



Repair and Spare Parts

SERVICE BOOK

ENG - Rev08



MN-111 110 V / 220 V



Product service literature

WHERE TO FIND TOPICS

Topic	Service book or other source
Accessories	Repair and Spare Parts
Adjusting the 24V power output	Repair and Spare Parts
Assembling and disassembling instructions	Repair and Spare Parts
Authorized Service Partners	Instructions for use
Calibration	Instructions for use of the Sterilizer Calibration Device
Cycle descriptions and phases	Product description and operation
Diagnostic cycles	Test instructions
Diagnostics and fault finding	Errors and Troubleshooting
Displaying the functional parameters INFO screen	Instructions for use - Test instructions
Electric diagram	Product description and operation
Electrical component testing	Test instructions
Error list	Errors and Troubleshooting
Hydraulic diagram	Product description and operation
Importers and local Partners	Instructions for use (inside the back cover)
Installation Instructions	Instructions for use
Installation of upgrading and retrofitting kits	Repair and Spare Parts
Installation requirements	Instructions for use
Level switch testing	Test instructions
Loop cycle	Test instructions
Maintenance program table	Instructions for use - Repair and Spare Parts
Manufacturer reference contacts	All
Message list	Instructions for use
Operational states of components	Product description and operation
Passwords and special codes	Repair and Spare Parts
Pressure sensor testing	Test instructions
Repair and spare parts instructions	Repair and Spare Parts
Replacement of consumables	Instructions for use
Replacing the backup battery of the main board	Repair and Spare Parts
Requirements for the supply water	Instructions for use - Product description and operation
Retrofitting and upgrading kits	Repair and Spare Parts
Safety thermostat testing	Test instructions
Saturated steam: pressure - temperature correlation table	Test instructions
Service kits	Repair and Spare Parts
Software menu [Service]	Product description and operation
Software menu [User]	Instructions for use
Software update	Repair and Spare Parts
Software version installed	Repair and Spare Parts
Spare part list	Repair and Spare Parts
Technical data	Instructions for use - Product description and operation
Test cycles	Instructions for use - Test instructions
Time duration of cycles and Phases	Test instructions
Tool list	Repair and Spare Parts
Torque values for bolts and nuts	Repair and Spare Parts
Water consumption table	Test instructions

Table of contents



About this manual	4
Conformity	5
Symbols and messages	6
Safety warnings	8
Emergency door opening	9
Tool list	10
Tightening torques for bolts and nuts	12
Management of software version	13
How to check the current software version of the sterilizer	13
Difference between update and install procedures	13
How to choose the appropriate procedure	13
Effects of the procedures	13
Software: Service menu, passwords and special codes	14
Software: Update and install procedures	16
Breakdown in groups	20
Group 0 - Accessories and kits	21
Group 1 - External covers	34
Group 2 - Chamber door	39
Group 3 - Front and service door components	41
Group 4 - Motor and switches	48
Group 5 - Electric-electronic components	51
Group 6 - Rear and mains data connections	55
Group 7 - Water tanks	56
Group 8 - Water pump	59
Group 9 - Steam generator and thermostat	60
Group 10 - Condenser and fan	63
Group 11 - Check valve	64
Group 12 - Solenoid valves	65
Group 13 - Safety valves	68
Group 14 - Tested group	69
Group 15 - Chamber components	75
Group 16 - Chamber internal components	79
Group 17 - Structure	80
Spare part list	81



About this manual

MANUAL CONTENT

This manual contains the instructions for use and for maintenance of the following sterilizer versions:

- MN-111 100–125 V ac
- MN-111 200–240 V ac
- MN-111 Med 100–125 V ac
- MN-111 Med 200–240 V ac

Versions differ for nominal voltage, maximum current, chamber material (AISI 304 or 316) and some functionality between W&H and W&H Med versions.

DISCLAIMER

All pictures, graphics and illustrations provided in this manual are for the comprehension of the text. They are not meant to be an accurate representation of product details. Thus, they should be taken as indicative only, and may differ from the actual product.

For any suggestions or remarks please send an email to office.sterilization@wh.com.

COPYRIGHT NOTICE

Copyright © 2019, W&H Sterilization Srl

All rights reserved in all countries.

All drawings, images and texts contained in this manual are the property of the manufacturer. Even partial duplication of drawings, images or text is prohibited.

The information contained in this document is subject to change without prior notice.

Conformity



CONFORMITY TO EUROPEAN AND AMERICAN STANDARDS AND DIRECTIVES

STERILIZER featuring sterilization cycles conform with the following standards:

Standards and Directives	Description
CE 0051 93/42/EEC	Medical Device Directive (MDD). Medical Device Directive 93/42/EEC for devices class IIb, in accordance with the Rule 15 – ANNEX IX of the above Directive.
CE 0497 2014/68/EU	Pressure Equipment Directive (PED). Directive 2014/68/EU [PED – Pressure Equipment Directive] for every sterilization chamber designed and manufactured in conformity to the ANNEX 1 and to the procedure described in the module D1 Annex III.
2012/19/EU	Waste Electrical and Electronic Equipment (WEEE).
CSA C22.2 No. 61010-1-12	Safety requirements for electrical equipment for measurement, control and laboratory use, general requirements.
UL 61010-1:2012	Safety requirements for electrical equipment for measurement, control and laboratory use, general requirements.
ASME	Boiler and pressure vessel code.
EN 13060	Small steam sterilizers.
ANSI/AAMI ST55:2010	Table-top steam sterilizers.
IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use, general requirements.
IEC 61010-2-040	Safety requirements for electrical equipment for measurement, control and laboratory use; particular requirements for sterilizers and washer-disinfectors used to treat medical materials.
IEC 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements; general requirements.
IEC 61770	Electric appliances connected to the water mains - Avoidance of backsiphonage and failure of hose-sets.

Note: Every new sterilizer is delivered with a Declaration of Conformity and a Warranty Card.

SAFETY SYMBOLS USED IN THIS MANUAL



WARNING: Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

Related to a sterilizer, these warnings indicate hazardous situations that could result in non-sterile conditions (e.g. non-sterile instruments) which could lead to fatal personal injury.



CAUTION: Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



Live parts. Risk of electrical shock



Hot surfaces. Risk of burns.

SYMBOLS USED IN THIS MANUAL



Mounted with magnets OR magnetic components present



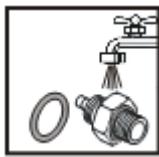
Components sensitive to electrostatic discharges.



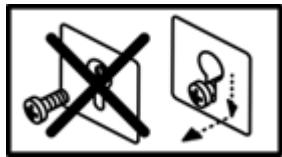
ATTENTION!
Don't use any glue.



ATTENTION! Do not use any lubricant. Use water instead.



ATTENTION!
Moisten with water only.



Keyhole mounting.
No need to remove the screws.



General explanations, without risk to persons or objects.



Call service.

SYMBOLS DISPLAYED ON THE PRODUCT



Hot surfaces!
Risk of burns.



Hot steam!
Risk of burns.



Consult the Instructions
for use for important
cautionary information.



Consult the Instructions
for use.



Do not dispose of with normal waste

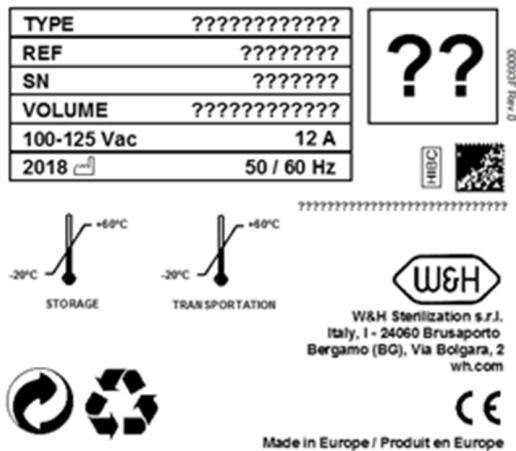
PROPERTY DAMAGE MESSAGES

Notice: Indicates information considered important, but not hazard-related. Typically to avoid damage to the product.

Symbols and messages



LABEL ON THE BOX



GENERAL WARNINGS



- Before performing any repairing or service interventions on the sterilizer, ALWAYS DISCONNECT the electric power supply cable to avoid injury.
- If for any reason you are unable to remove the power supply or if you have to walk away from the unit, always place a "WORK IN PROGRESS" sign, to warn other people that might walk up to the sterilizer.



- Service should be performed by qualified technicians only.
- Observe all local and national directives related to service and safety standards.
- Always use personal safety devices (e.g. glasses, gloves, protection mask, etc.).
- Before making any repairs or transport, ward off unauthorized personnel from the working area.
- Refer also to all the safety indications given in the Instructions for use of the product.

TRANSPORT

Spare parts shall be handled with care.

In case of transport of the sterilizers:

- Completely drain both water tanks;
- Drain the condenser bottle;
- Allow the sterilization chamber to cool down;
- Use original or appropriate packaging;
- Put the box of the sterilizer on a desk
- Remove the upper part of the box;
- Position the sterilizer in the dedicated area of the box;
- Carefully seal the box;
- The transport of the sterilizer shall be done by two authorized technicians using PPE devices (personal protective equipment) according to applicable standards;
- The sterilizer shall be handled with care.

Emergency door opening



WARNING ABOUT OPENING THE DOOR IN EMERGENCY

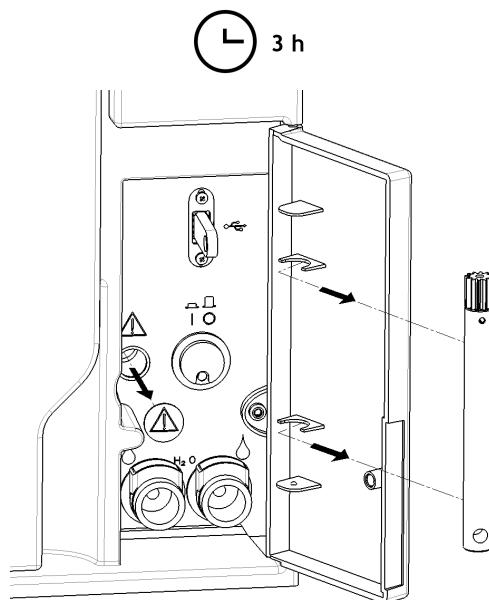
⚠ WARNING! High pressure. Risk of explosion, jet of hot steam, sudden opening of the door. Carry out the following procedure only if necessary and only when NO RESIDUAL PRESSURE IS IN THE CHAMBER. Any attempt to open the door while the unit is still hot or under pressure could expose the operator and the surrounding personnel to serious risk.

⚠ CAUTION! High temperature. Risk of burns. Carry out the following procedure only when the sterilizer has completely cooled down. The sterilizer should be unplugged from the mains power supply since 3 hours at least.

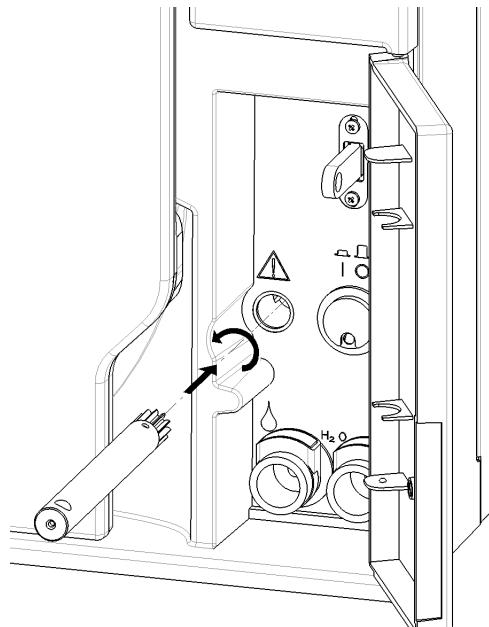
Notice: Carry out this procedure only as indicated and with the sterilizer in the indicated conditions. Any attempt to open the door in a different way can seriously damage the sterilizer.

OPEN THE DOOR IN EMERGENCY

- 1** Unplug the sterilizer and wait at least three hours.
- 2** Remove the power connection (back side)
- 3** Release the chamber pressure through the ring of the safety valve (sterilizer rear side) or wait three hours until the pressure has been naturally decreased to the environment pressure.
- 4** Extract the door opening tool placed behind the service door
- 5** Remove the cap



- 6** Insert the opening tool into the hole and then turn it counterclockwise until the door is unlocked (proceed slowly until it stops).



TOOLS AVAILABLE FROM ANY HARDWARE STORE

These tools are not available from W&H.

Picture	Description
	Torx screwdrivers T10, T20, T25 and T30
	L-shaped torx 20 screwdriver
	Phillips screwdriver PH0 and PH2
	Small flat screwdriver (~1,8 mm) big (~8 mm)
	True-RMS multimeter Note: A true-RMS voltage measurement is required to measure the voltage of the power-modulated outputs (heaters), because these are non-sinusoidal waves. Using a standard multimeter would lead to wrong measurement results.
	Long nose pliers
	Cutting pliers
	Combination pliers
	Adjustable wrench
	Tube wrench n°14 Tube wrench n°20
	Nylon cable ties (2,6x135) Also available with part number: U330001X

Tool list



TOOLS AVAILABLE FROM W&H STERILIZATION ONLY

Picture	Part n.	Description
	M272000X M272002X	Heat sink compound (tin) - 0,5kg Heat sink compound (syringe) - 28gr.
	I280500X	Aluminium tape
	F190101X	Positioning tool for internal chamber temperature probe
	Z190036X	Test connection tube

TOOLS AVAILABLE FOR WORKSHOP

Picture	Part n.	Description
	Z191022X Z191028X	Torque wrench (torque range 1 - 5 Nm) Torque wrench (torque range 4 - 20 Nm)
	Z191040x	Torque wrench tool set. It includes a set of adapters to be used with the torque wrench.
	Z190051X	Sterilizer Calibration Device

TIGHTENING TORQUES



Always use a torque wrench, set at the specified torque, to tighten the components listed in the table below.

Part description	Torque		Group
	Nm	lb. ft.	
Nut of the compression olive for chamber temperature sensor	10	7.3	15.3
Nuts fixing the temperature sensor of the chamber heating element	2.5	1.9	15.1
Chamber heating element fixing screws	9.0	6.6	14.4
Self locking nuts (door belt)	2.0	1.5	14.2
Screws (door belt)	5.0	3.7	14.2
Nuts of the safety thermostat of chamber heating element	1.5	1.1	15.1

Management of software version



HOW TO CHECK THE CURRENT SOFTWARE VERSION OF THE STERILIZER

From the homepage select and then press the icon to display the system information.

Note: The software version is the parameter called **J1000160 FW**. It is also recorded and printed in the cycle reports and printouts.

DIFFERENCE BETWEEN UPDATE AND INSTALL PROCEDURES

Software UPDATE procedure

UPDATE is the standard procedure to provide the sterilizer with the latest software version.

This procedure keeps all the most important settings, data and parameters stored in the sterilizer memory but could alter other minor settings.

Notice: It is strongly recommended to update all sterilizers in the marketplace with the latest software version. This will provide users with the opportunity to enjoy the full benefit of new developments and improvements virtually free of charge. Please make use of this opportunity whenever you visit a doctor's office, during regular service and maintenance calls, and whenever you have a sterilizer in your shop for repair.

Software INSTALL procedure

INSTALL is the special procedure that must be followed when either the MMI or the main board was replaced during service.

In such a case, INSTALL is required because the new MMI board comes unprogrammed and must be programmed with the suitable software at the technician's care. The INSTALL procedure re-programs the sterilizer memory and brings it back to an "as new" state. All custom data (date, users, doctor's name, cycle history, custom settings) are erased and must be re-entered before using the sterilizer again.

HOW TO CHOOSE THE APPROPRIATE PROCEDURE

Typical case	Procedure	Settings
New MMI board.	Install	No settings are preserved: take note of all custom settings and counters and enter them manually.
New main board (but not new MMI).	Install	Keep all settings.
Move back the cycle / consumable counters.	Install	Edit the counter values as requested by the case.
Switch to/from DUMMY version.	Install	Keep all settings or not, according to the situation. Select / unselect the DUMMY option.
Reset history and/or custom settings.	Install	Keep only the settings as requested by the case.
Reset to factory settings and history	Install	Do not keep any settings.
Update to a new release.	Update	All settings are kept automatically, no changing options.
Recover any suspected software corruption.	Update	

Note: The settings that were reset /lost cannot be restored in a further installation.

EFFECTS OF THE PROCEDURES

UPDATE	All settings and all the cycle history are maintained.
INSTALL	Some settings could be lost, depending on the board you replaced and on the options you selected at the installation. The technician must take note of all settings and restore them manually from the screen. The cycle history is lost, but still available in the pen drive (if recorded on it). You may choose the DUMMY mode.

Note: The concerned settings are serial number, model, other sterilizer information, date and time, configuration of the sterilizer, user data and all other custom settings, counters.



Software: Service menu, passwords and special codes

HOW TO ACCESS THE SERVICE MENU

The following two ways are available to access the service menu:

- on the homepage, hold the button for at least 3 seconds;
- on the homepage press on the following icons: > Maintenance > Service.

PASSWORDS

Passwords are requested every time the user / administrator or technician accesses restricted menu functions.

Password	Purpose	Notes
2001	Enter the SERVICE menu.	Available for the technicians only, not to be disclosed to the user. Requested before entering the SERVICE menu, and to perform some actions available for technicians only.
0000	Default value	In the User Management functions, this is the default password of the Administrator and of any user, after it is created. To be changed with a personal PIN code at the first access.

SERVICE MENU STRUCTURE

Menu	Sub-menu	What it does
Configuration	Language	Permits to Set the language from a "selection from list" screen.
	Unit settings	Permits to set the units of pressure and temperature.
	Special Codes	Saves the codes issued by the manufacturer to activate special functions.
Component Activation	Electro Valves	Permits to activate / deactivate manually the components. See the Test instructions service book
	Water Pump	
	Door	
	Chamber Heater	
	Steam Generator	
	Fan	
Diagnostic Cycles	EVX test	Permits to run automated procedures to help in the troubleshooting procedure. See the Test instructions service book
	Fan Test	
	Sensor Test	
	S. G. Perform. Test	
SW update	Permits to start the software update procedure of the sterilizer.	
Service cycles	Calibration	Permits to start the calibration procedure.
	Chamber Th. overload Test	Tests the operation of the thermostat of the chamber heater.
	St. gen. th. overload test	Tests the operation of the thermostat of the steam generator.
	Steam Generator Draining	Test to remove water residues from the steam generator.
Counters	Permits manual entering of the values of the counters (to be used if the main board / memory is replaced or reset, so restoring the values as before).	
Cycle Scheduler	Permits to set a sequence of cycles and to run a loop of such sequence.	

SPECIAL CODES

Special codes are requested only once, to activate or deactivate additional functions.

They have to be entered in the **Service** menu > **Maintenance** > **Service** > **Configuration** > **Special Codes** screen.

Special Code	Purpose	Notes
RESETCALIB	To reset the temperature settings	Requested after replacing the chamber temperature sensor.
USERSON	Enables the functions related to the User Management options.	Effective in the dental version only. In the medical version, this option must be activated by means of an activation code that will be requested the first time the function is accessed.
USERSOFF	Disables the functions related to the User Management options.	Effective in the dental version only.

Software: Service menu, passwords and special codes



Special Code	Purpose	Notes
123456?	Resets the Administrator's password to the default value 0000	In case the ADMINISTRATOR loses or forgets their own password.
EXTTANKLOADON	Disables the tank auto-fill valve. Enables the tank auto-fill pump	To be entered whenever the auto-fill kit pump is installed.
EXTTANKLOADOFF	Disables the tank auto-fill pump. Enables the tank auto-fill valve.	To be entered whenever the auto-fill kit valve is installed.

DOWNLOADING THE LATEST SOFTWARE VERSION

The software for any sterilizer may be downloaded at the following resource:

<ftp://ftp.wh.com/>

Access with the following credentials:

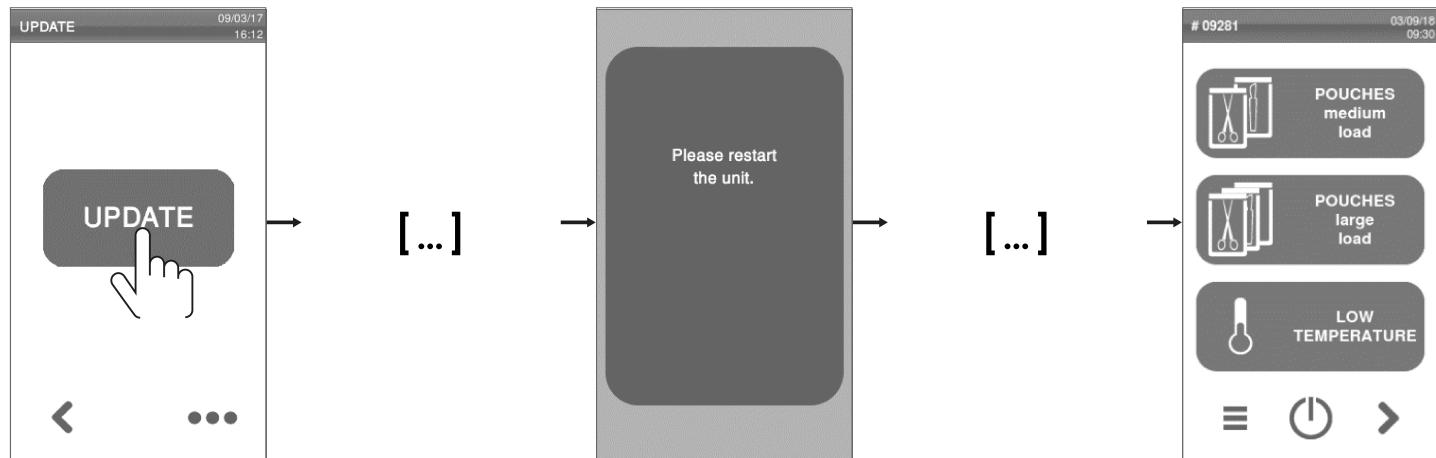
- User: firmware-sterilizer
- Password: xTuRsWn964

Surf the folder and find the concerned model, then download the firmware update file(s).

SOFTWARE UPDATE

- Copy the update file(s) into a USB pen drive
- Plug the pen drive into the sterilizer
- Select **Maintenance > Software Update**
- Press on the **Update** button to start the automatic procedure
- Follow the instruction given on the sterilizer screens

 **WARNING!** Never switch off the sterilizer during UPDATE or INSTALL.

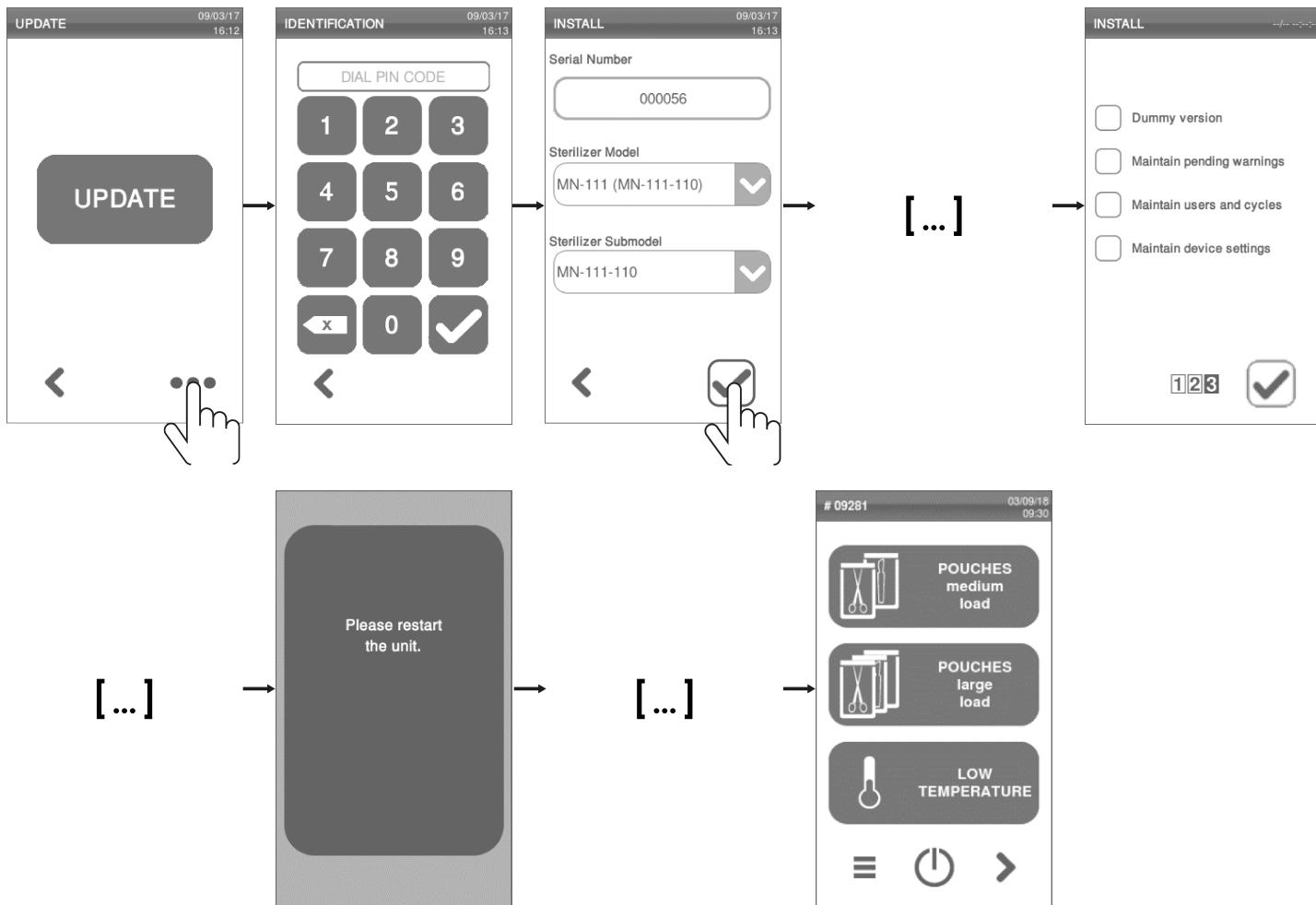


SOFTWARE INSTALL

- Copy the update file(s) into a USB pen drive
- Plug the pen drive into the sterilizer
- Select **Maintenance > Software Update**
- Press on the **...** icon
- Insert the Technical code **2001** and then press on the icon
- Insert and choose the SN and the other requested info
- Press on the icon to start the automatic procedure of install
- Follow the instruction given on the sterilizer screen

 **WARNING!** Never switch off the sterilizer during UPDATE or INSTALL.

Software: Update and install procedures

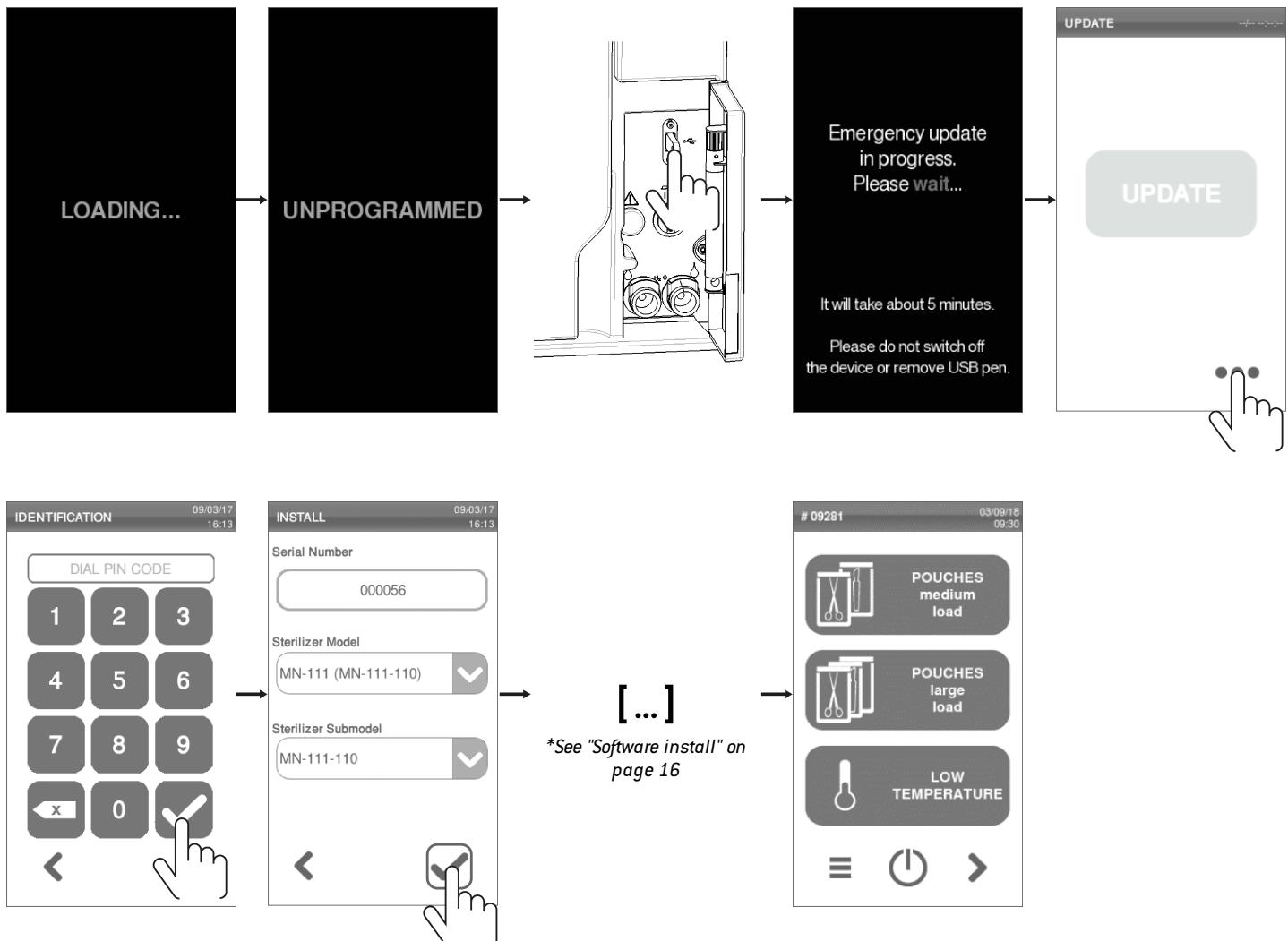


SOFTWARE INSTALL IN CASE OF MMI REPLACEMENT (UNPROGRAMMED)

- Once the new and un-programmed MMI is assembled, switch on the sterilizer
- Wait until the screen will show the message “UNPROGRAMMED”
- Insert the USB pen drive with the file(s)
- Wait until it is possible to select and press on the icon
- Insert the Technical code **2001** and then press on the icon
- Starting from this point the procedure will be the same as the “Software Install” procedure (see “Software install” on the previous page)



WARNING! Never switch off the sterilizer during UPDATE or INSTALL.



EMERGENCY UPDATE PROCEDURE

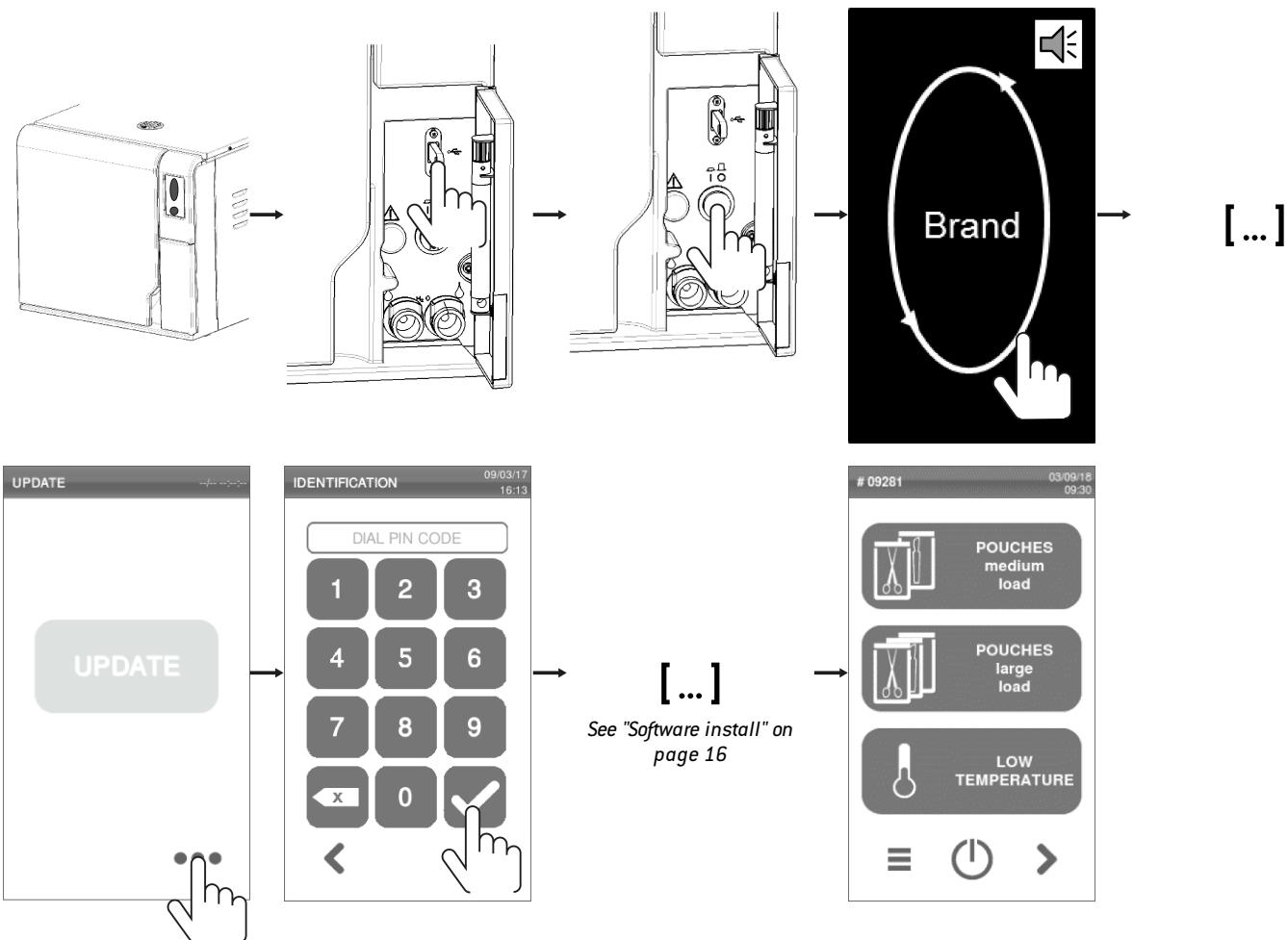
⚠ WARNING! The use of the following procedure is limited only if it is not possible to perform any other operation on the sterilizer.

