



OER-Pro Biomed Quadrennial Preventative Maintenance TRAINING REPAIR MANUAL

Table of Contents

Precautions on Disassembly and Reassembly – OER-Pro [3010G.01]	4
Periodic Maintenance Replacement Parts/Units – OER-Pro [3010J.04]	9
Side Panel L Disassembly – OER-Pro [3010E.01]	10
Side Panel R Disassembly – OER-Pro [3010F.01]	11
Top Cover Unit Removal – OER-Pro [3011C.01]	12
Hinge Cover Removal – OER-Pro [3009W.01]	13
Hinge Unit Removal – OER-Pro [3011C.02]	14
Rear Panel Removal – OER-Pro [3009W.02]	15
Upper Rear Panel Unit Removal – OER-Pro [3011C.03]	16
Silencer Replacement – OER-Pro [3010C.01]	17
Filter Mouthpiece inside Disinfection Tank Replacement – OER-Pro [3010H.01]	18
Disinfectant Pump Head Replacement – OER-Pro [3009Y.01]	23
Channel Pump Replacement – OER-Pro [3010I.01]	25
Relief Valve Replacement – OER-Pro [3010E.02]	28
3 Port Valve Replacement – OER-Pro [3010I.02]	30
1/2 Inch Check Valve in the CH Block CU Replacement – OER-Pro [3010I.03]	34
Electric Valve in the CH Block AU Replacement – OER-Pro [3010I.05]	40
Upper Rear Panel Unit Installation – OER-Pro [3011C.07]	49
Hinge Unit Installation – OER-Pro [3011C.05]	50
Top Cover Unit Installation – OER-Pro [3011C.06]	51
Top Cover Position Adjustment – OER-Pro [3011C.04]	56
Relief Valve Pressure Adjustment – OER-Pro [3011L.03]	58
O-ring on the Leak Tester Air Connector Replacement – OER-Pro [3010H.02]	61
O-ring on the Auxiliary Water/Forceps Elevator Connector Replacement – OER-Pro [3010H.03]	62
Alcohol/Detergent Pump Replacement – OER-Pro [3010F.02]	63
O-Ring on the Supply Water Piping Disinfection Connector Replacement – OER-Pro [3010H.04]	67
Rubber Gasket Replacement – OER-Pro [3010G.02]	68
Sensor Cover Cleaning – OER-Pro [3010G.04]	69
Next Maintenance Date Setup – OER-Pro [3010J.03]	70
Final Functional Inspection – OER-Pro [3010G.03]	72
Rear Panel Installation – OER-Pro [3009W.04]	73
Hinge Cover Installation – OER-Pro [3009W.06]	74
Side Panel L Installation – OER-Pro [3009W.05]	75
Side Panel R Installation – OER-Pro [3010F.03]	76
Electrical Safety Test – OER-Pro [3010H.05]	77
Inspection Results Reporting – OER-Pro [3010H.06]	78
Revision History	79

Equipment, Material and Tool Requirements

Numerics

1/4 Driver handle

A

Adjustable wrench

Alcohol-ether

C

Cleaning tissue

Cloth

Cloth towel

Connector securing jig (part# NJ-3611)

Cutter

E

ESD mat

ESD wrist strap

F

Flathead screwdriver

H

Hex wrench, 6 mm

Hexagonal wrench, 0.71 mm

L

Laptop computer

N

Nejilock 1401C (part# OT-1026)

No. 2 Phillips Screwdriver

No. 2 Phillips screwdriver

No. 2 Phillips screwdriver bit

No. 2 torque bit

No. 2 torque driver bit No.2

Phillips screwdriver No.2

Phillips screwdriver bit No.2

torque driver bit

O

Open head for torque wrench, 22 mm

Open head wrench, 14 mm

Open head wrench, 17 mm

P

Paper

Paper towel Paper

towels Phillips

screwdriver

Phillips screwdriver, No.2

Precision flat screwdriver

Precision, flathead screwdriver

Protective gloves

R

Reagent alcohol

Ruler

S

SE9186 sealant (part# OT-9492)

Serial cable

Single edged razor

Software maintenance tool

Sony Bond

Sony bond

T

Teflon tape

Tie-wrap.

Torque driver

Torque screw driver bit No.2

Torque screwdriver

Torque screwdriver bit (No.2)

Torque wrench

Tweezers

W

Wire cutter

Wire cutters

Wrench

Precautions on Disassembly and Reassembly – OER-Pro [3010G.01]

1.0 Chemical handling safety warnings

- 1.1 Select a well-ventilated location when using organic solvents.



- 1.2 Thoroughly rinse any bodily areas that have come into contact with organic solvents as soon as possible.

Important: Not doing so may lead to potentially dangerous health risks.



- 1.3 When using organic solvents, handle with caution.

Important: These solvents may ignite if exposed to flame.



- 1.4 Always replace the lids back onto organic solvent containers before leaving the workbench.



2.0 Sharp edges safety warning

- 2.1 Repair with extreme caution to avoid injury.

