XO FLOW

INSTRUCTIONS FOR SERVICE

CONTENTS

1 INTRODUCTION

Please read these service instructions carefully before you start servicing XO FLOW.

For further details concerning:

- how the unit is operated
- how the unit is configured
- infection control procedures
- maintenance
- lists of accessories, detachable parts and consumables
- legal information

please see XO FLOW, Instructions for use.

Please visit xo-care.com or contact us at info@xo-care.com for more information.

Best regards

XO CARE A/S

XO FLOW must be inspected and serviced biannually from the date of installation to ensure safe operation and high uptime.

In addition to the regular biannual inspection and service XO CARE A/S may require that certain parts with limited lifetime are serviced or replaced.

All maintenance, adjustment, repair, and service activities described in these instructions shall be done by authorized service personnel.

Only original XO spare parts must be used for servicing XO units!

No unauthorized modification of this equipment is allowed!

Unauthorized adjustment, repair or service attempts could result to health hazard.

Failure to properly re-affix or re-install components may compromise the electrical safety of the unit.

There must be no patient in the patient chair while any maintenance, adjustment, repair, or service work is being carried out on the unit!

2 MANDATORY PREVENTIVE SERVICE AND SAFETY INSPECTION

2.1 PREVENTIVE SERVICE AND SAFETY INSPECTION

2.1.1 NOTIFICATION

Approximately 30 days before the next preventive service and safety inspection a notification ⓘ will be generated. Tap the status app for details.

If the unit is not serviced at the expected time a warning ⚠ is generated.

In case service is overdue with 30 days or more another warning is generated and shown at power on. The unit will only start functioning after confirmation of this safety warning.

2.1.2 REGULAR INSPECTION AND SERVICE

XO FLOW must be inspected and serviced biannually from the date of installation (the target service date) to ensure safe operation and high uptime.

The service shall be done within an interval of ± 30 days from the target service date.

Appendix I contains a checklist that shall be used for the regular service inspection.

XO CARE A/S provides a “service kit” with the necessary spare parts and consumables for the service inspections.

Parts with reference numbers in ***bold and italics*** in Appendix I are included in the service kit.

Before commencing the service inspection, the unit must be cleaned and disinfected as described in XO FLOW, Instructions for use.

Electric power must be switched off before carrying out maintenance and/or repairs to relevant parts of the unit. Use the mains switch as described in Instructions for Use.

2.1.3 ADDITIONAL INSPECTION AND SERVICE ACTIVITIES

In addition to the regular biannual inspection and service XO CARE A/S may require that certain parts with limited lifetime are serviced or replaced.

If required, an additional checklist that shall be used in addition to the checklist enclosed in Appendix I.

XO CARE A/S will provide “additional service kits” with the necessary spare parts and consumables for the additional service inspections when appropriate.

Please be aware that deterioration and/or discoloring of materials may indicate failure or critical degradation of parts and components and that such components must be replaced.

3 NECESSARY PARTS AND TOOLS

3.1 REGULAR SERVICE KIT

Spare parts included in the regular service kit are as follows:

Table 1 – Content of regular XO FLOW service kit

REF	Description	Pcs.
AE-124	Vacuum valve for suction manifold	3
UH-369	Water filter, main	1
UH-392	Air filter, main	1
MG-364	Mixing cup	2
MG-409	Nozzle cuspidor/cup filler	2
MG-767	Separation wall, cup	2
AO-982	Water filter (after water tank)	1
MR-075	Filter for suction hoses	3
SA-024	O-ring, Bien-Air micromotors	6
UA-093	Rubber pad, foot control	4
UC-064	O-ring, for filter holder (on suction hoses)	3
UH-246	O-ring, for mixing cup	2
UH-247	O-ring, for cupfiller and cuspidor nozzle	4
UH-073	O-ring, for instrument holder (water disinfection plate)	2
MN-693	Cotton pad, oil-air separation	1

3.2 RECOMMENDED SPARE PARTS AVAILABLE

In addition to the service kits, it is recommended to have the access to the following spare parts as they may need to be replaced:

