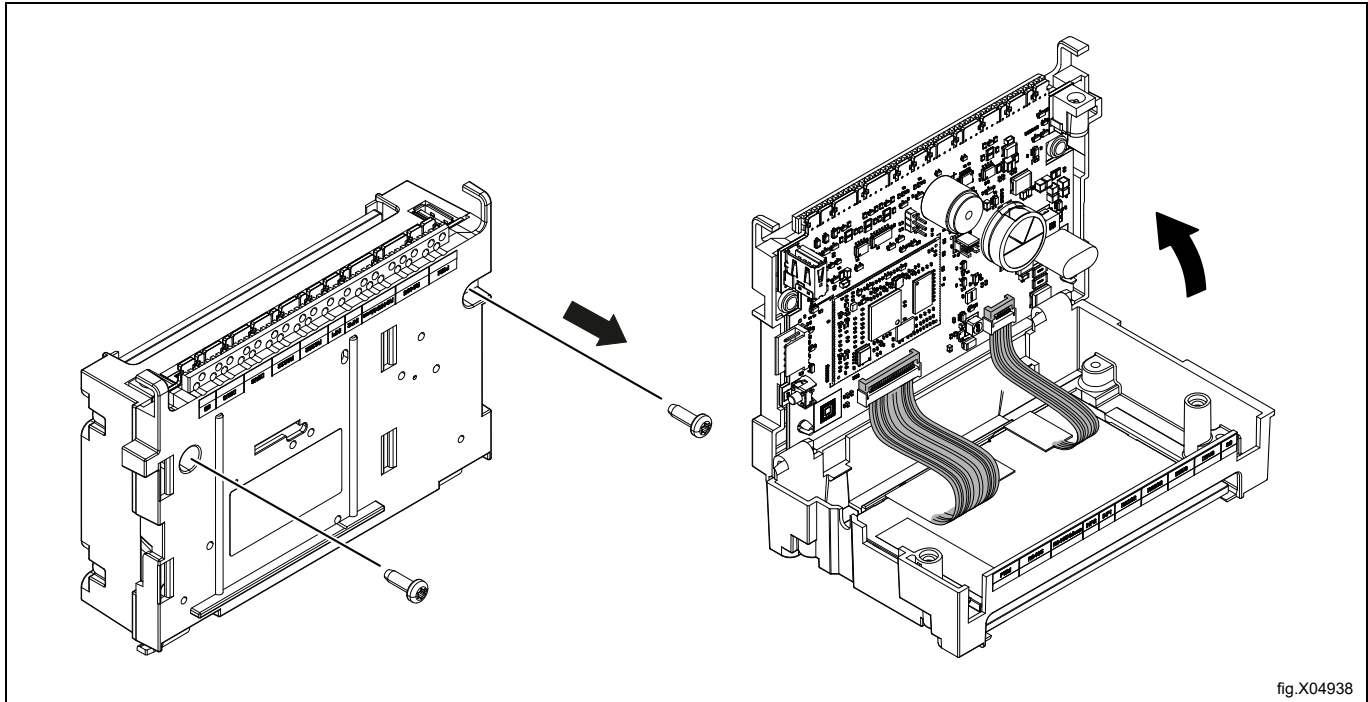


Note!

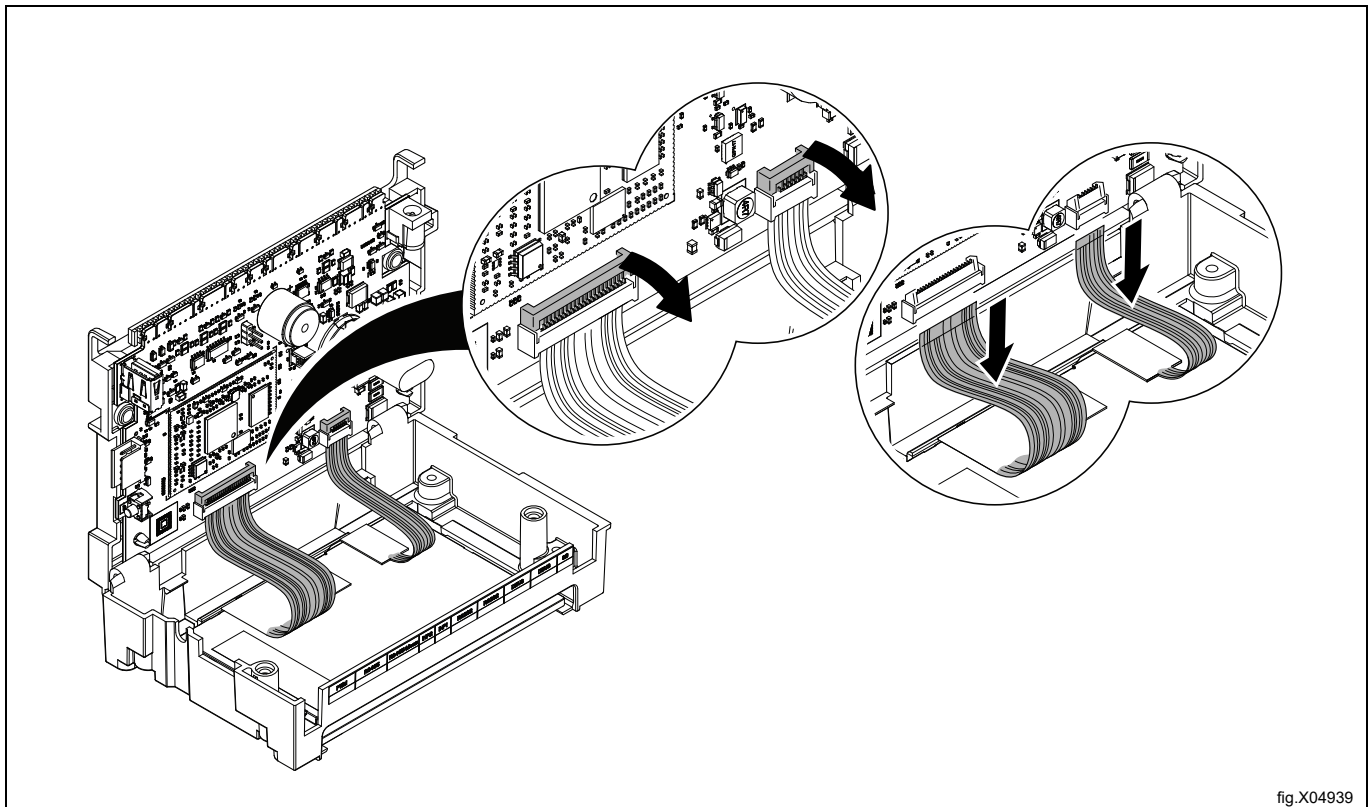
Wristband for ESD protection must be used when handling circuit boards.

Demount the 2 screws on the rear of the control unit.

Open the control unit.



Release the bolt locking levers and then demount the flex cables.



Slide out the defective display and replace it with the new one.

12 I/O modules

The machine can be equipped with either one, two or three I/O modules:

- I/O module type 36 is always installed in the machine at delivery. It controls internal machine functions and outputs to heating, motors etc.
- I/O module type 22 is installed as an option. It controls the external functions and inputs from payment and booking systems etc.

The functionality of I/O module inputs and outputs is depending on the parameter software downloaded to the machine's program device. The function options for the I/O modules are indicated by a letter in the program designation for each module.

Example of a machine ID can be following:

6G81	LG1	EX	EL	TD7-6	136	122J
Library for program	Language group	Brand name	Heating alternative	Model description	First I/O module type 136	First I/O module type 22 with config. J

Machine fitted with two I/O modules

6G82 LG1 EL TD7-6 36O 22J

36O = Function options I/O module type 36 (internal functions).

22J = Function options I/O module type 22 (external functions).

Machine fitted with one I/O module

6G82 LG1 EL TD7-6 36O 22j

36O = Function options I/O module type 36 (internal functions).

22j = The letter that appears in lower case means that the machine is not fitted with I/O module type 22 but the downloaded parameter software is I/O module type 22 enabled.

12.1 Addressing I/O boards

After replacing an I/O board or in instances where an I/O board has been added to the machine, the new I/O board must be addressed in order to activate the function options. (Or after replacing the CPU.)

Addressing the I/O boards one by one by activating the **Service > Add/remove I/O board** menu (a password is needed to continue).

Click on "Add" on the I/O board from the list which shall be addressed, then follow the instructions on the display.

Or click "Delete" if that I/O board shall be removed.

Note!

Addressing I/O board must be done before the machine panel is remounted.

12.2 Connections

I/O module type 36 has the following connections:

Pos	Board connector	Function
1	POW IN	Power In
2	POW OUT	Power out
3	OH IN	Overheating Thermostat Inlet
4	OH OUT	Overheating Thermostat Outlet
5	L.DOOR	Locked door (Reed switch on)
6	DOOR	Door (Reed switch off)
7	VAC	Vacuum switch (For gas & electric heated machines)
8	HEAT	Heating output (For gas, electric & steam heated machines)
9	MOTOR	Drum motor(Clockwise) (Interlock if Drum Speed Control) Drum motor(counter clockwise) Fan motor (Interlock if Adaptive Fan Control)
10	OH DRUM	Overheated Drum motor (If Drum Speed Control is used = jumpered connection)
11	OH FAN	Overheated Fan motor (If Adaptive Fan Control is used = jumpered connection)
12	MOBUS	Heating for heat pump machines
13	D-BUS	Databus communication
14	D-BUS	Databus communication (If Adaptive Fan Control is used)
15	RMC	Residual moisture control
16	INP	Input (Vacuum switch for HP)
17	SB	Start button (Membrane beside the CPU)
18	GAS	Control box for gas heated machines
19	SENSORS OUT	Outlet sensor (NTC-sensor)
19	SENSORS IN	Inlet sensor (PT100)
20	-	Service button/Addressing button

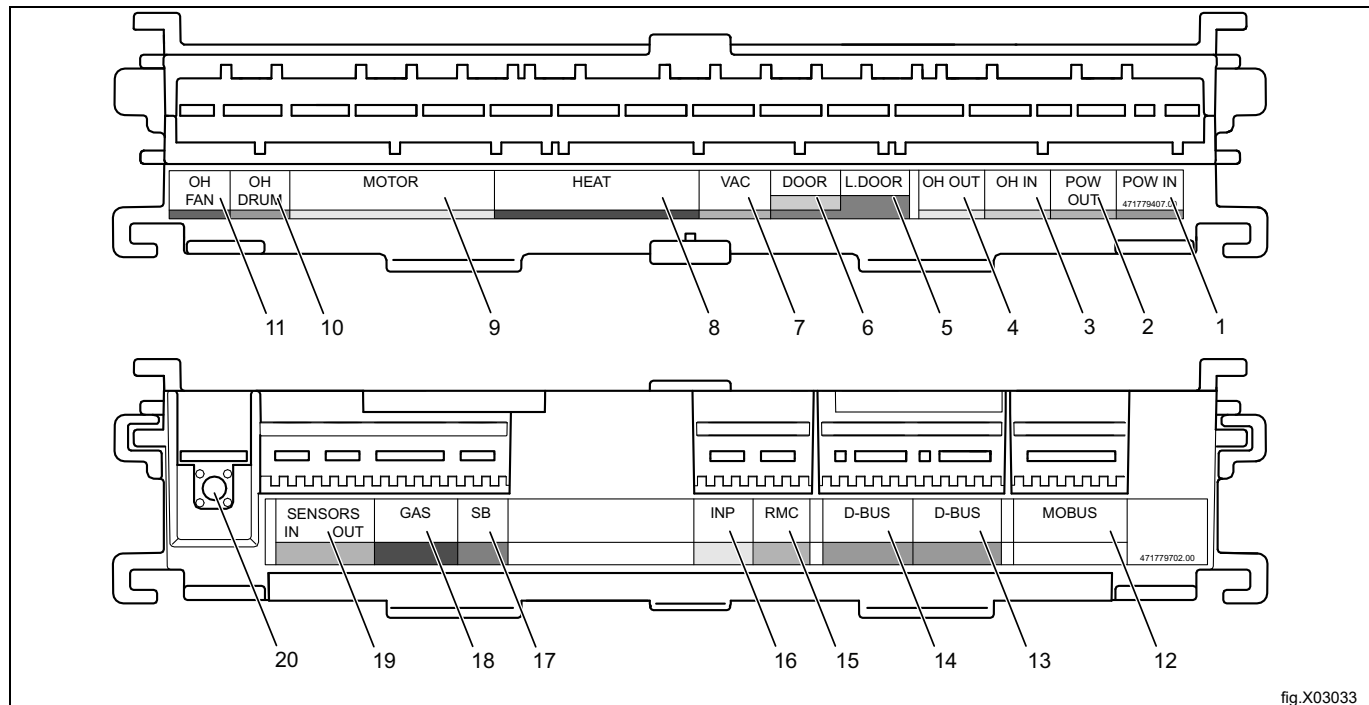


fig.X03033

12.3 Replacement of I/O module

I/O module type 36 and I/O module type 22 are installed in the same way. If the machine has I/O module type 22, it is located on I/O module type 36. The illustration shows replacement of I/O module type 36.