Important: Take extra caution with metal parts, as the edges may be sharp.



Tools:

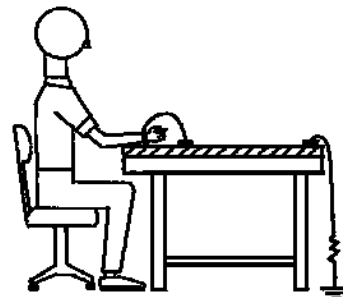
ESD mat

ESD wrist strap

3.0 Protecting the equipment

- 3.1 Use ESD safety equipment to protect the product against static electricity.

Important: A conductive mat or wristband to discharge static electricity must be used whenever it is necessary to touch the boards or other electrical components.



4.0 Precautions for parts handling

- 4.1 Be aware of all assembly parts and avoid dropping any parts into the chassis.

- 4.2 Pick up any dropped parts.

Important: Take care not to drop the screws, toothed washers, nuts or washers into the chassis. Should any parts be dropped, be sure to pick the parts up.

- 4.3 Avoid causing damage to the cables or harnesses during disassembly and assembly.
- 4.4 Inspect the connector to verify if a lock is present on the connector.
- 4.5 Release the lock on the connector before pulling the connector harness out.

Important:

Use extreme care when disconnecting the cable connectors. If a lock is present on the connector, the lock must be released before pulling out the connector.

At the time of reassembly, insert the connectors or flexible cables firmly until the contact points are seated all the way.

Do not forget to fasten the lock.

Do not pinch cable parts when the cover or shield is assembled.

- 4.6 Hold the PC boards carefully to avoid causing damage to the boards.

Important:

Do not scratch the boards or cables with tools such as screwdriver.

When the board is disassembled, the board must be held properly so that excessive force will not be applied to the board and warping caused by stress will not occur.

5.0 Precautions for handling disinfectant solutions

- 5.1 Preview this manual to determine if draining the LCG is required.

Consider replacing the internal water filter and performing a Water System Piping Disinfection prior to draining LCG.
- 5.2 Read all precautions carefully before handling the disinfectant solution.
- 5.3 Use disinfectant solution only as instructed.

Important: It is especially important to know what to do if disinfectant solution comes in contact with skin.

- 5.4 Wear the appropriate personal protective equipment when handling the disinfectant solution.

Refer to the safety information provided by the disinfectant solution manufacturer.

Important:

Wearing personal protective equipment will prevent skin contact with disinfectant solution and inhalation of vapors.

To avoid adverse physical effects, be careful not to touch the disinfectant solution directly or inhale vapors.

If any disinfectant solution gets into eyes, rinse immediately with large amounts of fresh water and consult a medical specialist.

Personal protective equipment should fit properly. Chemical resistant gloves must be long enough to ensure there is no exposed skin.

Personal protective equipment must be inspected before use, and replaced periodically before it becomes damaged.

6.0 Electrical shock safety warnings

- 6.1 Turn off the power and unplug the power cord before removing the cover of the unit to avoid electrical shock.
- 6.2 Beware of residual voltages.

Important: The unit may contain residual charges in capacitor components. Take care to avoid electric shock when opening the top cover.



7.0 Recording the equipment settings

- 7.1 Connect the software maintenance tool and download all parameters before performing maintenance.
- 7.2 Document all functional and operational parameters manually if the software maintenance tool is not available.
- 7.3 Reassemble parts according to the original configuration. This regards the following items especially:

Parts	Special considerations
Insulators	Such as insulating tubes and mylar sheets
Cables	Which are clamped to avoid coming in contact with heat originating from high voltage parts
Cover screws with toothed washers	Which suppress the emitted noise
Binders	Which are used for clamping cables or harnesses.

Important: Failure to attach parts in the original configurations poses the risk of noise radiation and reduced electrical safety, even if product functions are not impaired.

8.0 Other precautions

- 8.1 Verify only the specified parts are used.

Important:
The parts and components of this product are designed to operate under certain anticipated vibration, heat, chemical exposure and voltage conditions.

Always replace parts with those specified in the parts list.

- 8.2 Verify only the specified jigs and tools are used.

Important: The use of any unspecified jigs or tools may damage the system or the components under repair. This will prevent the product from functioning properly or performing optimally.

- 8.3 Comply with the torque rated values if they are in the manual.