Table 2 – Other important spare parts

REF	Description
UG-672	Solenoid valve, main (unit stand)
UH-259	Solenoid valve, 2/2 water (instrument bridge)
UH-276	Solenoid valve, 2/2 water (unit stand)
UH-345	Solenoid valve, 3/2 water (unit stand)
UG-738	Solenoid valve, 3/2 6 bar (suction)
AP-869	Sensor PCB for water disinfection/ suction disinfection systems
AN-374	PCB, level sensor for cartridges
MG-743	Rubber for joystick, short
MG-980	Plastic shoe protection for patient chair, XO Comfort upholstery

REF	Description
UG-288	Sliding disc for neck rest friction
UG-315	O-ring Ø3,3 x 0,6 NBR
UH-149	O-ring Ø1,5 x 0,7 Viton
MN-623	Holder, suction hoses - Ambidex

3.3 CONSUMABLES

The following consumable shall be available:

Table 3 - Consumables

REF	Description
YR-026	Darina R2 grease, 100 ml (spindle lifting motors)
YR-032	Paraliq grease, 100 ml (O-rings)
YR-033	Sunaplex 781 grease 100 ml (patient chair guide)

Most of the O-rings used in the equipment are made of Nitril and EPDM. We recommend using YR-032 Paraliq to grease these O-rings, especially those in contact with water.
YR-032 is approved for food machinery and contains no dangerous substances.

3.4 SPECIAL TOOLS

Please make sure that you have the following special tools available:

Table 4 – Special tools

REF	Description
SD-388	Pin spanner to adjust the neck rest
FA-400	Flowmeter, for micromotor cooling air
FA-041	Manometer 4-hole for air instrument (turbine) drive air
	Calibrated Torque wrench(es) 0-10 Nm with top, hex socket (Allen) 6 & 8mm and Top, hex, 10mm
	Antistatic wrist strap
	Empty test cartridge for water disinfection and suction disinfection