- Switch off the sterilizer.
- Insert the USB pen drive with the following files:
 - software update file(s)
 - “emergency”
- Switch on the sterilizer
- Touch the screen, drawing circles on it, until the sterilizer beeps (approximately for 12”)
- Wait until it is possible to select and press on the icon
- Insert the Technical code **2001** and then press on the icon
- Starting from this point the procedure will be the same as the “Software Install” procedure (see “Software install” on page 16)



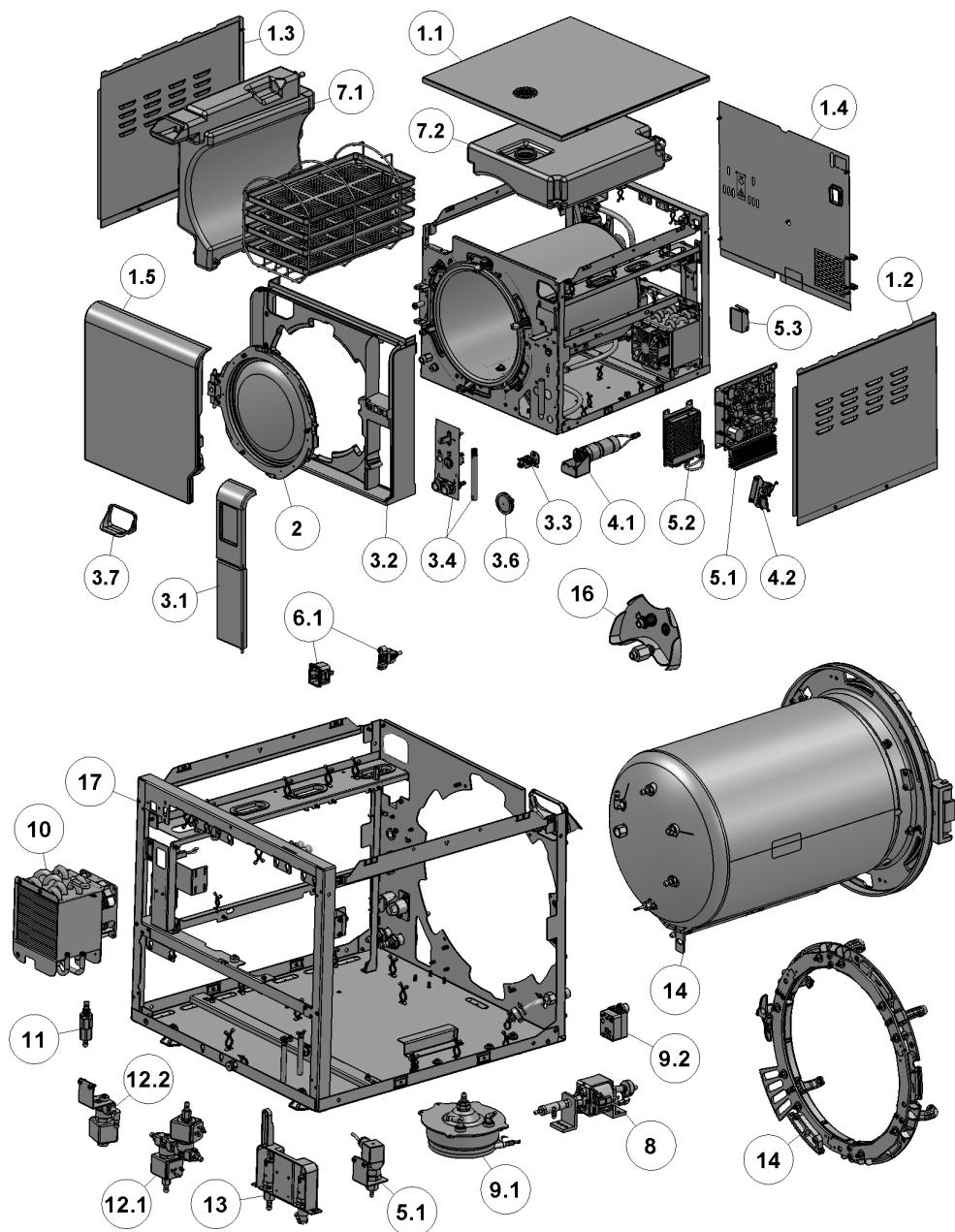
WARNING! Never switch off the sterilizer during UPDATE or INSTALL.

Software: Update and install procedures



DESCRIPTION

N.	Group	N.	Group
00	Standard and optional accessories	09	Steam generator and safety thermostat
01	External covers	10	Condenser and fan
02	Chamber door	11	One way valve
03	Front and service door components	12	Solenoid valves
04	Engine and switches	13	Safety valves
05	Electric-electronic components	14	Tested group
06	Rear data connections	15	Chamber components
07	Water tanks	16	Chamber internal components
08	Water pump	17	Frame components



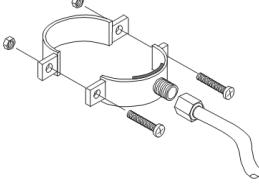
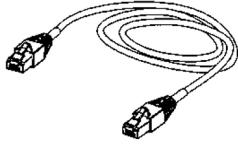
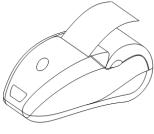
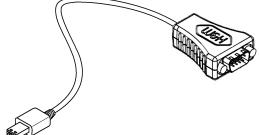
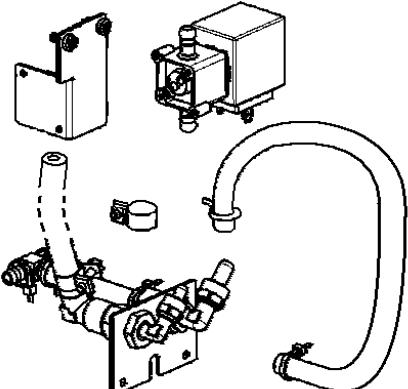
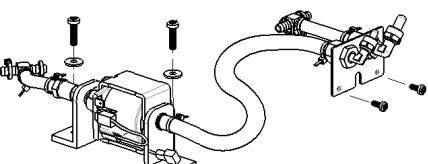
Group 0 - Accessories and kits



LAYOUT 0.1 - STANDARD SUPPLY

Picture	Part	Part number
	Standard chamber rack	F523030X
	Aluminium tray (x4)	F523211X
	Tray holder	F523001X
	Emergency system for door unlocking	S520009X
	Drain tube	S230903X
	Mains cable	U380119X (120 V) U380120X (230 V)
	USB pen drive	V000004X

LAYOUT 0.2 - OPTIONAL SUPPLY

Picture	Part	Part number
	Drain tube kit with fittings	A812110X (optional)
	Ethernet cable, 3 m	A801500X
	External printer Cycle report printer S'Print Thermal principle - 10 year lasting printouts	19721108
	USB-serial adapter (for the connection of the cycle report printer)	A801503X
	Auto-fill kit with valve	X051302X
	Auto-fill kit with pump	X051303X (110 V) X051304X (220 V)

Group 0 - Accessories and kits



Picture	Part	Part number
	Auto drain kit	X051331X
	LAN cable kit	X051301X

LAYOUT 0.3 - CONSUMABLES

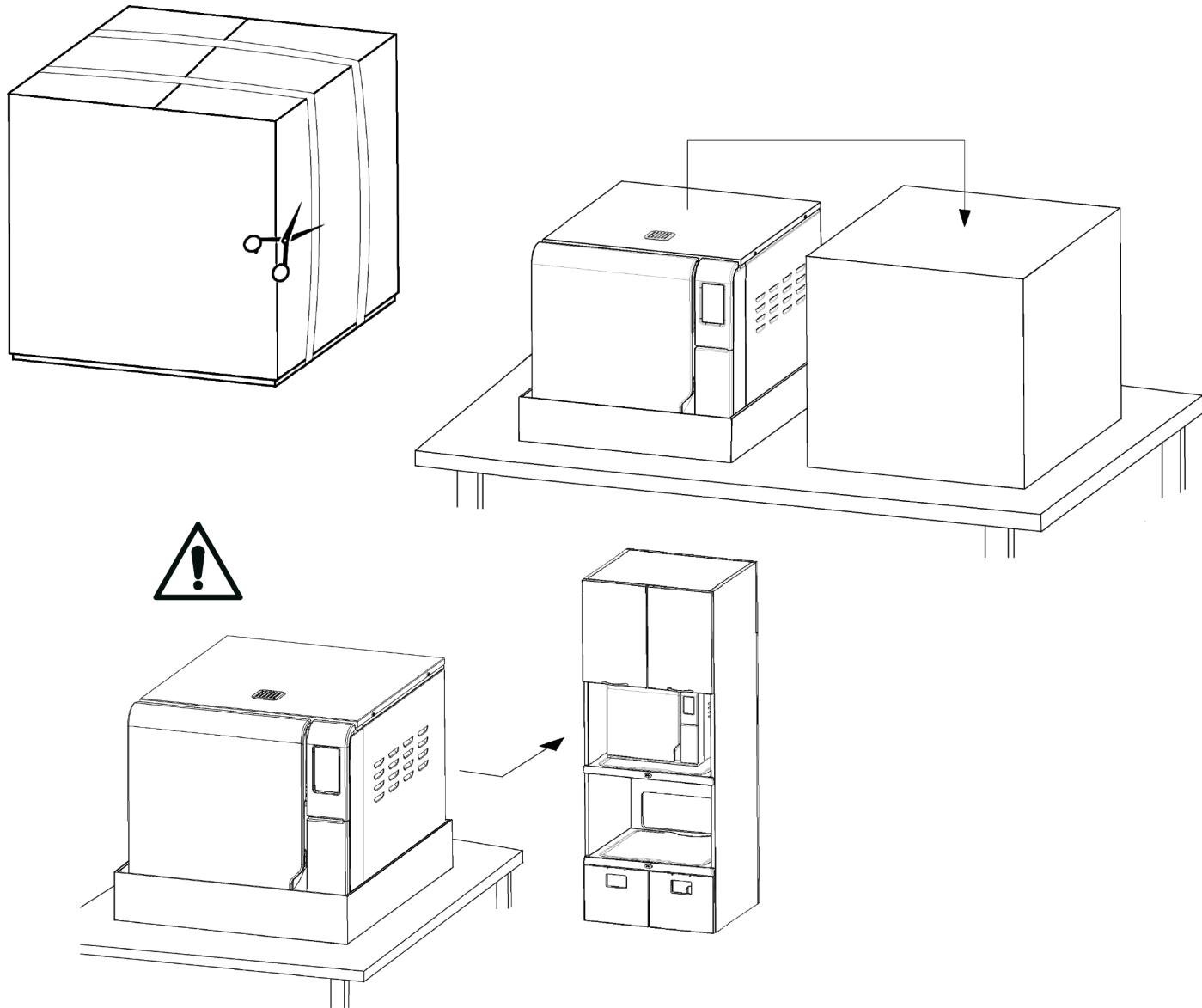
To replace these components please refer to the Instructions for use.

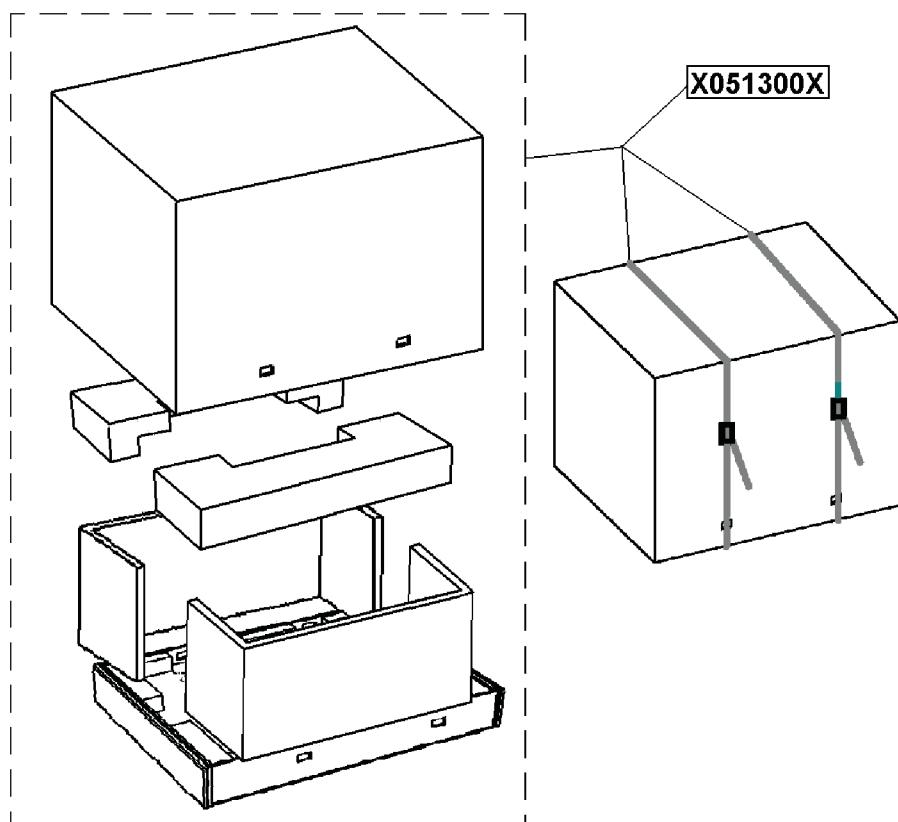
Picture	Part	Part number	When replace it
	HEPA Filter	W322400X	Every 1200 cycles
	Door seal	F460535X	Every 1200 cycles
	Chamber filter (set of 3 pieces)	S523014X	-

LAYOUT 0.4 - UNPACKING AND PACKING

CAUTION! Heavy product. The sterilizer must be removed from the box and transported by two authorized technicians.

Notice: Check the external condition of the box and the sterilizer. In case of any damage, immediately contact the dealer or shipping agent that has carried out the transport. Keep the packaging for shipping or transporting the sterilizer in the future.

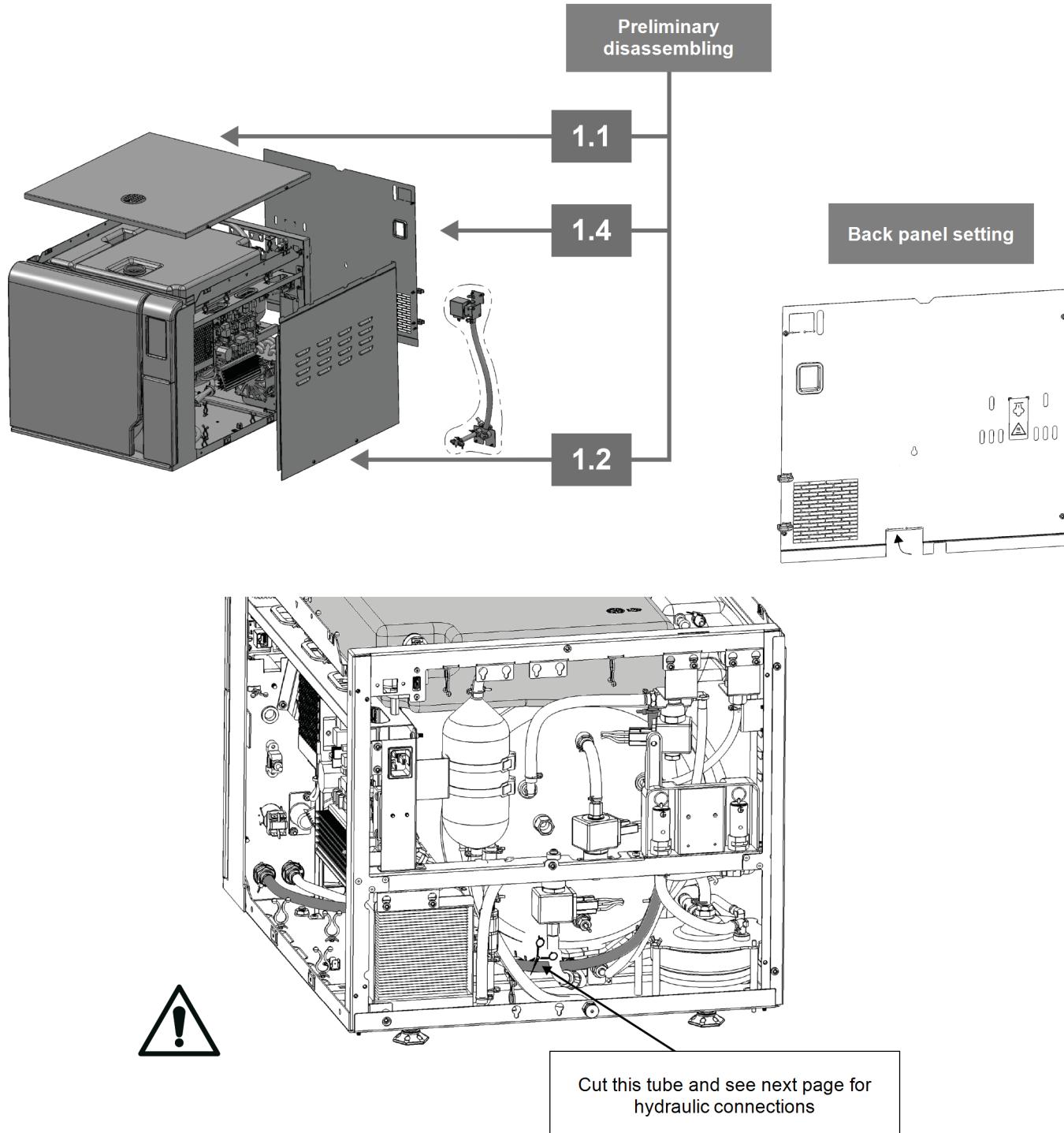


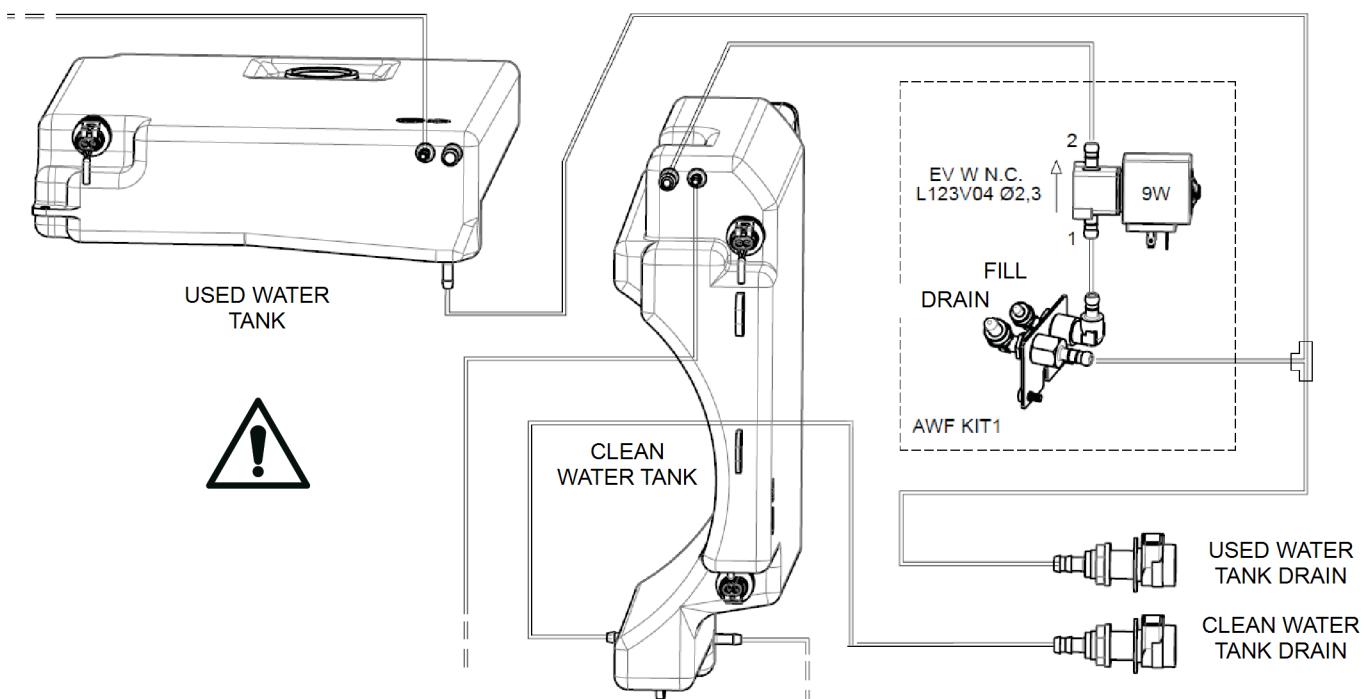
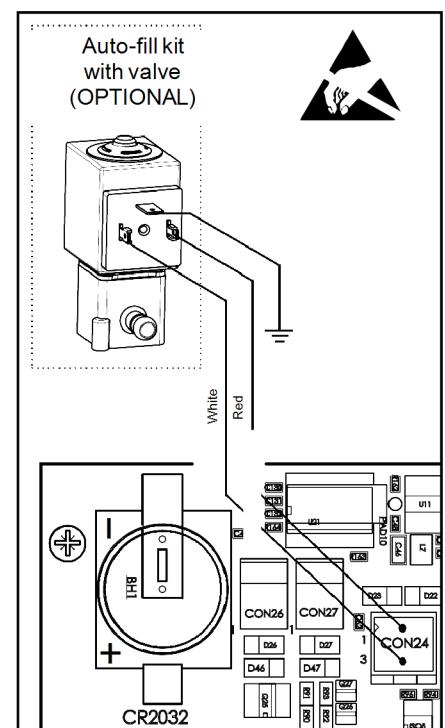
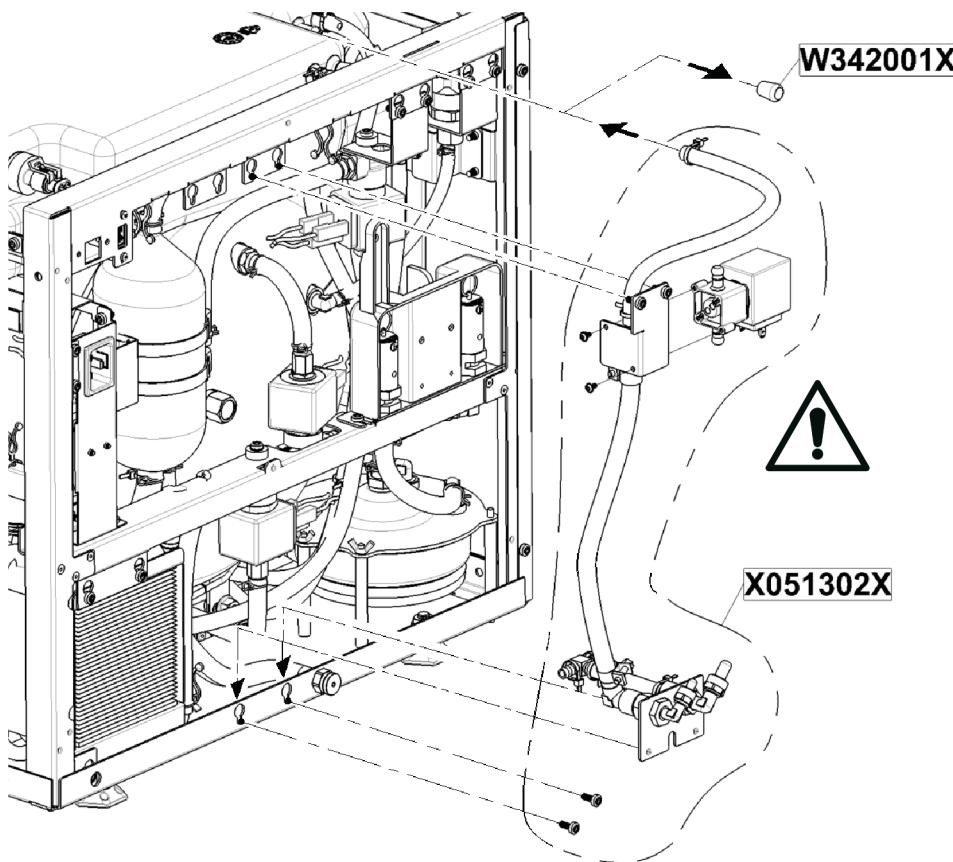


LAYOUT 0.5 - AUTO-FIT KIT WITH VALVE

Note: To enable the water filling, a special code must be entered.

Time	20 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Long nose pliers■ Cutting pliers■ Nylon cable ties

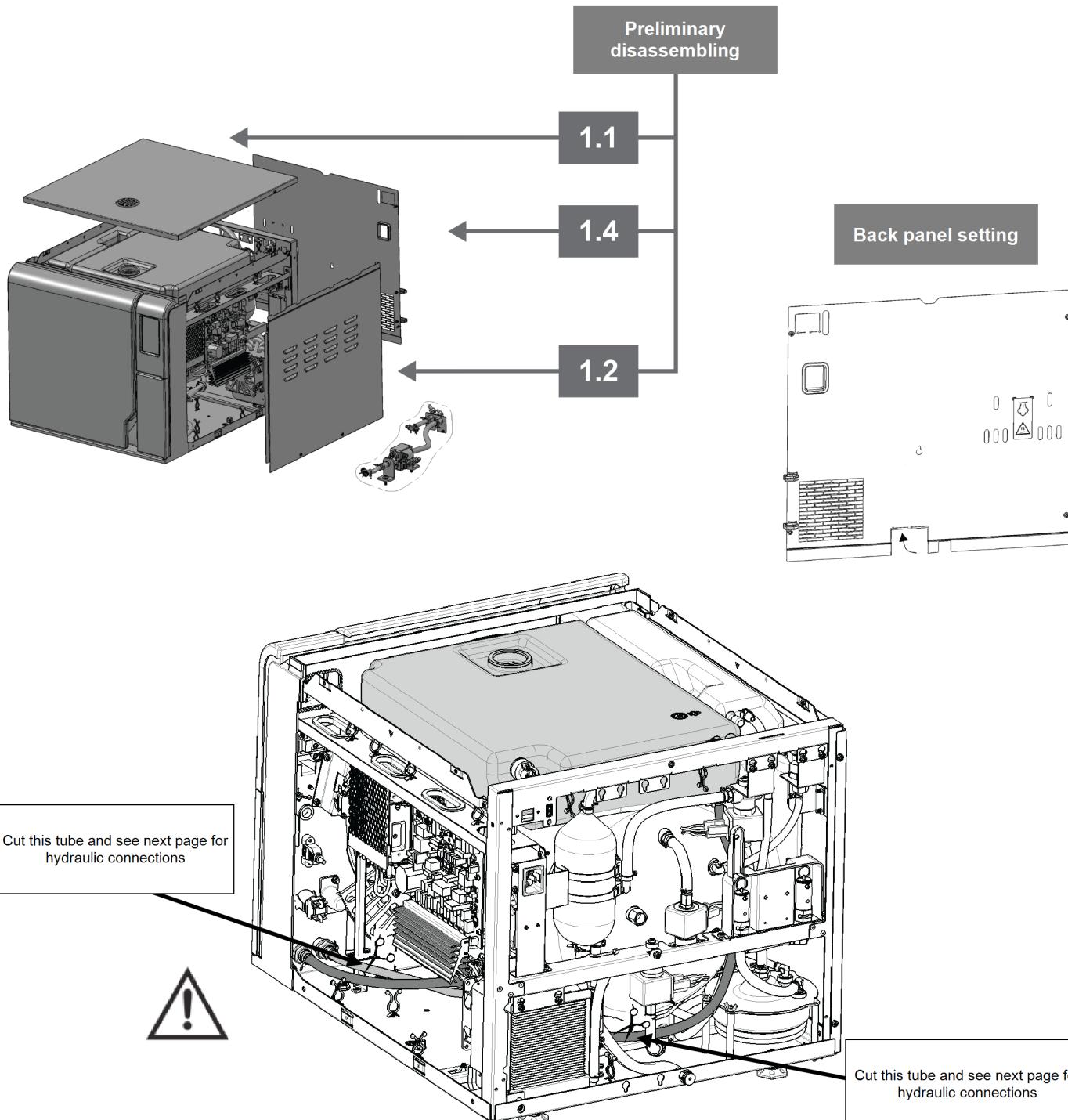


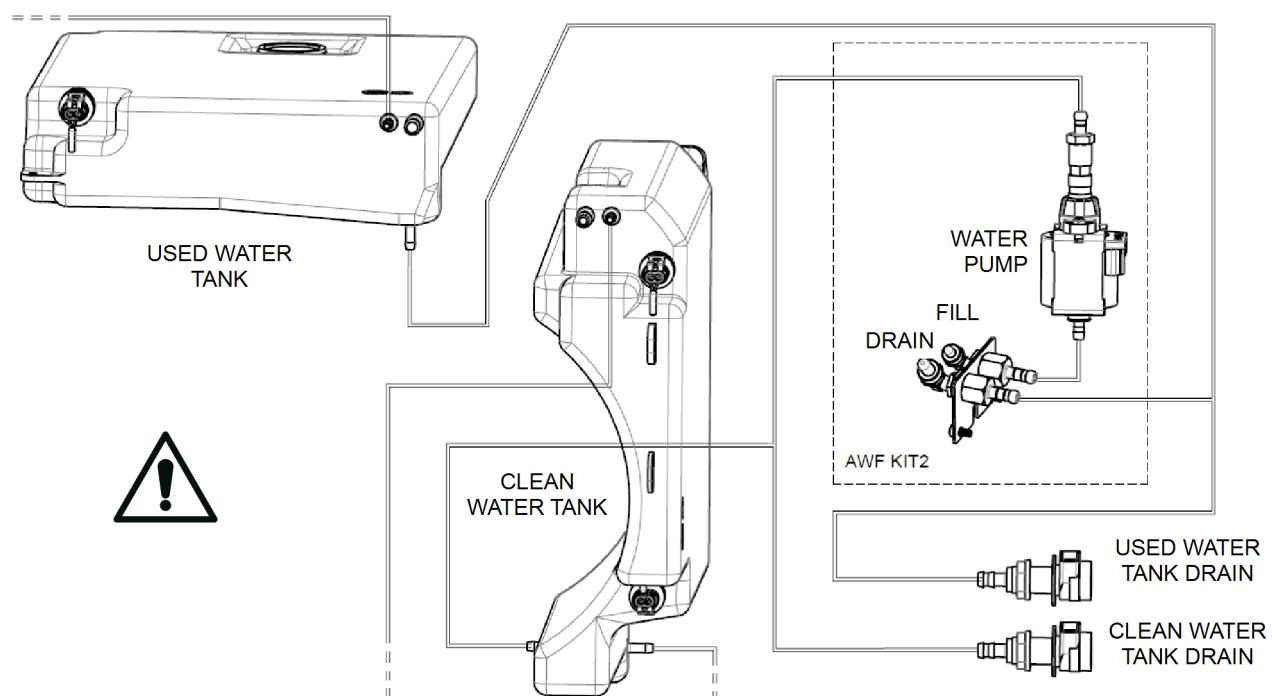
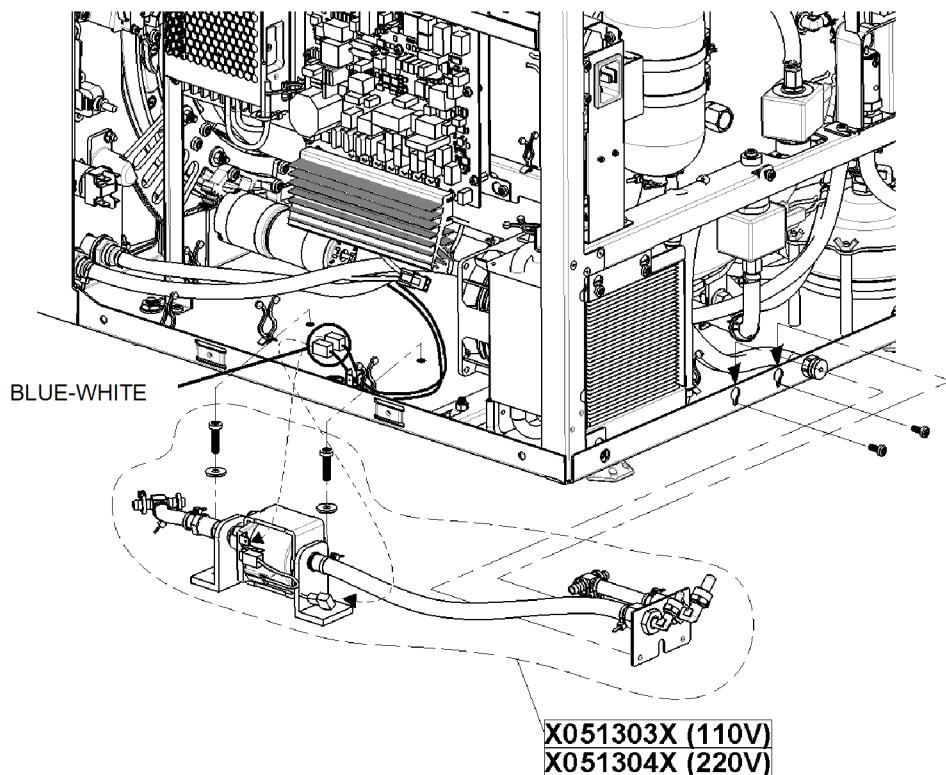


LAYOUT 0.6 - AUTO-FIT KIT WITH PUMP

Note: To enable the water filling, a special code must be entered.