Disconnect the power to the machine.

Demount the top panel.

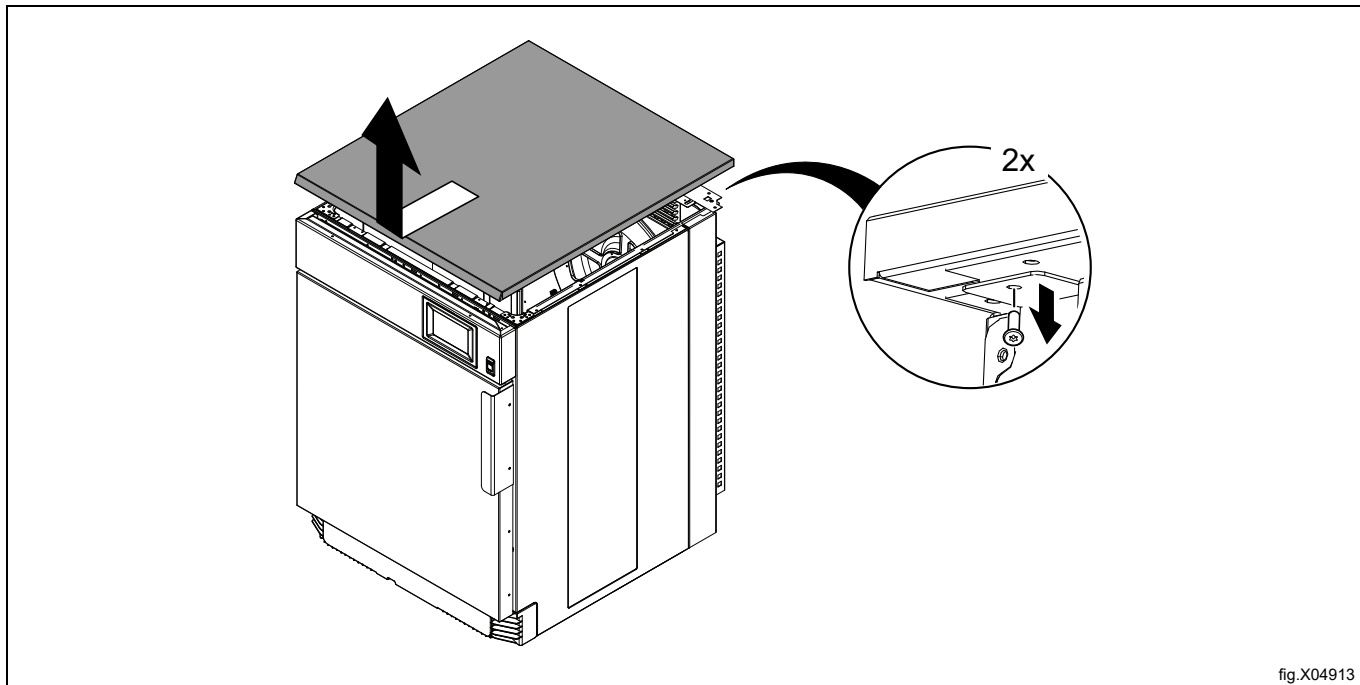


fig.X04913

Remove the plastic cover and the electrical connections on the module. (Note the position of the connections).

Remove the module by lifting it upwards.

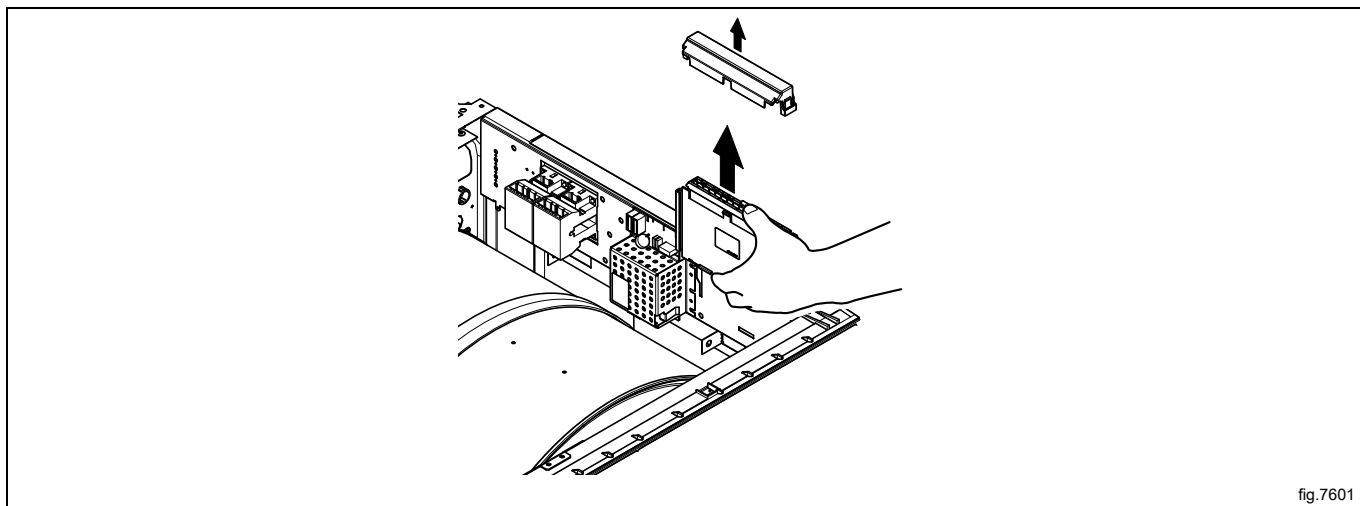
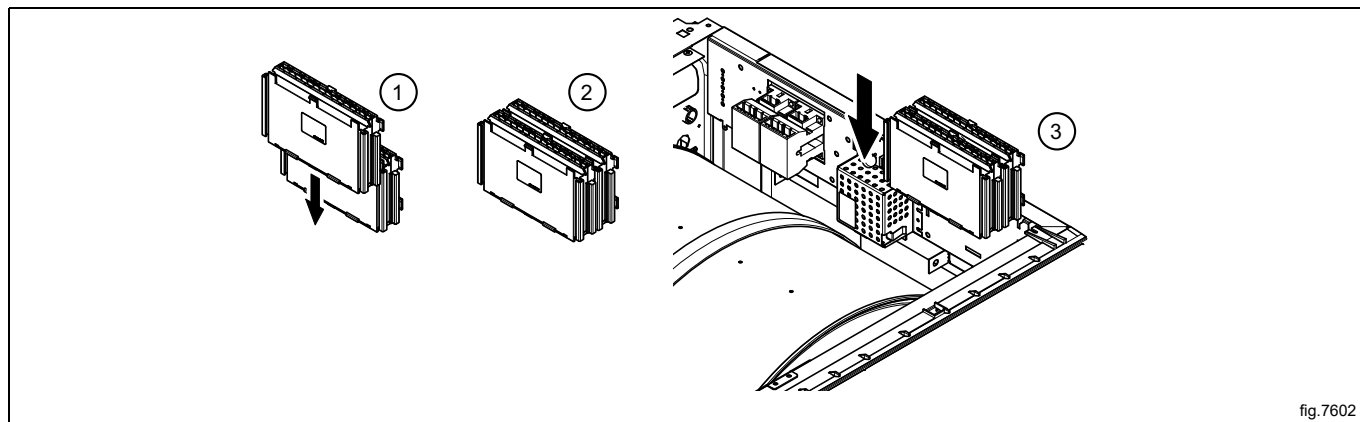


fig.7601

Insert the new module and make sure it is in position.

Connect the electrical connections in the same way as before and mount the plastic cover.

If both I/O module type 36 and I/O module type 22 is to be replaced it is recommended to fit the modules together before mounting in the machine.



Remount the upper rear panel.

Connect the power to the machine.

12.4 Functions for I/O-boards

Depending on machine configuration, the inputs are configured according to the following table:

Connection	
Terminal 5	Enable start
Terminal 6	Remote start /stop
Terminal 7	Coin 1
Terminal 8	Free start

The signal level for the inputs can be either 5-24V DC/AC or 100- 240V AC.

For 5-24V, connect the signal reference to terminal 3 and for 100-240V to terminal 4. The potentials on the inputs cannot be mixed!

The electrical schematic can be one of the following:

12.4.1 Enable start

This signal can be used to permit the start of the program when the machine is in standby.

Once permission to start has been granted, the signal from the central payment or the booking system must remain active (high) during drying. When the signal gets inactive (low) the machine will abort ongoing program and enter cooling.

To receive the feedback signal from the machine, 230V or 24V must be connected to terminal 19. The feedback signal on terminal 18 will remain active (high) during entire program.

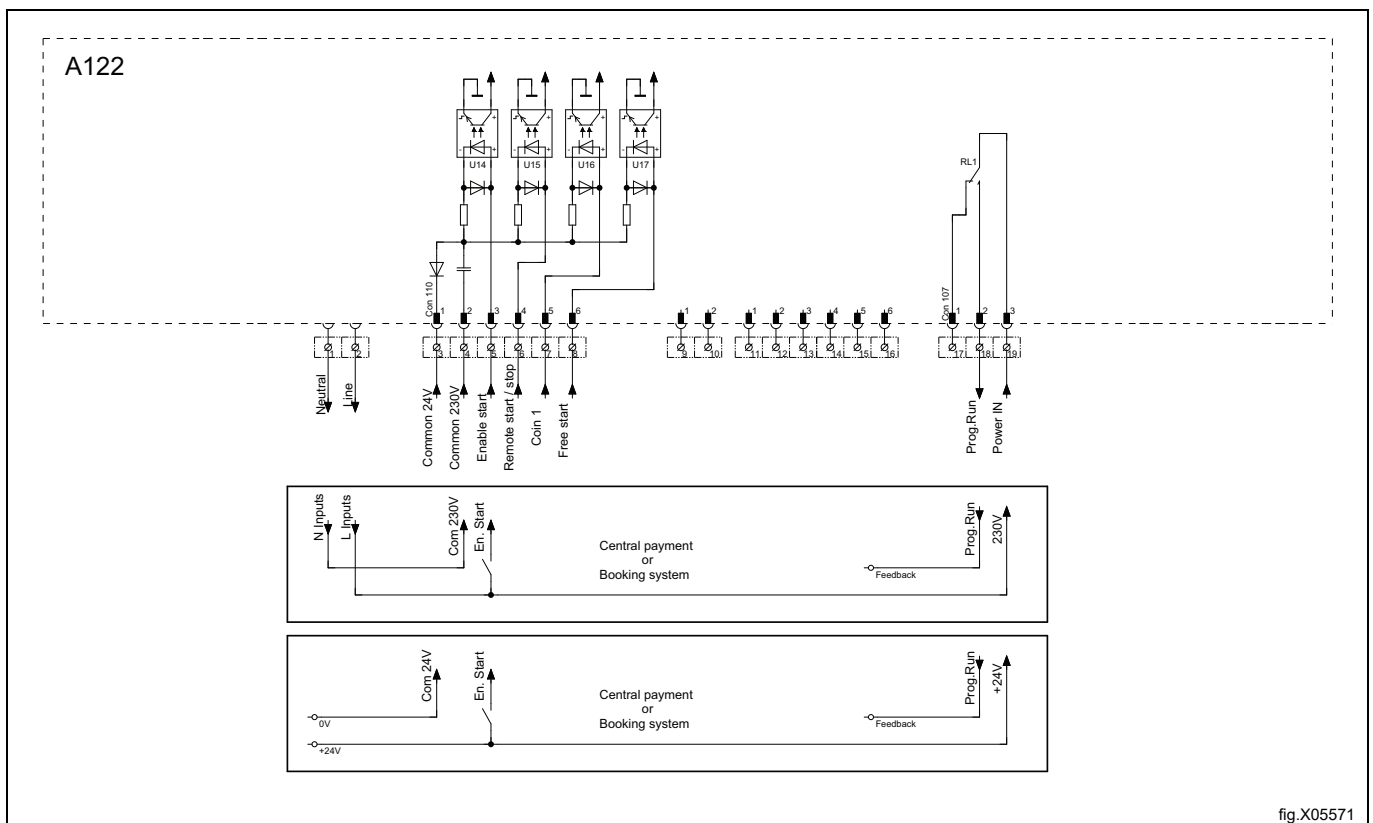


fig.X05571

12.4.2 Remote start/stop

This signal can be used to start the program when the machine is in standby, to pause the cycle when running and to continue the cycle when paused.