4 FIGURES

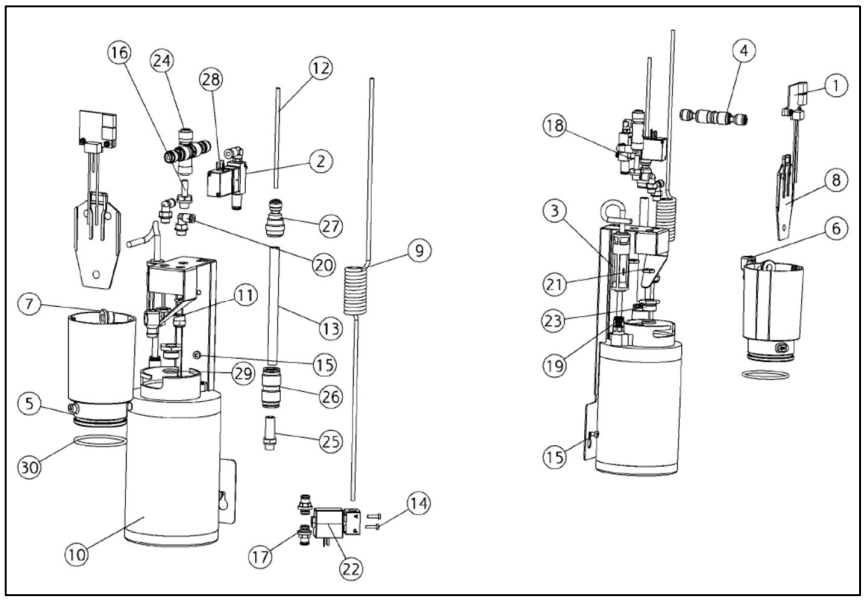

Figure 1 – Backflow prevention

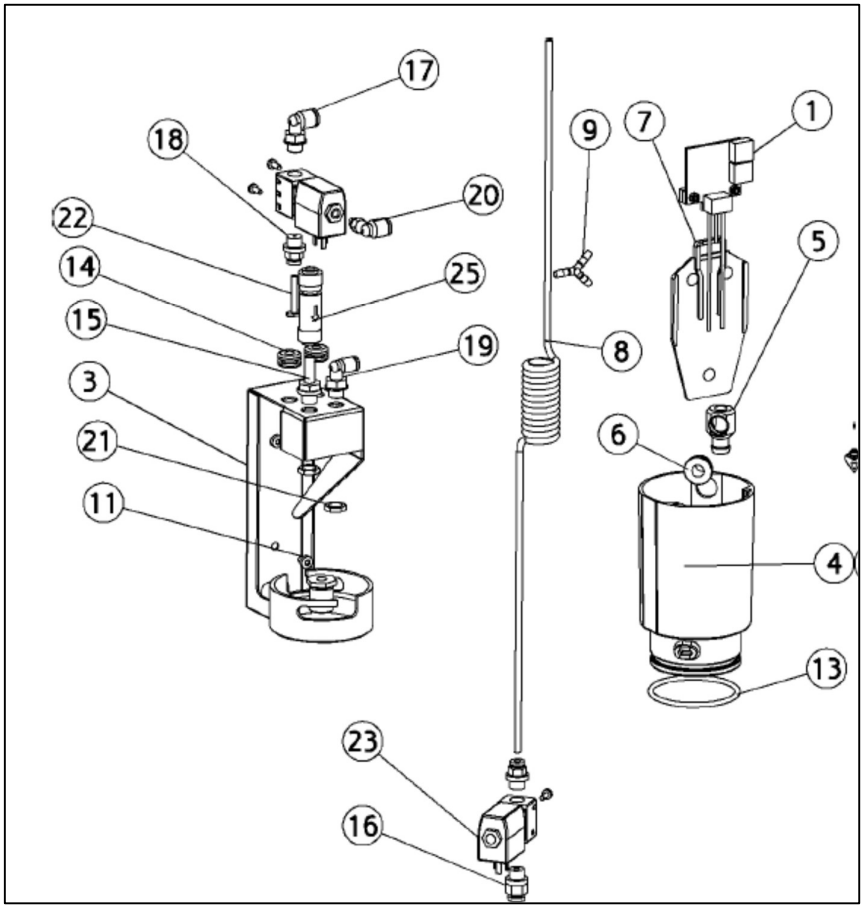

Figure 2 – Suction disinfection

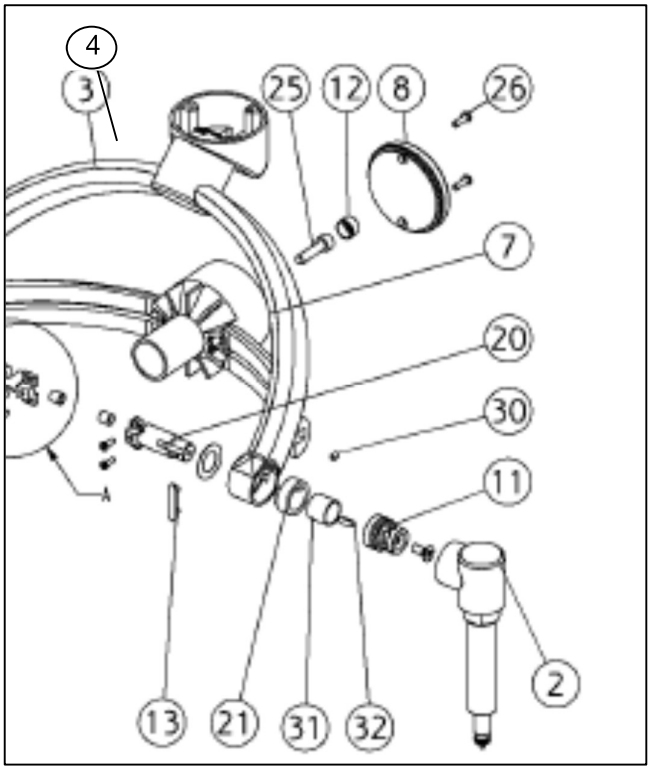

Figure 3 – Operating Light head

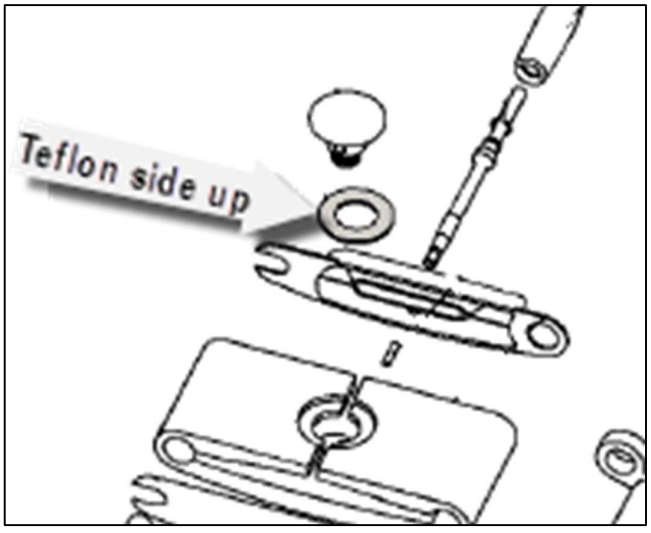

Figure 4 – Neckrest friction brake

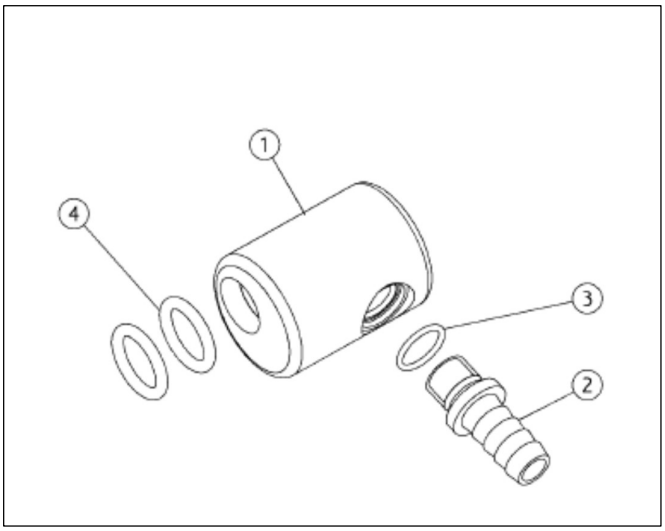

Figure 5 – Connector, instrument holder

5 FUSES

Table 5 – Specification of fuses

PCB Name	PCB Number	Part identifier	Specifications	Dimensions	Notes
Cable, DP Switch to PCB Surge, Fused	CA-906	F1	F 5AL, 250V	5 x 20mm	
PCB, Power Distribution	AP-912	F1 + F2	T 20AL, 250V	5 x 20mm	
		F3 + F4	T 10AL 250V	5 x 20mm	
		F5	T 6.3AL, 250V	5 x 20mm	
		F6	T 1.6AL, 250V	5 x 20mm	
		F7	F 1.5AL, 125V	5 x 20mm	
PCB, Interface, Syringe Luzzani 3F/6F	AJ-956	F1	T 5AL, 125V	6.10mm x 2.69mm x 2.69mm	NANO²® 451
PCB, Interface, XO ODONTOSCALER	AJ-979	F1	T 1AL, 125V	6.10mm x 2.69mm x 2.69mm	NANO²® 451
Amalgam separator transformer	MH-649	F1	T 1AL, 250V	5 x 20mm	
		F2	T 4AL, 250V	5 x 20mm	

6 PRODUCT DISPOSAL INFORMATION

Within the European Union this product must not be disposed of with household waste. Instead, it is the responsibility of the owner to dispose of the waste equipment by handing it over to a designated collection point for the recycling of electrical and electronic equipment waste. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, or your supplier's office.