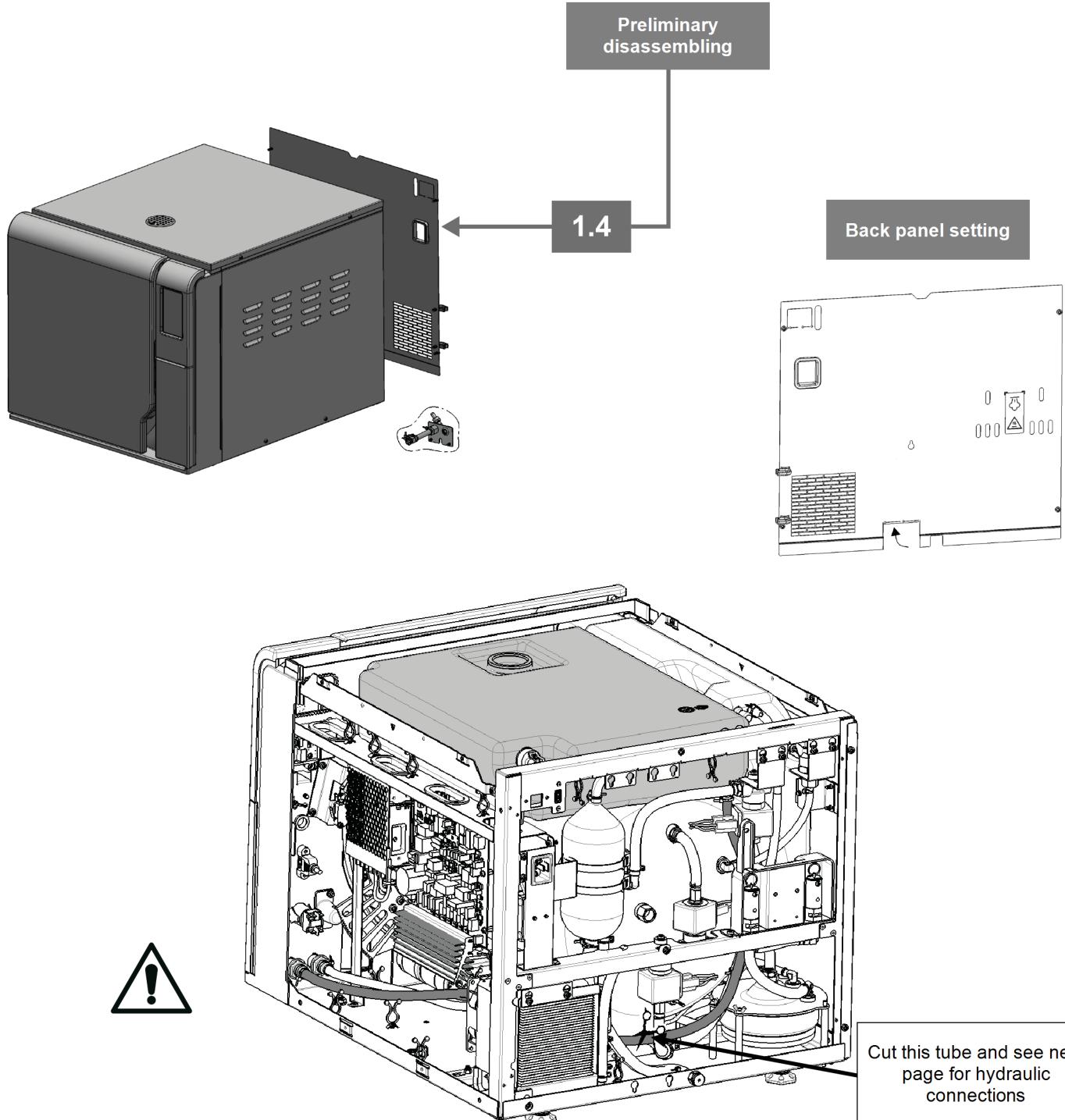
Time	20 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Torx 25 screwdriver ■ Long nose pliers ■ Cutting pliers ■ Nylon cable ties

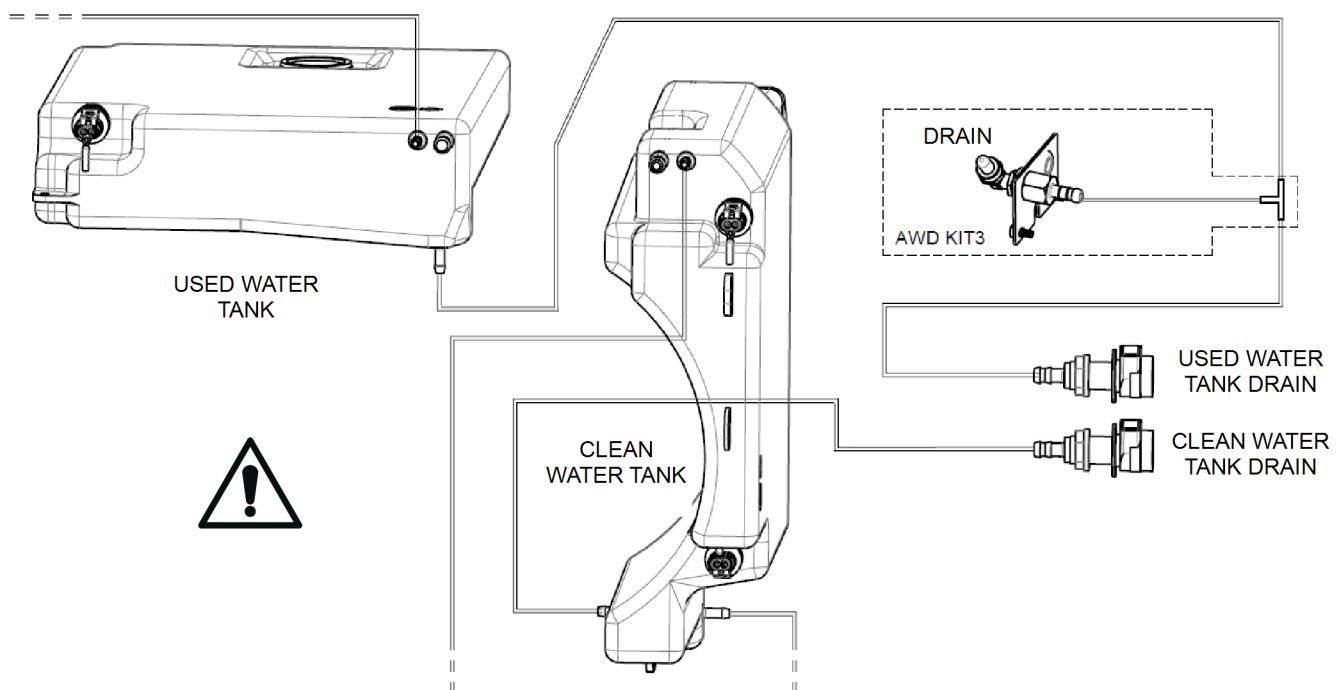
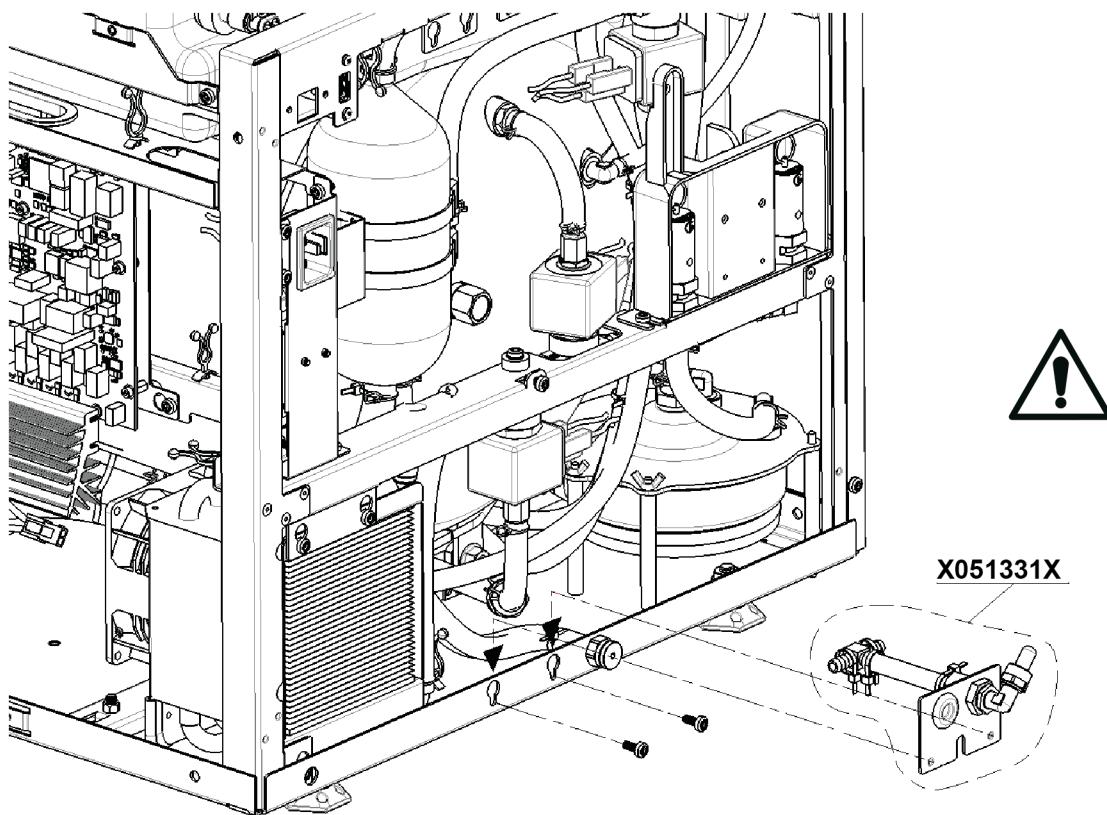




LAYOUT 0.7 - AUTO DRAIN KIT

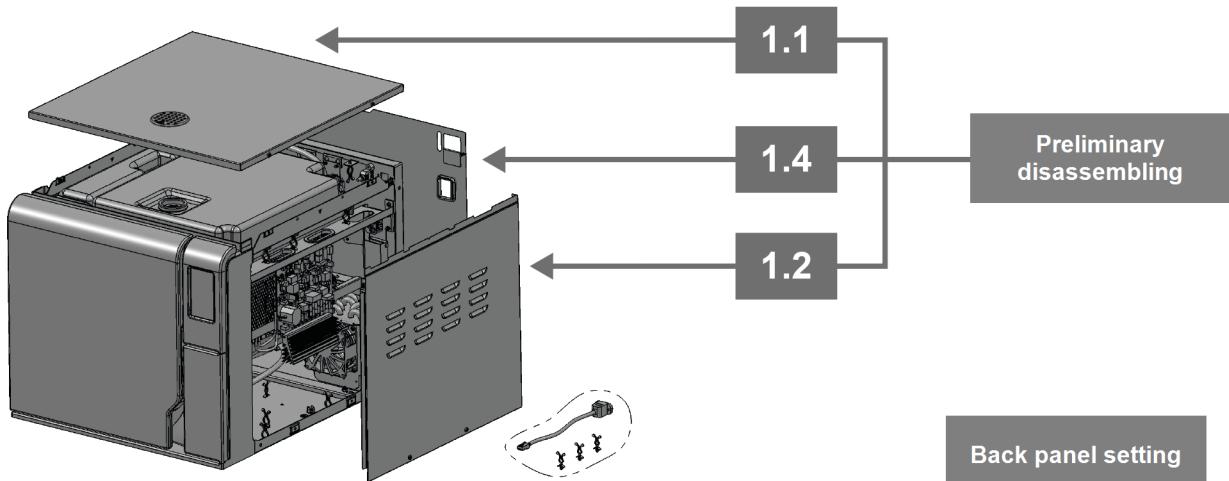
Time	20 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Cutting pliers■ Nylon cable ties



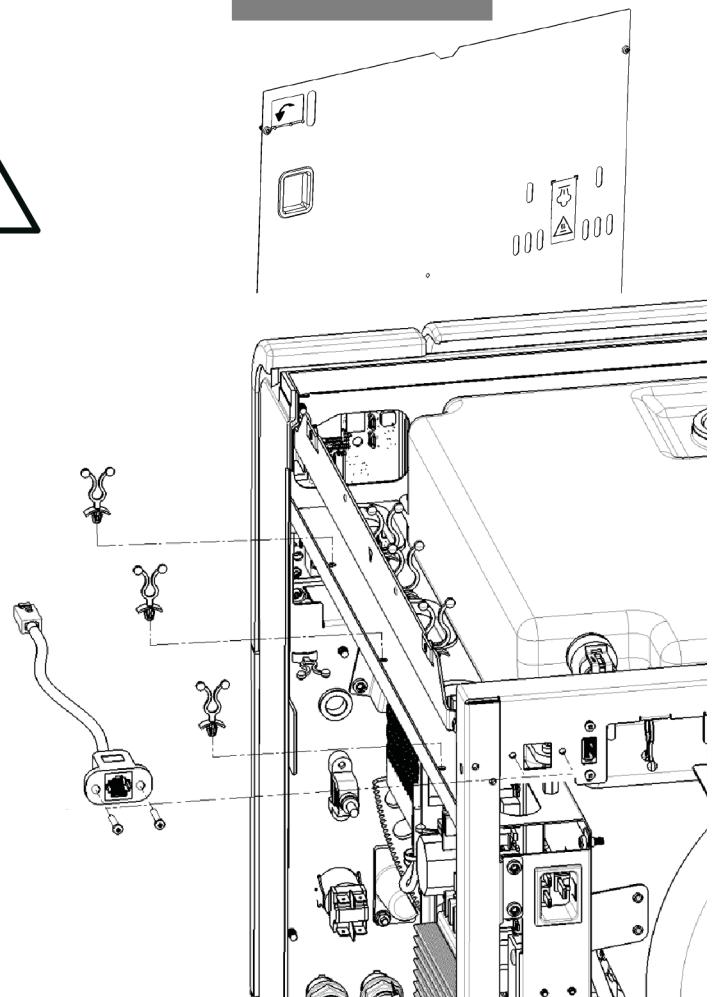
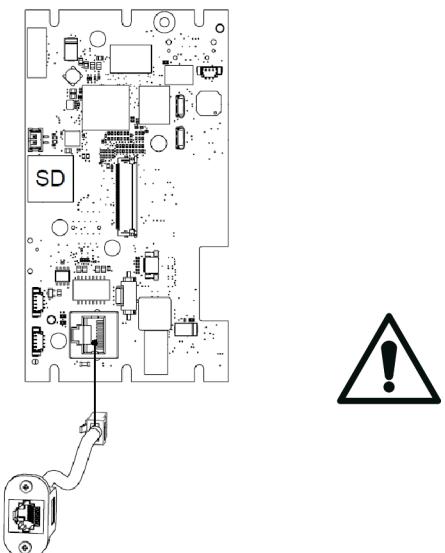
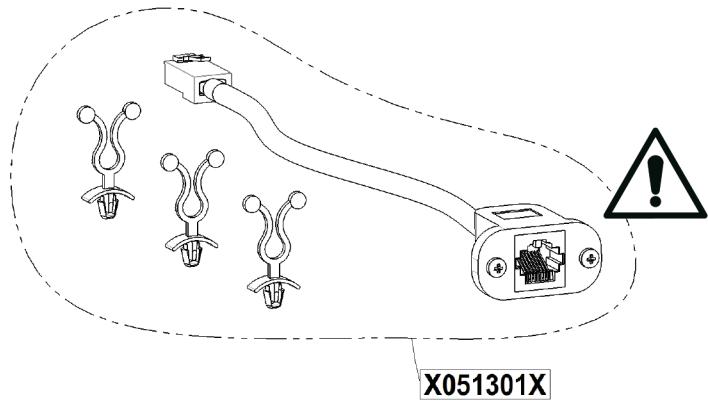


LAYOUT 0.8 - LAN CABLE KIT

Time 10 minutes
Tools ■ Torx 20 screwdriver
■ Big flat screwdriver

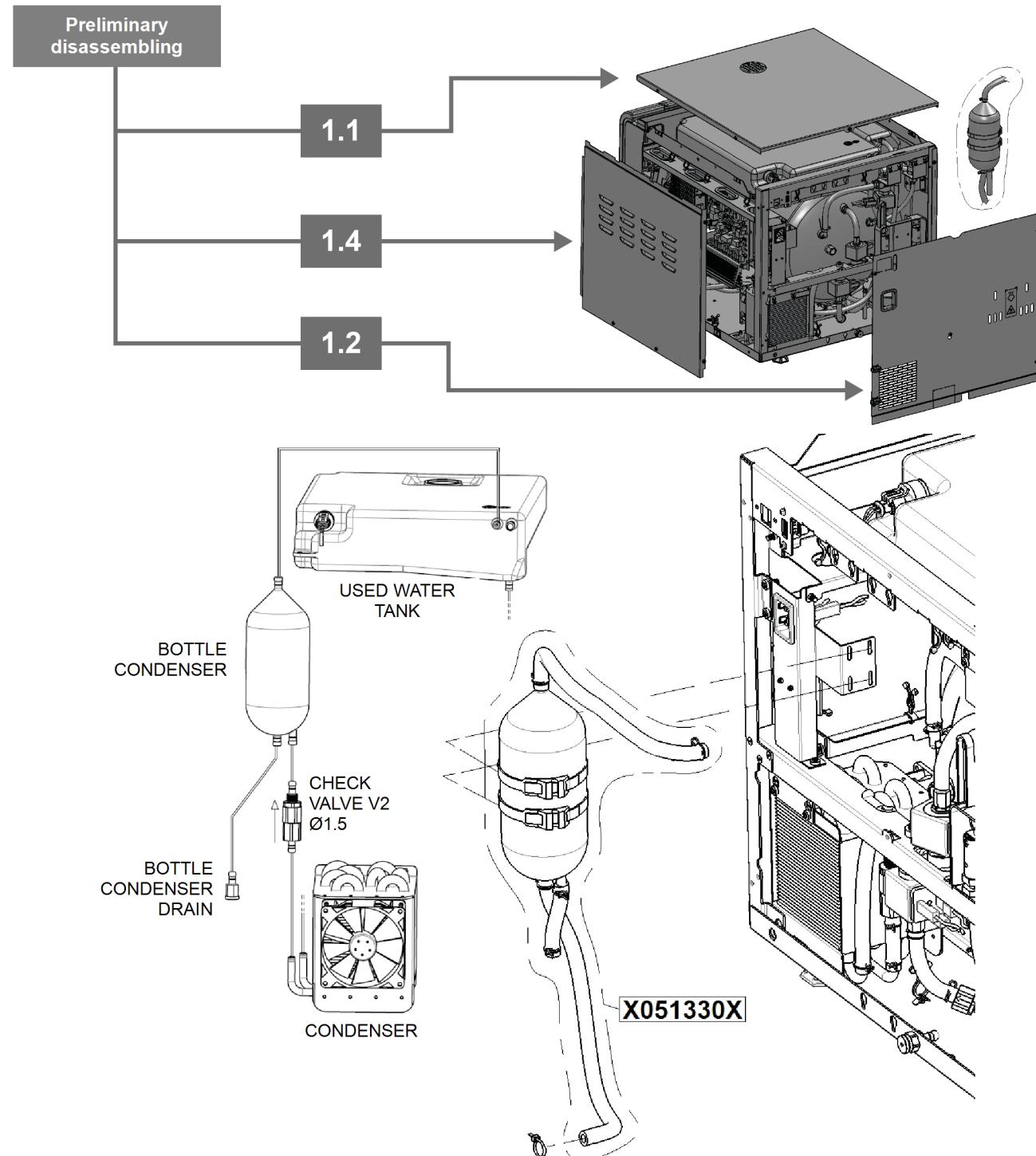


Back panel setting



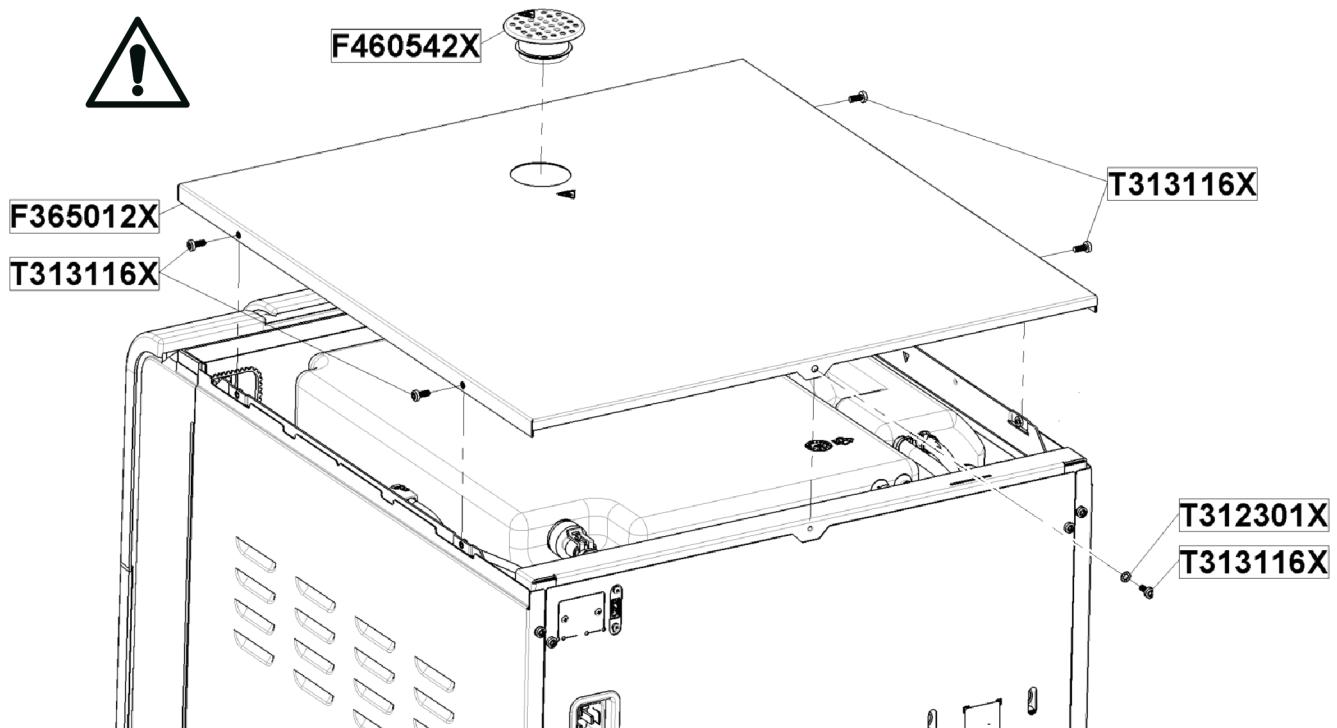
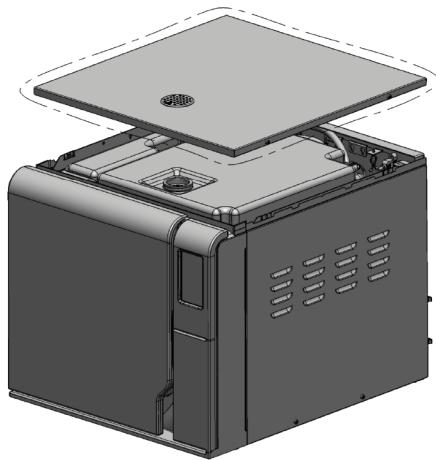
LAYOUT 0.9 - STEAM EXPANDER / CONDENSER KIT

Time	20 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Long nose pliers ■ Cutting pliers ■ Nylon cable ties



LAYOUT 1.1 - TOP COVER

Time 2 minutes
Tool Torx 20 screwdriver

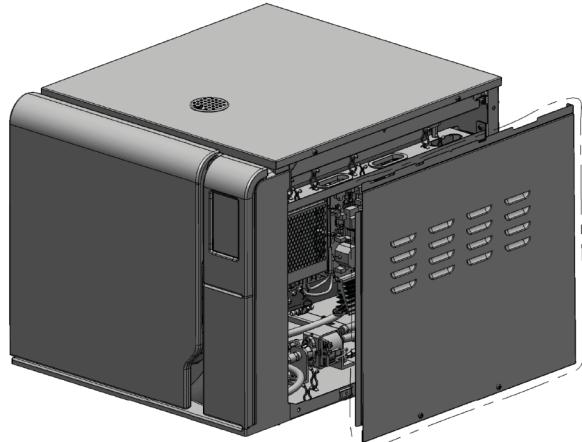


Group 1 - External covers



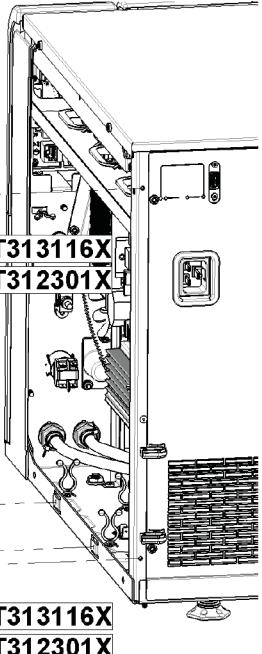
LAYOUT 1.2 - RIGHT SIDE PANEL

Time 2 minutes
Tool Torx 20 screwdriver



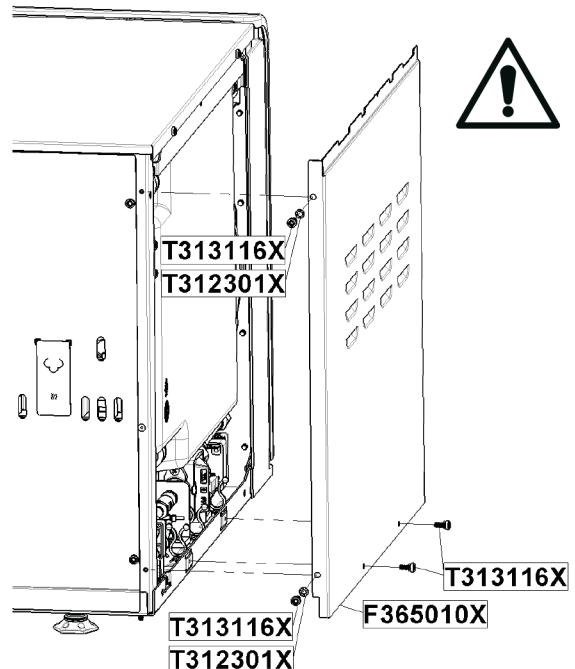
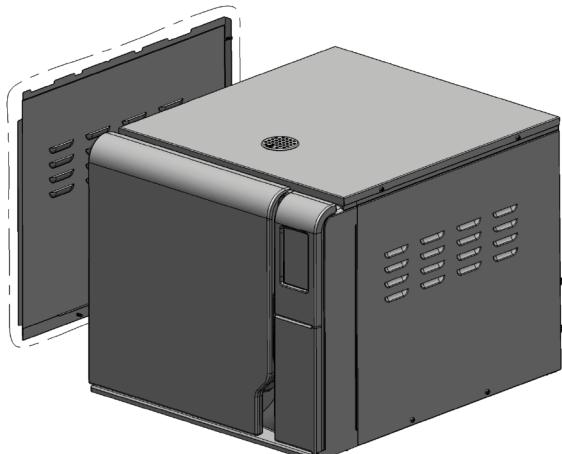
T313116X

CONTACT DEALER FOR REF.



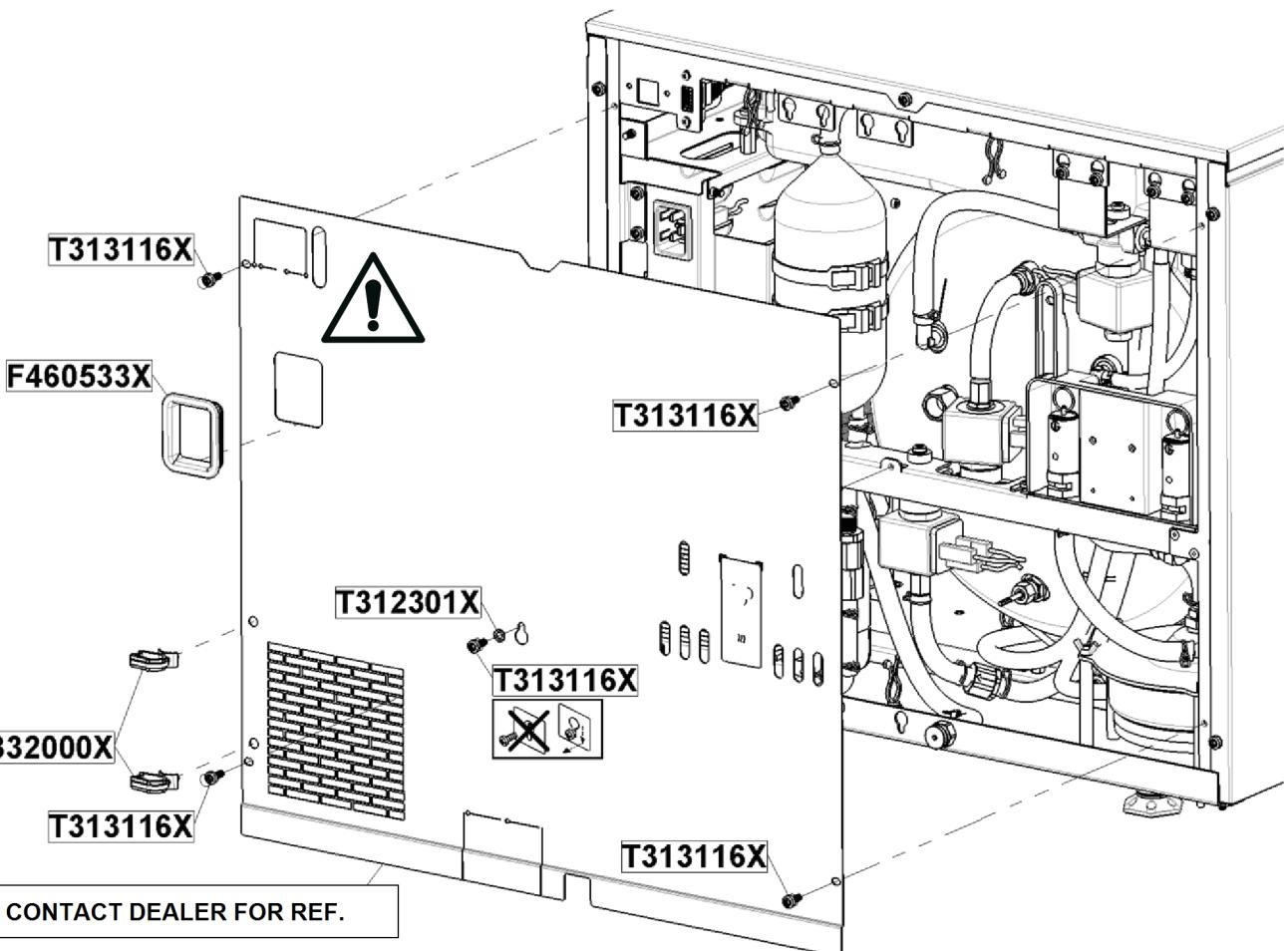
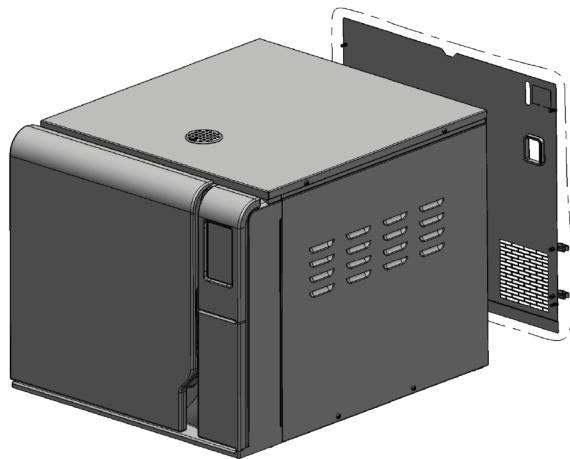
LAYOUT 1.3 - LEFT SIDE PANEL

Time 2 minutes
Tool Torx 20 screwdriver



LAYOUT 1.4 - BACK PANEL

Time 2 minutes
Tool Torx 20 screwdriver

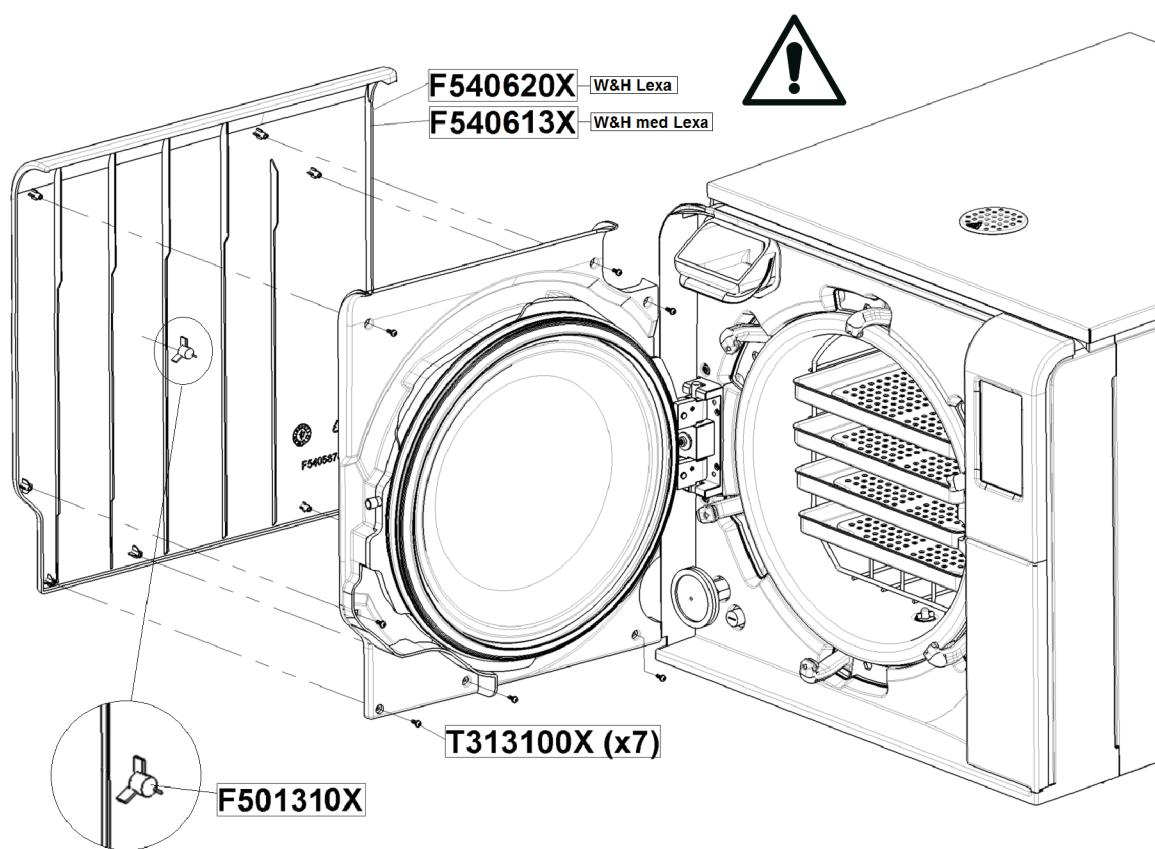


Group 1 - External covers



LAYOUT 1.5.1 - DOOR COVER

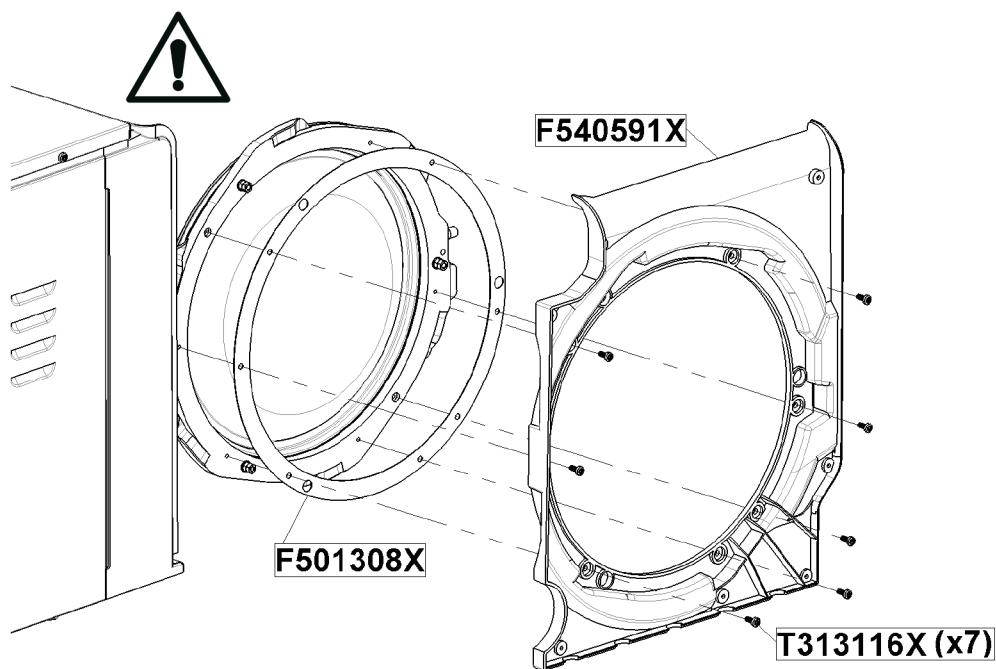
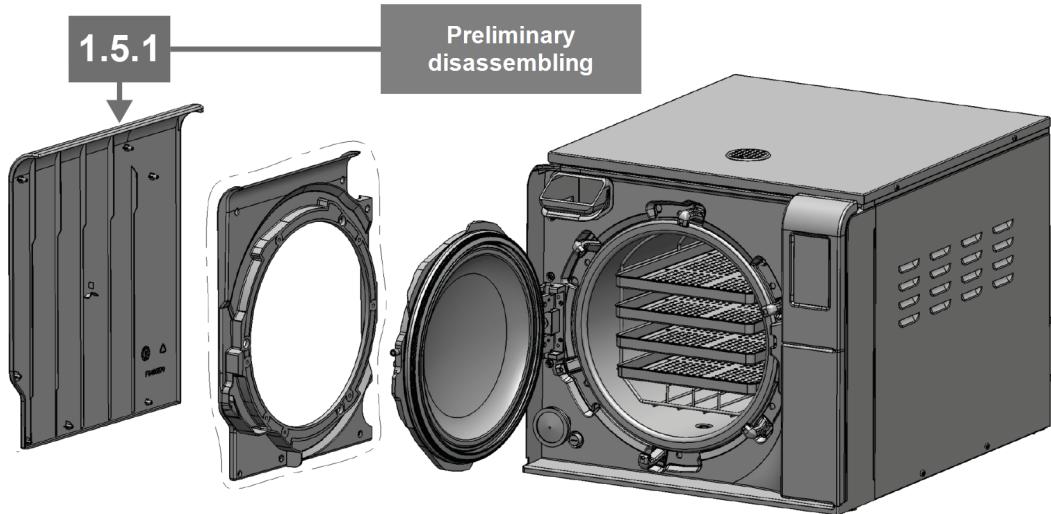
Time 3 minutes
Tool Torx 10 screwdriver