The central payment system must provide a pulse 300–3000 ms (500 ms is recommended) to start the program.

To receive the feedback signal from the machine, 230V or 24V must be connected to terminal 19. The feedback signal on terminal 18 will remain active (high) during entire program.

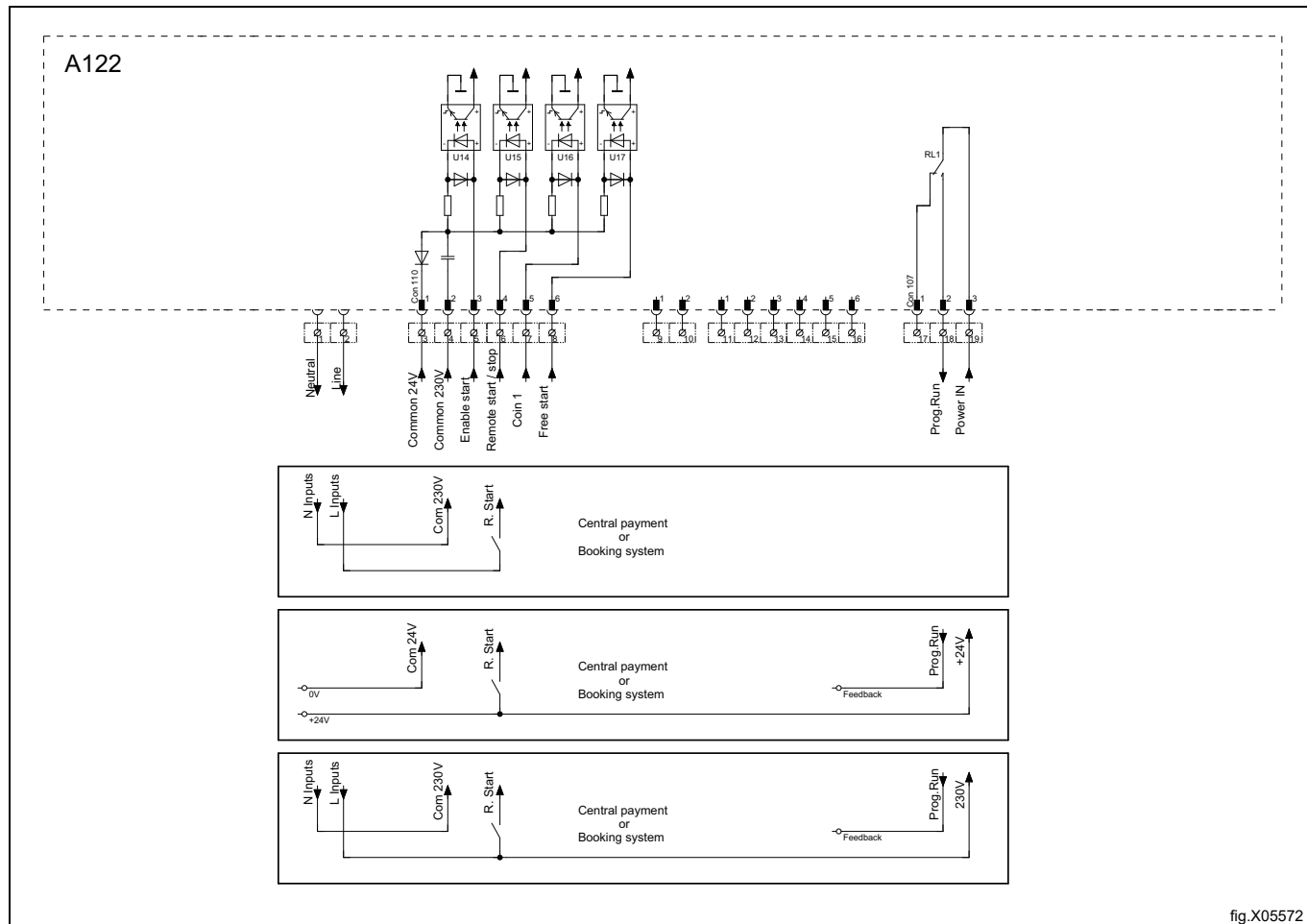
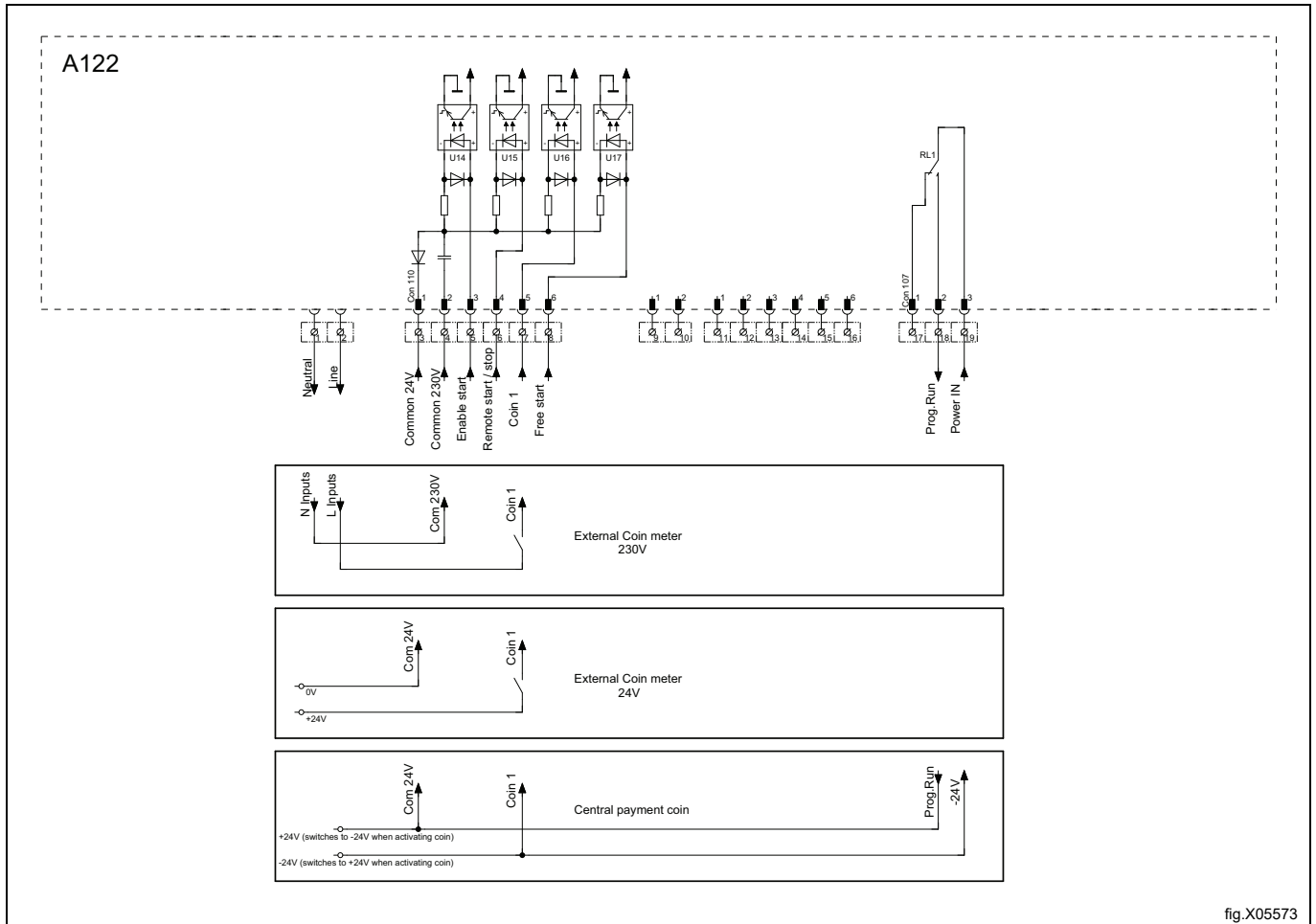


fig.X05572

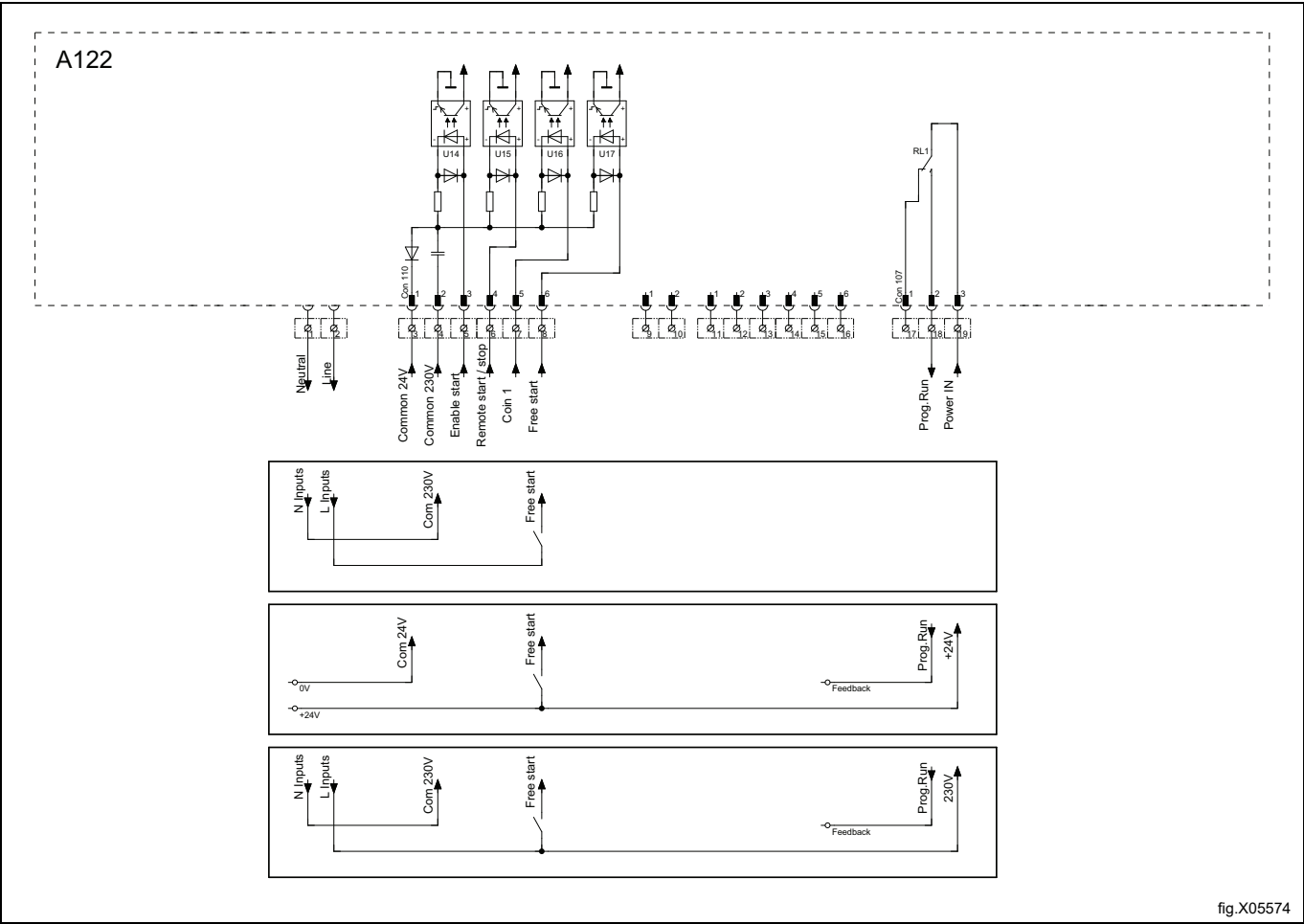
12.4.3 External coin meter/Central payment

The signal received from external coin meter must be a pulse between 300–3000 ms (500 ms is recommended) with a minimum pause of 300 ms (500 ms is recommended) between two pulses.