Disposal of electrical products in countries outside the European Union should be done in line with local regulations.

This product is to be disposed by authorized service personnel as required by local ordinances or regulations!

7 SYMBOLS

The symbols used in these instructions are listed below.

Table 6 – List of symbols used in these instructions and on the product labeling

	***General safety warning***
	***Safety warning: dangerous voltage***
	***Static electricity. The equipment must be turned off and you need to be electrically connected to the framework of equipment (earthed) when touching sensitive electronics components or installing cables and plugs. We recommend the use of a wrist band which can be supplied to you by XO.***
	***Safety related mandatory action***
	***Message/Notification***
	***Safety related prohibitive action***
	***General caution***
	***DataMatrix Code for product information including UDI (Unique Device Identification)***
	***Data structure in accordance with Health Industry Bar Code***

SN	***Serial Number***
REF	***Reference number***
MD	***Medical device***
	***Manufacturer***
	***Date of manufacture***
	***Do not dispose of with domestic waste***
	***Type B applied part (degree of protection against electrical shock)***
	***Type BF applied part (degree of protection against electrical shock)*** ***Intraoral camera***

APPENDIX I – BIANNUAL SERVICE AND INSPECTION CHECKLIST

	Checklist	Comment
	Preparation	
	☐ Ask the users if they have experienced any malfunctions with the equipment. ☐ Please inform the users that repair or replacement of other parts than included in the service will be invoiced unless they are covered by the warranty.	
	☐ Conduct a functional test of the unit.	
	☐ Shut off the water and air supply to the unit.	
	☐ Remove the unit stand panels.	
	☐ Empty the two mixing cups inside the unit using the saliva suction and switch the unit off.	
	Unit stand	
	☐ Replace the main water filer (***UH-369***).	
	☐ Replace main air filter (***UH-392***).	
	☐ Check the main water and main air solenoid valves for signs of leakage and repair/replace if necessary.	
	Water disinfection and backflow prevention	
	☐ Replace the mixing cup (***MG-364***) – see (5) in Figure 1. ☐ Re-use the overflow nozzle – see (6) and (7) in Figure 1.	
	☐ Replace the separation wall (***MG-767***) – see (8) in Figure 1.	
	☐ Replace the O-ring (***UH-246***) and grease it with Paraliq (YR-032) – see (30) in Figure 1.	
	☐ Replace the water filter (***AO-982***) – see (3) in Figure 1.	
	☐ Disassemble and clean the valve (UG-809) – see (23) in Figure 1.	
	☐ Clean the metal sensor pins carefully and mount the new mixing cup.	
	☐ Add a thin layer of Paraliq grease (YR-032) on the O-rings for the water disinfection cartridge located on the service panel.	
	☐ Replace O-rings (***UH-073***) in the cup filler connector on the instrument holder – see (4) in Figure 5.	
	Suction disinfection	
	☐ Replace the mixing cup (***MG-364***) see (4) in Figure 2. ☐ Re-use the overflow nozzle – see (5) and (6) in Figure 2.	
	☐ Replace the separation wall (***MG-767***) – see (7) in Figure 2.	
	☐ Replace the O-ring (***UH-246***) and grease it with Paraliq – see (13) in Figure 2.	
	☐ Clean the metal sensor pins carefully and fit the new mixing cup.	