LAYOUT 1.5.2 - INTERNAL DOOR COVER

Time 3 minutes

Tool Torx 20 screwdriver



Group 2 - Chamber door

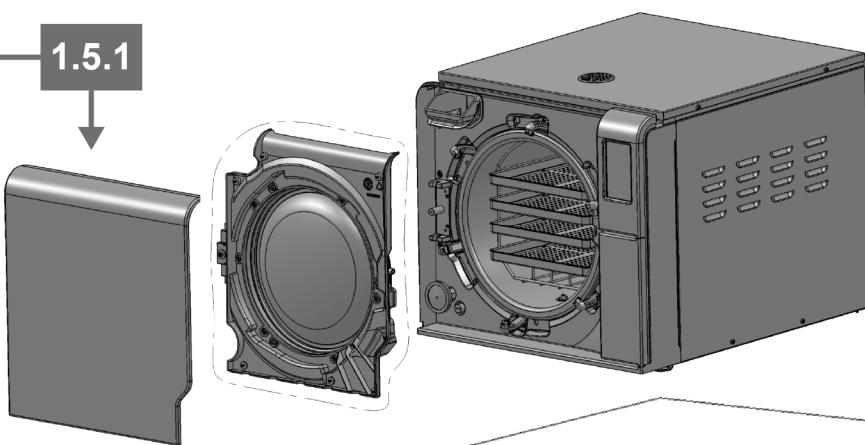


LAYOUT 2.1 - DOOR COMPLETE

Time 4 minutes
Tool Torx 20 screwdriver

Preliminary
disassembling

1.5.1

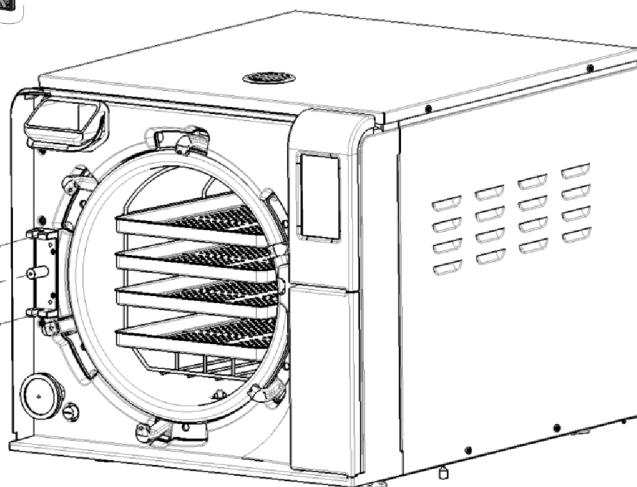


F300305X



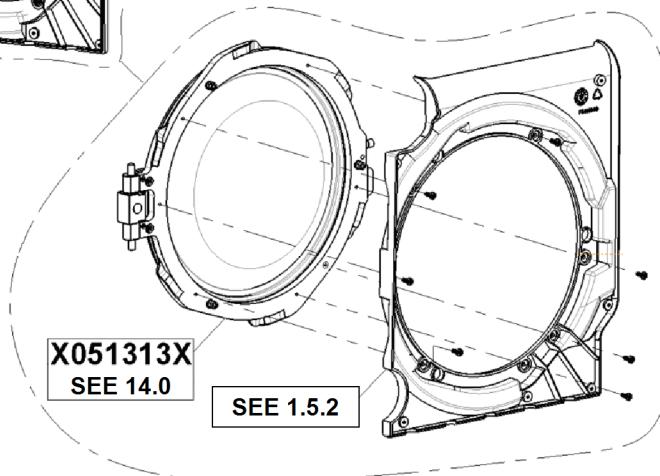
T312154X

T313116X



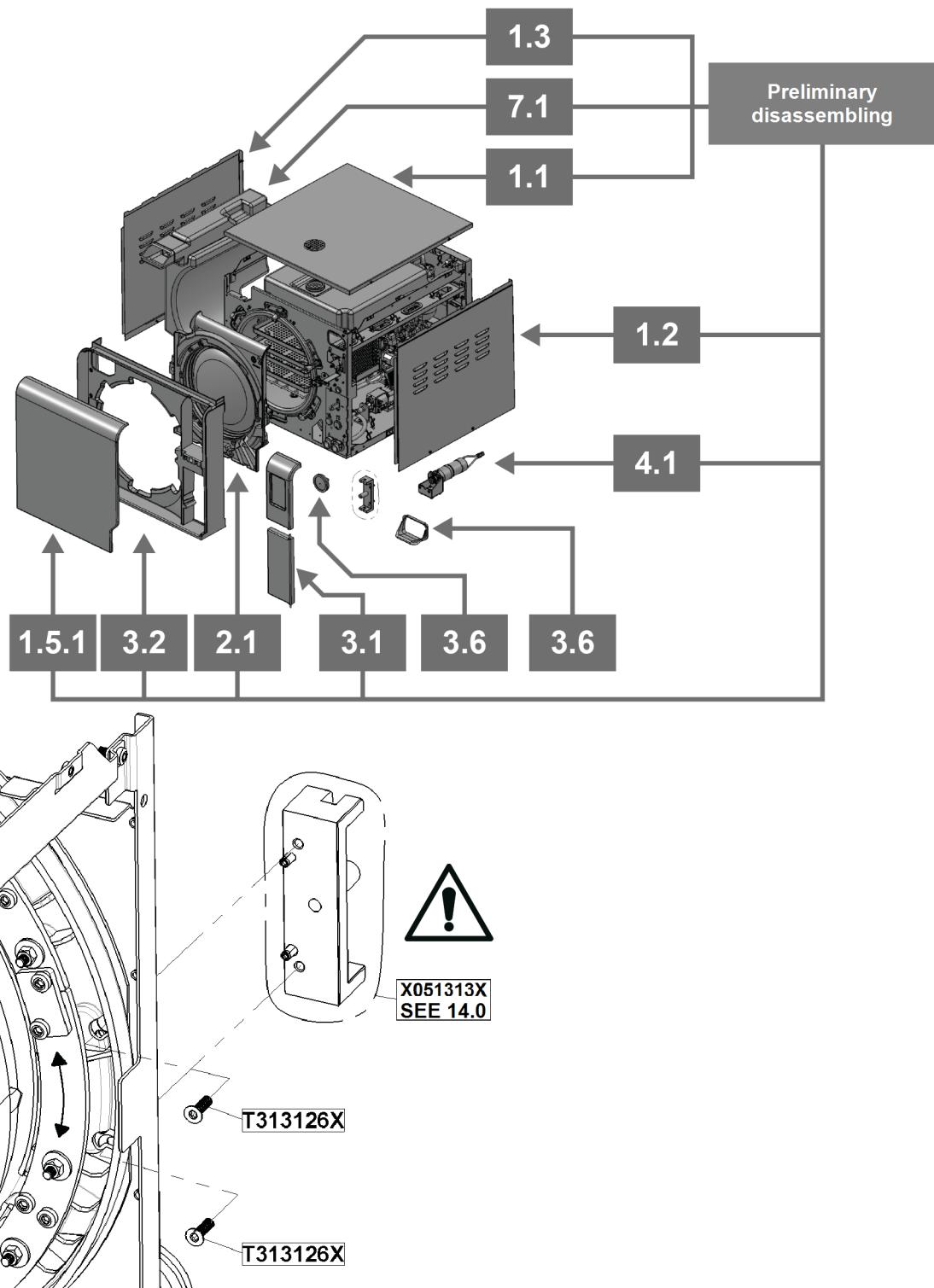
X051313X
SEE 14.0

SEE 1.5.2



LAYOUT 2.2 - FIXED HINGES

Time 20 minutes
Tool Torx 25 screwdriver



Group 3 - Front and service door components

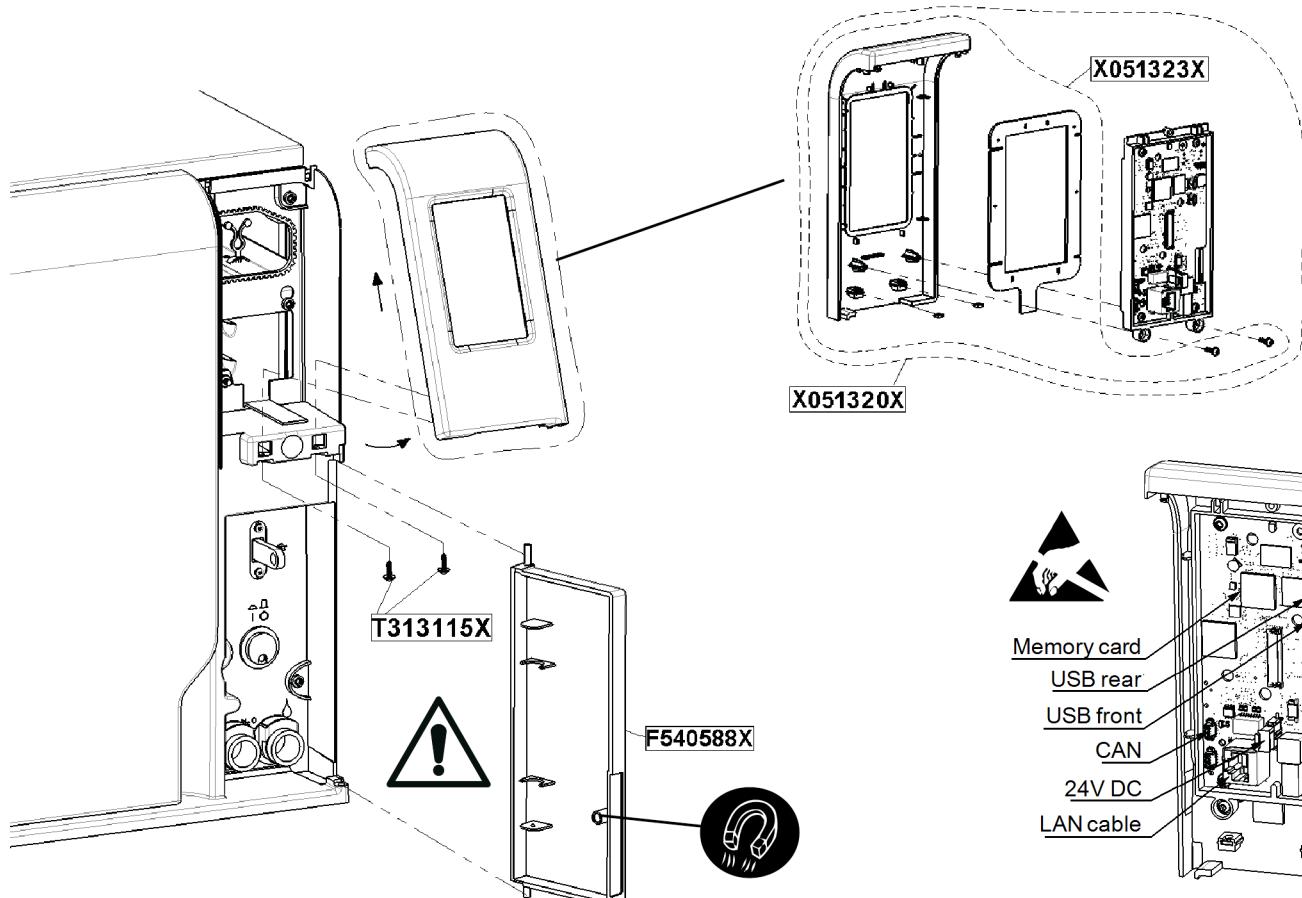
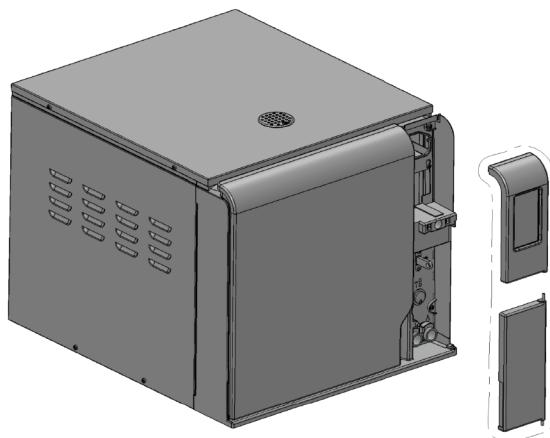


LAYOUT 3.1 - TOUCH SCREEN AND MMI CONNECTION SCHEMA

Note: After replacing the MMI, you must program it (see "Management of software version" on page 13).

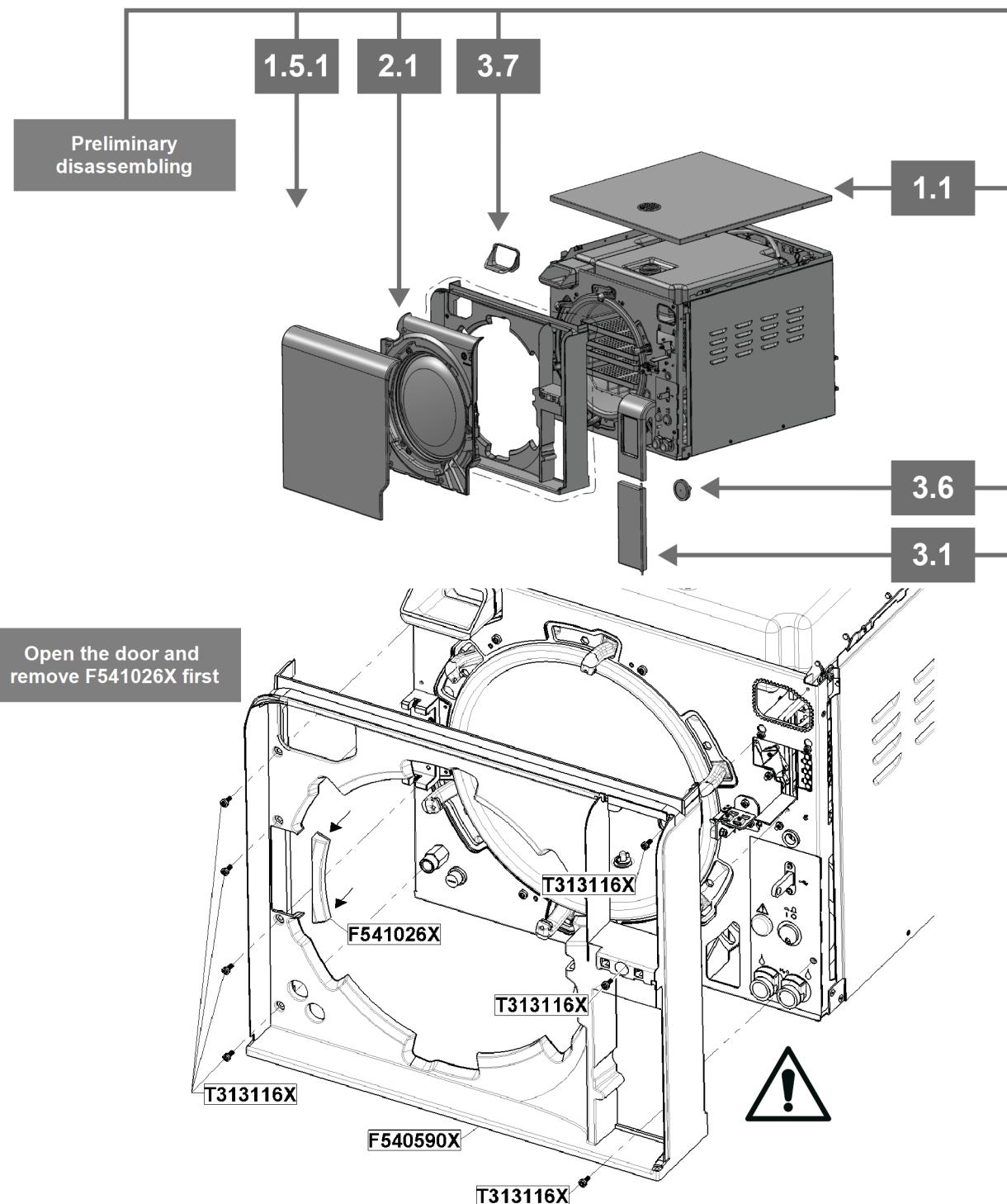
Time	2 minutes
Tool	Torx 10 screwdriver

**NO Preliminary
disassembling required**



LAYOUT 3.2 - FRONT PANEL AND SERVICE DOOR

Time 10 minutes
Tool Torx 20 screwdriver

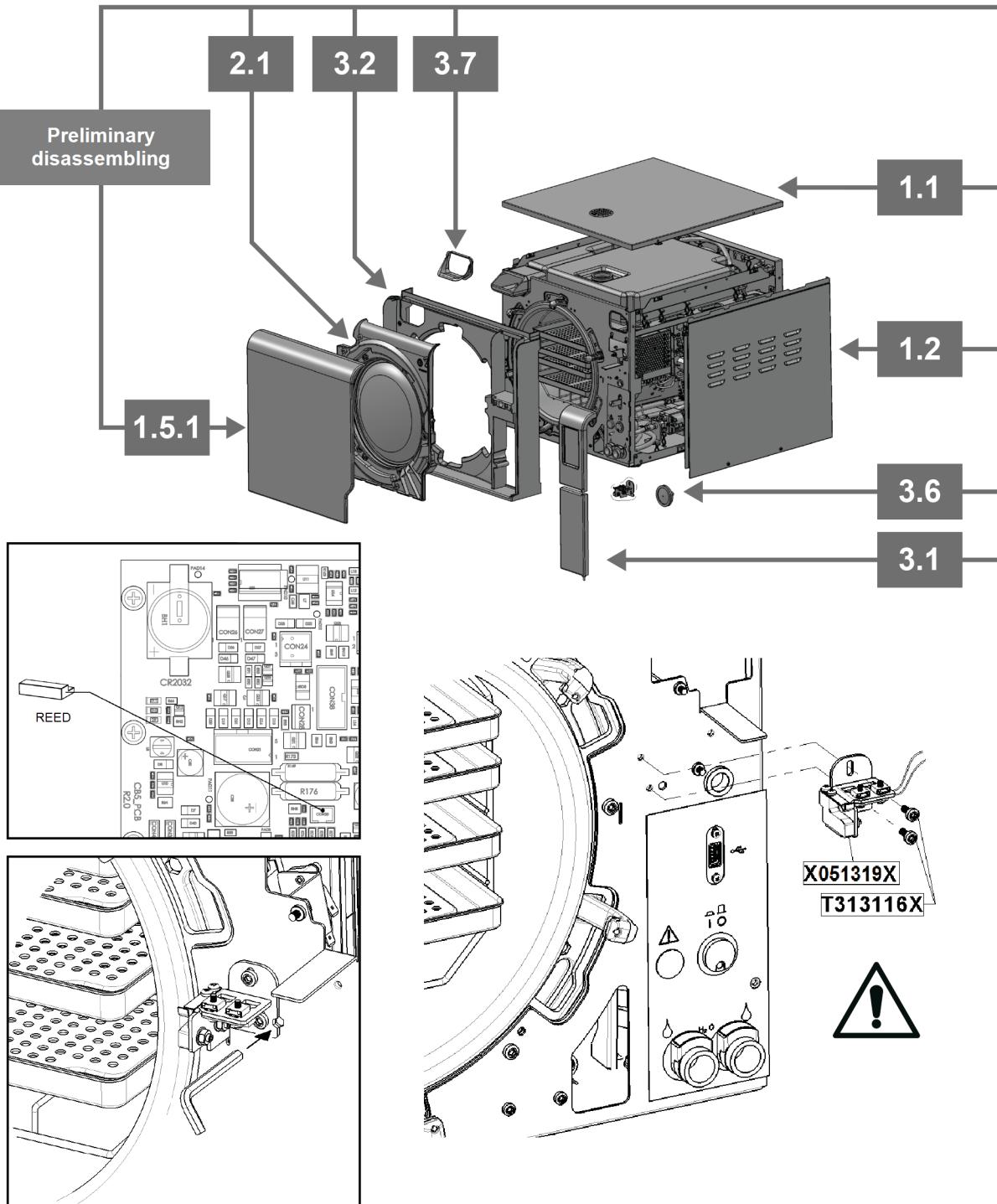


Group 3 - Front and service door components



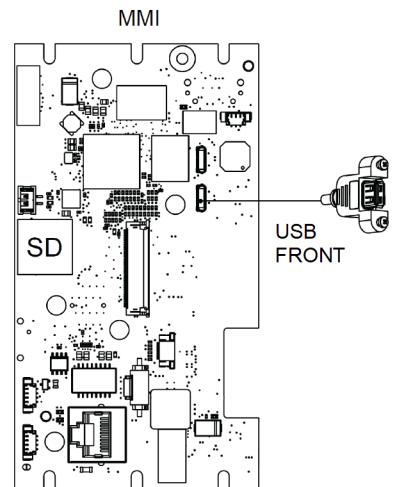
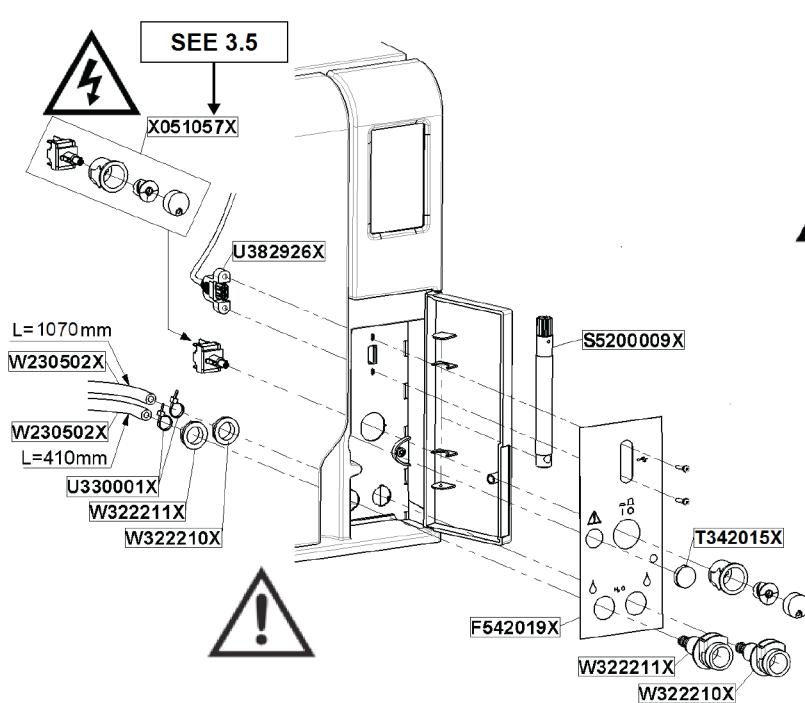
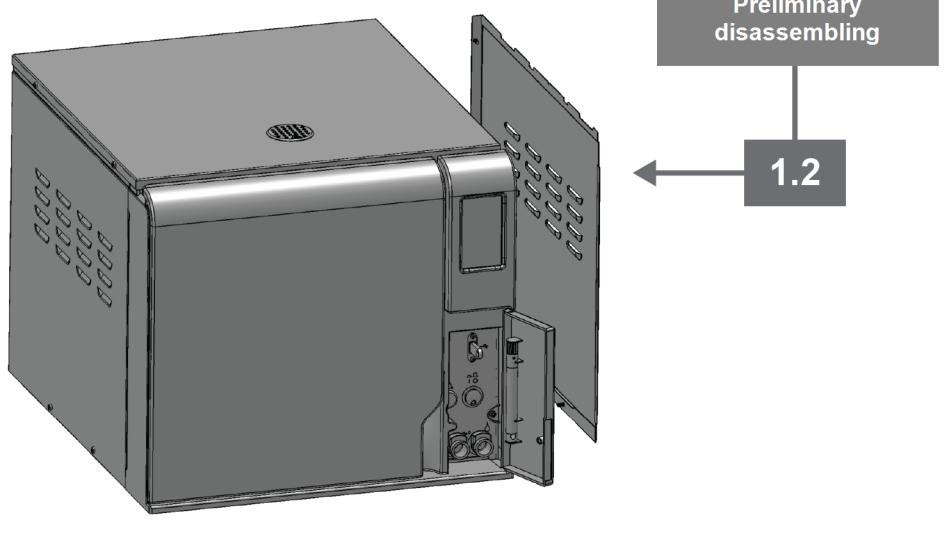
LAYOUT 3.3 - DOOR SWITCH

Time	15 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Allen key, 5mm



LAYOUT 3.4 - SERVICE DOOR COMPONENTS

Time	5 minutes each
Tools	<ul style="list-style-type: none"> ■ Philips PH2 screwdriver ■ Tube wrench n°20 ■ Cutting pliers ■ Nylon cable ties



Group 3 - Front and service door components

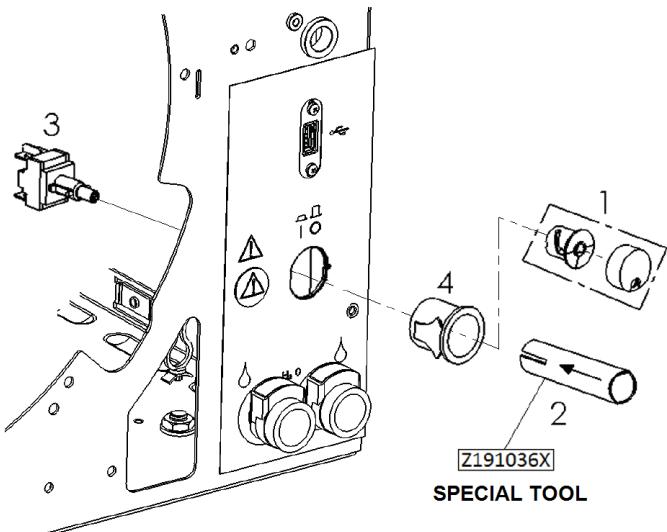


LAYOUT 3.5 - MAINS SWITCH

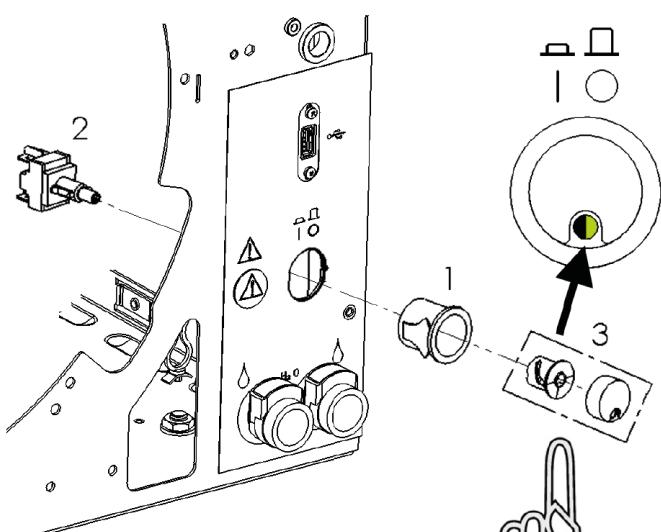
Time 5 minutes

Tools Small flat screwdriver

Disassembly

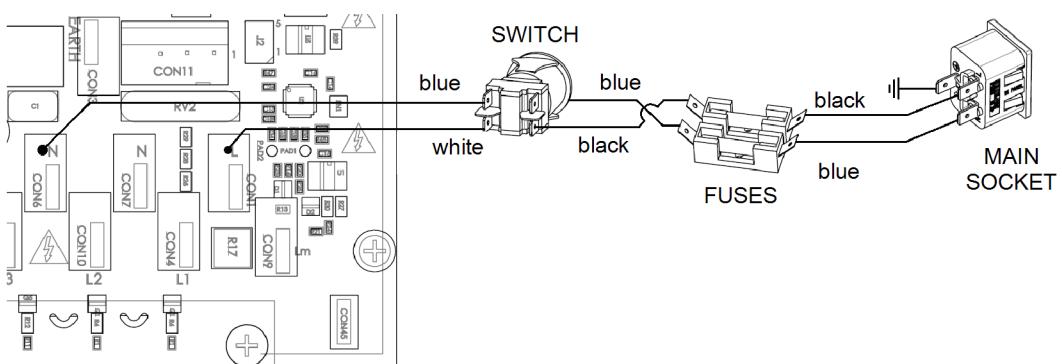


Assembly



1. Remove the mains switch cap and the green/black indicator by pulling (1).
 2. Press the special tool (2) against the switch body to disengage it and remove it by pulling from the back (3).
 3. If necessary, remove the switch housing (4) by bending the wing – shaped notches in the back.

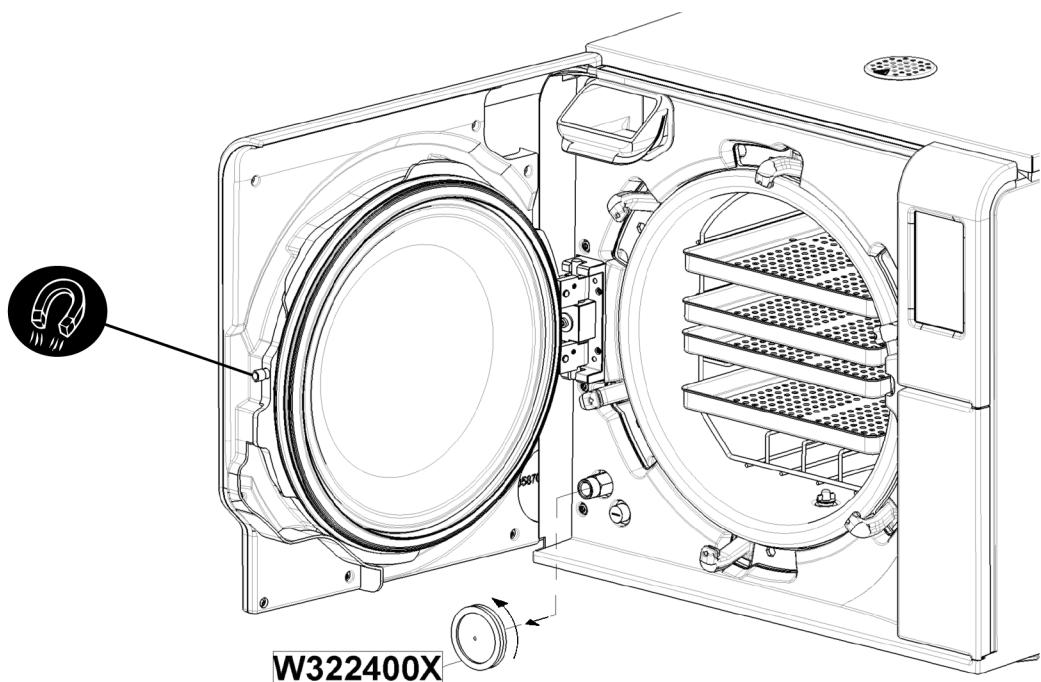
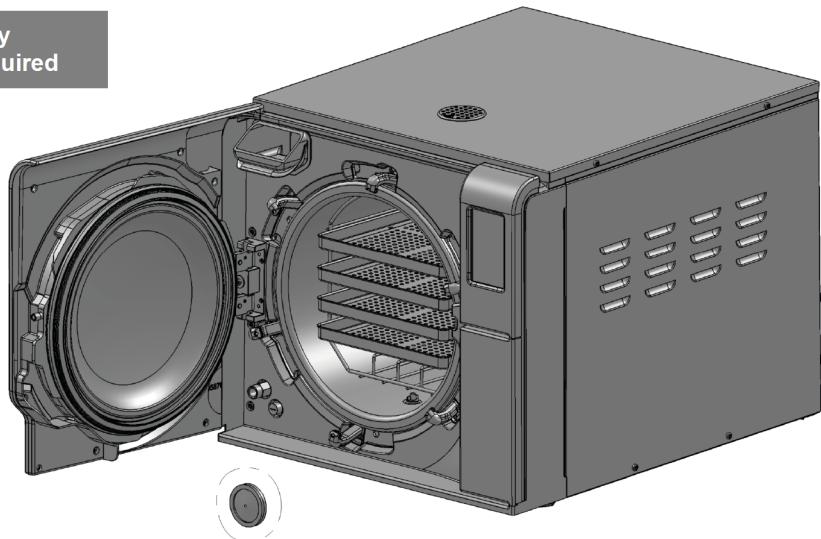
1. Mount the switch housing [1].
 2. Push the switch [2] into the housing from the back. FAST – ON connectors must be horizontal. An audible click will indicate correct assembly.
 3. Attach the mains switch cap to the green/black indicator. Align the green/black indicator in such a way that the boundary between the two colours is in the middle of the transparent window of the mains switch cap. An audible click will indicate correct assembly.
 4. Mount the assembled mains switch cap [3] onto the mains switch. Observe the notch orientation.
 5. Check the visual indicator: Mains switch pressed = Green indicator [sterilizer ON] Mains switch released = Black indicator [sterilizer OFF]



LAYOUT 3.6 - HEPA FILTER

Time 1 minute
Tool No tool

NO Preliminary
disassembling required



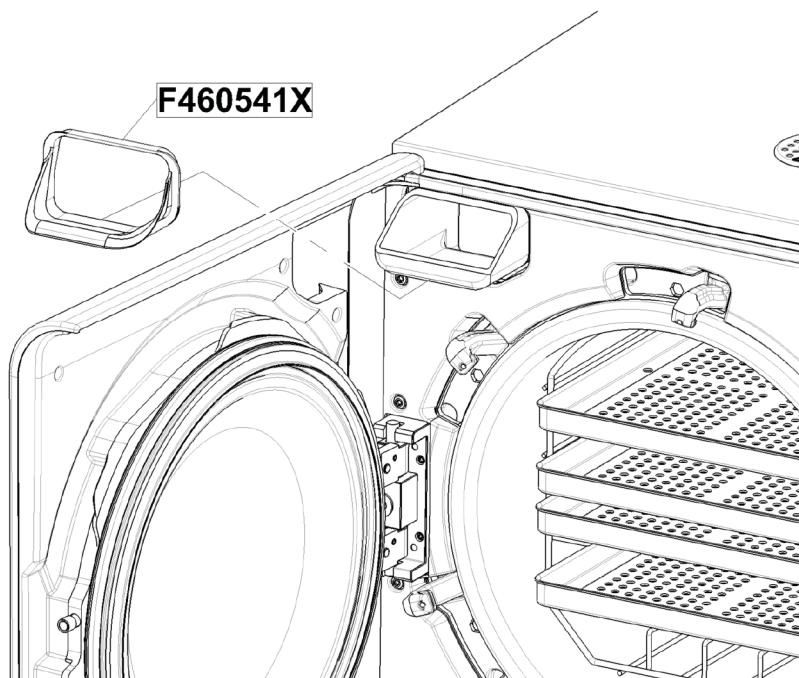
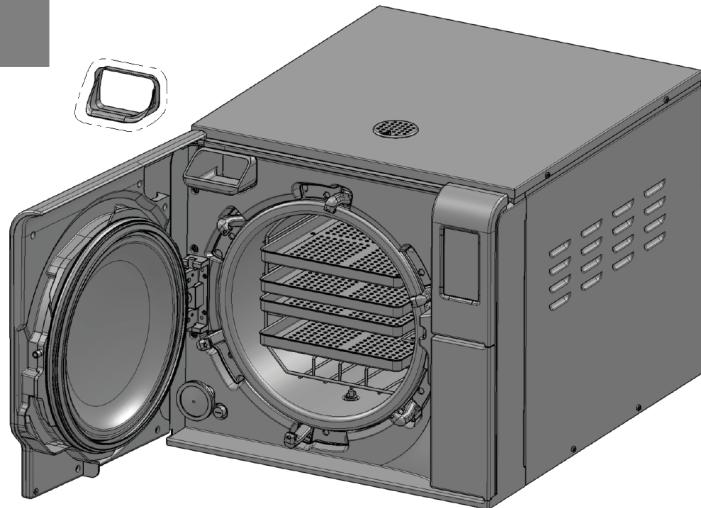
Group 3 - Front and service door components



LAYOUT 3.7 - CLEAN WATER TANK SEAL

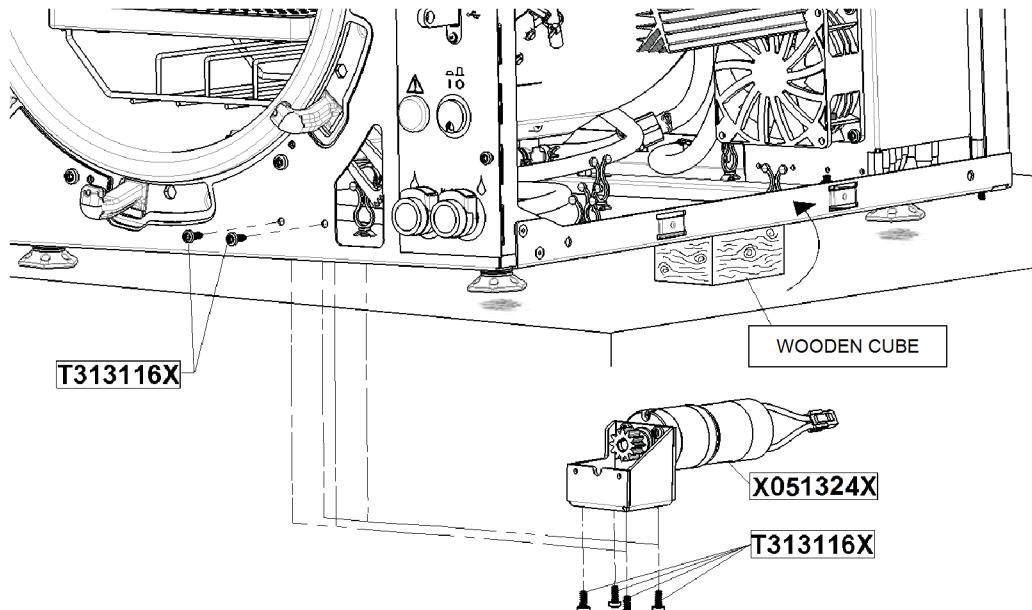
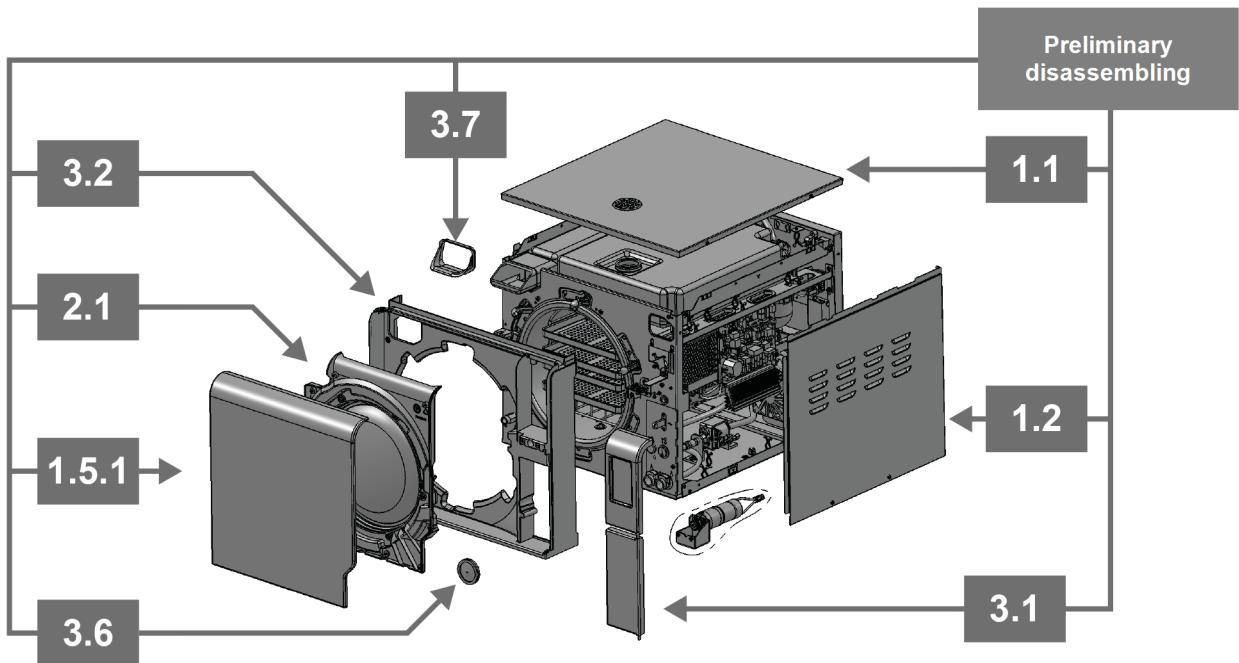
Time 1 minute
Tool No tool