12.4.4 Free start

This signal can be used to be able to start a program without booking or paying when the machine is connected to a booking or a payment system.



13 UniVibe password

A password is required when you want to access the Main menu.

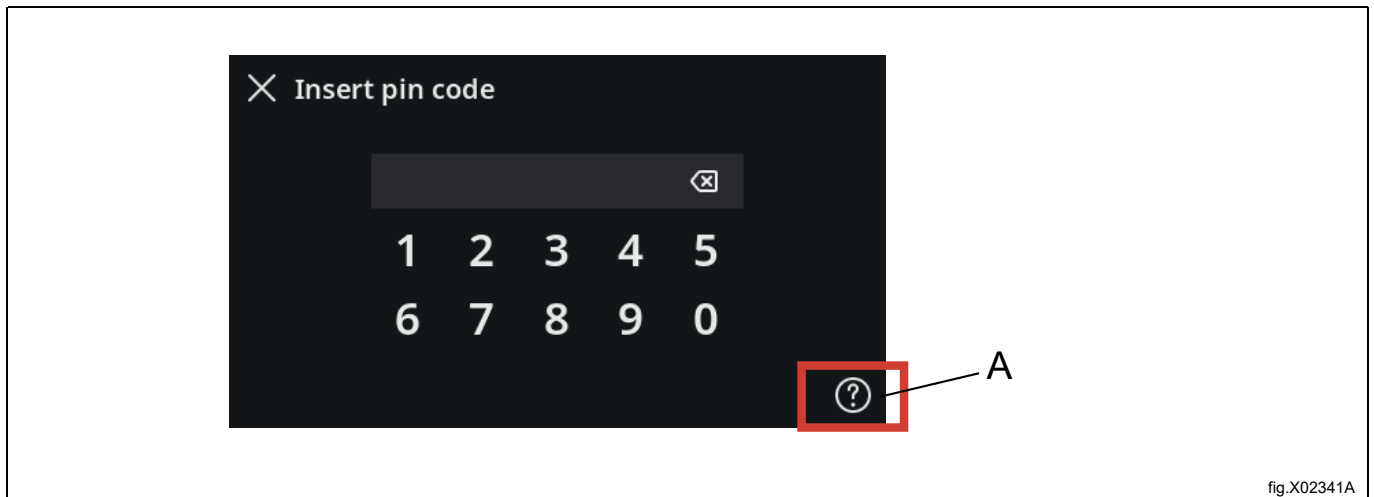
There are different passwords for different levels of access.

Default passwords set from factory are:

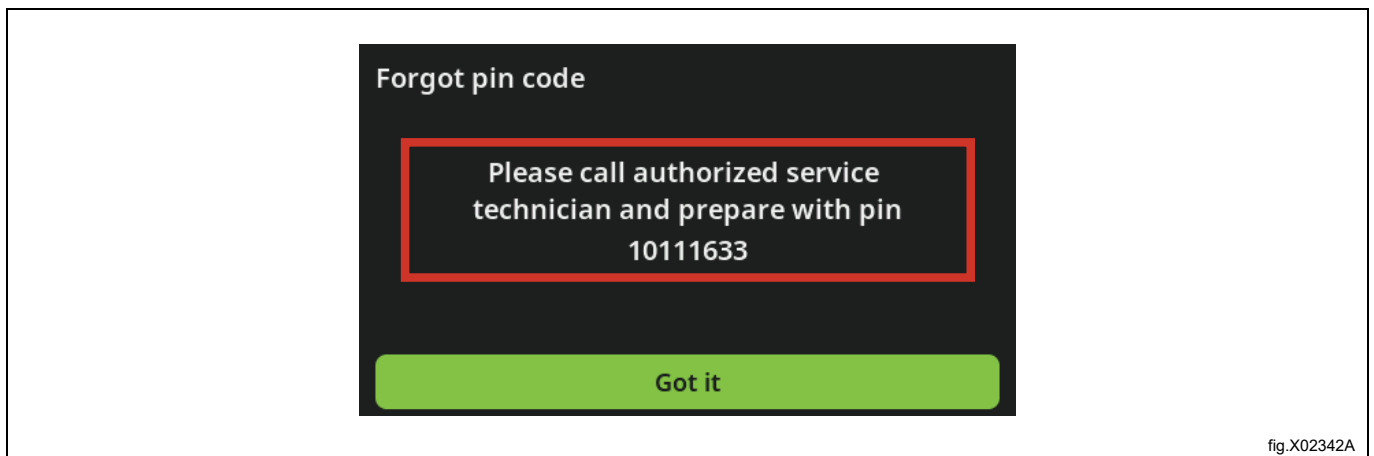
- 0000: Manager: Chemical dosing. Used to edit pump settings.
- 1111: Manager: Used to edit programs, change settings etc.
- 9191: For Service technicians. Used to edit pump settings, check service parameters e.g. inputs/outputs, error logs etc. and see machine product no. including version information's.

The passwords can be changed in Settings menu.

In case you forgot the password, click the question mark icon (A) at the bottom right corner on the display.



Call to authorized service technician and prepare with the pin code on the screen.



The passwords can be reset to default factory passwords by using the Password Generator if you are the authorized service technician.

14 Upgrade the software to the machine (configuration software)

Get to software from website <http://dkx02.electroluxprofessional.com/html/etools/> at “UniVibe Search” section.

Upgrade machine configuration software (g10s) by CST (Common Service Tool)

To upgrade the software, proceed as follows:

- Get the correct configuration software file (g10s) from website.
- Connected USB cable from computer to the UniVibe controller (UI).
- Open the CST then select the g10s file (or directly open g10s file by CST).
- Correct ports “COMx – UniVibe”, follow the instructions on the display.
- Start upload the software to the machine and wait until upgrade completed.
- Re-address the I/O board for function options. (e.g. I/O 122j).
- Correct the machine address if it is necessary e.g. the machine is connecting to LMIS system.
- Disconnect the power to the machine for a short time and connect it again, to restart the node (Machine interface board) if the machine is connected to connectivity or any IOT boards.
- Test run the machine.

15 Trouble shooting

15.1 General

The troubleshooting section is used to trace errors in the machine to a defective component or unit.

There is a memory in the control system that will save the selected program for 10 minutes in the case of power failure. The machine will restart in pause mode if the power is turned on again within this time. For very short power failure (less than 10 seconds) the machine will restart automatically.



Before resetting any error code, always verify and correct the root cause why the error is triggered.



Safety regulations

Troubleshooting may only be carried out by authorised personnel.

Take care during all work on the machine while the power is on.



Take care when measuring the motor control system since all components have a potential difference of approximately 300V in relation to protective earth and neutral. The components will contain dangerous voltages when the green LED on the motor control board is on. The motor control system will remain live for 30-60 seconds after cutting the power to the machine and the motor has stopped running.



Measurements

For information on measuring points, components and voltages, please refer to the electric schematic supplied with the machine.

15.2 Error codes

Error logs allows you to read out vital information about machine error history.

An error in the program or in the machine is indicated on the display by an error code and a descriptive text.

The error codes are divided into different groups called Major comprising different error codes called Minor.

The errors will be displayed as for example 12 : 15 NO VACUUM.

The following is a description of all Major groups in this case Main Dryer followed by a description of each error code. If the machine have a Heat pump as heating alternative the Major group is number 17.

Error code		Text
Major	Minor	
10 MAIN COMMON	1	INTERNAL ERROR CPU TACHO
	11	REAL TIME CLOCK OUT OF ORDER
	13	INITIALIZING FAILED
	15	MACHINE STOP
	16	EMERGENCY STOP

Error code		Text
Major	Minor	
12 MAIN DRYER	1	O.H. THERMOSTAT - INLET AIR
	2	O.H. THERMOSTAT - OUTLET AIR
	3	INLET AIR SENSOR - OPEN
	4	INLET AIR SENSOR - SHORT CIRCUITED
	5	OUTLET AIR SENSOR - OPEN
	6	OUTLET AIR SENSOR - SHORT CIRCUITED
	11	Drying / Drying error with RMC program
	12	Drying / Drying error with Autostop program
	13	DRYING ERROR WITH TIME PROGRAM
	14	Gas error, press gas reset button
	15	No vacuum
	16	Vacuum switch shorted
	17	Airflow / Airflow obstructed, contact responsible
	18	Airflow / Redistribution of load needed
	19	ERROR CLOGGED FILTER CLEAN THE FILTER / CONTACT THE TECH. IF ERROR REMAINS
	20	ANALOGUE AIRFLOW SENSOR IS SHORTED OR NOT CONNECTED
	21	THE VACUUM SWITCH TURN ON/OFF FREQUENTLY
	22	NO AIRFLOW
	253	JUMPER 1
	254	JUMPER 2
	255	JUMPER 3

Error code		Text
Major	Minor	
17 DRYER (Heat Pump with μ PC3 from Carel)	20	HEAT PUMP CRITICAL ERROR
	21	HEAT PUMP INTERNAL ERROR
	22	LOST HEAT PUMP COMMUNICATION
	23	NO HEAT PUMP COMMUNICATION
	24	HEAT PUMP FW MISMATCH
	25	HEAT PUMP FW VERSION MISMATCH

Error code		Text
Major	Minor	
20 DRUM MOTOR COMMON	1	Motor / Overheat drum motor
	2	NO MOTOR COMMUNINCATION
	3	LOST MOTOR COMMUNICATION

Error code		Text
Major	Minor	
30 FAN MOTOR COMMON	1	Motor / Overheat fan motor
	2	NO MOTOR COMMUNICATION
	3	LOST MOTOR COMMUNICATION

Error code		Text
Major	Minor	
40 INTERNAL COM.	1-10	I/O INTERLOCK Axxx
	11-20	I/O COMMUNICATION Axxx
	22	I/O BOARD MISMATCH

Error code		Text
Major	Minor	
51 EXTERNAL COM. PAYMENT	22	NO CBT COMMUNICATION PRESS TO RETRY

Error code		Text
Major	Minor	
52 EXTERNAL COM. MIS	1	CMIS COMMUNICATION ERROR

Error code		Text
Major	Minor	
60 INTERNAL	5	FATAL ERROR INVALID RUNNING MODE
	11	FATAL ERROR EXTERNAL FLASH WRITE
	17	FATAL ERROR INVALID OPTION
	18	FATAL ERROR INVALID MODULE
	28	FATAL ERROR INVALID COIN INPUT
	29	FATAL ERROR INVALID FONT

15.3 Description of error codes and causes

MAIN COMMON

10:1 INTERNAL ERROR CPU TACHO

Tacho input on CPU delivers values that is out of range.

Recommended actions:

1. Run motor on highest possible speed in service mode. Check input value for RPM speed.
2. Replace defective component.

10:11 REAL TIME CLOCK OUT OF ORDER

The real time clock is used by the control system for delayed start, measuring time, power failure, error codes, etc.