	Checklist	Comment
	☐ Add a thin layer of Paraliq grease (YR-032) on the O-rings for the suction disinfection and the suction clean cartridge located on the service panel.	
	Suction and drain system	Remember to wear gloves!
	☐ Disassemble the suction manifolds and clean the housing and the vacuum valves carefully. ☐ Replace the vacuum valves (***AE-124***) and apply a thin layer of Sunaplex grease (YR-033) on the rubber part.	
	☐ **Cuspidor valve**: Clean the yellow filter and check rinsing function by pressing the button at the switch module for 3 seconds. The suction unit must operate, and the cuspidor valve must open (sounds of suction from cuspidor bowl and waste connection). ☐ Check function of reed contact and clean the float contact and storage container (housing). ☐ Disassemble the drain hoses from cup filler and cuspidor and clean inside if necessary. ☐ **Combi-separator CAS 1**: Clean the yellow filters and follow the maintenance instructions from Dürr. Please see: http://www.duerrdental.com/en/services/download-centre/. In search function type “CAS 1”.	
	☐ Ambidex suction hose holder on patient chair: Check function and inspect plastic part for cracks etc. Replace plastic part (MN-623) if necessary.	
	Cuspidor and cup filler (option)	
	☐ Check the drainage system from cup filler and cuspidor is not leaking or clogged.	
	☐ Replace nozzles and O-rings in flushing pipe and cup filler pipe, (***MG-409***) and (***UH-247***). Add a little Paraliq grease (YR-032) to the O-rings and press the nozzles carefully into the pipes.	
	Foot control	
	☐ Check the cable (CA-948).for visible damages and replace if necessary.	
	☐ Replace the rubber feet (**UA-093**).	
	☐ Synchronize the foot control. Tap the technical settings app ⚙ on the navigator.	
	Instrument bridge	
	☐ Unplug suspension hoses one by one and inspect connector for corrosion and signs of leaking water. If signs of leaking water, please check O-rings (UG-315 and UH-149) at the connectors and replace if necessary. **Be sure the connectors are dry when re-connecting the hoses.**	
	☐ Check function of tray holder and adjust if necessary.	
	☐ Check function of the touchscreen and make sure that the screen is functioning well.	

	Checklist	Comment
	Instruments	
	☐ Syringe: Check air, heated air, water, heated water, spray and heated spray.	
	☐ Check and if necessary adjust drive air on air instrument (turbine): ☐ Tap ⚙ on the navigator to access adjustments. ☐ Connect manometer and check: ☐ Drive air: Maximum 3 bar ☐ Drive air: Minimum 1.5 bar ☐ A/R Air (Anti-Retraction Air): Adjust the drive air until you feel air coming through the turbine handpiece – **without** the bur rotating.	
	Bien-Air MX2 micromotor: ☐ Check light function ☐ Replace O-rings (***SA-024***) ☐ Adjust cooling air to 10 l/min if necessary ☐ If abnormal noise or vibrations, please inform the users to consider repair of micromotor	
	Ultrasonic scaler: ☐ Check function of power, irrigation and light.	
	XO ODONTOCURE composite curing light: ☐ Check function and send handpiece to XO CARE A/S for service if necessary	
	XO ODONTOSCALER ultrasonic scaler: ☐ Check function and send handpiece to XO CARE A/S for service if necessary	
	Operating light	
⚠	☐ ***Check the reflector for cracks*** ☐ ***If reflector is broken, please replace with AO-472 Kit, Reflector***	
	Check in a distance of 70 cm from the light head: ☐ That the light field is a well-defined square ☐ If necessary, adjust focus using the adjustment screw (25) in Figure 3	
	☐ Check the friction in the light head by moving the head up/down – left/right with the handles. The movement shall be “smooth”, without being too easy or too difficult to move. ☐ If necessary adjust the friction by means of the small Allen screw – see (30) and (4) in Figure 3	
	Navigator	
	☐ Check function of the touchscreen and make sure that the screen is functioning well.	
	Patient chair	
	☐ Adjust the friction by means of special tool (SD-388) and check that the neck rest can be positioned in all working positions and locked safely with the handle. Replace	