NO Preliminary
disassembling required



LAYOUT 4.1 - MOTOR

Time	15 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ L-shaped torx 20 screwdriver■ Wooden cube



Group 4 - Motor and switches

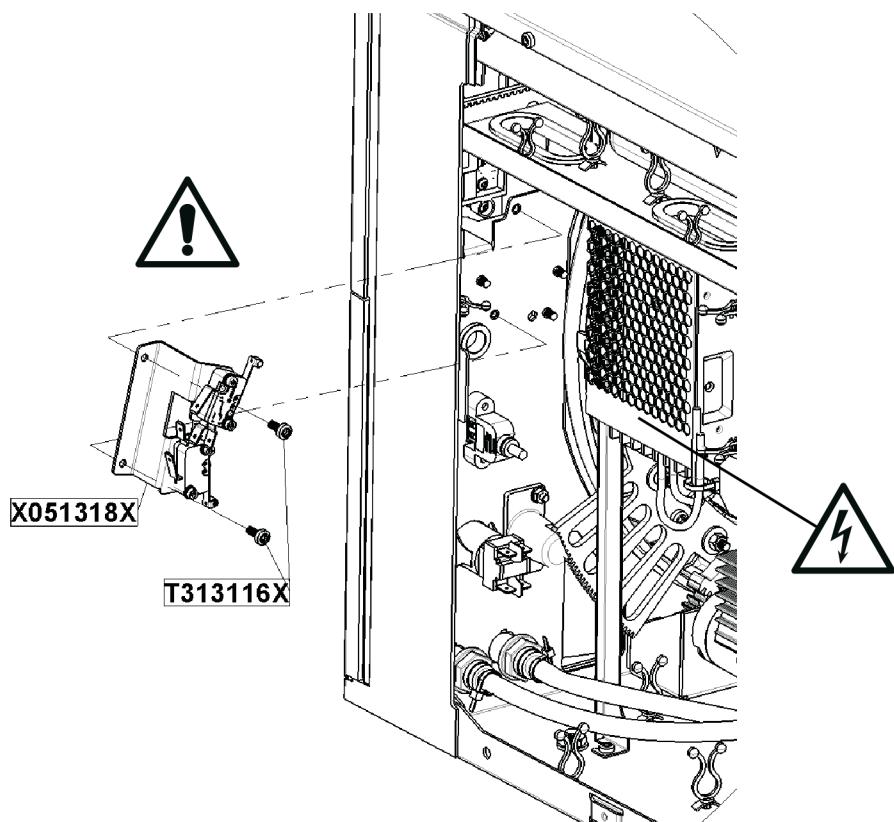
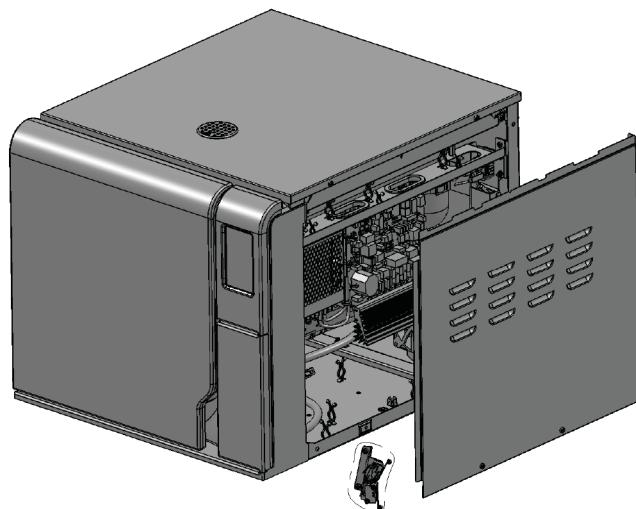


LAYOUT 4.2 - SWITCHES OF THE DOOR LOCKING SYSTEM

Time 5 minutes
Tool Torx 20 screwdriver

Preliminary
disassembling

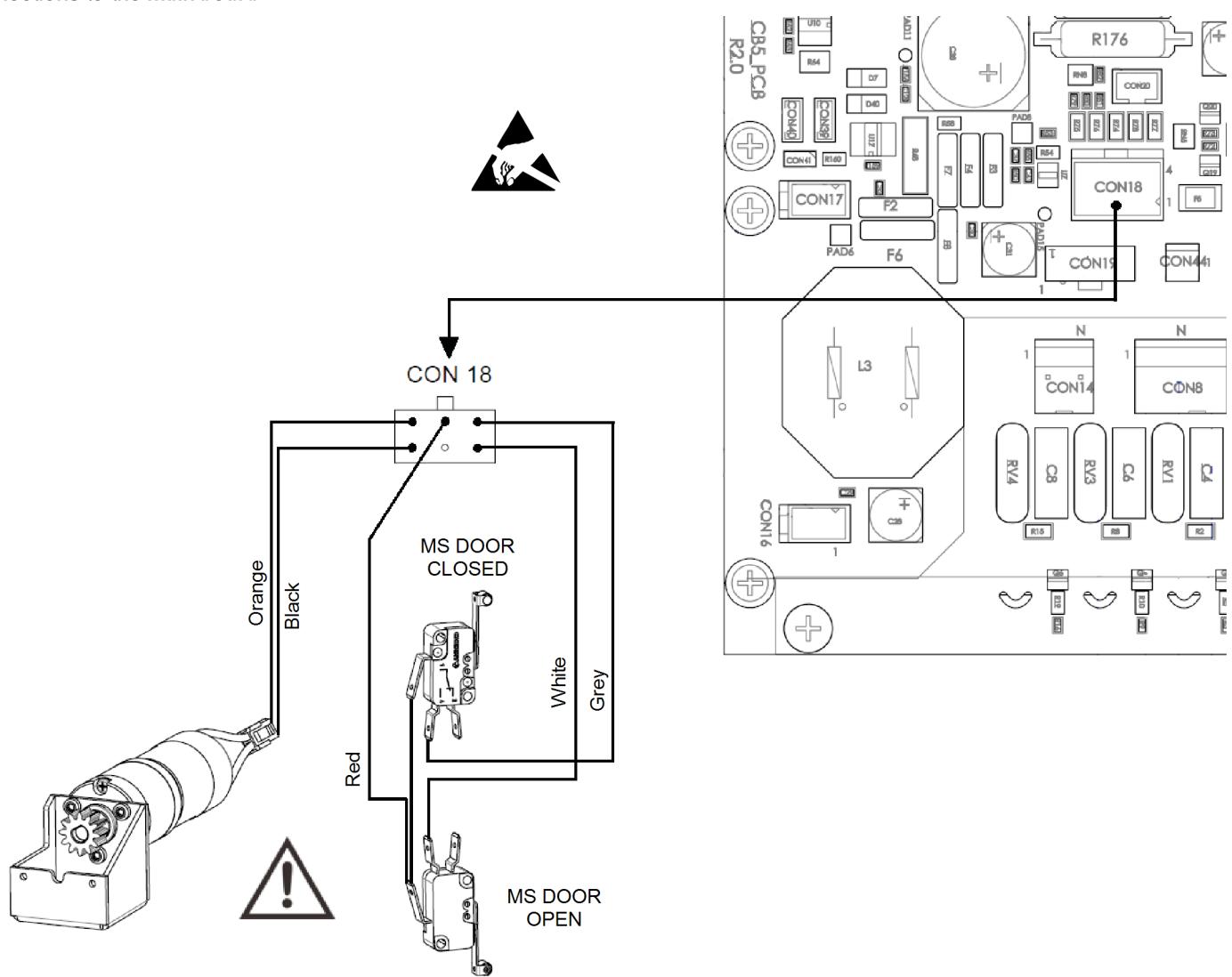
1.2



Group 4 - Motor and switches

LAYOUT 4.3 - DOOR LOCKING SYSTEM CONNECTIONS

Connections to the main board

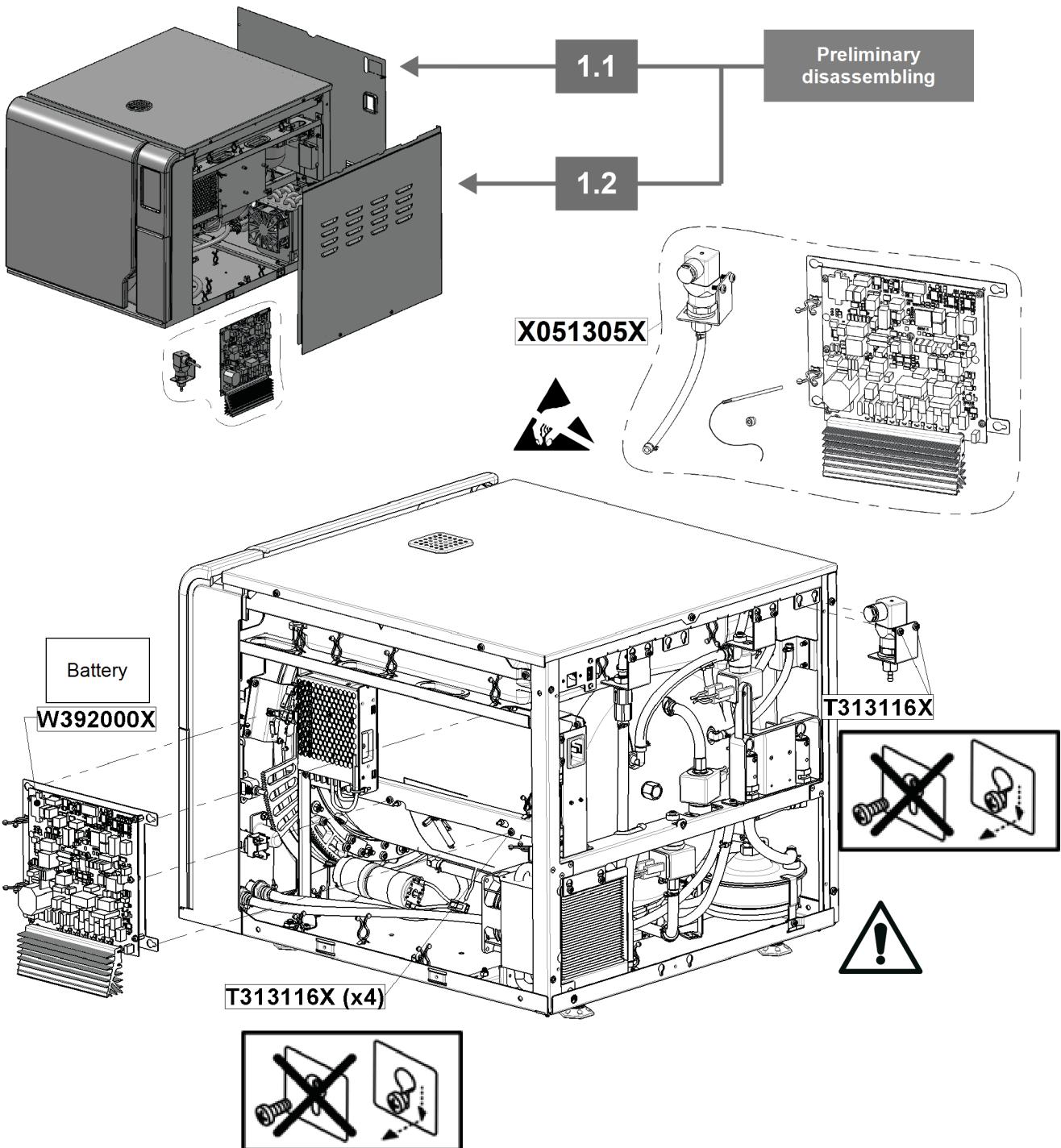


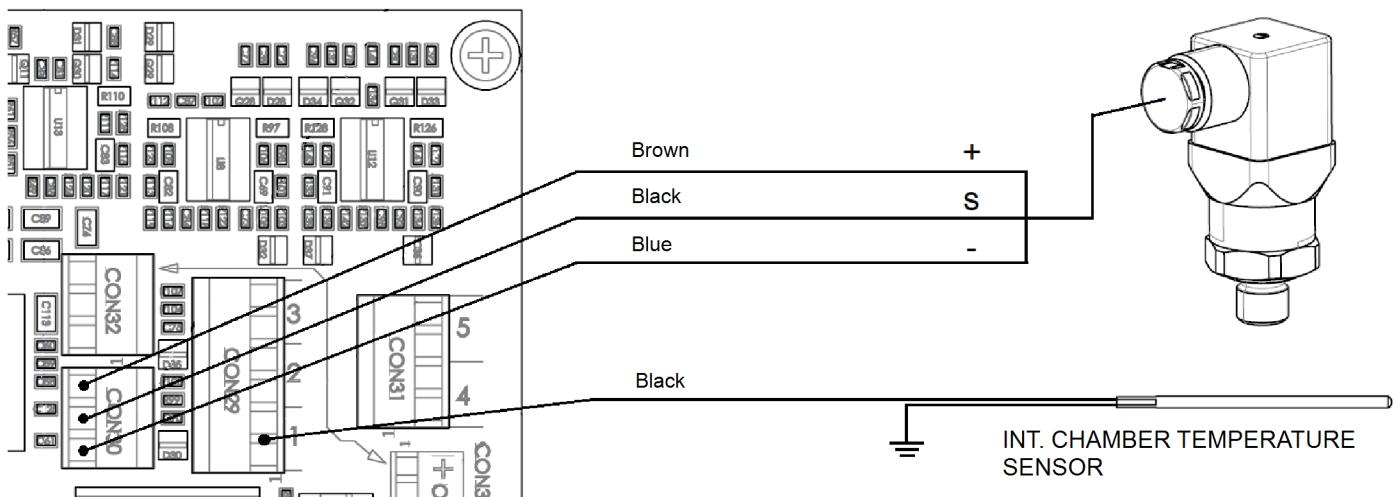
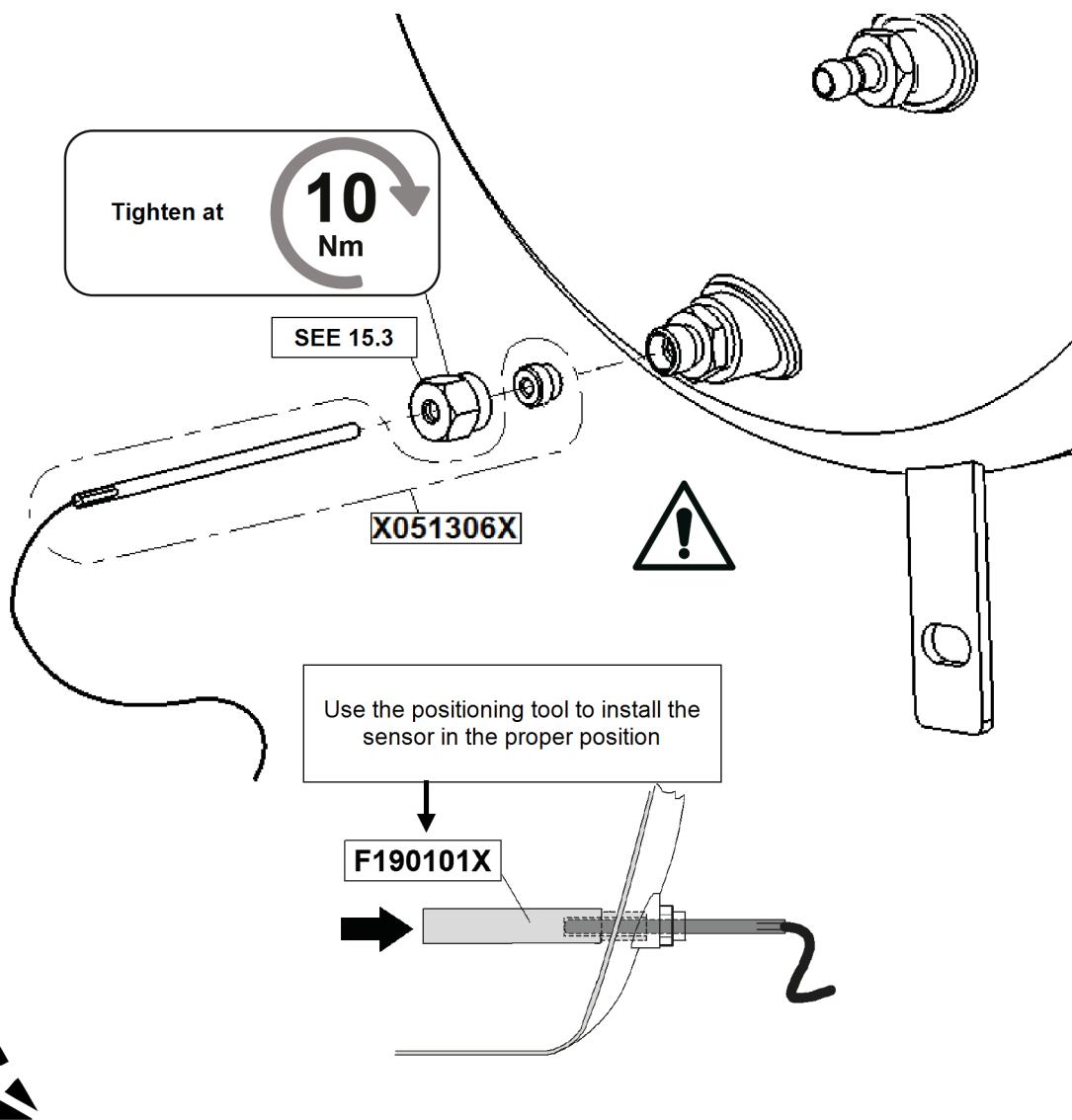
Group 5 - Electric-electronic components



LAYOUT 5.1 - MAIN BOARD, PRESSURE SENSOR AND TEMPERATURE SENSOR

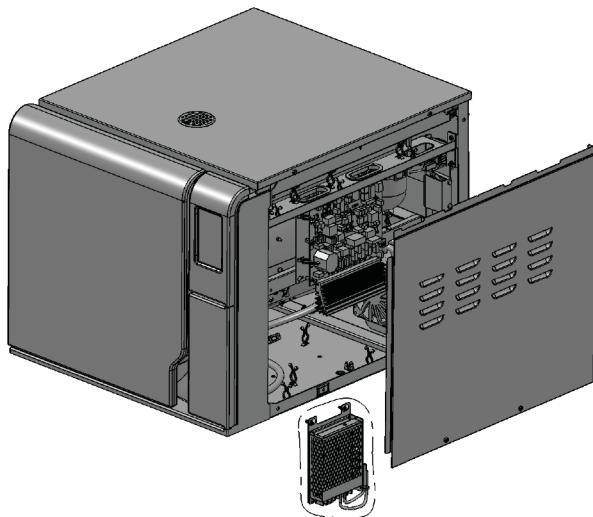
Time	20 minutes
Tool	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Long nose pliers ■ Small flat screwdriver ■ Torque wrench ■ Cutting pliers ■ Nylon cable ties





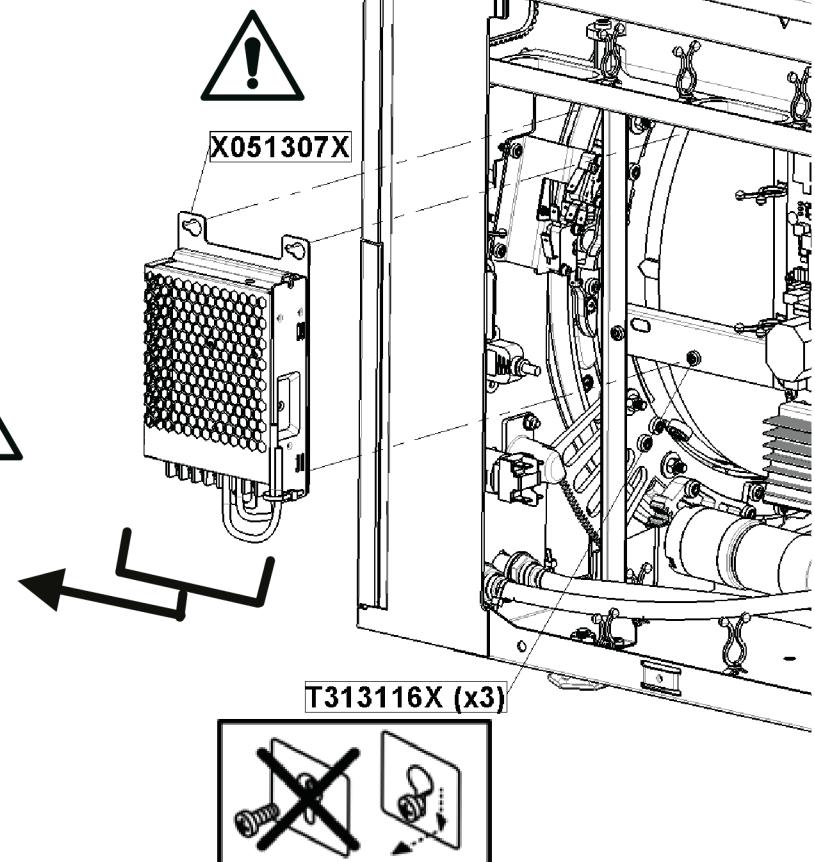
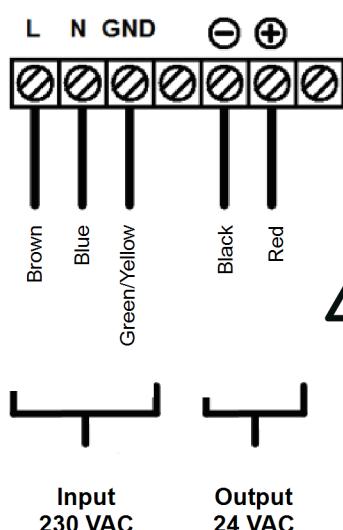
LAYOUT 5.2 - 24 V POWER UNIT

Time	5 minutes
Tool	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Philips PH2 screwdriver ■ Cutting pliers ■ Nylon cable ties



1.2

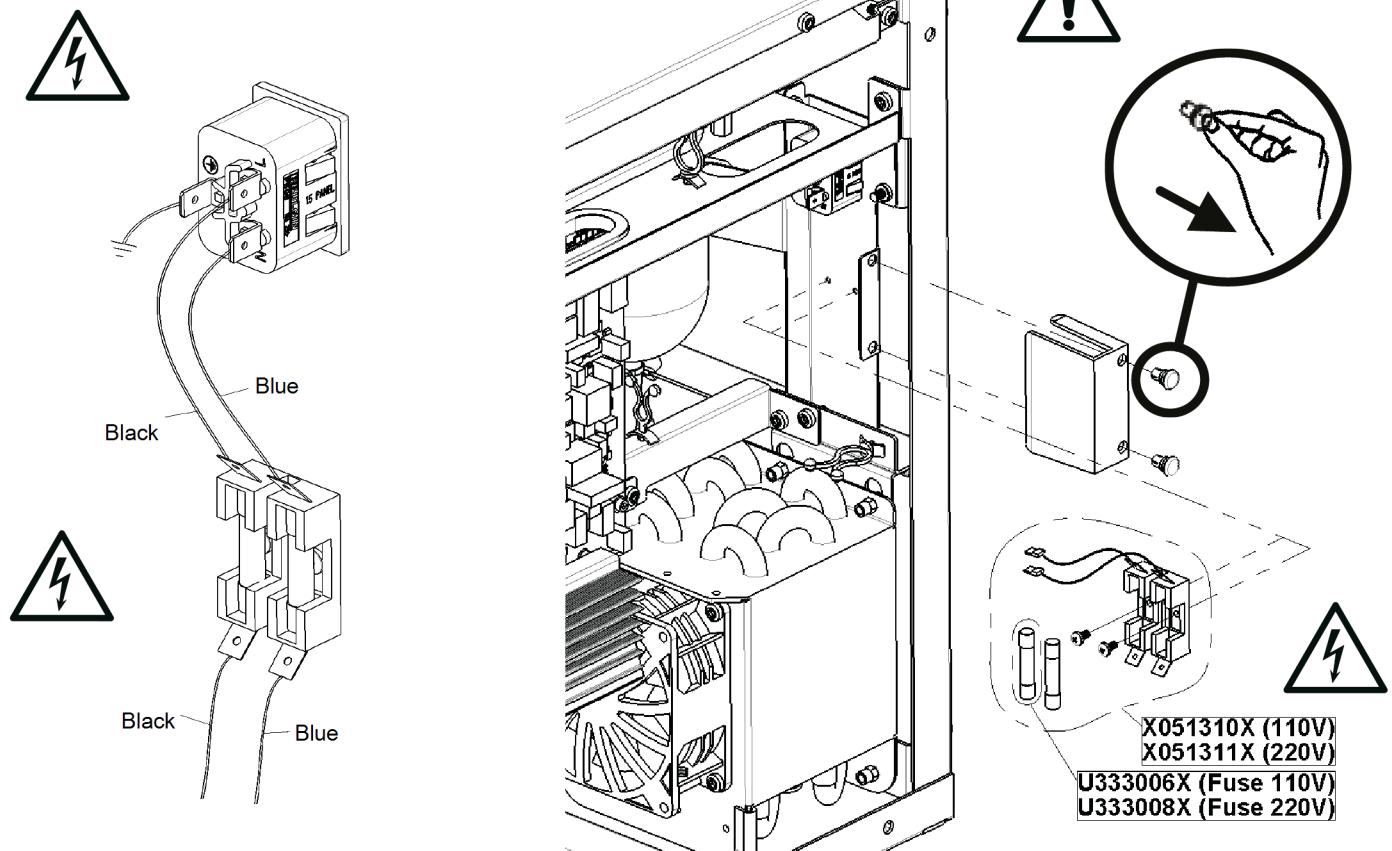
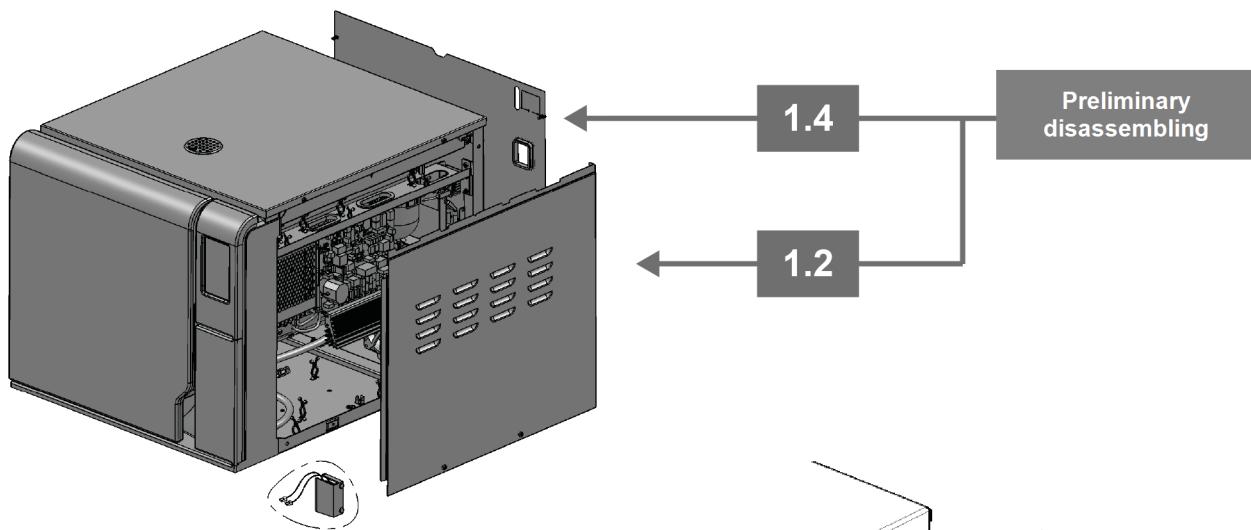
Preliminary
disassembling



LAYOUT 5.3 - FUSES

Time	6 minutes
Tool	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Philips PH0 screwdriver

Notice: Always replace the fuses with others with the same voltage and current rating.

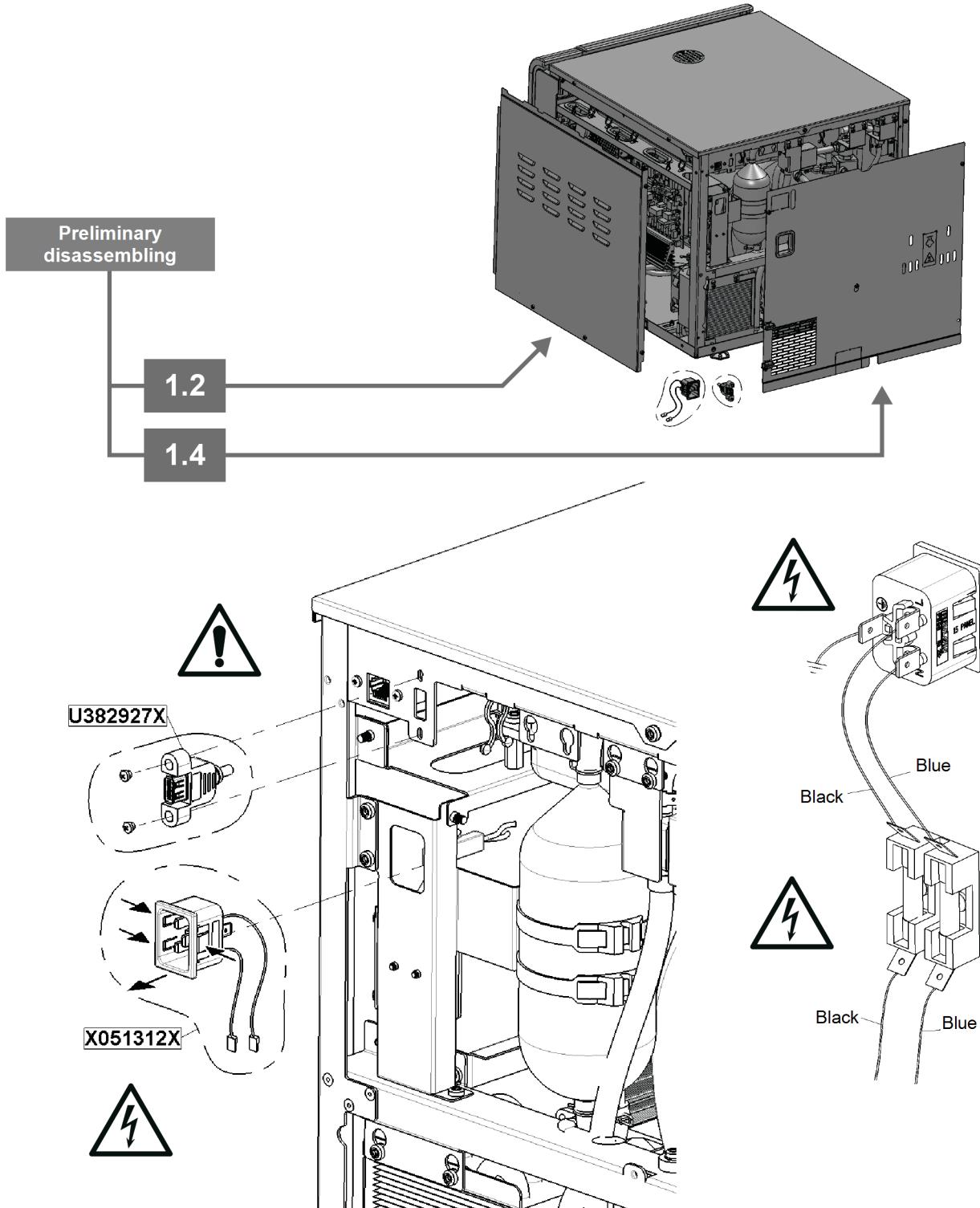


Group 6 - Rear and mains data connections



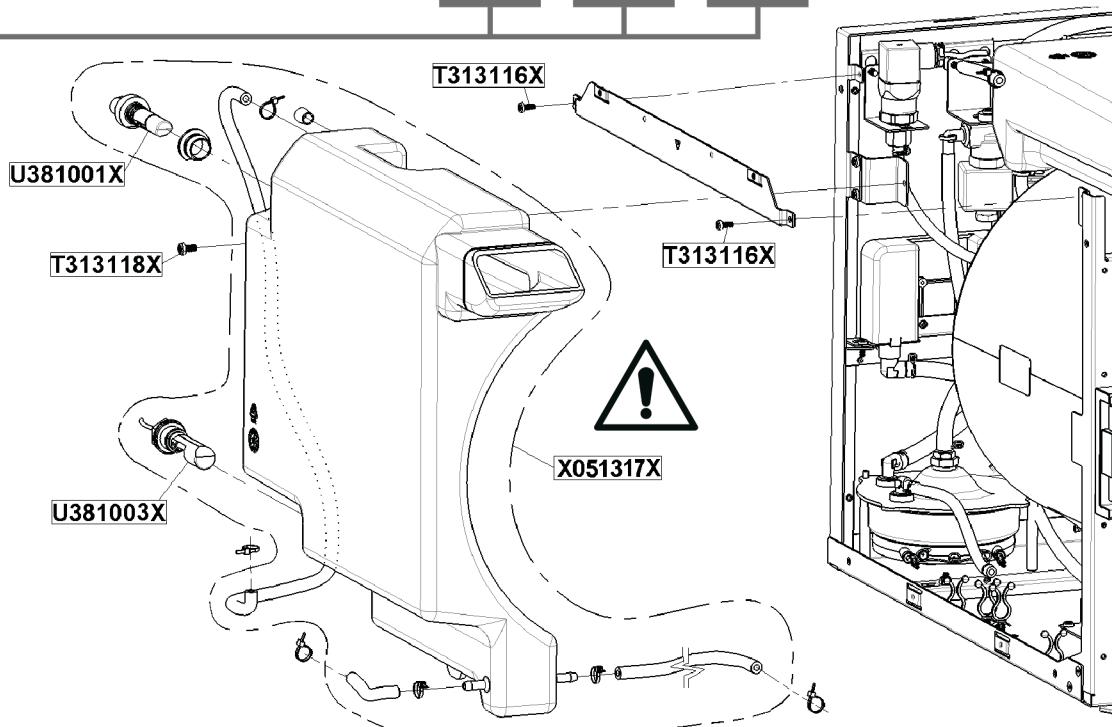
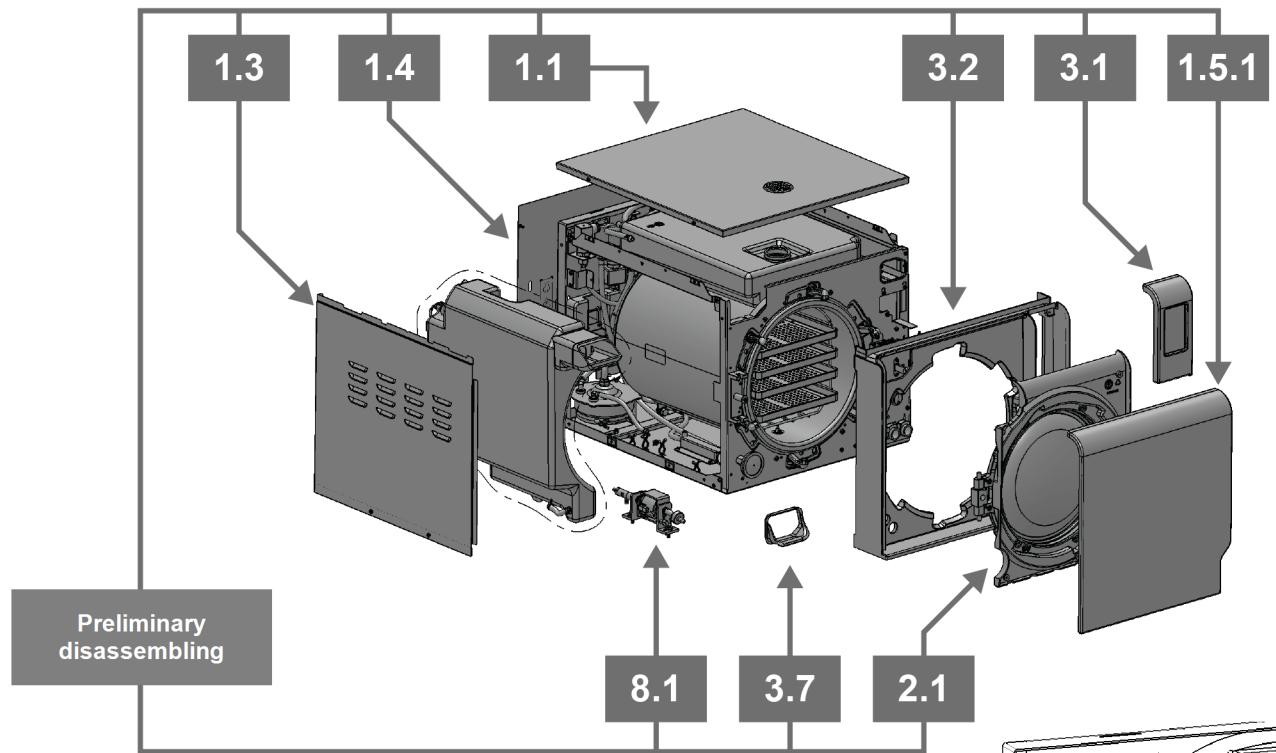
LAYOUT 6.1 - REAR MAINS AND DATA CONNECTIONS