Upon power on, the communication with the internal real time clock in the control system is established. In case this fails, this error occurs

Recommended actions:

1. Power off the machine for 1 minute and try again.

10:13 INITIALIZATION FAILED

The error code is shown if the hardware initialization has failed to initialize within 15 seconds after power on.

Recommended actions:

1. Press the control knob/start button to retry.
2. Upload a new software that matches the machine configuration and try again.

10:15 MACHINE STOP

This message is shown if input for `MACHINE STOP` is activated.

This is not an error code but is handled in the same way.

Recommended actions:

1. Reset the Machine Stop Button.
2. Press the control knob to confirm machine stop. Machine will revert to Idle mode.

10:16 EMERGENCY STOP

This message is shown if input for `EMERGENCY STOP` is activated. This is not an error code but is handled in the same way.

Recommended actions:

1. Reset the Emergency Stop Button.
2. Press the control knob to confirm emergency stop. Machine will revert to Idle mode.

MAIN DRYER

12:1 O.H. THERMOSTAT - INLET AIR

This error code is shown if the input O.H. INLET AIR is deactivated.

Normally this is due to that protection thermostat for inlet air has triggered due to overheating.

The overheating thermostat for inlet air needs to be mechanically restored.

Cut power and turn off gas supply (if gas heated) and check contactors/heat relays before restoring the thermostat.

When the overheating thermostat for inlet air has been restored and the machine is powered up again, the error code is cleared automatically.

The error code can be triggered if:

- The inlet air sensor has stopped operating correctly.
- The fan has stopped operating.
- The airflow is obstructed, by lint, overload, etc.
- The contactor or heat relay has got welded.

If the overheating thermostat for inlet air is not triggered, but there still is an error code:

1. Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:2 O.H. THERMOSTAT - OUTLET AIR

This error code is shown if the input O.H. OUTLET AIR is deactivated.

Normally this is due to that protection thermostat for outlet air has triggered due to overheating.

The overheating thermostat for outlet air needs to be mechanically restored.

Cut power and turn off gas supply (if gas heated) and check contactors/heat relays before restoring the thermostat.

When the overheating thermostat for outlet air has been restored and the machine is powered up again, the error code is cleared automatically.

The error code can be triggered if:

- The outlet air sensor has stopped operating correctly.
- The contactor or heat relay has got welded.

If the overheating thermostat for outlet air is not triggered, but there is still an error code:

1. Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:3 INLET AIR SENSOR - OPEN

The error code is shown if the analog input INLET AIR TEMP (PT100) is reading a resistance of more than approximately 185 Ω . Probably caused by broken PT100 sensor or wiring.

If the inlet air temperature in the `SHOW INPUTS` menu show a temperature of 222°C the inlet air sensor is considered open.

When the inlet air sensor is restored the error code is automatically reset and the ongoing program will continue.

A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error code can be triggered if:

- The sensor, harness or connector is broken. The sensor shall measure around 110 Ω in room temperature, see table. (Measure direct over the sensor connectors).

If the measure of inlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

Temp - Sensor resistance

0°C / 32°F - 100 Ω

20°C / 68°F - 107 Ω

30°C / 86°F - 112 Ω

200°C / 392°F - 176 Ω

12:4 INLET AIR SENSOR - SHORT-CIRCUITED

The error code is shown if the analog input INLET AIR TEMP (PT100) is reading a resistance of less than 100 Ω . Probably caused by broken PT100 sensor or damaged wiring.

If the inlet air temperature in the `SHOW INPUTS` menu show a temperature of 0°C the inlet air sensor is shorted.

When the inlet air sensor is restored the error code is automatically reset and the ongoing program will continue.

A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error can be triggered if:

- The sensor, harness or connector is shorted. The sensor shall measure around 110 Ω in room temperature, see table. (Measure direct over the sensor connectors).

If the measure of inlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

Temp - Sensor resistance

0°C / 32°F - 100 Ω

20°C / 68°F - 107 Ω

30°C / 86°F - 112 Ω

200°C / 392°F - 176 Ω

12:5 OUTLET AIR SENSOR - OPEN

The error code is shown if the analog input OUTLET AIR TEMP (NTC) is reading a resistance of more than approximately 26.7 k Ω . Probably caused by broken NTC sensor or wiring.

If the outlet air temperature in the `SHOW INPUTS` menu shows a temperature of -10°C the outlet air sensor is open.

When the outlet air sensor is restored the error code is automatically reset and the ongoing program will continue.

A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error code can be triggered if:

- The sensor, harness or connector is broken. The sensor shall measure around 5 k Ω in room temperature, see table. (Measure direct over the sensor).

If the measure of outlet air is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

Temp - Sensor resistance

-10°C - 26.7 k Ω

15°C - 7.6 k Ω

20°C - 6.0 k Ω

25°C - 4.8 k Ω

30°C - 3.9 k Ω

100°C - 0.33 k Ω

12:6 OUTLET AIR SENSOR - SHORT-CIRCUITED

The error code is shown if the analog input OULET AIR TEMP (NTC) is reading a resistance of less than 330 Ω . Probably caused by broken NTC sensor or damaged wiring.

If the outlet air temperature in the `SHOW INPUTS` menu shows a temperature of 100°C the outlet air sensor is shorted. When the outlet air sensor is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error code can be triggered if:

- The sensor, harness or connector is broken. The sensor shall measure around 5 k Ω in room temperature, see table. (Measure direct over the sensor).

If the measure of outlet air sensor is OK, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

Temp - Sensor resistance

-10°C - 26.7 k Ω

15°C - 7.6 k Ω

20°C - 6.0 k Ω

25°C - 4.8 k Ω

30°C - 3.9 k Ω

100°C - 0.33 k Ω

12:11 Drying / Drying error with RMC program

The error code is shown if the analog input RMC does not register the STOP VALUE FOR RMC PROGRAM reached within the maximum drying time (normally 90 minutes). When the error is triggered the machine will automatically go to the cooling module before the program ends.

The program is ended and the error code is reset by opening the door.

If the clothes are still wet after maximum drying time and the dryer is not overloaded, check that the heating system is working correct by using the `ACTIVATE OUTPUTS` menu when the machine is in service mode.

Note!

Make sure that the fan is active before turning on the heat.

If the clothes are dry, check the RMC system and harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

RMC value no load = 0%

RMC value 100 k Ω between lifter and drum = approximately 24% (Putting your hand over the lifter onto the drum will result in approximately 20% RMC value).

RMC value system short circuit = 50%

12:12 Drying / Drying error with Autostop program

The error code is shown if the analog input OULET AIR TEMP (NTC) does not register the STOP VALUE FOR AUTOSTOP PROGRAM reached within the maximum drying time (normally 90 minutes).

When the error is triggered the machine will automatically go to the cooling module before the program ends.

The program is ended and the error code is reset by opening the door.

If the clothes are still wet after maximum drying time and the dryer is not overloaded, check that the heating system is working correct by using the `ACTIVATE OUTPUTS` menu when the machine is in service mode.

Note!

Make sure that the fan is active before turning on the heat.

If the clothes are dry, check the outlet air sensor and harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:13 DRYING ERROR WITH TIME PROGRAM

The error code is shown if a time program has continued longer than the maximum drying time (normally 90 minutes) without the door has been opened.

When the error is triggered the machine will automatically go to the cooling module before the program ends.

The program is ended and the error code is reset by opening the door.

12:14 Gas error, press gas reset button

The error code is shown if input GAS ERROR is activated. This means that no flame has been detected by the gas control box.

The metal probe of the flame sensor generates an electrical current when exposed to the burner's flame. This signal is detected by the ignition control module which, in turn, cuts off the gas valve immediately if the sensor does not indicate flame within 3 attempts at each 10 seconds. The integrity of the sensor's electrical connection is, therefore, critical to proper operation of this system. When the gas control box is in error mode, a red LED is active on the gas control box. The gas control box also triggers input GAS ERROR on the control system, which generates the error code.

The control system sends a reset signal to the gas control box via output GAS ERROR RESET by a short press on the control knob/start/pause button or service button (depending on market and segment). When the gas control box receives a reset command it removes the error. The control system will automatically restart the program when the error is removed from the gas control box and when heat is allowed (vacuum needed) the gas control box will try to ignite the gas again.

A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The gas error can also be reset at the gas control box. The machine will automatically restart when the error is restored.

The error code can be triggered if:

- The gas control box fails to ignite. Check the gas supply and nozzle pressure.
- If the gas control box does not have a gas error but the control system does, check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:15 No vacuum

The error code is shown if the input VACUUM is not activated within set time in parameter `TIMEOUT VACUUM`.

The error code is reset from the control system by a short press on the control knob/start/pause button. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The time is defined in Config. 1 parameter `TIMEOUT VACUUM`.

The error code can be triggered if:

- The fan is not operating or blows in the wrong direction.
- The airflow is obstructed. (Cleaning of evacuation channel/chimney and air flaps).
- The vacuum switch sensor or hose is disconnected.
- The lint drawer is open, etc.

Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` and `ACTIVATE OUTPUTS` menus when the machine is in service mode.

12:16 Vacuum switch shorted

The error code is shown if the input VACUUM was already activated when a program was started.

The error code is reset from the control system by a short press on the control knob/start/pause button. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

Recommended actions:

1. Check the vacuum switch/pressure sensor, harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:17 Airflow / Airflow obstructed, contact responsible

The error code is shown if input INTERNAL FILTER is activated.

The error code can be triggered by clogged internal filter, damaged vacuum switch or harness.

Recommended actions:

1. Check and clean internal filters, see Maintenance manual.
2. Check the harness, connectors and functions by reading the electrical schematic and by using the SHOW INPUTS menu when the machine is in service mode.
3. If permanent, clean the heat pump box.

12:18 Airflow / Redistribution of load needed

The error code is shown if the input VACUUM has deactivated several times during program run and the function to handle vacuum error during program run has failed to recreate vacuum in the machine. The error code is reset from the control system by a short press on the control knob/start/pause button. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error code can be triggered if the load is blocking the airflow, or if lint screen or airflow path is partly blocked.

Recommended actions:

1. Check the load and redistribute it in the drum.
2. Check the lint screen and remove lint.

If problem persists:

- Check and clean internal and external air flow paths.

12:19 ERROR CLOGGED FILTER CLEAN THE FILTER / CONTACT THE TECH.IF ERROR REMAINS

This error is triggered if the airflow inside the machine doesn't enough to complete drying cycle.

Error can be triggered by mostly by clogged filter, or air blockage in the heat pump unit.

Recommended action:

1. Check and clean internal filters, see maintenance manual, replace if necessary.
2. If permanent, clean the heat pump unit.

12:20 ANALOGUE AIRFLOW SENSOR IS SHORTED OR NOT CONNECTED

The error code is shown if the analog airflow sensor reading value more than the maximum range "500 pascal".

Probably caused by broken sensor or damaged wiring.

1. Check or replace the harnesses.
2. Check or replace the sensor.

12:21 THE VACUUM SWITCH TURN ON/OFF FREQUENTLY

This error code is shown because the vacuum switch toggles between ON & OFF many times during a certain time.

1. Check the installation of the exhaust pipe, that there is proper air flow and right installation, check the air flow according to the installation manual.
2. Check the harness and connectors between the I/O board and the vacuum switch.
3. Check the position of the vacuum switch and air pipes.

12:22 NO AIRFLOW

The error code is shown if the analog airflow sensor isn't detecting any airflow at the start of a program.

1. Check that the fan and airflow sensor are functional.
2. Make sure there are not any obstructions in air flow channels.

12:253 JUMPER 1

The error code is shown if input JUMPER 1 is not activated.

Jumpers are a by-pass of inputs not used in the machine. How many jumpers used is depending on configuration.

When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

Recommended actions:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:254 JUMPER 2

The error code is shown if input JUMPER 2 is not activated.

Jumpers are a by-pass of input not used in the machine. How many jumpers used is depending on configuration.

When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

Recommended actions:

1. Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

12:255 JUMPER 3

The error code is shown if input JUMPER 3 is not activated.

Jumpers are a by-pass of input not used in the machine. How many jumpers used is depending on configuration.