Periodic Maintenance Replacement Parts/Units – OER-Pro [3010J.04]

Part of replacement	Part	Yearly # changed Set A	4 years # changed Set B	8 years # changed Set C	Reasons, memo
Silencer in compressor	Silencer	1	1	1	Stain
Mesh filter inside disinfect. solution tank	Filter mouthpiece	1	1	1	Chemical damage
Large hose inside disinfect. solution tank	Disinfect tank hose 1	1	1	1	Chemical damage
Small hose inside disinfect. solution tank	Tube	1	1	1	Chemical damage
Disinfection pump	Pump head	1	1	1	Mechanical damage
CH pump	Pump head	1	–	–	Mechanical and chemical damage
	Pump	–	1	1	Mechanical and chemical damage
Relieve valve for water leakage pump	Relieve valve	1	1	1	Mechanical damage
3 port valve	Electric valve	–	1	1	Mechanical damage
	O-ring	–	3	3	Frictional wear
Channel block CU	Check valve 1/2	–	1	1	Mechanical damage
	CH block	–	1	1	Mechanical damage
	CH joint	–	1	1	Mechanical damage
Water supply valve	Electric valve	–	–	1	Mechanical damage
	Packing 28x28	–	–	1	Frictional wear
	Packing	–	–	2	Frictional wear
	O-ring	–	–	1	Frictional wear
Channel Block AU	CH block A	–	1	1	Mechanical damage
	Electric valve	–	1	1	Mechanical damage
	Packing	–	1	1	Frictional wear
	Cushion	–	1	1	Mechanical damage
Lock	Lock solenoid	–	–	1	Mechanical damage
	E-ring (ER3UO)	–	–	2 ¹	Mechanical damage ¹ One is spare
CPU battery	Battery	–	–	1	Battery exhaustion
O-ring on leak tester air connector	O-ring	2	2	2	Frictional wear
O-ring on auxiliary water/forceps elevator connector	O-ring	2	2	2	Frictional wear
Packing on air/water/instrument channel and GU connector	GU connector	2	2	2	Frictional wear
	Packing	2	2	2	Frictional wear
Alcohol/detergent pump	Pump	2	2	2	Mechanical damage
O-ring on supply water piping disinfect. connector	O-ring	1	1	1	Frictional wear
Top cover rubber packing	Packing	1	1	1	Frictional wear

Note: Replace all O-rings and packing upon disassembly to reduce the risk of fluid leakage.

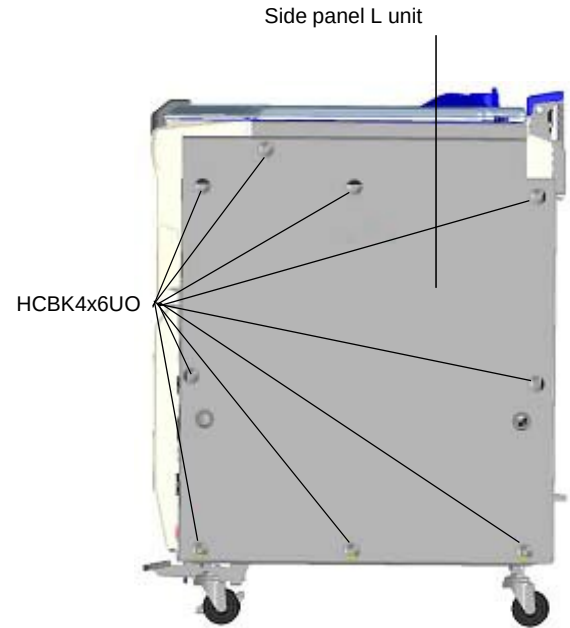
Side Panel L Disassembly – OER-Pro [3010E.01]

Tools:

No.2 Phillips
screwdriver

1.0 Removing side panel L

- 1.1 Remove the 9 screws (HCBK4x6UO) holding the side panel L unit.

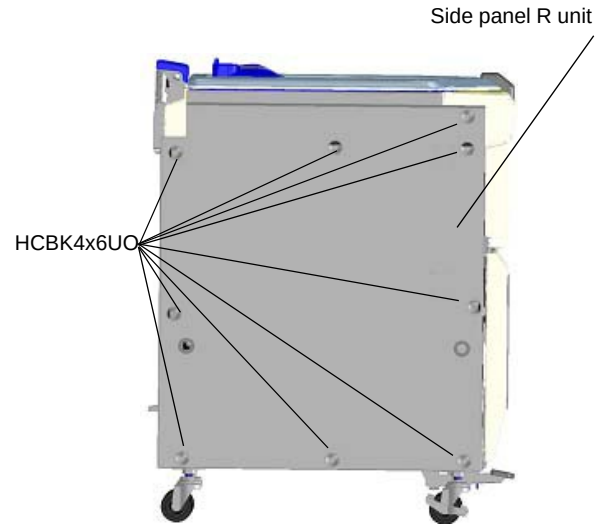


Side Panel R Disassembly – OER-Pro [3010F.01]

Tools:

No.2 Phillips
screwdriver

- 1.0 Removing side panel R
 - 1.1 Remove 9 screws (HCBK4x6UO) holding side panel R unit.