Time	6 minutes each
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Philips PH2 screwdriver ■ Small flat screwdriver ■ Cutting pliers ■ Nylon cable ties



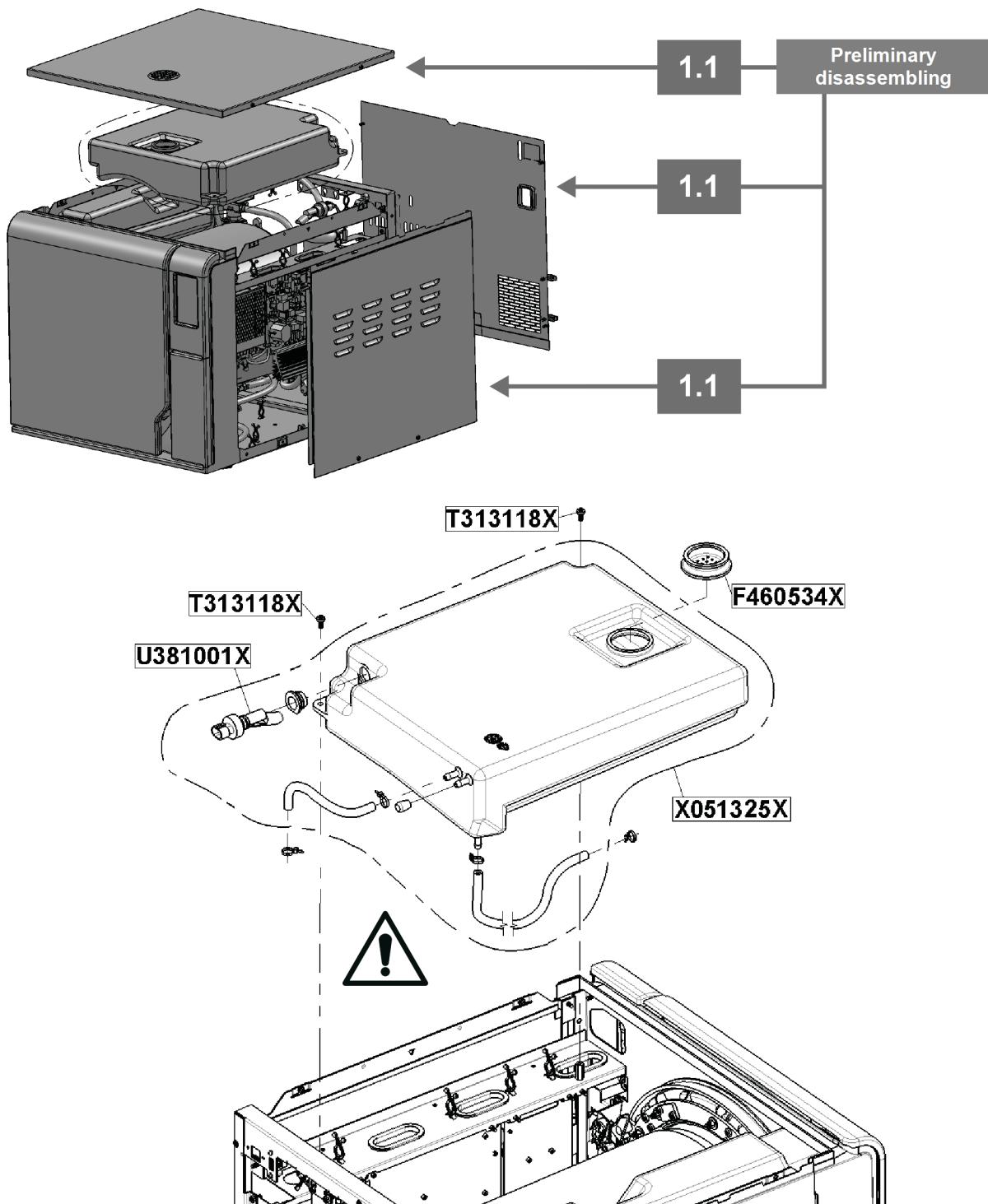
LAYOUT 7.1 - CLEAN WATER TANK

Time	15 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Torx 25 screwdriver■ Cutting pliers■ Nylon cable ties



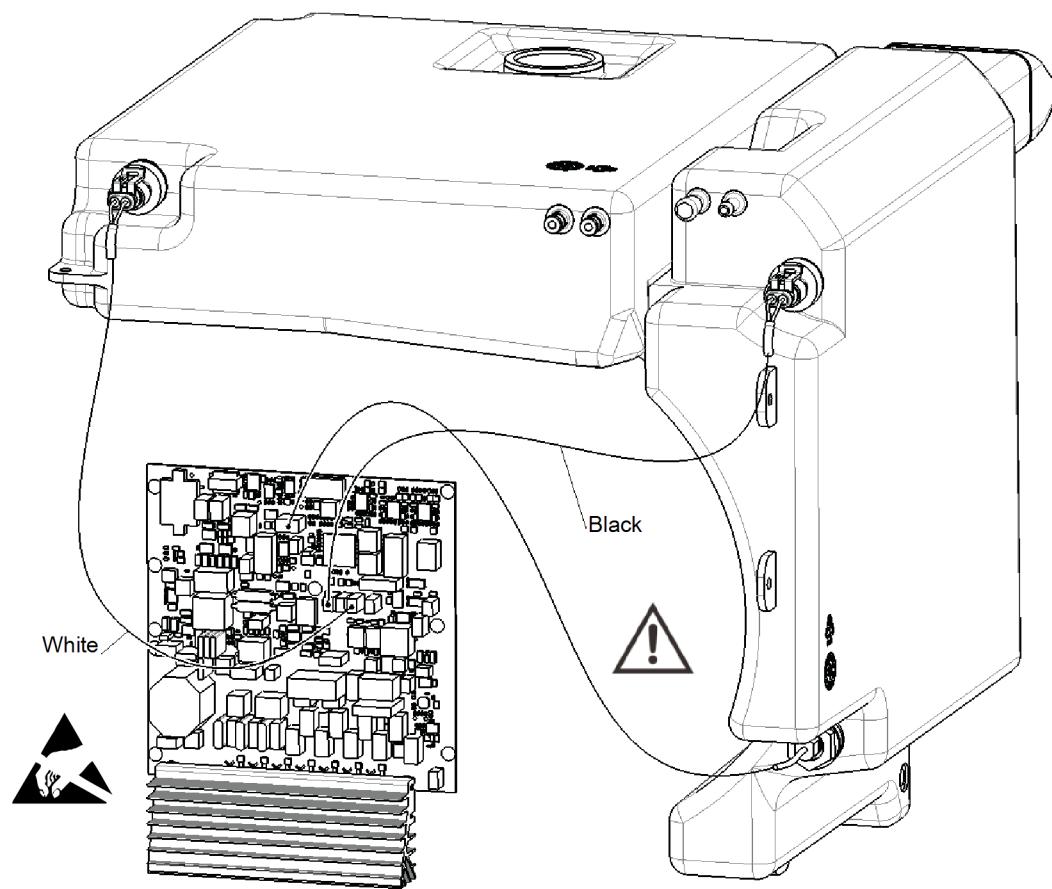
LAYOUT 7.2 - USED WATER TANK

Time	8 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Torx 25 screwdriver ■ Cutting pliers ■ Nylon cable ties



LAYOUT 7.3 - WATER TANK CONNECTIONS

Connections to the main board

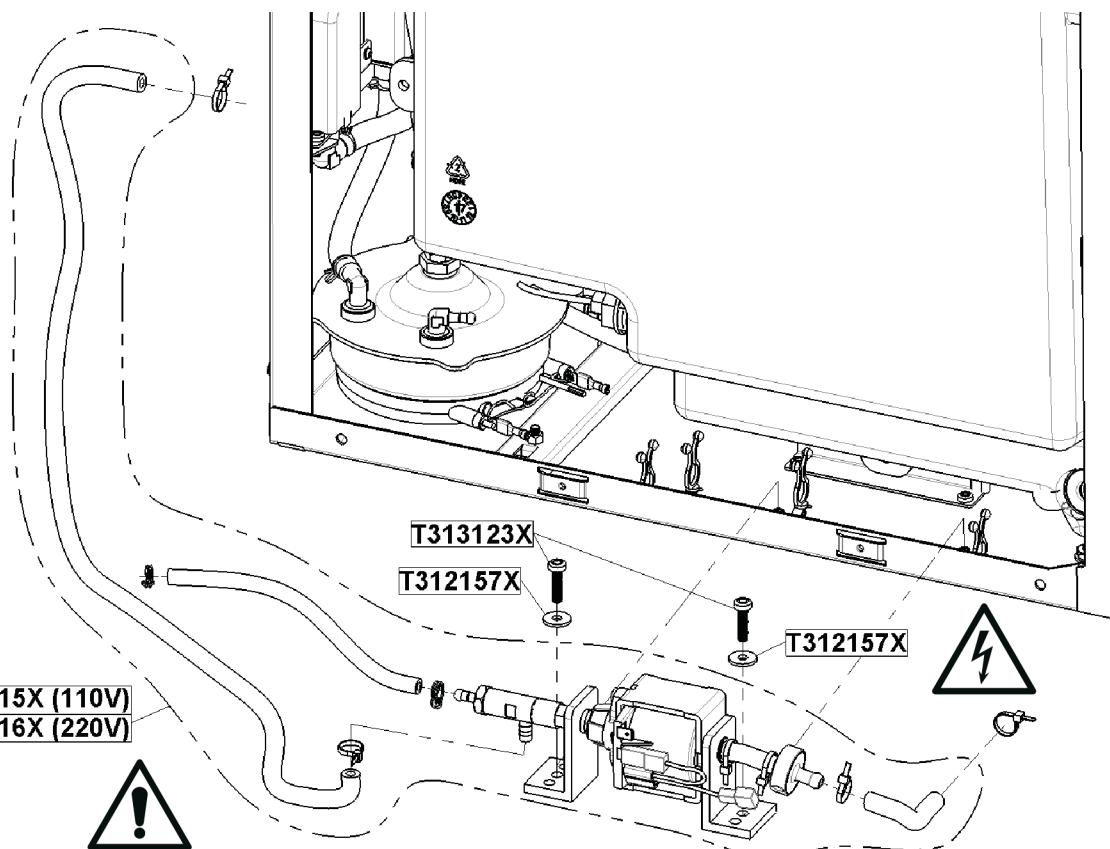
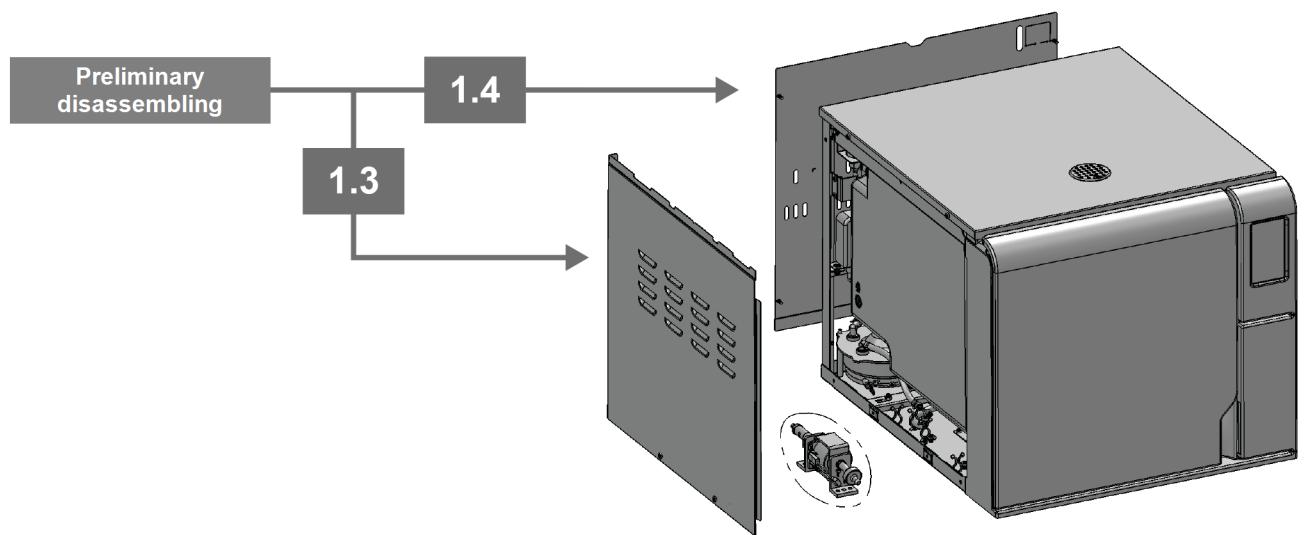


Group 8 - Water pump



LAYOUT 8.1 - WATER PUMP

Time	8 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 25 screwdriver ■ Cutting pliers ■ Nylon cable ties



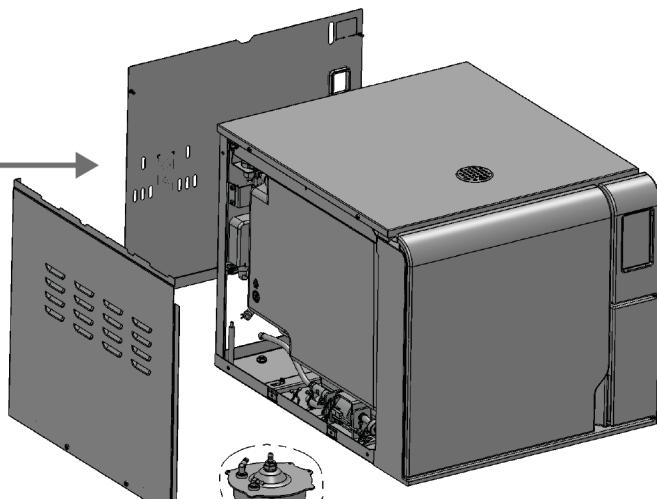
LAYOUT 9.1 - STEAM GENERATOR

Time 10 minutes
 Tools ■ Torx 20 screwdriver
 ■ Long nose pliers

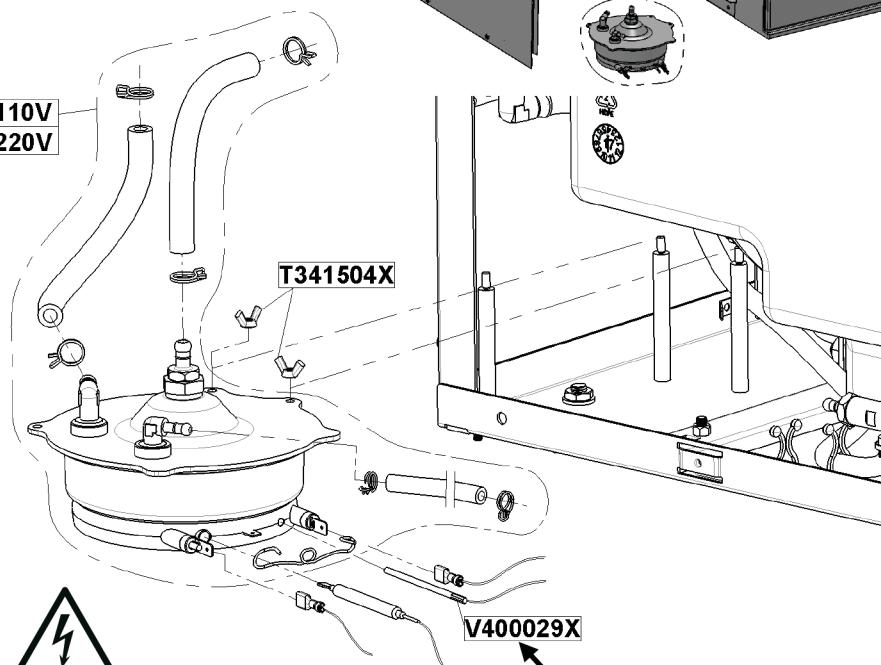
Preliminary disassembling

1.4

1.3

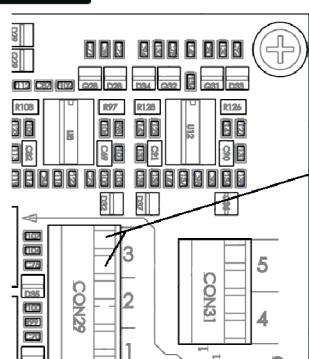


X051308X 110V
 X051309X 220V



V400029X

SEE 9.2



V400029X

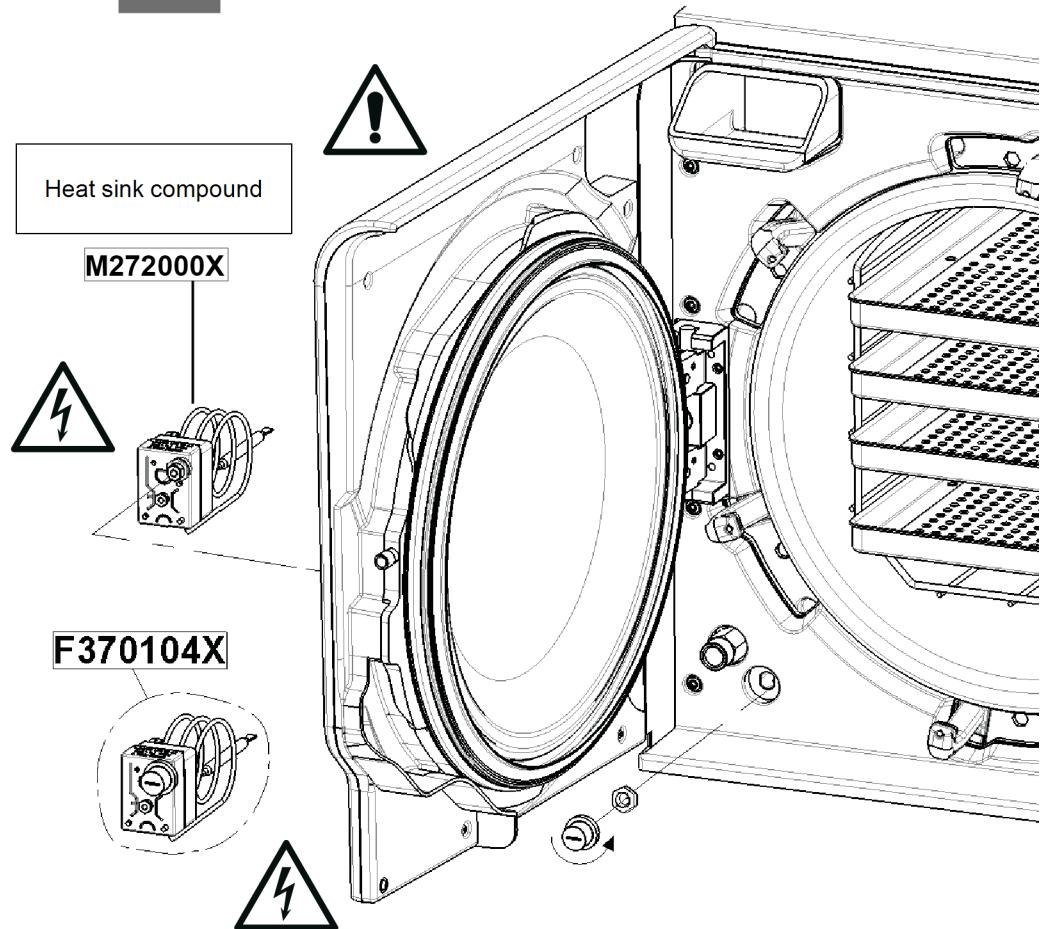
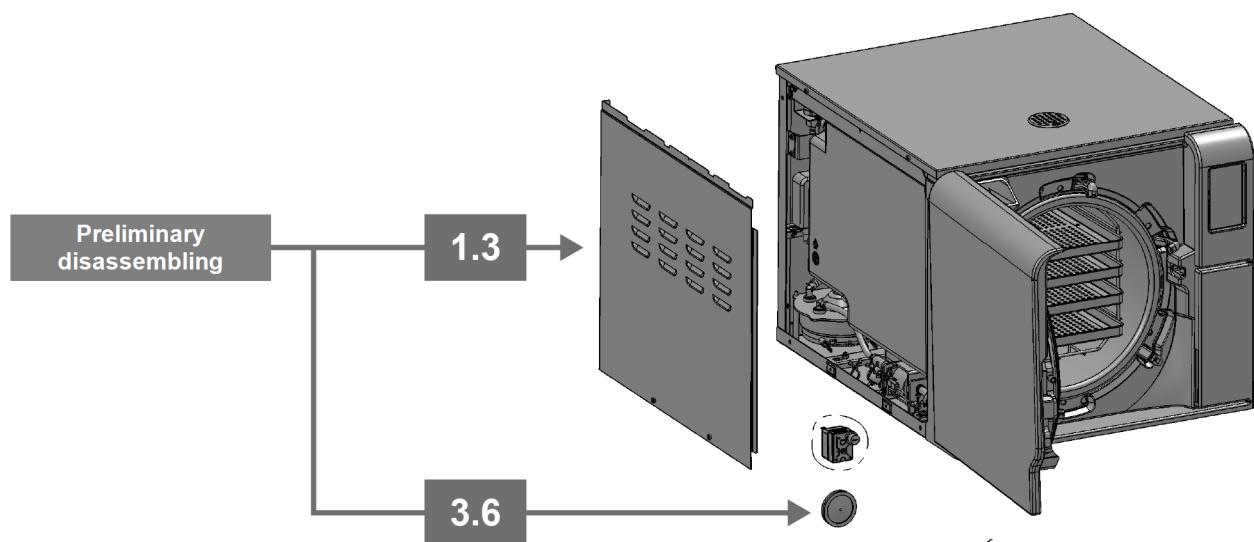
Red

M272000X

Heat sink compound

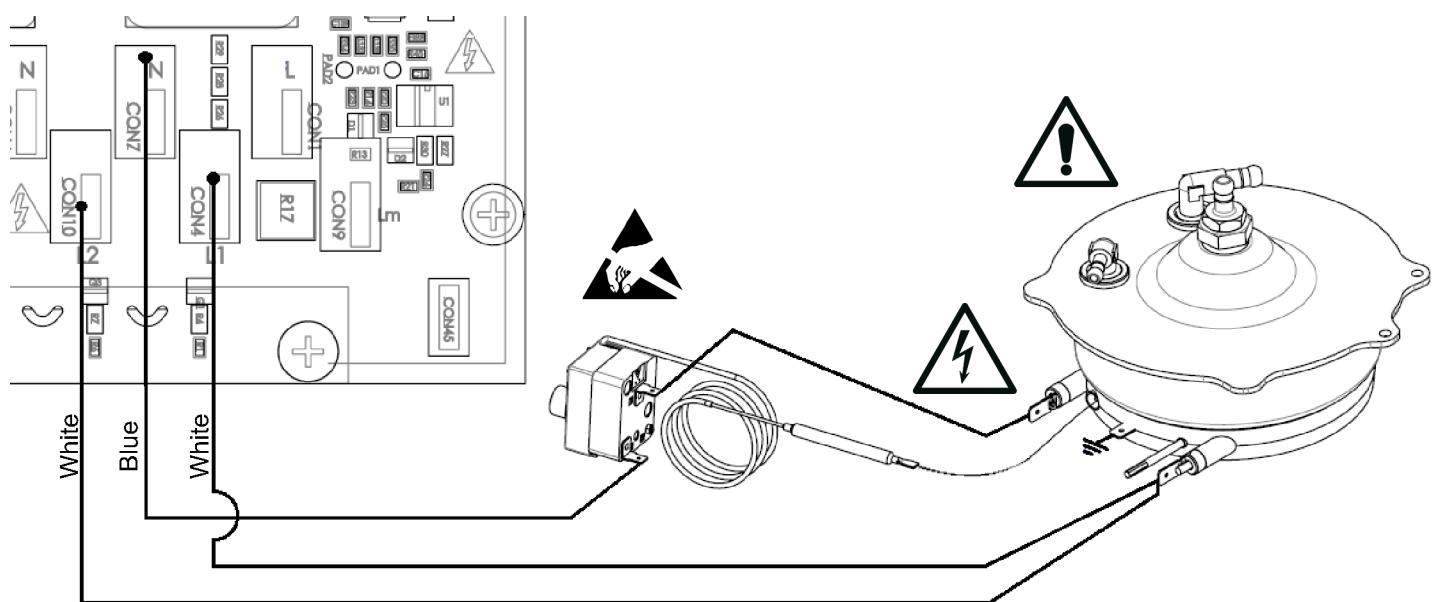
LAYOUT 9.2 - SAFETY THERMOSTAT

Time	5 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Tube wrench n°14 ■ Big flat screwdriver or a $\frac{1}{4}$ dollar

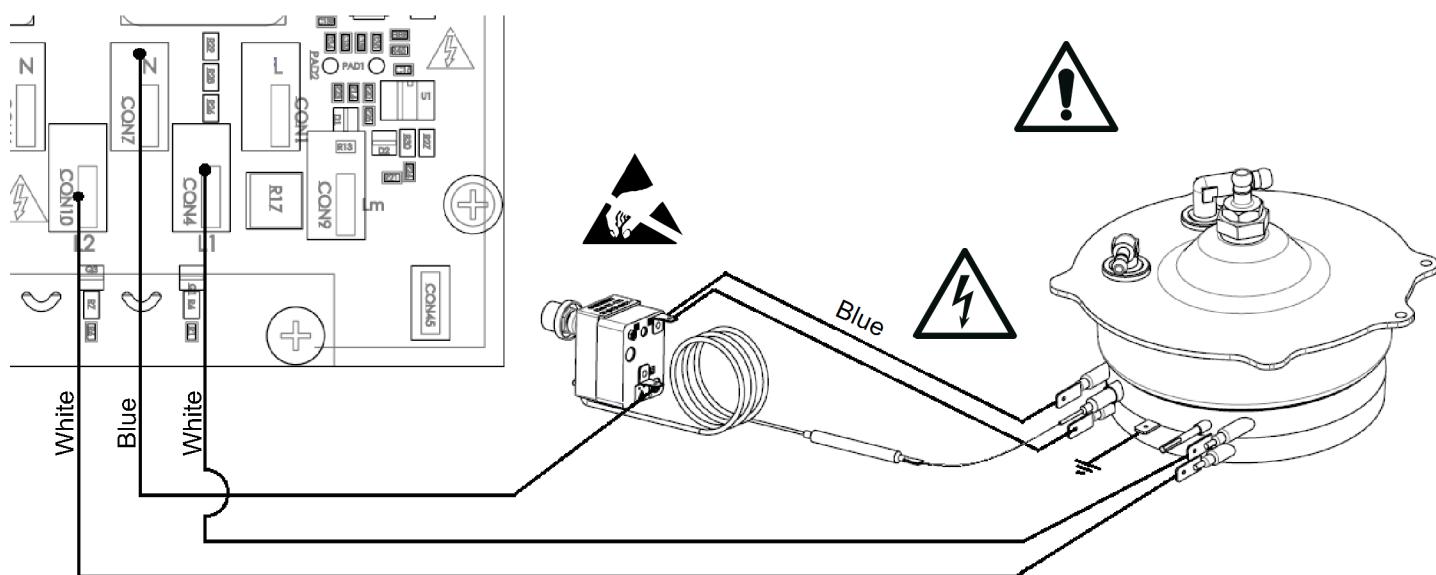


LAYOUT 9.3 - STEAM GENERATOR 110V

Connections to the main board

**LAYOUT 9.4 - STEAM GENERATOR 220V**

Connections to the main board

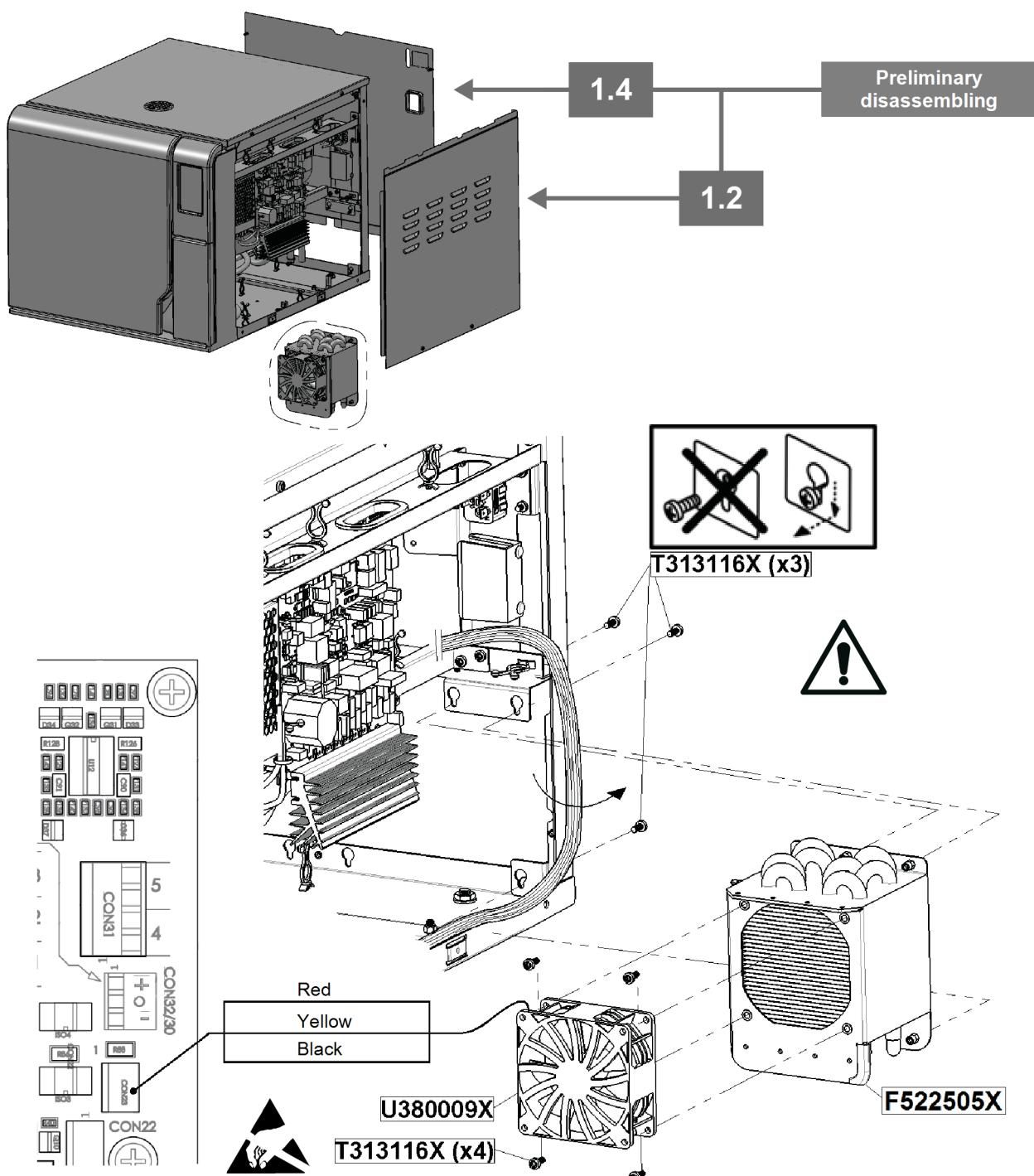


Group 10 - Condenser and fan



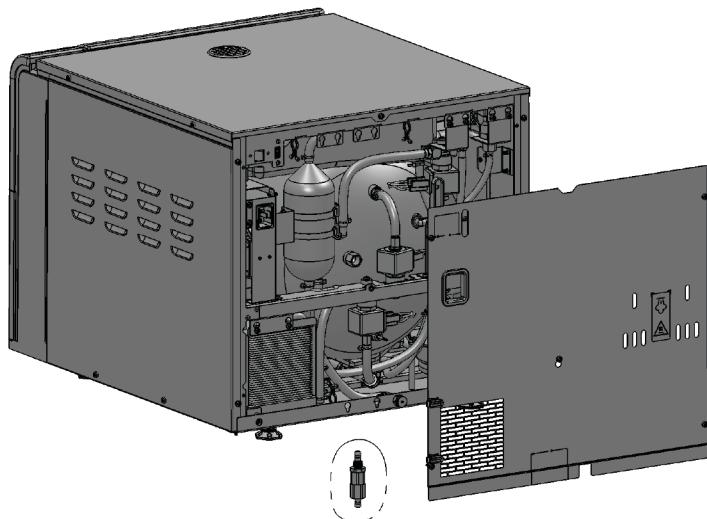
LAYOUT 10.1 - CONDENSER AND FAN

Time	6 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Long nose pliers ■ Cutting pliers ■ Nylon cable ties