When the jumper is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

Recommended actions:

1. Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

HEAT PUMP

For more detailed information about the error codes for the heat pump, please refer to the section: Error handling of the heat pump unit.

17:20 HEAT PUMP CRITICAL ERROR

The heat pump "Carel µPC3 controller" reports high severity error(s) which can damage the heat pump system.

This error code is shown with a minor error code ALxxx. Please refer to the section "Error handling of the heat pump unit" for more information.

17:21 HEAT PUMP INTERNAL ERROR

The heat pump "Carel µPC3 controller" reports Normal severity error(s) which can be reset by the user.

This error code is shown with a minor error code ALxxx. Please refer to the section "Error handling of the heat pump unit" for more information.

17:22 LOST HEAT PUMP COMMUNICATION

The communication over modbus "RS485" with the heat pump lost during the normal operation.

Possible causes:

- Faulty connector/cable between I/O16 <=> µPC3 or Compass Pro <=> I/O16.
- Faulty I/O16.
- Faulty µPC3.
- Faulty Compass Pro.

Recommended actions:

1. Check the I/O16 functionality and communication cables.
2. Check the Carel µPC3 functionality and green LED should be blinking.
3. Restart the machine.

17:23 NO HEAT PUMP COMMUNICATION

The communication over modbus "RS485" with the heat pump didn't initialize correctly during the bootup:

Possible causes:

- Faulty connector/cable between I/O16 <=> µPC3 or Compass Pro <=> I/O16.
- Faulty I/O16.
- Faulty µPC3.
- Faulty Compass Pro.

Recommended actions:

1. Check the I/O16 functionality and communication cables.
2. Check the Carel µPC3 functionality and green LED should be blinking.
3. Restart the machine.

17:24 HEAT PUMP FW MISMATCH

The software inside the µPC3 is different from heat pump compressor type.

Possible causes:

- For some reason, for example: Receiving new µPC3 for replacement and it still has the original software which is not compatible with the compressor.

Recommended actions:

1. Go to the service menu and trigger H . P . SW UPGRADE.
2. Replace the µPC3 with compatible one.

17:25 HEAT PUMP FW VERSION MISMATCH

The version of the µPC3 firmware is not supported with the current Compass Pro firmware.

Recommended actions:

1. Upgrade both µPC3 firmware and Compass Pro firmware with latest available.

DRUM MOTOR COMMON

20:1 Motor / Overheat drum motor

This error code will be shown if the control system detects that the input OH DRUM MOTOR is deactivated during program run.

The overheating protection is automatically restored. When the overheating protection is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and ongoing program will be ended.

The error code can be triggered if:

1. The motor is very warm. Check that the vent holes in the motor are not covered.

If the overheating protection is not triggered, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

20:2 NO MOTOR COMMUNICATION

This error code occurs if the first message sent from the CPU to the inverter was not replied to during start up.

Recommended actions:

1. Check that there is power reaching the inverter. Check the fuses in the protection cable. If one of the components in the protection cable is damaged, the cable must be replaced.
2. Check that the green power indication LED on the inverter is on. The LED can be seen by looking down by the inverter edge connections.
3. Check that the communication cable between the CPU board and the inverter is intact and not damaged. Measure also with a reference instrument to see whether there is contact between all the leads in the communication cable.

20:3 LOST MOTOR COMMUNICATION

This error code occurs if the communication between the CPU and the inverter has stopped working.

Recommended actions:

1. Check that there is power reaching the inverter. Check the fuses in the protection cable. If one of the components in the protection cable is damaged, the cable must be replaced.
2. Check that the indicator LED on the inverter is on. The LED can be seen by looking down by the inverter edge connections.
3. Check that the communication cable between the CPU board and the inverter is intact and not damaged. Measure also with a reference instrument to see whether there is contact between all the leads in the communication cable.

INVERTER CONTROLLED DRUM MOTOR

23:1 HEATSINK TOO HOT

This error code is generated by the inverter for drum motor.

There is a temperature sensor (NTC) mounted on the inverter cooling flange next to the power transistors in the output stage. If the temperature of the cooling flange gets too high ($> 100^{\circ}\text{C}$) the error code will be set to protect the transistors.

The cause of high cooling flange temperature can be e.g. a stiff drum in combination with intensive use and high ambient temperature. There may also be an error in the motor (sticking bearings or short circuit in windings, which impairs the efficiency of the motor). When temperature has decreased below 85°C , the error can be reset on the control knob/start/pause button.

Recommended actions:

1. Check that the drum can be rotated easily.
2. Check the value on the error code counter for the error code.
3. Check the last 8 inverter error codes.
4. Start a 90°C normal program with load on continuous operation and measure the temperature of the motor and inverter.
5. Replace the defective part.

23:2 MOTOR TOO HOT

This error code is generated by the inverter for the drum motor.

The inverter monitors the motor temperature in two ways.

1. The inverter calculates the motor winding resistance by measuring current and voltage. The winding resistance can then be converted to a temperature, since the winding resistance at 20°C and the temperature coefficient are known. If the average value of the four latest temperature readings is higher than the maximum motor temperature (e.g. 130°C), the error code will be shown. When temperature has decreased below 130°C , the error can be reset on the control knob/start/pause button.
2. The inverter monitors the input from motor overheat protection. If this input is open circuit, the error will be shown. When input is closed again, the error can be reset on the control knob/start/pause button.

Possible causes:

- The cause of high motor temperature can be a stiff drum, possibly in combination with intensive use and high ambient temperature. There may also be an error in the motor (sticking bearings or short circuit in windings, which impairs the efficiency of the motor). There could also be a contact error in the connectors between the inverter and the motor or an error in the motor cable. An error in inverter temperature measurement circuits can also occur.

Recommended actions:

- Check that the drum can be rotated easily.
- Check the status of motor over heat protection.
- Check the value on the error code counter for the error code.
- Check the last 8 inverter error codes.
- Measure the three phases to the phase resistors on the inverter motor connector (disconnect inverter and take the reading in the cable connector) to make sure they are the same.
- Start a 90°C normal program with load on continuous operation and measure the temperature of the motor and inverter.
- Replace the defective part.

23:3 NO INTERLOCK

This error code is generated by the inverter for drum motor.

The inverter must be powered with 230V / 50 or 60 Hz on the interlock input in order to drive the motor. This signal is a confirmation that the door is closed and locked.

The inverter receives its commands to rotate the drum from the CPU via a serial communication link between the inverter and the CPU. Since the CPU also has access to the interlock signal, the CPU must never send a run command to the inverter if the interlock signal is missing. If this does happen, this error code will be shown.

Possible causes:

- The cause of this error code being activated can be e.g. a break in the cable leading the interlock signal to the inverter.
- There may also be an error in the connector in the door lock, which connects 230V / 50 Hz to the interlock signal. An error in the interlock circuits of the inverter can also set this error code.

Recommended actions:

1. Use a multimeter to check that there is 230V present on the inverter interlock input when the door lock is activated.
Read also bit 1 in the second byte under `INVERTER STATUS` in the service program (the bits are numbered from 0 to 7 where bit 0 is on the far right). If bit 1 in the second byte is 1 then the lock is open, while a 0 indicates that the lock is closed.
2. Replace the defective part.

23:4 NO MOTOR COMMUNICATION

This error code is generated by the inverter for drum motor.

The inverter detects that there is a problem in communication with CPU.

Possible causes:

- Bad contact in harness or connectors between CPU and inverter.

Recommended actions:

1. Check wiring, connections between CPU and inverter.

23:5 MOTOR SHORT CIRCUIT

This error code is generated by the inverter for drum motor.

The inverter reads the power consumption of the motor continuously. If the current for some reason exceeds a predetermined limit, the inverter will cut the current to the motor, and the error code will be shown.

Possible causes:

- This error code can be activated for a number of reasons:
 - Short circuit in motor. Measure motor windings with a motor tester.
 - Short circuit internally in motor winding (impaired efficiency, higher current consumption).
 - Short circuit in motor cables.
 - Short circuit in connectors.
 - Drops of water causing short circuits in the motor connector.
 - Short circuit in the inverter output transistors.
 - Bad contact in interlock signal.

Recommended actions:

1. If the error is a stable one, it is generally not difficult to locate the defective unit through resistance measurement and testing with the service program. Measure motor windings with a motor tester.
2. Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`.
3. Review following:
`SHORT CIRCUIT 1` (specifies how many times the current limit has been exceeded).

23:6 INTERLOCK HARDWARE ERROR

This error code is generated by the inverter for drum motor.

The inverter must be powered with 230V / 50 or 60 Hz on the interlock input in order to drive the motor. The interlock circuits in the inverter have been split into two channels so that a component error in the inverter cannot give a false confirmation that the door is locked. These two channels are checked against each other. If this check gives an incorrect result this error code will be shown.

Possible cause:

- The reason for this error code being activated can be attributed to an error in the interlock circuits in the motor control.

Recommended actions:

1. Replace the inverter.

23:7 LOW DC VOLTAGE

This error code is generated by the inverter for drum motor.

The inverter constantly measures the voltage over the mains input. If the voltage drops below a predefined limit, the inverter will shut off the current to the motor and the error code will be shown.

The error can be reset by pressing the control knob/start/pause button when voltage is within range again.

The reason for this error code being activated can be low mains voltage or that the machine's on/off switch has been operated in an unsuitable manner. Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`:

- `UNDervOLTAGE 1` (specifies how many times the voltage has dropped below the limit).
- `LAST FAULT CODE N/8` (shows the 8 latest error codes). Undervoltages can be registered even during normal operation.

Consequently, a small number of registrations need not mean that there is an error in the inverter.

Recommended action:

1. Check that the supply voltage is stable and never drops below nominal voltage - 10%.
2. Check the fuses and cables.
3. Check the supply voltage in the network cabling and at the inverter in the machine.

23:8 HIGH DC VOLTAGE

This error code is generated by the inverter for drum motor.

The inverter constantly measures the voltage over the mains input. If the voltage exceeds a predefined limit, the inverter will shut off the current to the motor, and the error code will be shown.

The error can be reset by pressing the control knob/start/pause button when voltage is within range again.

Possible causes:

- Fluctuating mains voltage.

Recommended action:

1. Check that the supply voltage is stable and never exceeds nominal voltage + 6%.

23:12 NO PARAMETER SET IN THE INVERTER

This error code is generated by the inverter for drum motor.

The inverter contains several different parameter sets for different motors. During power up the control system checks that the correct parameter set digit is written into the inverter. If not, the control system will write down the parameter set digit defined in fixed configuration.

If the inverter discovers that no parameter set value is written down into the inverter, the error code will be shown.

Possible causes:

- This can be caused by wrong software in the CPU or wrong inverter for the current machine.

Recommended actions:

1. Make sure correct machine software and correct inverter are used.

23:15 MOTOR NOT FOLLOWING

This error code is generated by the inverter for drum motor. The inverter continuously estimates the motor speed. If the estimated speed is less than 180 rpm 10 seconds after drive command, or higher than 180 rpm 60 seconds after stop command, the error will be shown.

Possible causes:

- Break in one of the phases to the motor (cables or connectors). This error can be suspected if the motor does not rotate for 10 seconds (the motor will not start with only two phases).
- Check that the drum can be rotated easily.
- Check motor windings for open circuit using a motor tester.

Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`. Study the following:

- `MOTOR NOT FOLLOW` (specifies how many times this error code has occurred).
- `LAST ERROR CODE N/8` (shows the 8 latest error codes).

Recommended action:

1. Replace the defective part.

23:255 UNDEFINED ERROR

This error code is generated by the inverter for drum motor. The inverter reports an error that is not defined. Switch the power off for 30 seconds and then try again.

FAN MOTOR COMMON

30:1 Motor / Overheat fan motor

This error code will be shown if the control system detects that the input OH FAN MOTOR is deactivated during program run.

The overheating protection is automatically restored. When the overheating protection is restored the error code is automatically reset and the ongoing program will continue. A long press on the control knob/start/pause button will make the control system reset and the ongoing program will be ended.

The error code can be triggered if:

- The motor is very warm. Check that the vent holes in the motor are not covered.