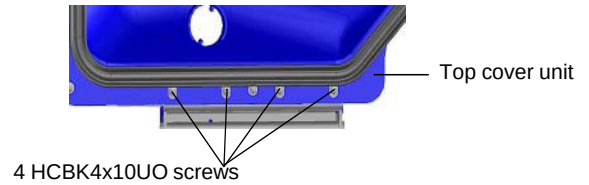


Top Cover Unit Removal – OER-Pro [3011C.01]

Tools:

Phillips
screwdriver

- 1.0 Removing the top cover unit
 - 1.1 Loosen and remove the 4 screws that secure the top cover unit.
 - 1.2 Remove the top cover unit



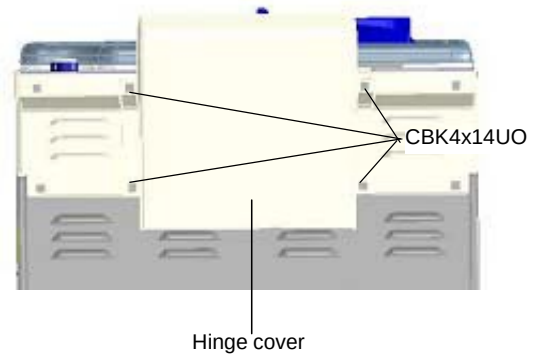
Hinge Cover Removal – OER-Pro [3009W.01]

Tools:

No.2 Phillips
screwdriver

- 1.0 Removing the hinge cover
 - 1.1 Open the top cover.

Important: The top cover may have already been removed at this point.
 - 1.2 Remove 4 screws (CBK4x14UO) holding the hinge cover.
 - 1.3 Remove the hinge cover.



Hinge Unit Removal – OER-Pro [3011C.02]

Tools:

Phillips
screwdriver

- 1.0 Removing the hinge unit
 - 1.1 Verify that the top cover unit has been removed.

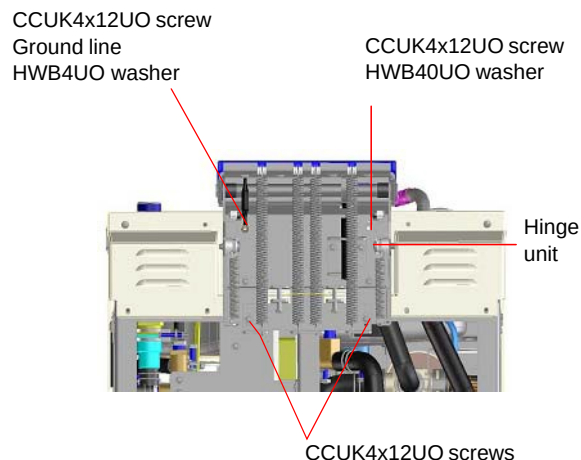
Important: For safety purposes, the top cover unit must be removed before the hinge unit.
 - 1.2 Loosen the 4 screws that secure the hinge unit.

Important: One of the screws is tightened into the ground line.
 - 1.3 Remove the screws and washers.

Important: There are 2 washers and 4 screws.
 - 1.4 Remove the hinge unit.

Important: It is easier to remove the hinge unit if the top cover unit is held in the up position or removed during the procedure.

Note: If repairs require more details than provided here, please refer to the OER-Pro technical guide for component level repair instructions.



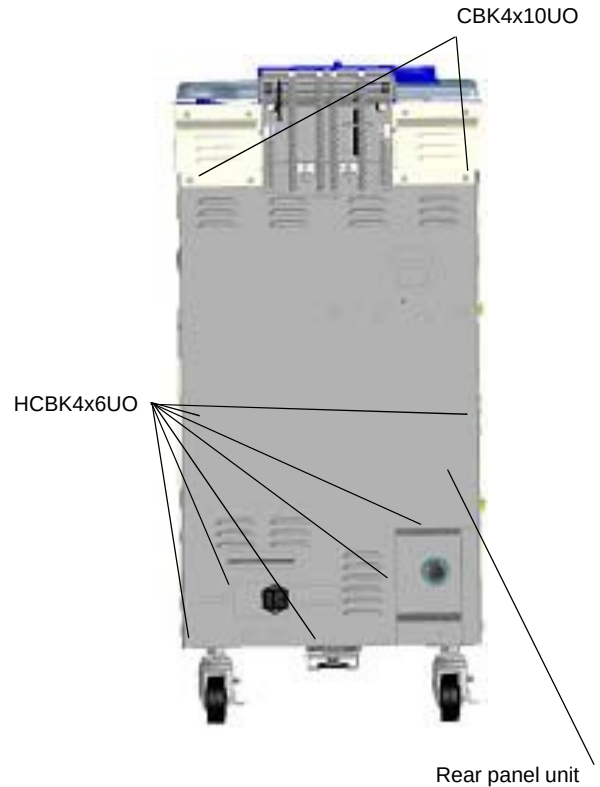
Rear Panel Removal – OER-Pro [3009W.02]

Tools:

No.2 Phillips
screwdriver

- 1.0 Removing the rear panel
 - 1.1 Open the top cover.

Important: The top cover may have already been removed at this point.
 - 1.2 Remove 7 screws (HCBK4x6UO) holding the rear panel unit.
 - 1.3 Remove 2 screws (CBK4x10UO) holding the upper rear panel unit.