	Checklist	Comment
	(UG-288) if appropriate friction cannot be obtained. See Figure 4.	
	☐ Check and grease (if necessary) motor spindle in both unit stand and chair. Use Darina R2 grease (YR-026).	
	☐ Check and grease (if necessary) the sliding surfaces of the chair guide. Use Sunaplex grease (YR-033). If adjustment is needed, please refer to “Patient Chair carriage adjustment” (YB-782) available at xo.care.com.	
	☐ Check function of backrest motor. Operate it up and down and check for abnormal noise.	
	☐ Synchronize the chair. Tap  on the navigator and select “Synchronization of patient chair”.	
	☐ Check the safety system of the patient chair (collision stop), by blocking the chair with the hand while it moves towards e.g. the entry position.	
	☐ Check upholstery parts: If visible damages please inform the users. Instruct the users regarding maintenance of upholstery if necessary.	
	☐ Functional test of patient chair - Check for abnormal noise and check that chair and backrest can move upwards with load.	
	Arm systems	
	☐ ***Please carefully inspect all arm systems for abnormal noise when moved vertically/horizontally.*** ☐ ***Check that all joints look normal without abnormal gap between upper and lower part.*** ☐ ***If the inspection reveals any abnormalities, please follow the instructions in YB-770 available at xo-care.com or contact technical service at XO CARE A/S.***	
	☐ Check and adjust if necessary the balance and friction brakes of the arm systems for the instrument bridge/dashboard, navigator and operating light. For each arm: ☐ Loosen the friction brake (vertical movement) ☐ Adjust the balance/vertical lifting mechanism so that the arm requires an equal amount of force to move up and down and feels “weightless” ☐ Adjust the friction. Note: The arm should on the one hand be easy to move by the users but on the other hand not move when a patient is getting in/out of the patient chair or when the instruments and tray(s) are removed from the instrument bridge. ☐ When adjusting the instrument bridge arm all handpieces/contra-angles shall be fitted and the bridge shall be equipped with normal load on the tray(s).	

	Checklist	Comment
	Software	
	☐ Tap 🔧 and check for new software version. ☐ Update software if newer version is available.	
	☐ Tap 🔧 to setup the next date for preventive service	
	Final inspections	
	☐ Check the function of level sensor (AN-374) for water disinfection on the service panel using an empty test container. ☐ Please note that it might be necessary to fit the service panel to prevent “false” light to interfere with the sensor.	
	☐ Check the dosing pump for water disinfection works correct by emptying the mixing cup with the saliva suction hose. The dosing pump should be activated for a couple of seconds each time the mixing cup is emptied if the sensor PCB works correct.	
	☐ Check the function of the water disinfection. Place the instrument holder on the cuspidor bowl and place all water-carrying instruments in holder and manually start the water disinfection procedure.	
	☐ Check that no water bubbles occur in the mixing cup when the backflow prevention tank is pressurized.	
	☐ Water leak sensor - functional test. Check the main water valve is closing if the sensor pins are ”shorted” with a wet finger.	
	☐ Test cuspidor flush and cup filler by tapping the buttons on the dashboard. Adjust water amount at the knobs in the unit stand if necessary.	
	☐ Check the function of level sensor (AN-374) for Suction Disinfection on the service panel using an empty test container. ☐ It might be necessary to fit the service panel to prevent “false” light to interfere with the sensor.	
	☐ Check that the flushing system for suction disinfection is working (water is being pulled from the mixing cup to the two suction filters via the yellow tubing when suction hose is activated).	
	☐ Run a full suction disinfection process: ☐ Check that the flushing system is NOT in function during the suction clean sequence. Meaning that no water is flushing the two suction filters. ☐ Check that the dosing pump for suction clean works, the dosing pump should run for a couple of seconds between each time the cup is emptied during the sequence.	
	Finish	
	☐ Check for leaking water inside the unit stand before fitting the panels.	

	Checklist	Comment
	☐ Inspect the water line (hoses, fittings, valves, etc.). Be aware of deterioration or discoloring of materials, which may be an indication that the materials are degraded and must be replaced.	
	☐ Check that all unit functions are OK	

	Safety test	
	☐ A safety test must be completed according to EN 62353. Follow the instructions in “YB-021 Safety test, XO Unit“	
	☐ Fit the panels	
	☐ Check that all unit functions are OK	
	Instruct user and document the service and safety inspection	
	☐ Report to the users if you have remarks. ☐ Check that the practice has a sufficient stock of consumables. See list of available consumables in Instructions for use.	

XO FLOW
REF CF-001

Instructions for service
REF YB-852
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Subject to change

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