If the overheating protection is not triggered, but there is still an error code:

- Check the harness, connectors and functions by reading the electrical schematic and by using the `SHOW INPUTS` menu when the machine is in service mode.

30:2 NO MOTOR COMMUNICATION

This error code occurs if the first message sent from the CPU to the inverter was not replied to during start up.

Recommended actions:

1. Check that there is power reaching the inverter. Check the fuses in the protection cable. If one of the components in the protection cable is damaged, the cable must be replaced.
2. Check that the green power indication LED on the inverter is on. The LED can be seen by looking down by the inverter edge connections.
3. Check that the communication cable between the CPU board and the inverter is intact and not damaged. Measure also with a reference instrument to see whether there is contact between all the leads in the communication cable.

30:3 LOST MOTOR COMMUNICATION

This error code occurs if the communication between the CPU and the inverter has stopped working.

Recommended actions:

1. Check that there is power reaching the inverter. Check the fuses in the protection cable. If one of the components in the protection cable is damaged, the cable must be replaced.
2. Check that the indicator LED on the inverter is on. The LED can be seen by looking down by the inverter edge connections.
3. Check that the communication cable between the CPU board and the inverter is intact and not damaged. Measure also with a reference instrument to see whether there is contact between all the leads in the communication cable.

INVERTER CONTROLLED FAN MOTOR

33:1 HEATSINK TOO HOT

This error code is generated by the inverter for fan motor.

There is a temperature sensor (NTC) mounted on the inverter cooling flange next to the power transistors in the output stage. If the temperature of the cooling flange gets too high ($> 100^{\circ}\text{C}$) the error code will be set to protect the transistors.

The cause of high cooling flange temperature can be e.g. a stiff drum in combination with intensive use and high ambient temperature. There may also be an error in the motor (sticking bearings or short circuit in windings, which impairs the efficiency of the motor). When temperature has decreased below 85°C , the error can be reset on the control knob/start/pause button.

Recommended actions:

1. Check that the drum can be rotated easily.
2. Check the value on the error code counter for the error code.
3. Check the last 8 inverter error codes.
4. Start a 90°C normal program with load on continuous operation and measure the temperature of the motor and inverter.
5. Replace the defective part.

33:2 MOTOR TOO HOT

This error code is generated by the inverter for the fan motor.

The inverter monitors the motor temperature in two ways.

1. The inverter calculates the motor winding resistance by measuring current and voltage. The winding resistance can then be converted to a temperature, since the winding resistance at 20°C and the temperature coefficient are known. If the average value of the four latest temperature readings is higher than the maximum motor temperature (e.g. 130°C), the error code will be shown. When temperature has decreased below 130°C , the error can be reset on the control knob/start/pause button.
2. The inverter monitors the input from motor overheat protection. If this input is open circuit, the error will be shown. When input is closed again, the error can be reset on the control knob/start/pause button.

Possible causes:

- The cause of high motor temperature can be a stiff drum, possibly in combination with intensive use and high ambient temperature. There may also be an error in the motor (sticking bearings or short circuit in windings, which impairs the efficiency of the motor). There could also be a contact error in the connectors between the inverter and the motor or an error in the motor cable. An error in inverter temperature measurement circuits can also occur.

Recommended actions:

- Check that the drum can be rotated easily.
- Check the status of motor over heat protection.
- Check the value on the error code counter for the error code.
- Check the last 8 inverter error codes.
- Measure the three phases to the phase resistors on the inverter motor connector (disconnect inverter and take the reading in the cable connector) to make sure they are the same.
- Start a 90°C normal program with load on continuous operation and measure the temperature of the motor and inverter.
- Replace the defective part.

33:3 NO INTERLOCK

This error code is generated by the inverter for fan motor.

The inverter must be powered with 230V / 50 or 60 Hz on the interlock input in order to drive the motor. This signal is a confirmation that the door is closed and locked.

The inverter receives its commands to rotate the drum from the CPU via a serial communication link between the inverter and the CPU. Since the CPU also has access to the interlock signal, the CPU must never send a run command to the inverter if the interlock signal is missing. If this does happen, this error code will be shown.

Possible causes:

- The cause of this error code being activated can be e.g. a break in the cable leading the interlock signal to the inverter.
- There may also be an error in the connector in the door lock, which connects 230V / 50 Hz to the interlock signal. An error in the interlock circuits of the inverter can also set this error code.

Recommended actions:

1. Use a multimeter to check that there is 230V present on the inverter interlock input when the door lock is activated.
Read also bit 1 in the second byte under `INVERTER STATUS` in the service program (the bits are numbered from 0 to 7 where bit 0 is on the far right). If bit 1 in the second byte is 1 then the lock is open, while a 0 indicates that the lock is closed.
2. Replace the defective part.

33:4 NO MOTOR COMMUNICATION

This error code is generated by the inverter for fan motor.

The inverter detects that there is a problem in communication with CPU.

Possible causes:

- Bad contact in harness or connectors between CPU and inverter.

Recommended actions:

1. Check wiring, connections between CPU and inverter.

33:5 MOTOR SHORT CIRCUIT

This error code is generated by the inverter for fan motor.

The inverter reads the power consumption of the motor continuously. If the current for some reason exceeds a predetermined limit, the inverter will cut the current to the motor, and the error code will be shown.

Possible causes:

- This error code can be activated for a number of reasons:
 - Short circuit in motor. Measure motor windings with a motor tester.
 - Short circuit internally in motor winding (impaired efficiency, higher current consumption).
 - Short circuit in motor cables.
 - Short circuit in connectors.
 - Drops of water causing short circuits in the motor connector.
 - Short circuit in the inverter output transistors.
 - Bad contact in interlock signal.

Recommended actions:

1. If the error is a stable one, it is generally not difficult to locate the defective unit through resistance measurement and testing with the service program. Measure motor windings with a motor tester.
2. Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`.
3. Review following:
`SHORT CIRCUIT 1` (specifies how many times the current limit has been exceeded).

33:6 INTERLOCK HARDWARE ERROR

This error code is generated by the inverter for fan motor.

The inverter must be powered with 230V / 50 or 60 Hz on the interlock input in order to drive the motor. The interlock circuits in the inverter have been split into two channels so that a component error in the inverter cannot give a false confirmation that the door is locked. These two channels are checked against each other. If this check gives an incorrect result this error code will be shown.

Possible cause:

- The reason for this error code being activated can be attributed to an error in the interlock circuits in the motor control.

Recommended actions:

1. Replace the inverter.

33:7 LOW DC VOLTAGE

This error code is generated by the inverter for fan motor.

The inverter constantly measures the voltage over the mains input. If the voltage drops below a predefined limit, the inverter will shut off the current to the motor and the error code will be shown.

The error can be reset by pressing the control knob/start/pause button when voltage is within range again.

The reason for this error code being activated can be low mains voltage or that the machine's on/off switch has been operated in an unsuitable manner. Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`:

- `UNDervoltage 1` (specifies how many times the voltage has dropped below the limit).
- `LAST FAULT CODE N/8` (shows the 8 latest error codes). Undervoltages can be registered even during normal operation.

Consequently, a small number of registrations need not mean that there is an error in the inverter.

Recommended action:

1. Check that the supply voltage is stable and never drops below nominal voltage - 10%.
2. Check the fuses and cables.
3. Check the supply voltage in the network cabling and at the inverter in the machine.

33:8 HIGH DC VOLTAGE

This error code is generated by the inverter for fan motor.

The inverter constantly measures the voltage over the mains input. If the voltage exceeds a predefined limit, the inverter will shut off the current to the motor, and the error code will be shown.

The error can be reset by pressing the control knob/start/pause button when voltage is within range again.

Possible causes:

- Fluctuating mains voltage.

Recommended action:

1. Check that the supply voltage is stable and never exceeds nominal voltage + 6%.

33:12 NO PARAMETER SET IN THE INVERTER

This error code is generated by the inverter for fan motor.

The inverter contains several different parameter sets for different motors. During power up the control system checks that the correct parameter set digit is written into the inverter. If not, the control system will write down the parameter set digit defined in fixed configuration.

If the inverter discovers that no parameter set value is written down into the inverter, the error code will be shown.

Possible causes:

- This can be caused by wrong software in the CPU or wrong inverter for the current machine.

Recommended actions:

1. Make sure correct machine software and correct inverter are used.

33:15 MOTOR NOT FOLLOWING

This error code is generated by the inverter for fan motor. The inverter continuously estimates the motor speed. If the estimated speed is less than 180 rpm 10 seconds after drive command, or higher than 180 rpm 60 seconds after stop command, the error will be shown.

Possible causes:

- Break in one of the phases to the motor (cables or connectors). This error can be suspected if the motor does not rotate for 10 seconds (the motor will not start with only two phases).
- Check that the drum can be rotated easily.
- Check motor windings for open circuit using a motor tester.

Further information can be obtained by studying the contents of `INVERTER ERROR LOG 1` and `INVERTER ERROR LOG 2`. Study the following:

- `MOTOR NOT FOLLOW` (specifies how many times this error code has occurred).
- `LAST ERROR CODE N/8` (shows the 8 latest error codes).

Recommended action:

1. Replace the defective part.

33:255 UNDEFINED ERROR

This error code is generated by the inverter for fan motor. The inverter reports an error that is not defined. Switch the power off for 30 seconds and then try again.

INTERNAL COM.

40:1–40:10 I/O INTERLOCK Axxx

The error code is shown if the control system detects that the input I/O INTERLOCK is not active. I/O unit designation, Axxx, that is shown in the error description is according to electric schematics and electrical component list.

Recommended actions:

1. Check that door is actually locked.
2. Check DLCU status in service mode for more information on possible causes.
3. Check P-bus connectors on I/O board for present interlock signal.
4. Check that D-bus connector is fitted correctly with regards to the rib on the connector and the slot in the plastic cover of the I/O board.

40:11–40:20 I/O COMMUNICATION Axxx

The error code is shown if the control system can not communicate with one or several I/O units on D-bus. I/O unit designation, Axxx, that is shown in the error description is according to electric schematics and electrical component list. Errors are related to the D-Bus communication port between CPU and the different I/O units in the machine. The error code is shown if the control system has lost communication with one or more I/O units for a certain time.

If there is communication between the I/O unit and control system the LED next to the service button will flash.

If there is no communication to the I/O unit but power, the LED will light when the button is pressed on the I/O board (all I/O boards except for I/O unit type 6).

Possible causes:

- Mistake when configuring I/O unit address at set up. Button on wrong I/O unit pressed during config.
- Two or more I/O units have got the same address.
- Bad or intermittent contact in D-Bus wiring between I/O units and CPU or between I/O units.
- Squeezed or shorted D-bus cables (shorted to ground).
- An old version of an I/O unit is fitted in the machine that do not support Compass Pro. Check part number compared to original I/O board or Spare parts list.

Recommended actions:

1. Check that all I/O units are configured in **I/O CONFIGURATION** menu when the machine is in service mode. Alternatively use Common Service Tool to get an overview of the I/O unit configuration. Use the electric schematic to find correct I/O board to address.
2. If all I/O units are present in the list, check the LED as above, harness, connectors and functions by reading the electrical schematic.
3. Check that the I/O units fitted in the machine supports Compass Pro. Check part number compared to original I/O board or Spare parts list.
4. Update the machine software to latest available version.

40:22 I/O BOARD MISHMASH

The error code is shown if wrong type of I/O unit is fitted.

Could also occur if addressing of the I/O units is made in an incorrect way.

After addressing of I/O units the CPU reads the type of each unit.

If there is a mismatch between what the type of I/O unit the CPU finds, and what the I/O unit type the software configuration expects, the error will be shown.

Machine will not run until problem is solved. There are two exceptions: I/O type 1 can be used when I/O type 11 is expected, but not opposite. I/O type 8 can be used when I/O type 81 is expected, but not opposite.

Possible causes:

- When addressing the I/O units the operator has pressed the button on the wrong I/O unit.
- Wrong type of I/O unit if fitted in the machine.
- Two I/O units have got the same address.