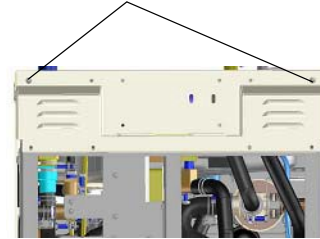
Upper Rear Panel Unit Removal – OER-Pro [3011C.03]

Tools:

Phillips
screwdriver

- 1.0 Removing the upper rear panel unit
 - 1.1 Loosen the 2 screws that secure the upper rear panel.
 - 1.2 Remove the screws.
 - 1.3 Remove the upper rear panel.

CBK4x10UO screws



Silencer Replacement – OER-Pro [3010C.01]

Tools:

Wrench

1.0 Replacing the silencer

- 1.1 Remove the silencer from the compressor by hand.

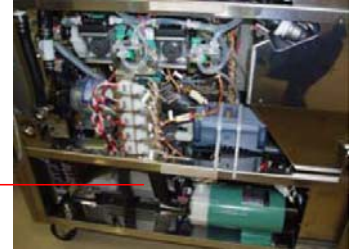
Important: If it is too tight to remove by hand, use a wrench.

- 1.2 Discard the old silencer.

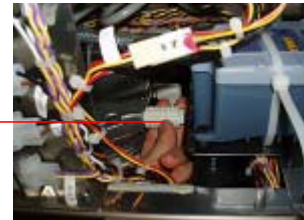
- 1.3 Tighten the new silencer onto the compressor by hand.

Important: Do not use a tool to tighten the silencer.

Compressor



Silencer



Filter Mouthpiece inside Disinfection Tank Replacement – OER-Pro [3010H.01]

Note: Drain the disinfectant prior to performing this procedure. Wear protective gloves to prevent corrosive material from contacting skin.

1.0 Removing the gas and water tubes

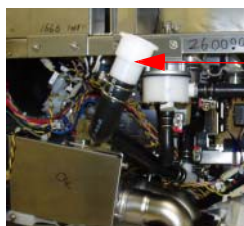
- 1.1 Unlock the quick lock connector on the hose connected to the incoming water valve.



Quick lock connector

- 1.2 Place the water tube to the left hand side.

Important: The water tube must be moved out of the way.



Place water tube here

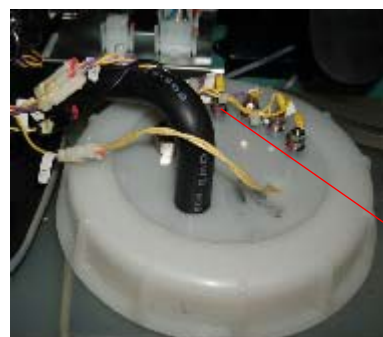
- 1.3 Wipe fluid off of the water supply valve.

- 1.4 Verify that there is an O-ring in the water supply valve.

- 1.5 Inspect the O-ring for damage.

- 1.6 Remove the gas vent tube that is connected to the disinfection solution tank cover.

Important: Apply alcohol to the tube if it is too tight to remove.



Gas vent tube

Tools:

Cloth towel
or
Paper towel

Tools:

Precision flat
screwdriver
Reagent alcohol

Tools:

Tweezers
or
Flathead
screwdriver

- 2.0 Removing the disinfection tank cover
- 2.1 Break the glue bond holding the 4 electrode connectors in place.
- 2.2 Remove the 4 electrode connectors from the disinfection tank solution.

Electrode connector



Tools:

Protective gloves
Cloth towel
or
Paper towel

- 2.3 Remove the disinfection tank solution cover.
- 2.4 Remove the tank fluid level sensor.
- Important: Wear protective gloves when removing the tank fluid level sensor.**
- 2.5 Wipe the solution off of the tank fluid level sensor.
- 2.6 Inspect the inside of the disinfection solution tank.

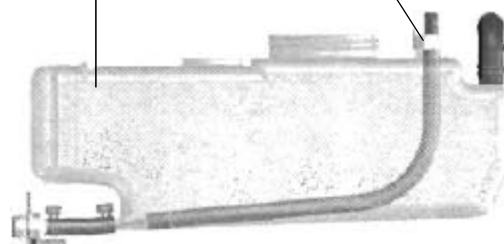


Disinfection
solution tank with
cover and fluid
level sensor
removed

- 3.0 Removing the drain nut
- 3.1 Unscrew the drain nut in the disinfection solution tank.

Disinfection
solution tank

Drain nut



Tools:

Protective gloves

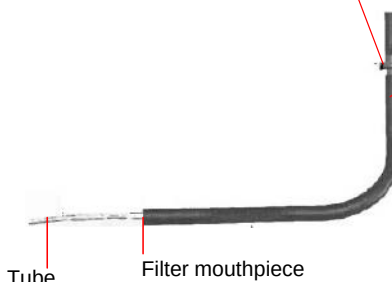
- 4.0 Replacing the filter mouthpiece.
- 4.1 Pull tank hose 1 out of the disinfection solution tank.
- Important:**
Wear protective gloves when removing hose 1.
- The joint, the filter mouthpiece, and the tube are attached to hose 1.**
- Make sure all the parts are removed together.**