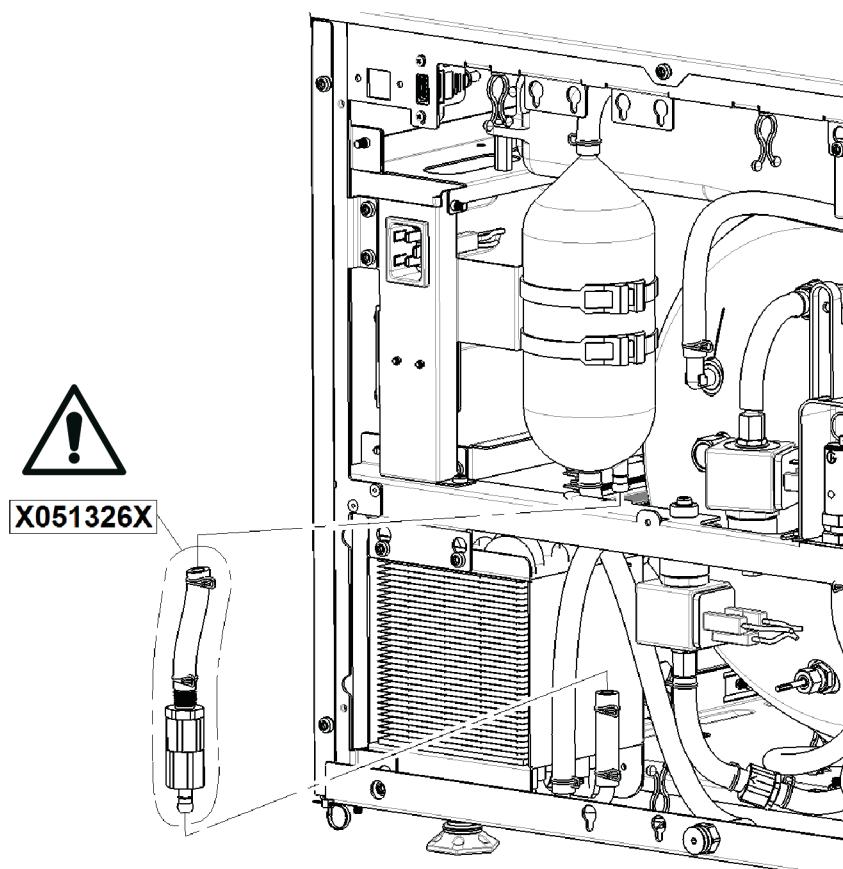


LAYOUT 11.1 - CHECK VALVE

Time 2 minutes
Tools ■ Long nose pliers
■ Torx 20 screwdriver



1.4 Preliminary disassembling

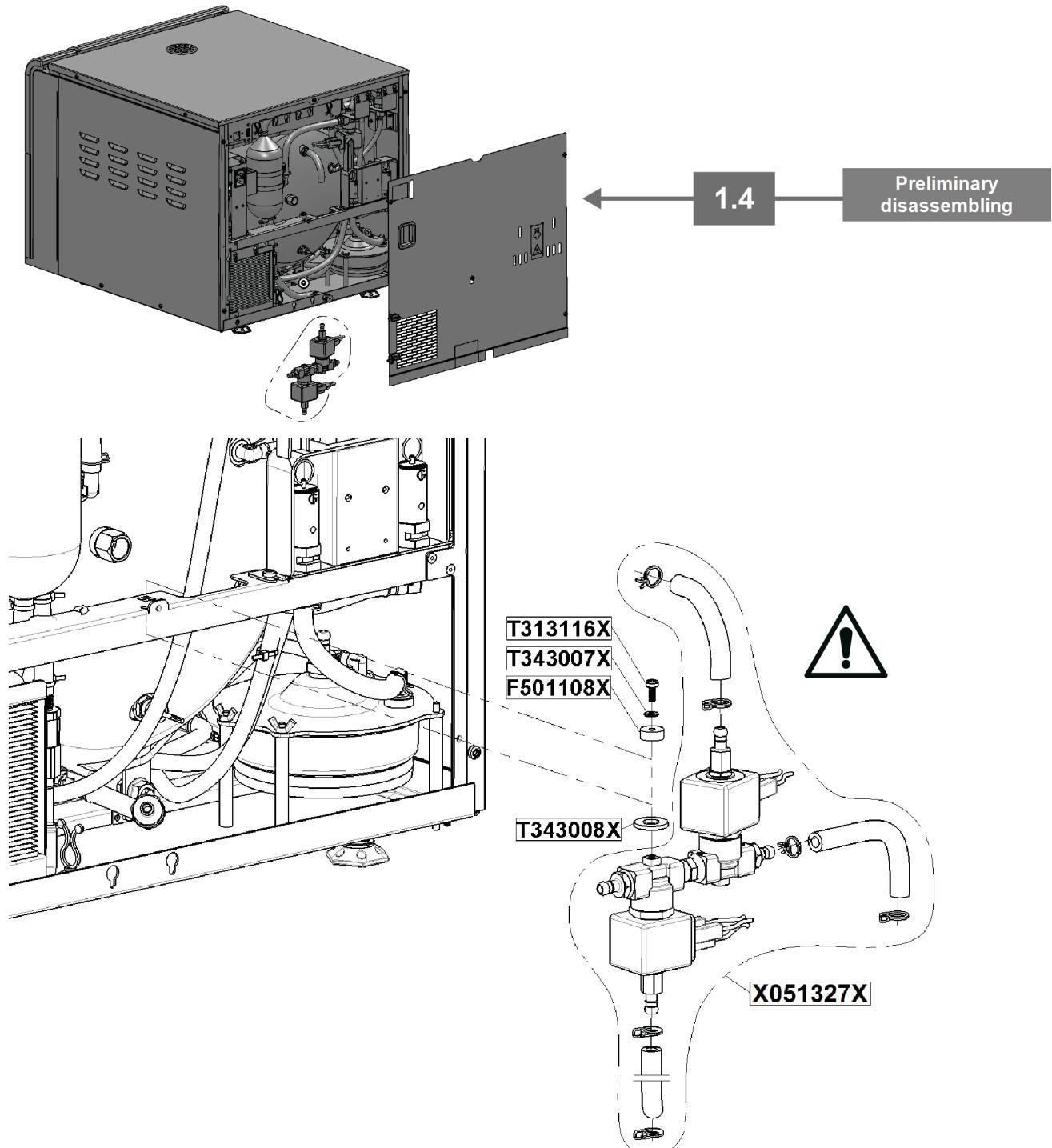


Group 12 - Solenoid valves



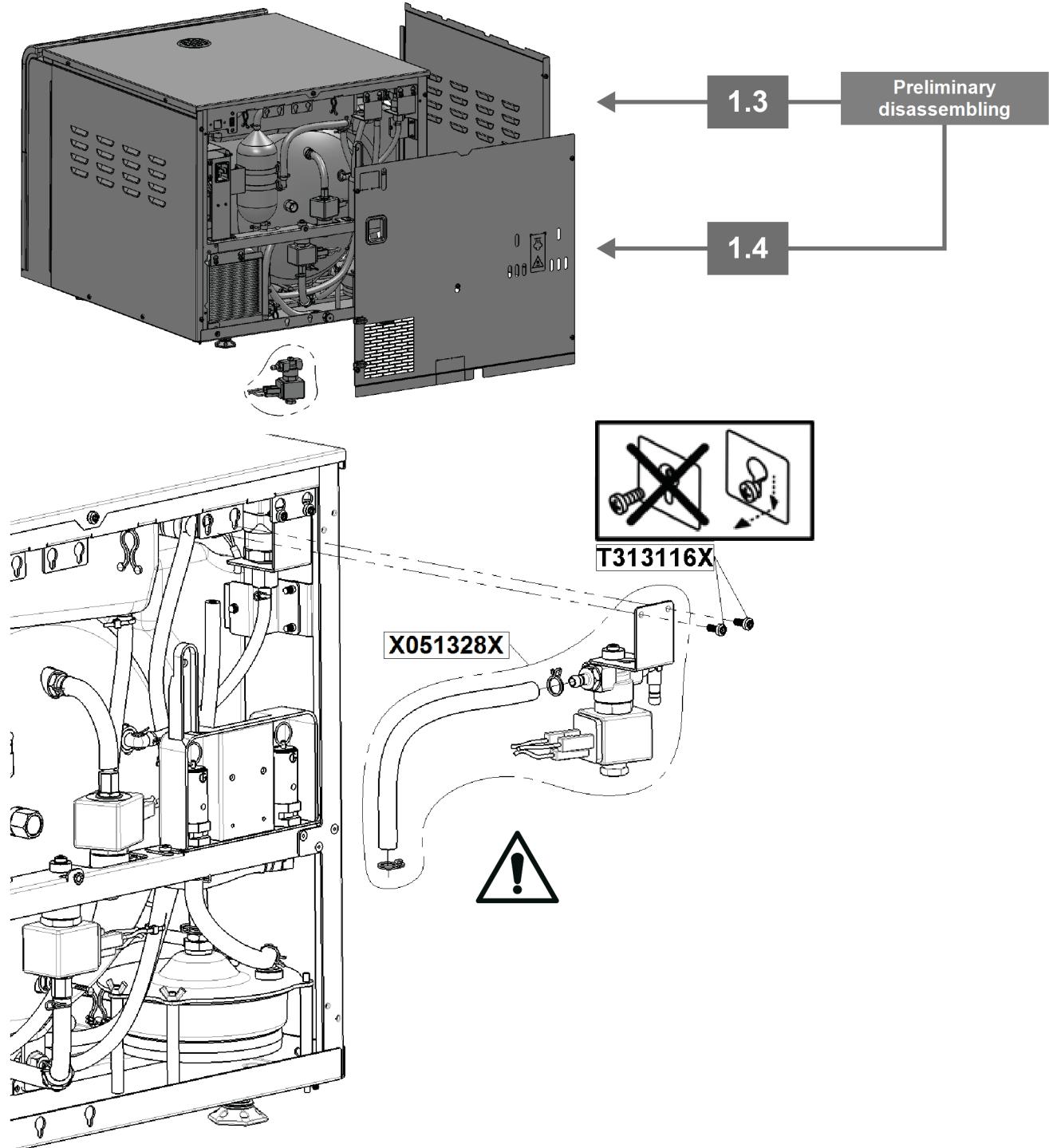
LAYOUT 12.1 - EV1 AND EV5

Time	10 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Long nose pliers



LAYOUT 12.2 - EV3

Time	10 minutes
Tools	<ul style="list-style-type: none">■ Torx 20 screwdriver■ Long nose pliers

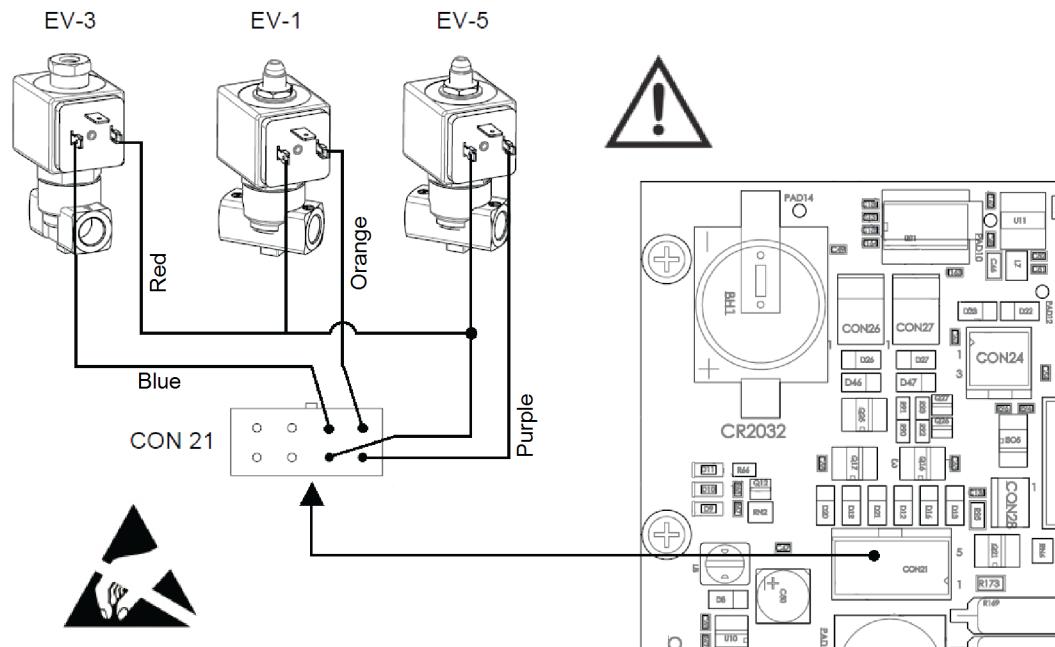


Group 12 - Solenoid valves

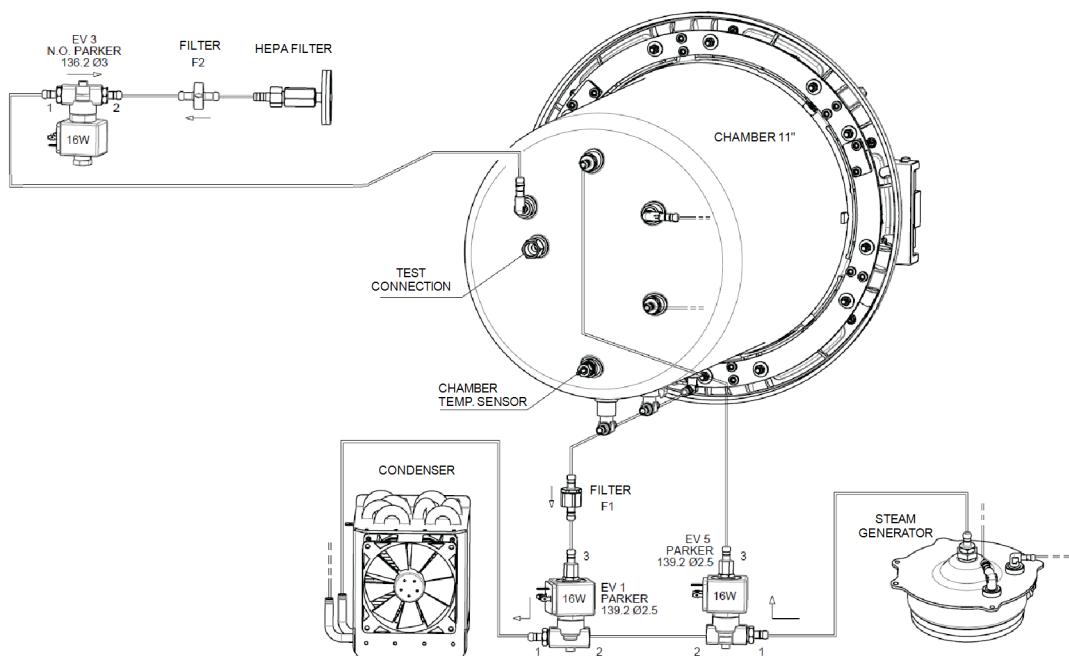


LAYOUT 12.3 - EV CONNECTIONS

Connections to the main board

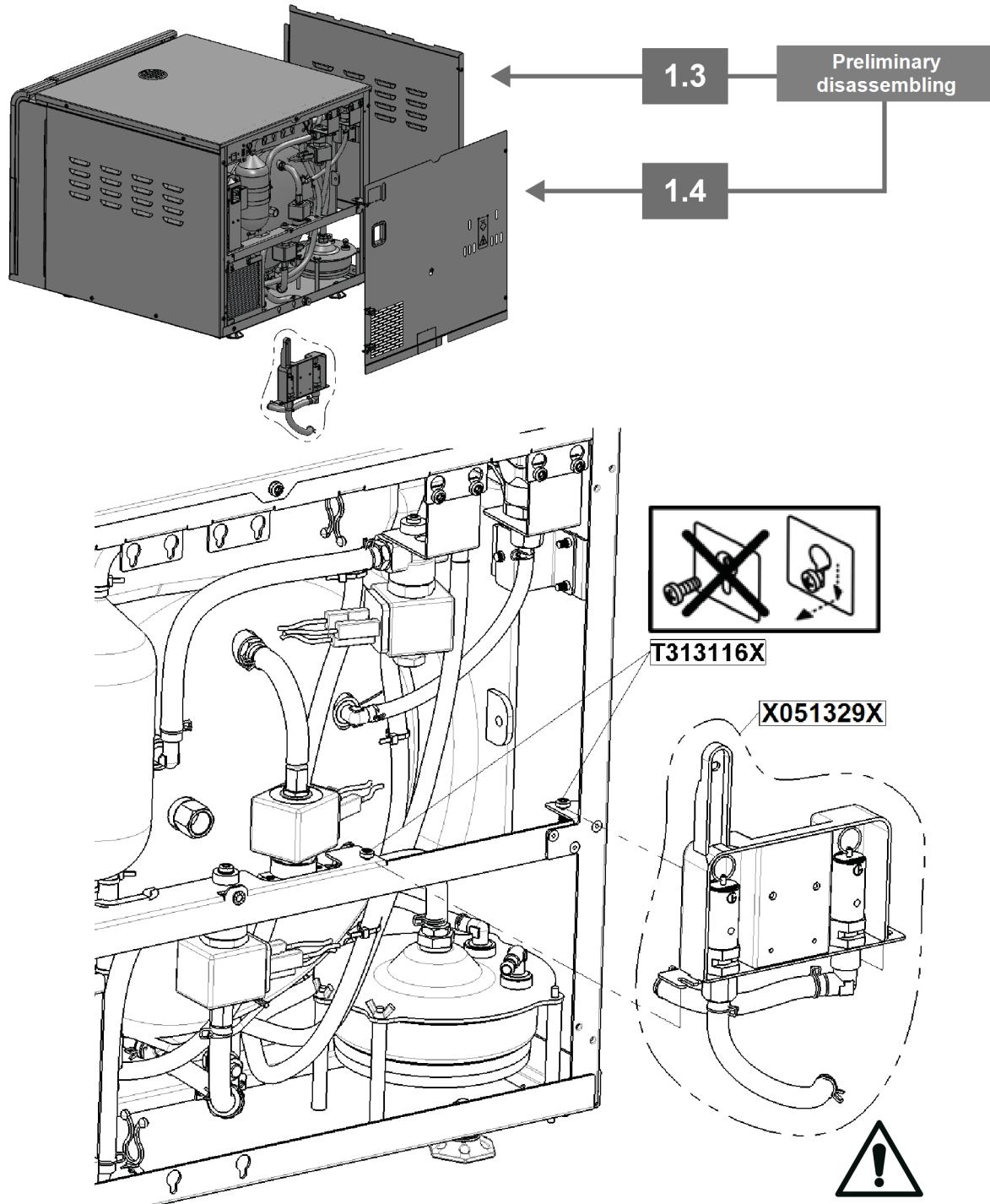


Pneumatic connections



LAYOUT 13.1 - SAFETY VALVES

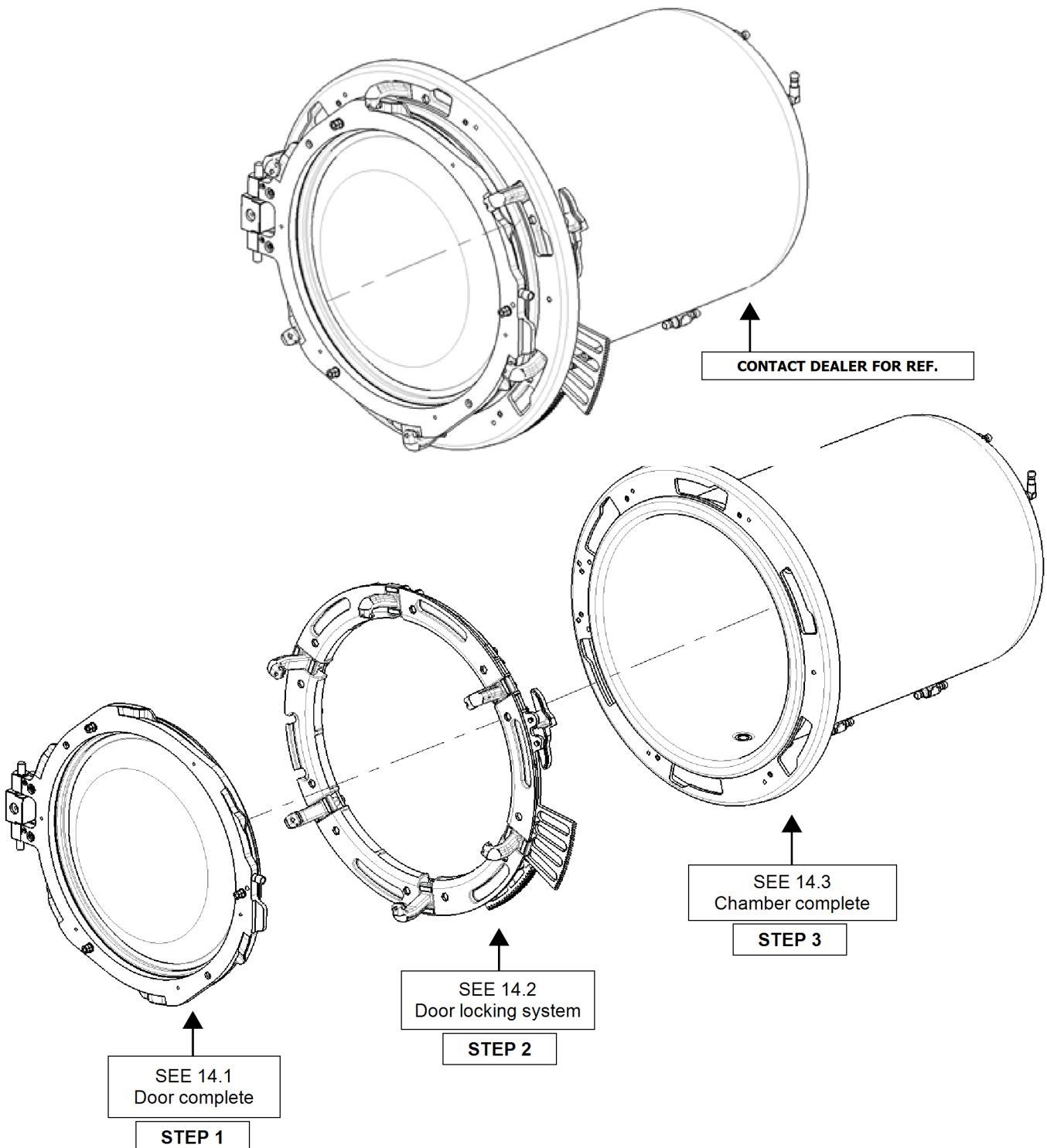
Time 5 minutes
Tools ■ Torx 20 screwdriver
■ Long nose pliers



Group 14 - Tested group



LAYOUT 14.0 - TESTED GROUP

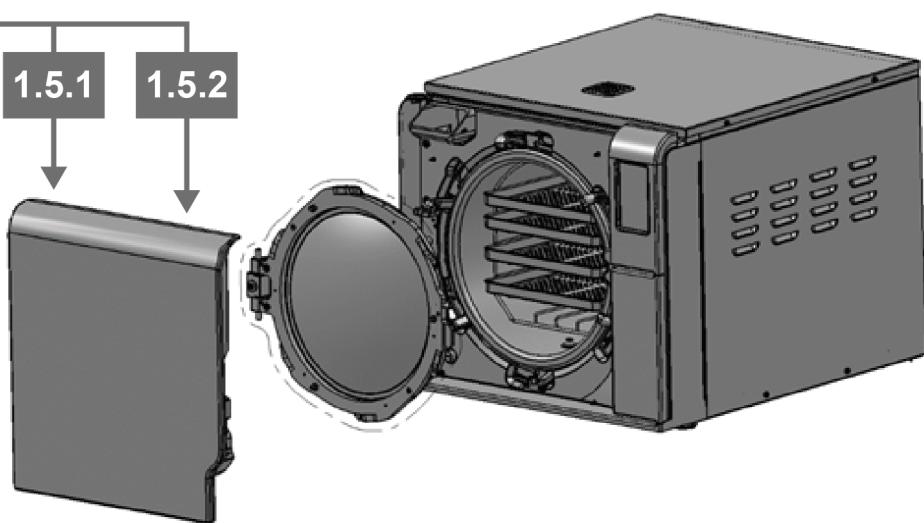


LAYOUT 14.1 - TESTED GROUP: DOOR COMPLETE

Time 5 minutes
Tool Torx 20 screwdriver

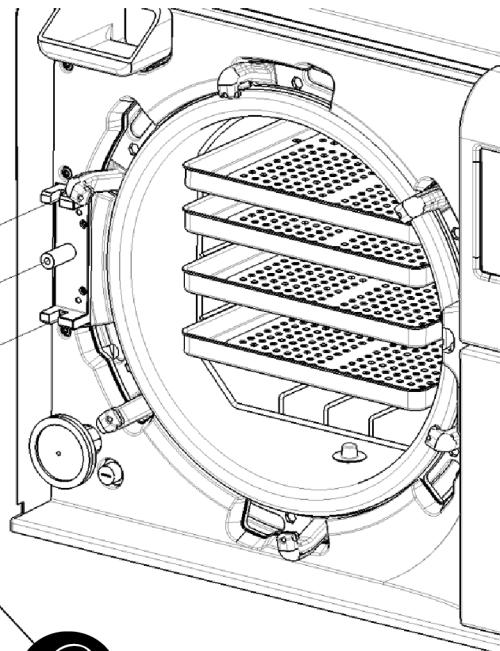
Preliminary
disassembling

1.5.1 1.5.2



T312154X
T313116X

F300305X



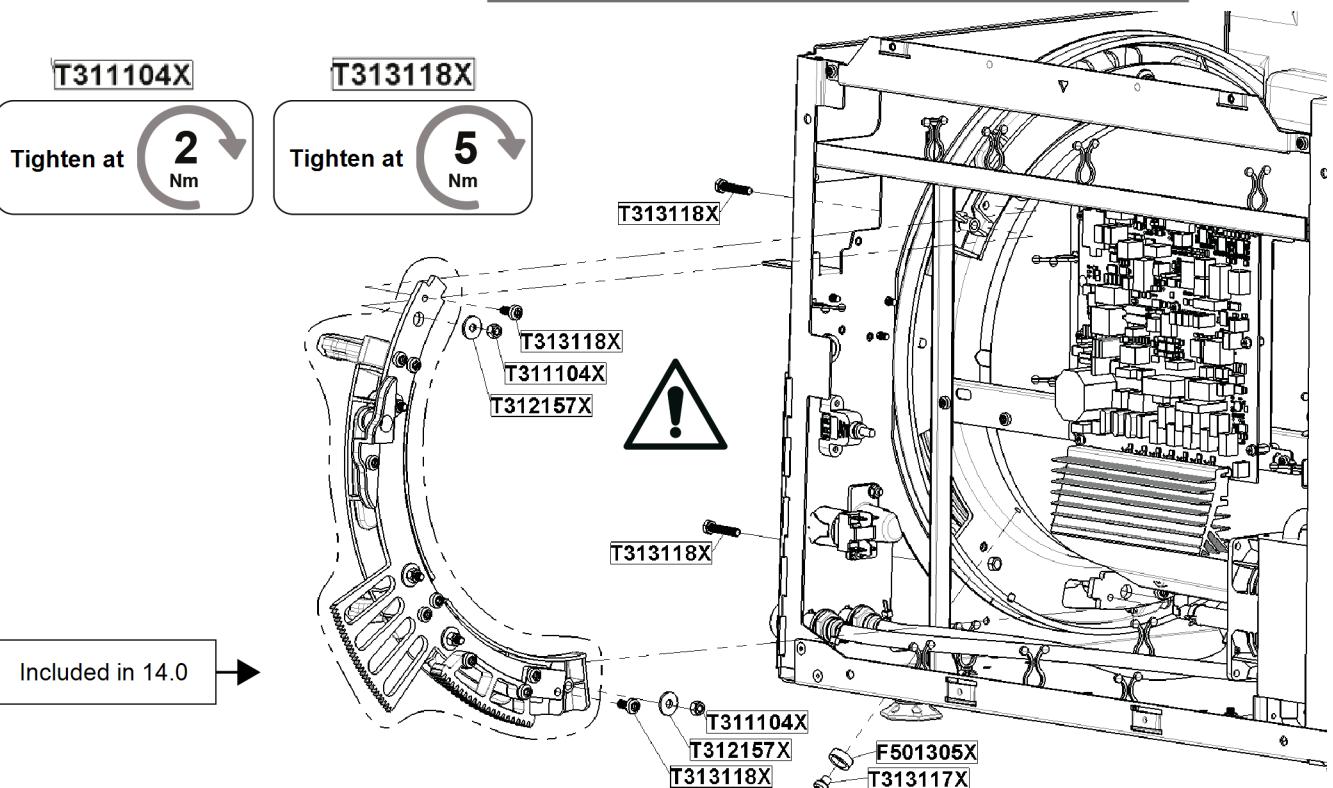
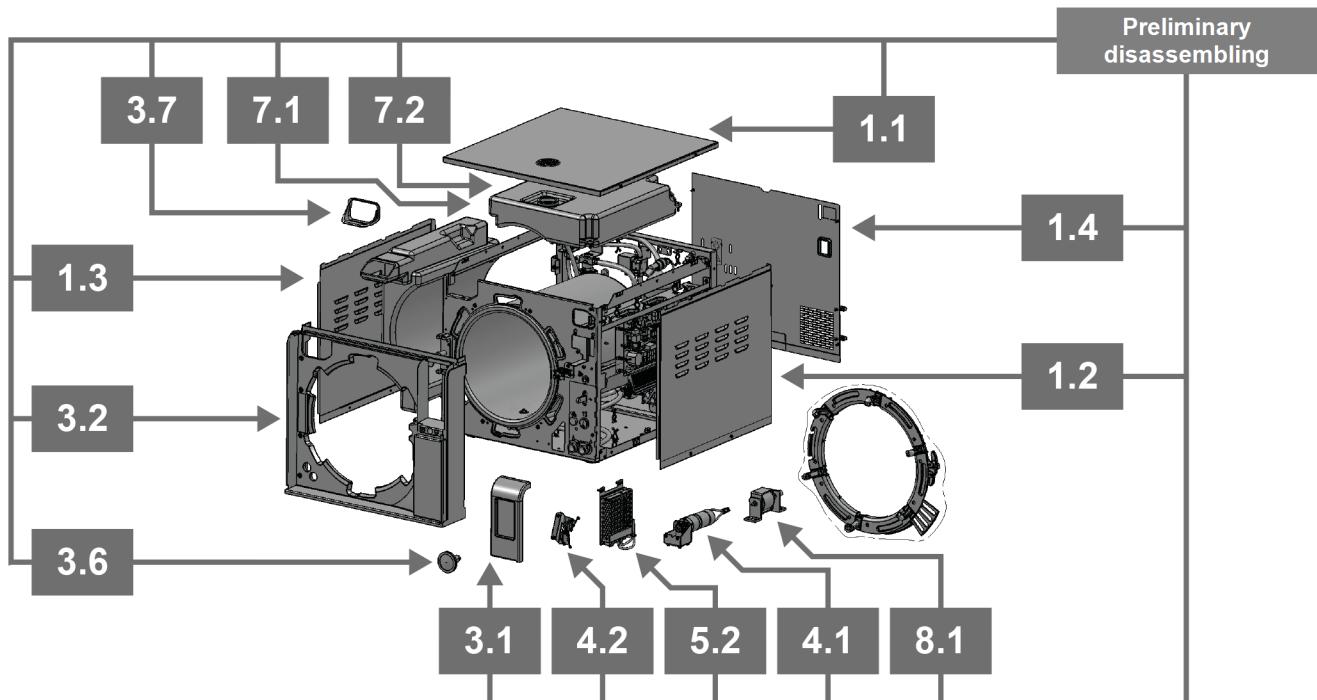
Included in 14.0