Recommended actions:

1. Readdress all I/O units.
Use **I/O CONFIGURATION** function in service mode.
Alternatively use Common Service Tool, I/O addressing function.
2. Use the electric schematic to find correct I/O board to address.
3. Use Common Service Tool, I/O addressing function to get best overview/visualization of the problem.

EXTERNAL COM. PAYMENT**51:22 NO CBT COMMUNICATION PRESS TO RETRY**

Machine connected to payment system using serial communication to machine.

Cause:

- Communication has been established once and then interrupted.

Recommended actions:

1. Check electrical connections between CPU and payment system.
2. If running in a network, check network cables between machine and payment system.
3. Check that payment system is operational.
4. Check that payment system and machine is configured to the same machine address (Config 1).
5. To reset machine to working state without repairing payment system, use `RESET CBT` communication in service mode. (Requires password).

EXTERNAL COM. CMIS**52:1 CMIS COMMUNICATION ERROR**

Communication between machine and CMIS computer has been interrupted.

The warning will be shown at program start for 5 seconds, the next 5 programs. It is then removed automatically.

After the warning message has dissapeared the machine will start, but no CMIS statistics/data will be logged.

Possible causes:

- If using ELS Common Service Tool process viewer and cable has been unplugged before process viewer has been stopped.
- If running with ELS CMIS and communication is interrupted to PC.

Recommended actions:

1. If using ELS CST, reconnect, enter Process viewer and select function "Reset MIS communication".
2. If using ELS Network and CMIS:
 - Check ELS network cable between machine and PC.
 - Check that CMIS application is active and running normally.
 - For CMIS: The machine can operate but statistics will be affected and data will be lost.

INTERNAL

60:5 FATAL ERROR INVALID RUNNING MODE

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

60:11 FATAL ERROR EXTERNAL FLASH WRITE

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

60:17 FATAL ERROR INVALID OPTION

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

60:18 FATAL ERROR INVALID MODULE

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

60:28 FATAL ERROR INVALID COIN INPUT

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

60:29 FATAL ERROR INVALID FONT

The control system has an internal error during memory read.

Recommended actions:

1. Press the control knob/start/pause button to retry.
2. If problem persists, upload new software.

16 Maintenance to be carried out by qualified service personnel

After 1600 hours of operation or once a year, whichever comes first, contact qualified service personnel to perform the following maintenance. If neglected performance will decrease and the machine can be damaged.

For original spareparts please contact your local authorized dealer.

16.1 Clean the fan, the exhaust duct and the fresh-air intake to the room

Check that the following are not clogged by lint and dust or otherwise blocked and clean with a vacuum cleaner:

- The fan. **Be careful not to damage the fan.**
- Exhaust duct.
- Fresh-air intake to the room.

Check that the exhaust system connections are tight.

16.2 Clean the glide surface for the RMC graphite collectors

- Clean the glide surface for the RMC graphite collectors on the outside of the drum (A).

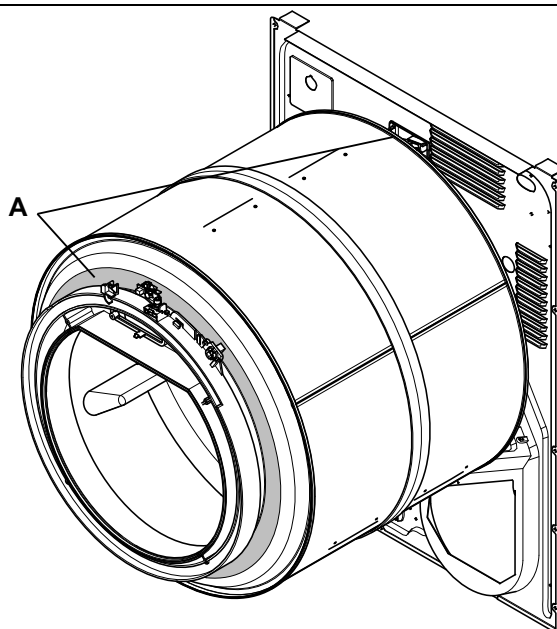


fig.7462

16.3 Clean the area around the drum

- Disconnect the power to the machine.
- Demount the top panel.
- Remove all lint around the drum and in the area over the drum with a vacuum cleaner.

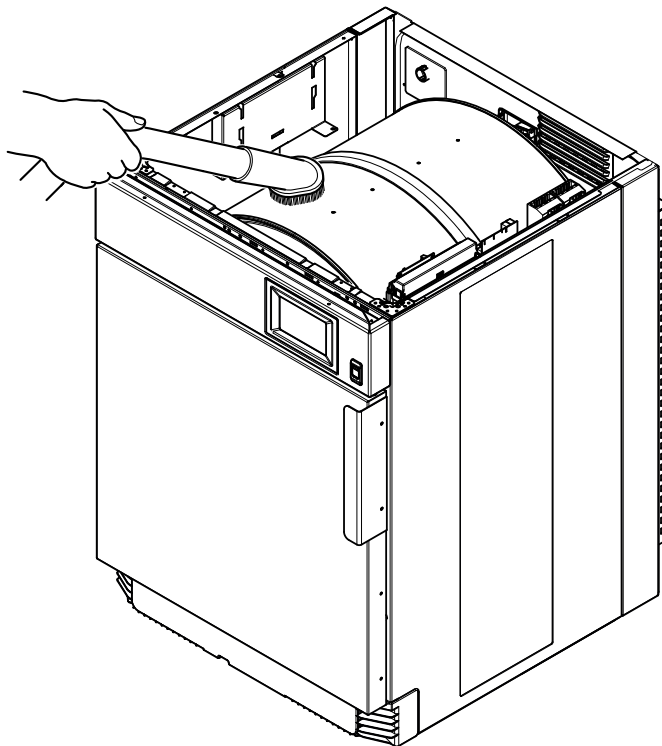


fig.X04766

16.4 Clean the motor

Demount the drum.

Please refer to section [Removal of the drum](#)

When the drum is removed the motor is accessible.

- Disconnect the ground cable and the motor cable.

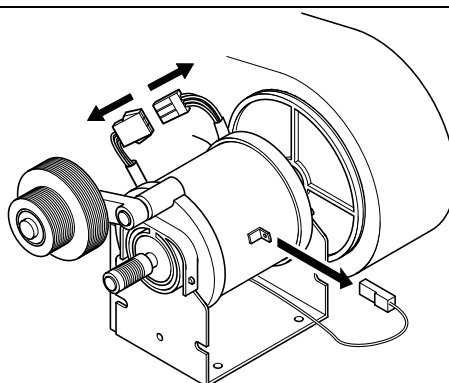
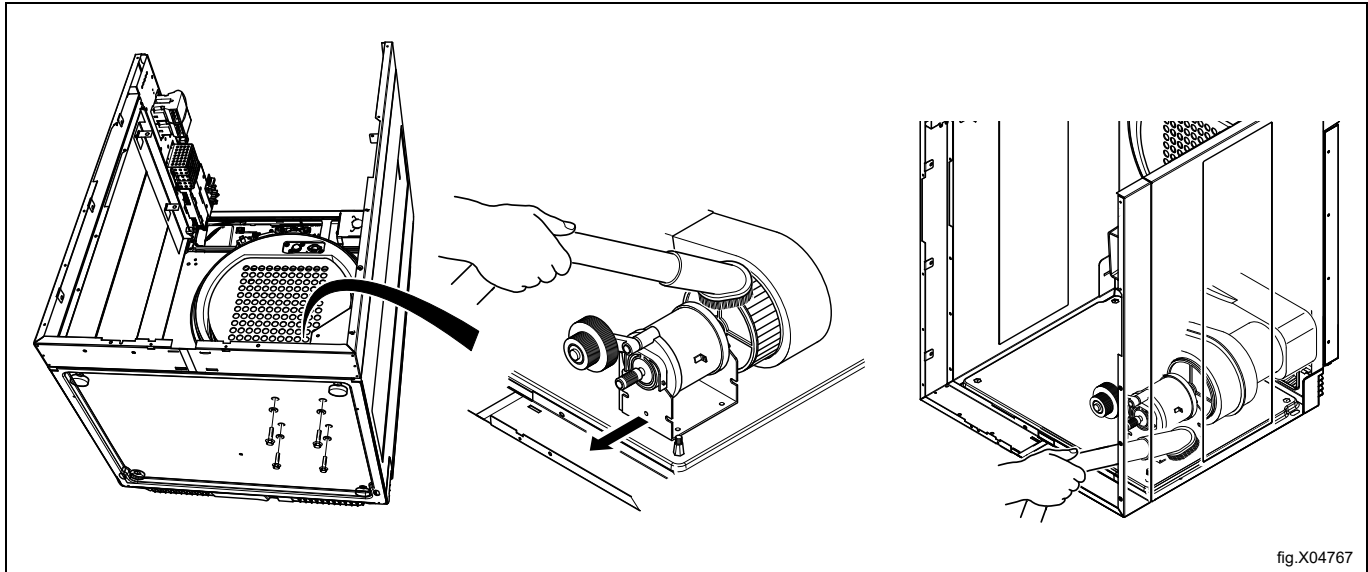


fig.7539

- Clean the motor and the fan with a vacuum cleaner.
- Also clean the area around the motor and fan and other areas if needed.



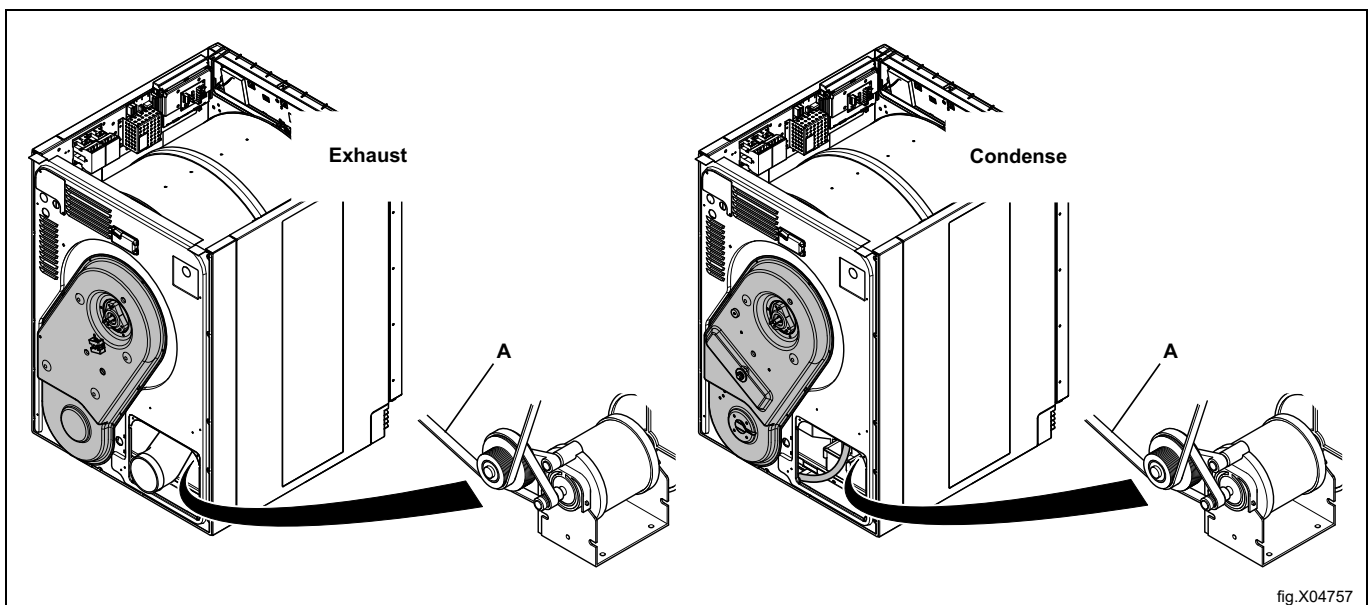
- Remount the motor.
- Tighten the four screws under the machine.

Re-assemble the machine.

Please refer to the section [Remounting of the drum and assembling of the machine](#)

16.5 Check the belt

- Check that both of the belts are not worn out. Replace if necessary.





Electrolux Professional AB
341 80 Ljungby, Sweden
www.electroluxprofessional.com