Joint

Tank
hose 1

Tube

Filter mouthpiece

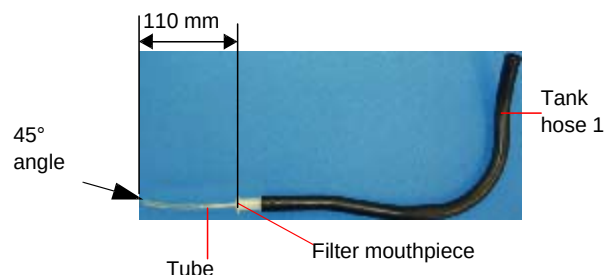
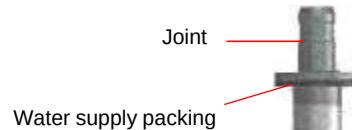


Tools:

Ruler

Wire cutter

- 4.2 Remove hose 1 from the joint.
- 4.3 Verify that the water supply gasket is present.
- 4.4 Cut the edge of a new tube at 110 ±5 mm.
- 4.5 Cut the distal end of the tube at a 45° angle.
- 4.6 Insert the tube into the a new filter mouthpiece.
- Important: The filter mouthpiece must point down.**
- 4.7 Assemble tank hose 1 as shown.



Tools:

Gloves

Cloth

or

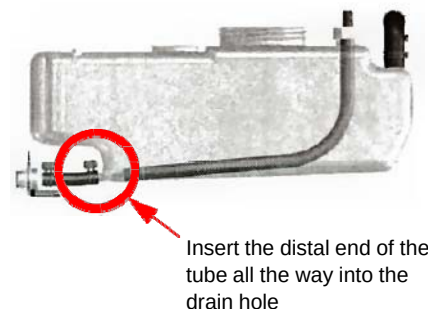
Paper towel

- 5.0 Cleaning off the excess disinfectant solution
- Important: The technician must be wearing protective gloves to perform these steps.**
- 5.1 Wipe out the inside of the disinfectant solution tank to remove the residual disinfectant solution.

Important: Do not allow direct skin contact with the solution, as the disinfectant solution is harmful to the skin.



- 6.0 Installing tank hose 1
- 6.1 Place tank hose 1 into the disinfection solution tank.
- 6.2 Insert the distal end of the tube into the drain hole of the tank.

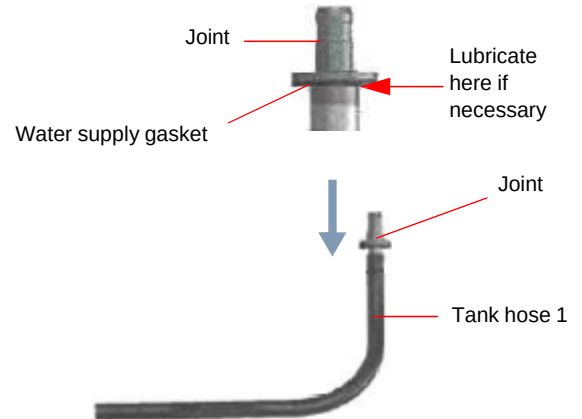


Tools:

Reagent alcohol

- 6.3 Insert the joint into tank hose 1 as far as the water supply gasket groove.

Important: Lubricate the water supply packing on the joint if there is too much friction.

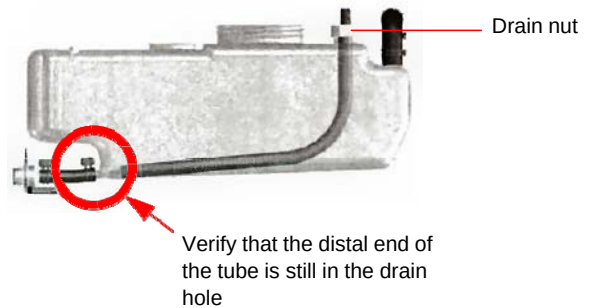


Tools:

SE9186 sealant
(part# OT-9492)

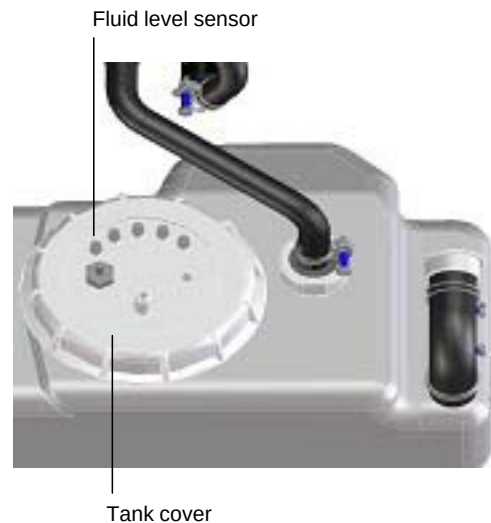
- 6.4 Verify that the distal end of the tube is still in the drain hole.
- 6.5 Apply a drop of sealant to the threads of the drain nut.
- 6.6 Tighten the drain nut into the drain hole of the tank.

Important: The drain nut must be securely fastened.