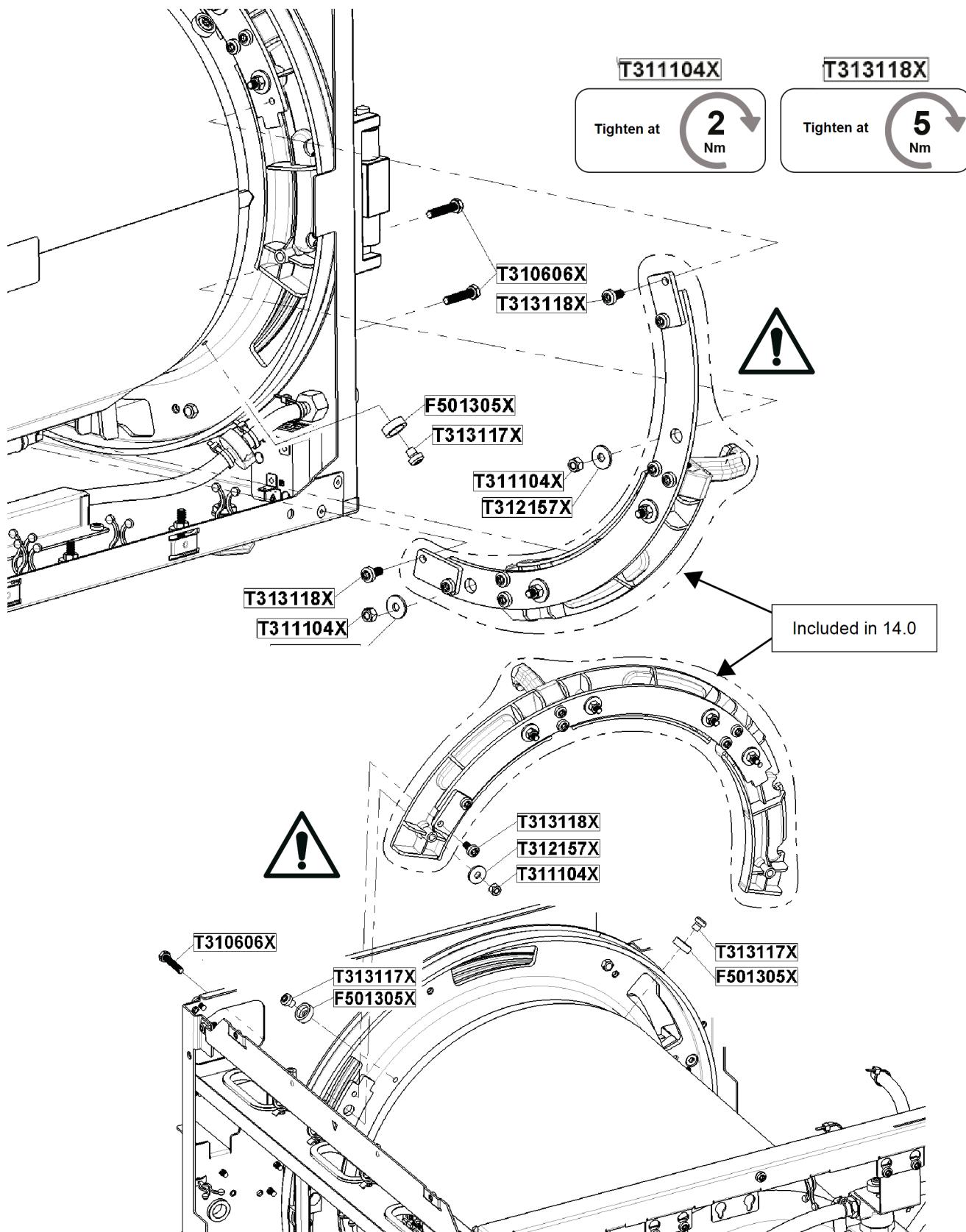
Group 14 - Tested group



LAYOUT 14.2 - TESTED GROUP: DOOR LOCKING SYSTEM

Time 5 minutes
Tool Torx 25 screwdriver

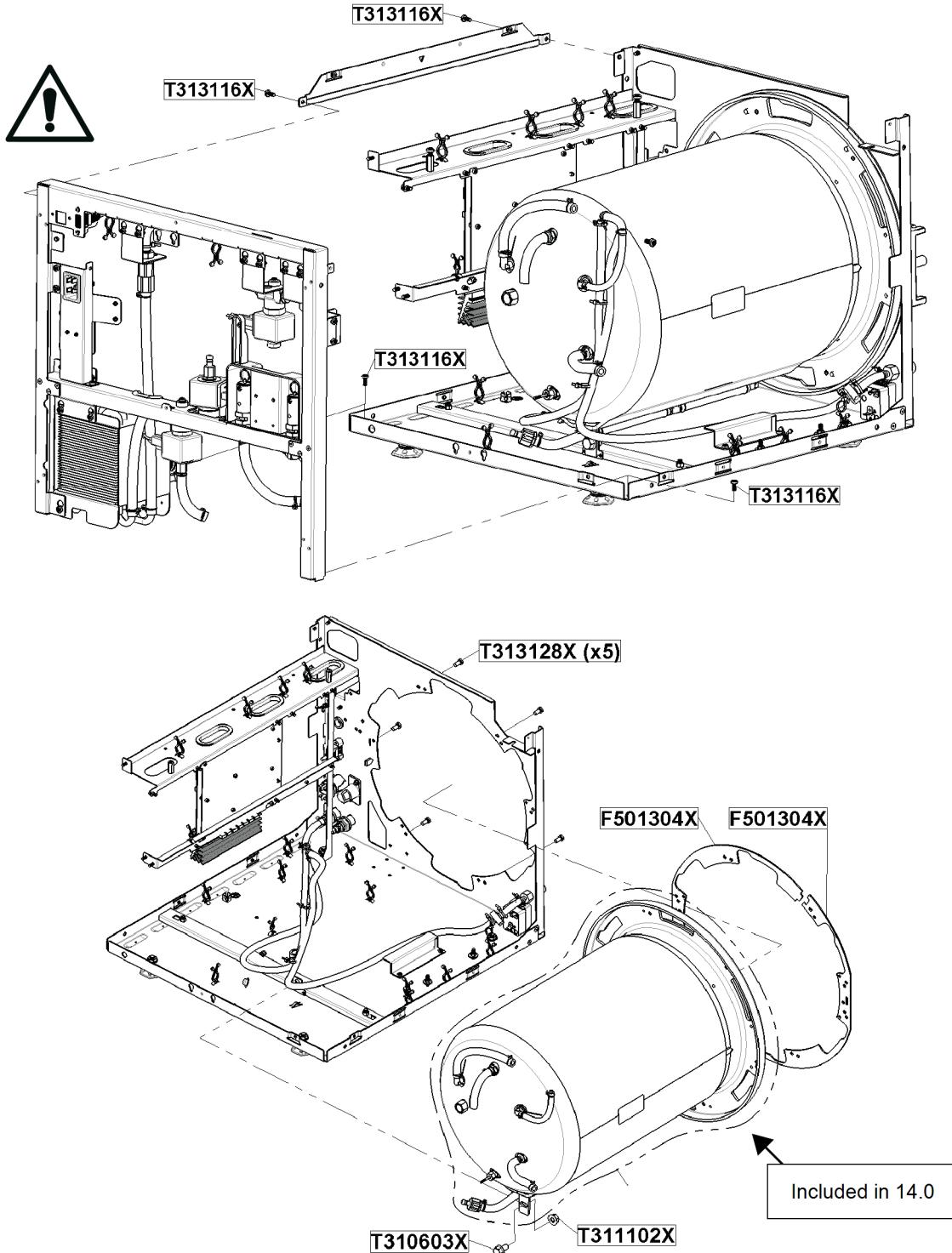




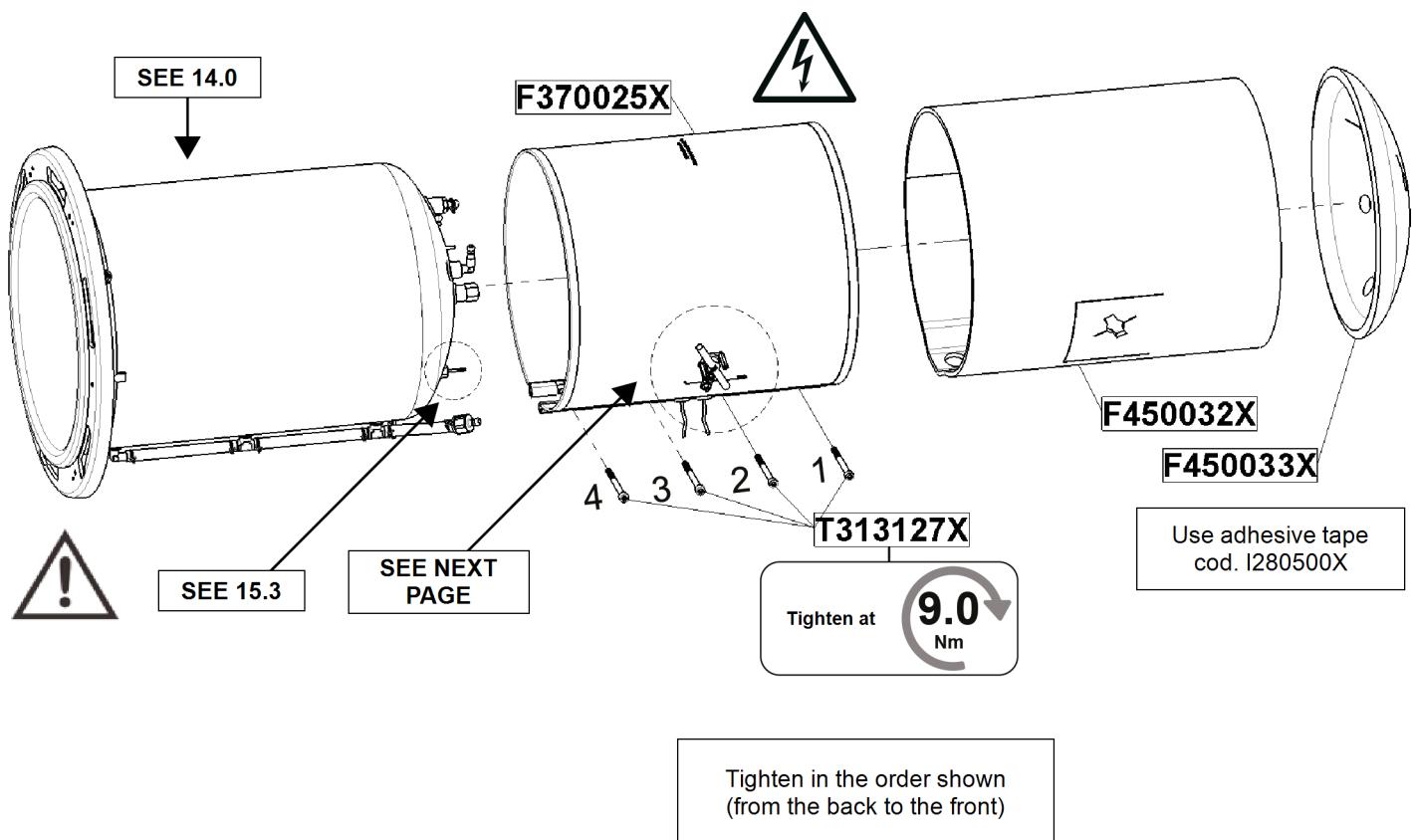
Group 14 - Tested group



LAYOUT 14.3 - TESTED GROUP: CHAMBER COMPLETE



LAYOUT 14.4 - CHAMBER HEATING ELEMENT & INSULATING PANEL

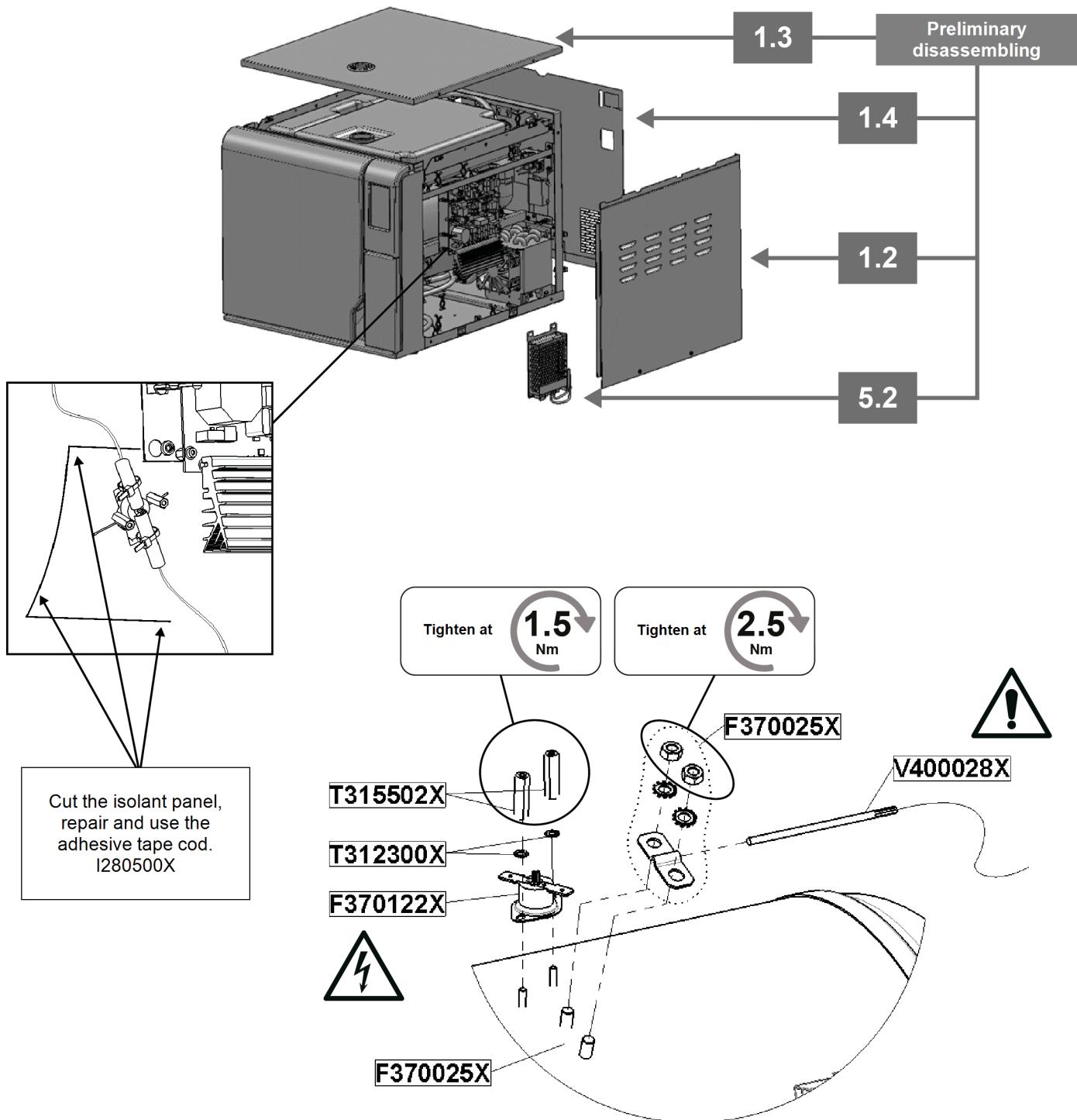


Group 15 - Chamber components



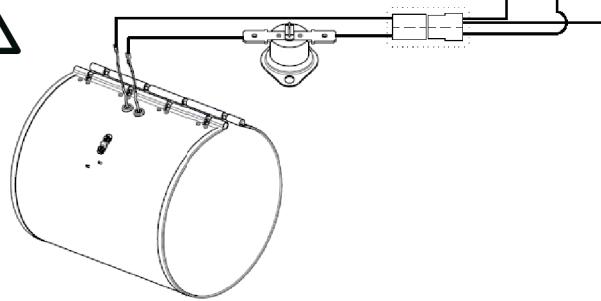
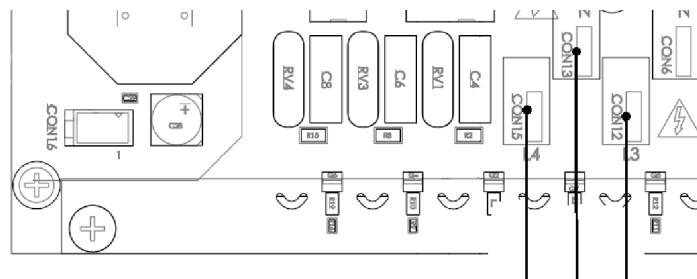
LAYOUT 15.1 - CHAMBER TEMPERATURE SENSOR & SAFETY THERMOSTAT

Time 5 minutes
Tool Torx 25 screwdriver

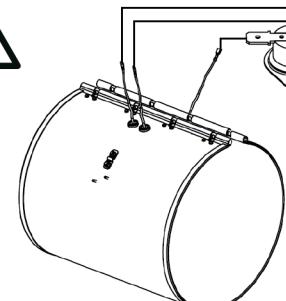
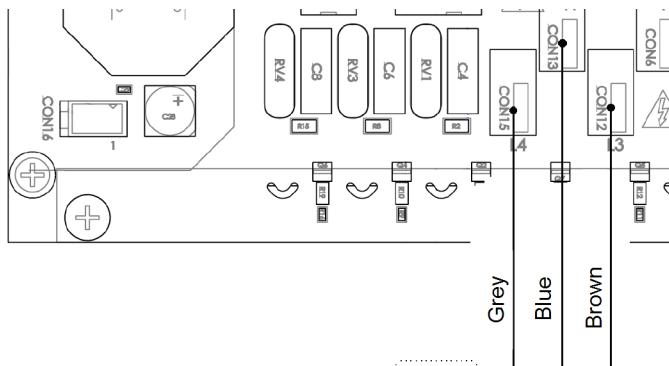


Group 15 - Chamber components

LAYOUT 15.2 - CHAMBER HEATING ELEMENT CONNECTIONS 110V

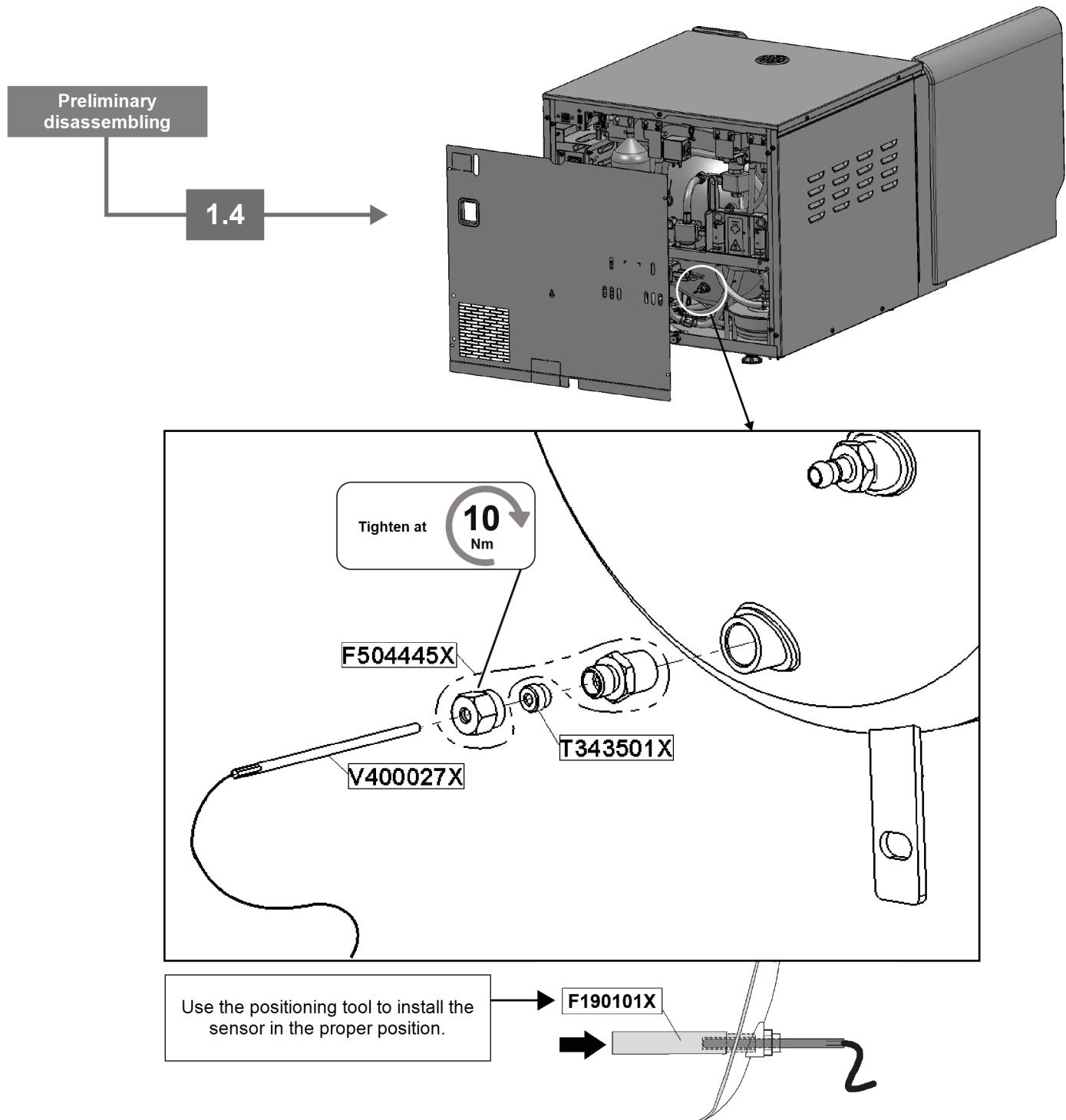


LAYOUT 15.2 - CHAMBER HEATING ELEMENT CONNECTIONS 220V



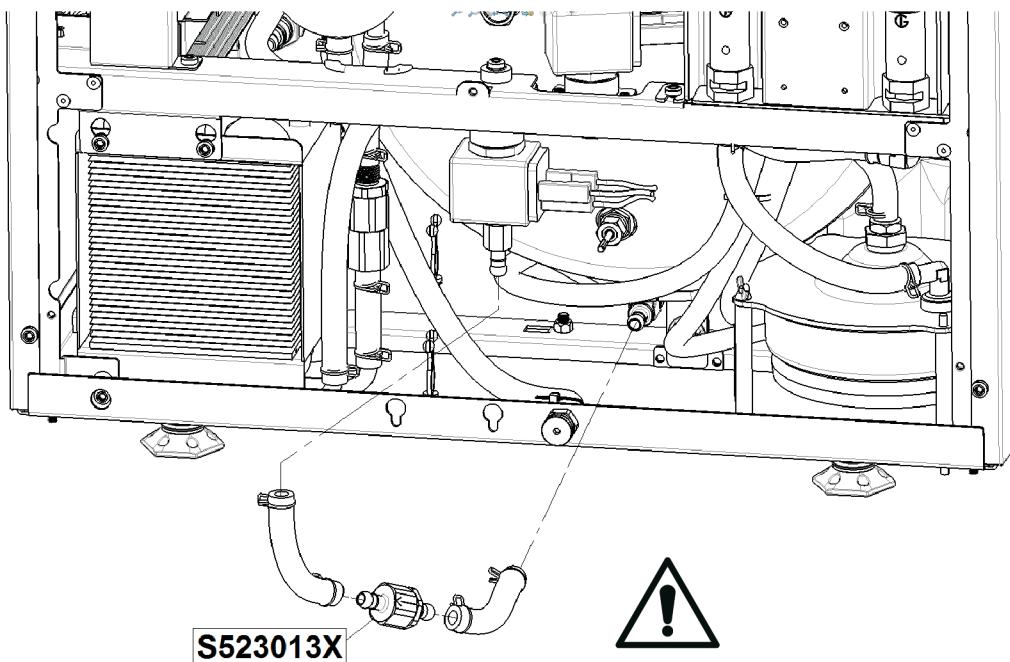
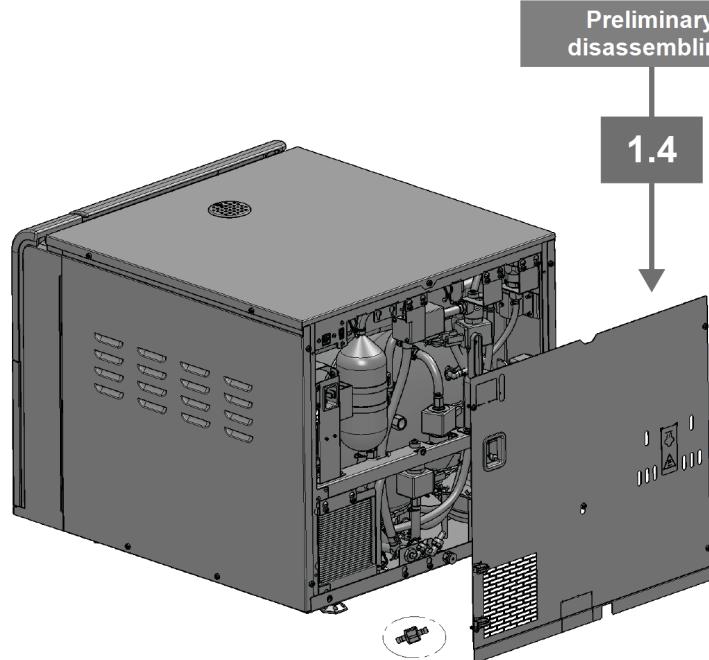
LAYOUT 15.3 - CHAMBER TEMPERATURE SENSOR

Time	5 minutes
Tools	<ul style="list-style-type: none"> ■ Torx 20 screwdriver ■ Torque wrench



LAYOUT 15.4 - CHAMBER FILTER

Time	5 minutes
Tools	<ul style="list-style-type: none">■ Long nose pliers■ Torx 20 screwdriver



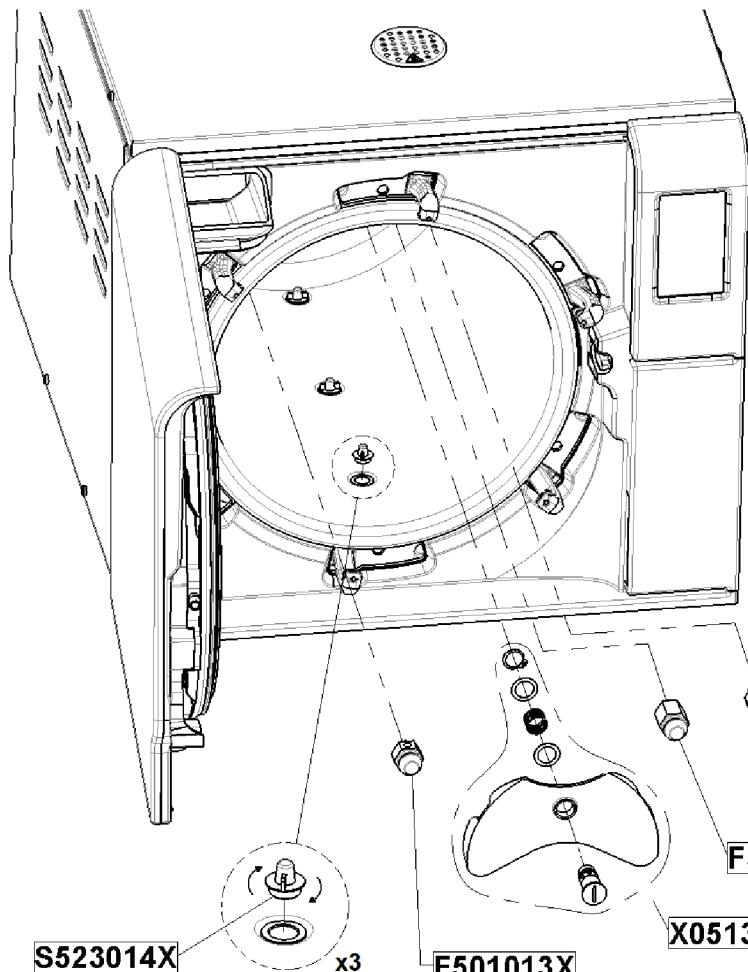
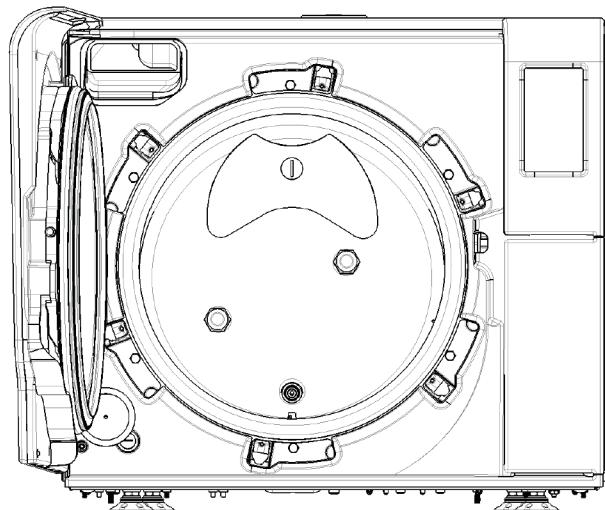
Group 16 - Chamber internal components



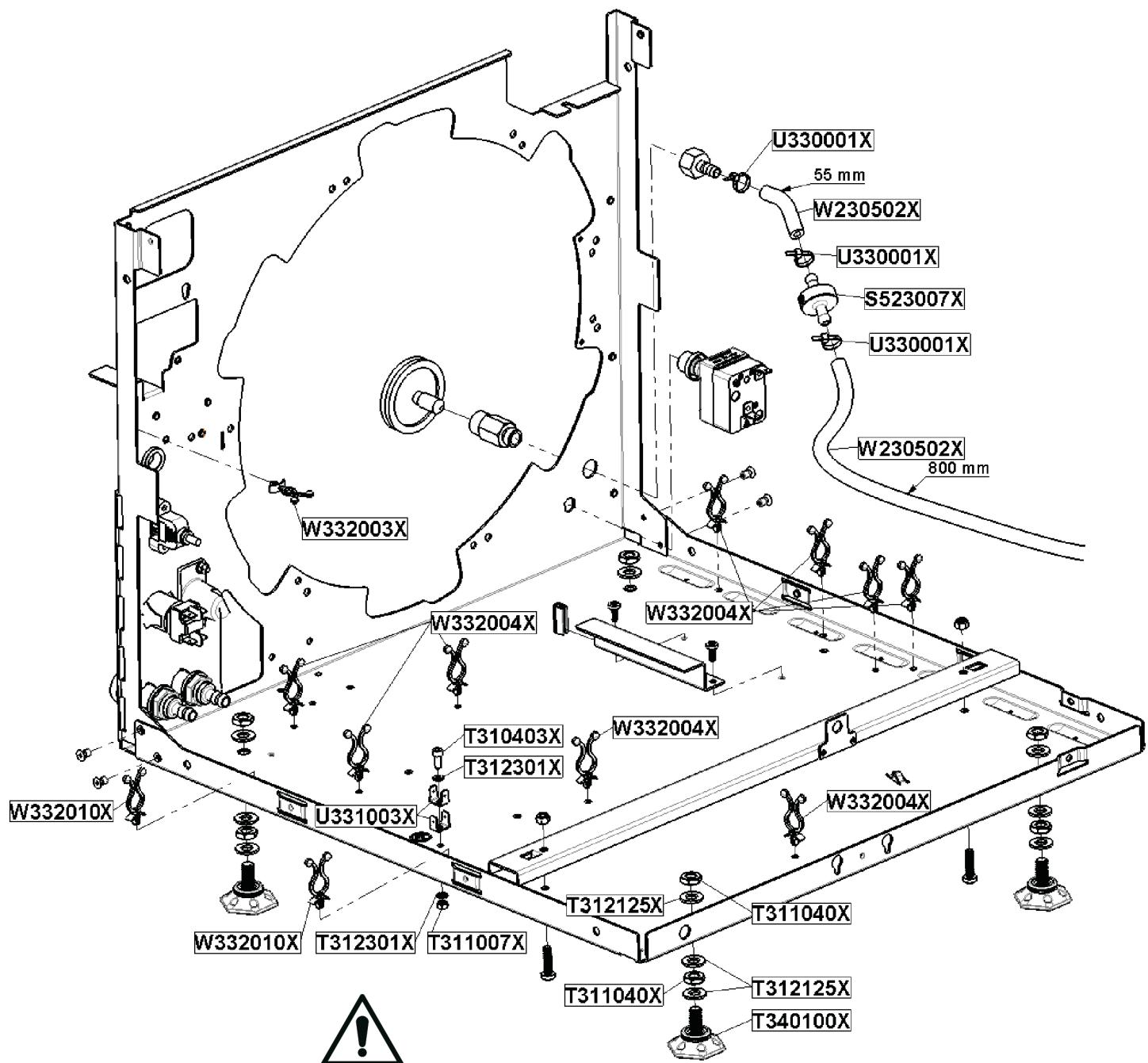
LAYOUT 16.1 - CHAMBER INTERNAL COMPONENTS

Time 2 minutes each
Tool Big flat screwdriver or $\frac{1}{4}$ dollar

NO Preliminary
disassembling required



LAYOUT 17.1 - FRAME COMPONENTS



Spare part list



GENERAL SPARE PART LIST

Part N.	Description	Layout
X051307X	24V power unit	5.2
F542019X	Adhesive symbol plate	3.4
T340100X	Adjustable foot	17.1
T310403X	Allen screw M4x10	17.1
T313127X	Allen torx screw with cylindrical head M6X65	14.4
I280500X	Alu adhesive 50x50mt	14.4
		15.1
F523211X	Aluminum tray	0.1
X051331X	Auto drain kit	0.7
X051302X	Auto-fill kit with valve	0.5
X051303X	Auto-fill kit pump 110V	0.6
X051304X	Auto-fill kit pump 220V	0.6
T313116X	Button head Torx screw M4x10 s.s.	1.1
		1.2
		1.3
		1.4
		1.5.2
		2.1
		3.2
		3.3
		4.1
		4.2
		5.1
		5.2
		7.1
		10.1
		12.1
		12.2
		13.1
		14.1
		14.3
T313118X	Button head Torx screw M5x10 s.s.	7.1
		7.2
		14.2
		14.3
		2.2
W332000X	Cable holder 10x6	8.1
		14.2
U330001X	Cable tie	1.4
		3.4
U330001X	Cable tie	17.1
F450032X	Chamber insulating panel 11"	14.4
F450033X	Chamber rear insulating panel 11"	14.4
V400027X	Chamber temperature sensor PT1000 03x80	15.3

Part N.	Description	Layout
F370122X	Chamber safety thermostat switch	15.1
F501304X	Chassis-chamber insulating ring	14.3
F504475X	Check valve body	16.1
W461003X	Check valve disc 010x2	16.1
F504474X	Check valve outlet	16.1
X051317X	Clean water tank kit	7.1
F460541X	Clean water tank seal	3.7
F522505X	Condenser	10.1
X051320X	Display - MMI assembly	3.1
X051319X	Door centering kit	3.3
F540620X	Door cover with logo Lexa	1.5.1
F540613X	Door cover with logo Lexa W&H MED	1.5.1
X051318X	Door locking system switches	4.2
X051324X	Door motor	4.1
F460535X	Door seal	0.3
W322211X	Drain connection (blue) + nut	3.4
W322210X	Drain connection (grey) + nut	3.4
S230903X	Drain tube	0.1
A812110X	Drain tube kit with fittings	0.2
S520009X	Emergency door opening tool	0.1-3.4
A801500X	Ethernet cable	0.2
F501108X	EV fixing nut	12.1
X051327X	EV1-EV5 assembly	12.1
X051328X	EV3 assembly	12.2
U380009X	Fan	10.1
U331003X	Faston holder 04	17.1
T311102X	Flange hex nut M8	14.3
F540590X	Front cover panel	3.2
U333006X	Fuse 110V	5.3
U333008X	Fuse 220V	5.3
X051310X	Fuse kit 110V	5.3
X051311X	Fuse kit 220V	5.3
S523013X	Generator filter kit	15.4
M27200X	Heat sink compound	9.1
F370025X	Heating belt	14.4
		15.1
V400028X	Heating belt temperature sensor PT1000 03x65	15.1
W322400X	HEPA filter	3.6
W322400X	HEPA filter	0.3
T310603X	Hex head flange screw M8X16	14.3
T310606X	Hex head screw M5x25 s.s.	14.2
T311104X	Hex nut M5	14.2
T315502X	Hex spacer M3x20	15.1
F541026X	Hinge cap	3.2
X051306X	Internal chamber temperature sensor kit	5.1



Spare part list

Part N.	Description	Layout
T312301X	Jagged washer 04 s.s.	1.1
		1.2
		1.3
		1.4
		17.1
X051301X	LAN cable kit	0.8
F365010X	Left side panel	1.3
W392000X	Lithium battery 3V CR2032	5.1
F501305X	Locking system axial stop	14.2
X051305X	Main board and pressure sensor	5.1
Z191036X	Mains switch disassembly tool	3.5
X051057X	Mains switch kit	3.4
U380119X	Mains cable 120V	0.1
U380120X	Mains cable 230V	0.1
F460533X	Mains connector gasket	1.4
T311007X	Normal hex nut M4 s.s	17.1
X051326X	Check valve	11.1
F501308X	Perimetral chamber seal	1.5.2
T312125X	Plane washer 08 s.s.	17.1
F300305X	Porthole spring	2.1
		14.1
F190109X	Positioning tool for internal chamber temperature probe	5.1
		15.3
T343501X	PTFE compression olive 03	15.3
F501013X	Rack positioning pin L. 33.5 mm	16.1
F501014X	Rack positioning pin L. 43.5 mm	16.1
T342015X	Rubber cap	3.4
X051329X	Safety valves	13.1
T312300X	Serrated washer 03 s.s.	15.1
F540588X	Service door	3.1
T311040X	Short hex nut M8	17.1
F523030X	Standard chamber rack	0.1
X051314X	Steam diffuser group	16.1
X051330X	Steam expander/condenser kit	0.9
X051308X	Steam generator complete assembly 110 V	9.1
X051309X	Steam generator complete assembly 220 V	9.1
V400029X	Steam generator temperature sensor PT1000 03x65	9.1
F370104X	Steam generator safety thermostat switch	9.2
X051312X	Supply connector group	6.1
F501310X	Teflon door spacer	1.5.1
F504445X	Temperature sensor fitting	15.3
F365012X	Top cover	1.1
F460542X	Top venting cap (grey)	1.1
F460534X	Top venting sleeve	7.2
T313115X	Torx button head flanged screw M3x10	3.1
T313100X	Torx self-tapping screw 3x8 galv.	1.5.1

Part N.	Description	Layout
X051323X	Touchscreen and MMI cover kit	3.1
W230502X	Transparent silicone tube	3.4
F523001X	Tray holder	17.1
W332010X	Twist lock cable tie 013.8	0.1
W332003X	Twist lock cable tie 06.1	17.1
W332004X	Twist lock cable tie 09.8	17.1
U382927X	USB cable	6.1
U382926X	USB cable A/MICRO F/M L. 50 CM.	3.4
V000004X	USB pen drive	0.1
X051325X	Used water tank kit	7.2
W460041X	Viton O-ring	16.1
T343008X	Washer 10.5x21x2.5	12.1
T312154X	Washer 4.3X16X1.5	2.1
T343007X	Washer 4.3X9X0.8	12.1
T312157X	Washer 5.3x15x1.6	8.1
		14.2
U381001X	Water level sensor	7.1
		7.2
U381003X	Water level sensor + conductivity meter	7.1
X051315X	Water pump 110 V	8.1
X051316X	Water pump 220V	8.1
W342001X	Water tank cap	0.5
S523014X	Water tank filter complete	16.1
S523007X	Water tank tubing manifold + seal	17.1
T341504X	Zinc-plated Wingnut M4	9.1

SMALL PARTS AND UNCOUNTABLE

Part N.	Description
T340100X	Adjustable foot
T310403X	Allen screw M4x10
T313127X	Allen torx screw with cylindrical head M6X65
I280500X	Alu adhesive 50x50m
T313116X	Button head Torx screw M4x10 s.s.
T313118X	Button head Torx screw M5x10 s.s.
T313118X	Button head Torx screw M5x10 s.s.
T313128X	Button head Torx screw M5x12 s.s.
T313126X	Button head Torx screw M5x16 s.s.
T313123X	Button head Torx screw M5x20 s.s.
T313117X	Button head Torx screw M5x6 s.s.
W332000X	Cable holder 10x6
U330001X	Cable tie 2.6x135
W322211X	Drain connection (blue) + nut
W322210X	Drain connection (grey) + nut
T311102X	Flange hex nut M8
M27200X	Heat sink compound

Spare part list



Part N.	Description
T310603X	Hex head flange screw M8x16
T310606X	Hex head screw M5x25 s.s.
T311104X	Hex nut M5
T315502X	Hex spacer M3x20
T312301X	Jagged washer Ø4 s.s.
T311007X	Normal hex nut M4 s.s.
T312125X	Plane washer Ø8 s.s.
T343501X	PTFE compression olive Ø3
T342015X	Rubber cap
T312300X	Serrated washer Ø3 s.s.
T311040X	Short hex nut M8
X051312X	Supply connector group
T313115X	Torx button head flanged screw M3x10
T313100X	Torx self-tapping screw 3x8
W230502X	Transparent silicone tube 5x10
W332010X	Twist lock cable tie Ø13.8
W332003X	Twist lock cable tie Ø6.1
W332004X	Twist lock cable tie Ø9.8
W460041X	Viton O-ring
T343008X	Washer 10.5x21x2.5
T312154X	Washer 4.3X16X1.5
T343007X	Washer 4.3X9X0.8
T312157X	Washer 5.3x15x1.6
T341504X	Zinc-plated Wingnut M4

Part N.	Description
X051309X	Steam generator assembly 220 V
V400029X	Steam generator temperature sensor PT1000 Ø3x65
F370104X	Steam generator safety thermostat switch
U381003X	Water level sensor + conductivity meter
U381001X	Water level sensor

MINIMUM RECOMMENDED SPARE PART LIST

Part N.	Description
F370025X	Chamber heating element
V400027X	Chamber temperature sensor PT1000 Ø3x80
F370122X	Chamber safety thermostat switch
X051320X	Display - MMI assembly
X051318X	Door locking system switches
X051324X	Door motor
F460535X	Door seal
X051327X	EV1-EV5 assembly
X051328X	EV3 assembly
U380009X	Fan
U333006X	Fuse 110V
U333008X	Fuse 220V
M27200X	Heat sink compound
V400028X	Heating belt temperature sensor PT1000 Ø3x65
W322400X	HEPA filter
W392000X	Lithium battery 3V CR2032
X051305X	Main board and pressure sensor
X051057X	Mains switch kit
X051308X	Steam generator assembly 110 V



Manufacturer
W&H Sterilization Srl
via Bolgara, 2
Brusaporto (BG)
Italy

www.wh.com
med.wh.com
+39 035 66 63 000



MN-111
Service book
Repair and Spare Parts
ENG
Rev08
2019/06/21
Subject to changes