7.0 Assembling the disinfection solution tank

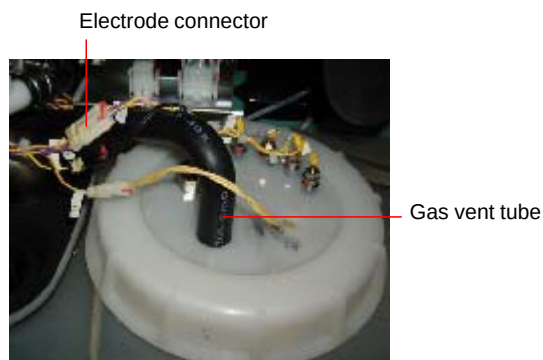
- 7.1 Place the tank fluid level sensor in the disinfection solution tank.
- 7.2 Screw the tank cover onto the disinfection solution tank.
- 7.3 Verify that the assembled parts appear as shown.



Tools:

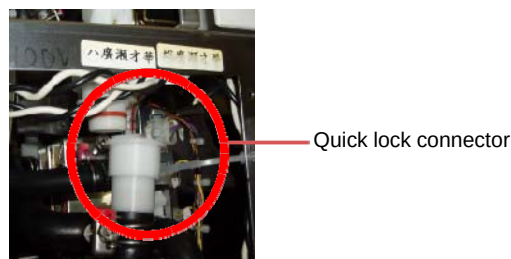
Sony bond

- 7.4 Connect the gas vent tube to the disinfection solution tank.
- 7.5 Connect the 4 electrode connectors to the disinfection solution tank.

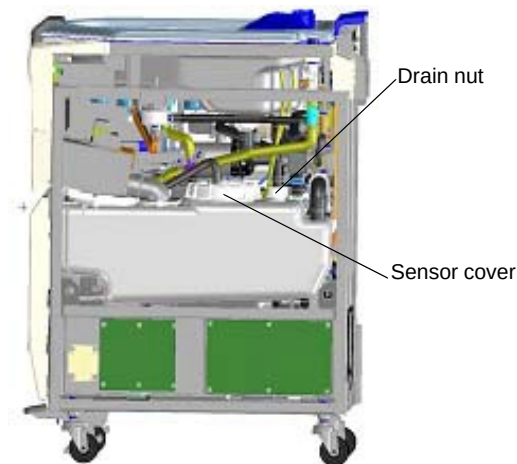


- 7.6 Apply Sony bond around the 4 electrode connectors.
- 7.7 Insert the water tube into the water inlet valve.
- 7.8 Lock the quick lock connector to hold the water tube in place.

Important: The quick lock connector is located under the water supply valve.



- 8.0 Securing the drain nut and sensor cover
- 8.1 Verify that the drain nut has no slack or rattle.
- 8.2 Tighten the sensor cover on the top of the tank.
- 8.3 Verify that the sensor cover is not loose.



Disinfectant Pump Head Replacement – OER-Pro [3009Y.01]

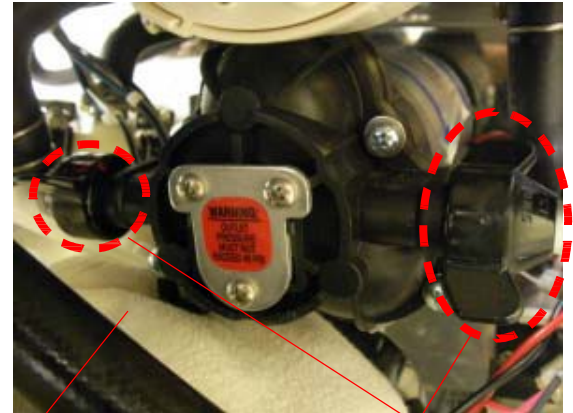
Note: Protective gloves must be worn when handling the parts that may spill disinfectant solution. Skin contact must be avoided.

Tools:

Cloth
or
Paper towel

1.0 Disconnecting the pump joints

- 1.1 Place a cloth or paper towel under the pump joints to protect other electronics from solution.
- 1.2 Unscrew and disconnect the pump joints.
- 1.3 Wipe off excess solution from the pump joints with a cloth or paper towel.



Cloth or paper towel

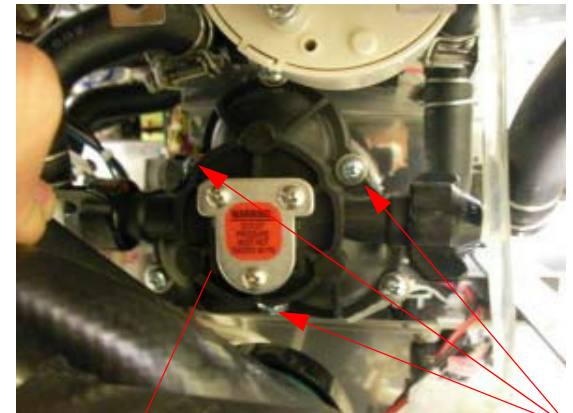
Pump joint

Tools:

No.2 Phillips
screwdriver

2.0 Removing the pump head

- 2.1 Remove 3 screws holding the pump head.
Important: Each screw has 2 washers.
- 2.2 Remove the pump head.



Pump head

Remove 3 screws

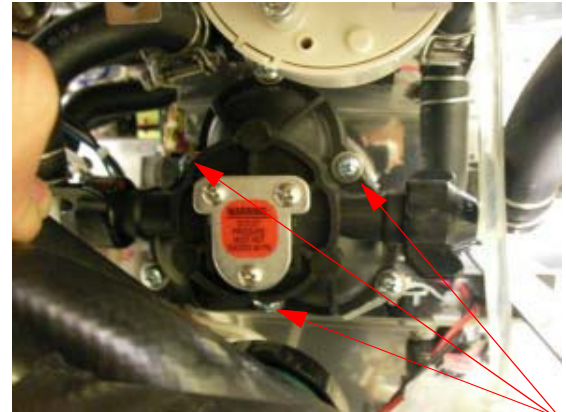


Tools:

No.2 Phillips
screwdriver

3.0 Installing new pump head

- 3.1 Align a brand new pump head along the shaft of the pump.
- 3.2 Install the pump head by tightening the pump head screws until they stop.



Tighten 3 screws

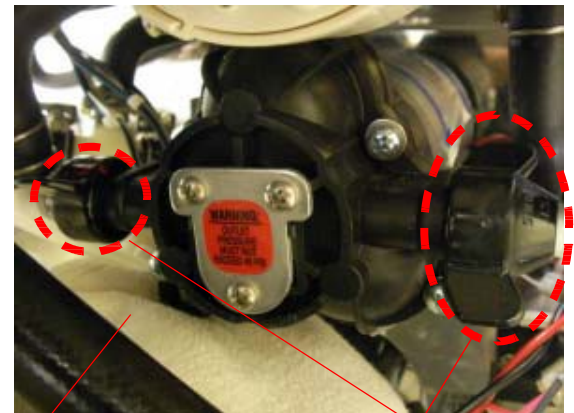
Tools:

Cloth
or
Paper towel

4.0 Connecting the pump joints

- 4.1 Tighten the pump joints onto the disinfectant pump until they stop.
- 4.2 Wipe off excess solution from the pump joints with a cloth or paper towel.
- 4.3 Verify that the pump joints are not loose.

Important: Care must be taken when tightening the pump joints, to prevent cross-threading.



Cloth or paper towel

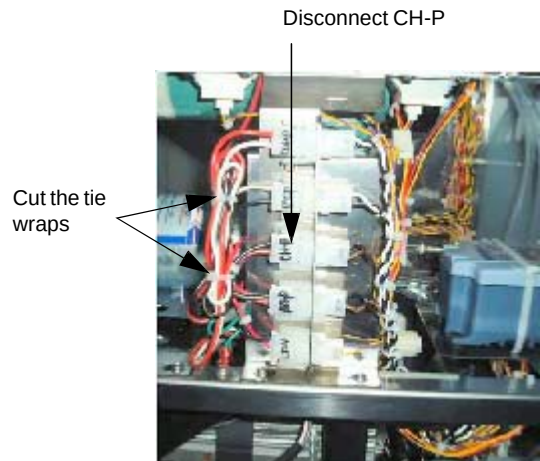
Pump joint

Channel Pump Replacement – OER-Pro [3010I.01]

Tools:

Wire cutter

- 1.0 Removing the pump joints
 - 1.1 Cut the tie-wraps that holds the cable from the channel pump.
 - 1.2 Disconnect the connector labeled “CH-P” at the bracket.

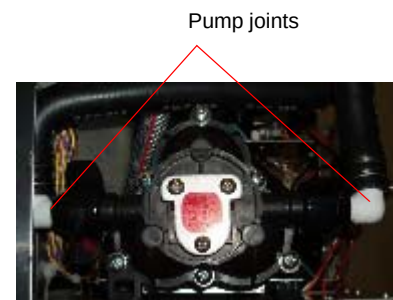


Tools:

Paper towels

- 1.3 Place paper towels under the pump joints of the channel pump.

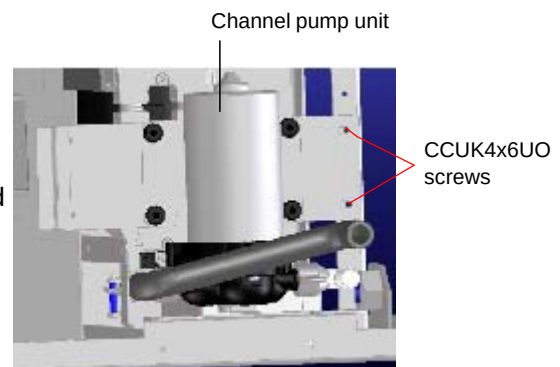
Important: The paper towels will catch any fluid that may leak.
- 1.4 Remove the pump joints from both sides of the channel pump.



Tools:

Phillips screwdriver

- 2.0 Removing the channel pump bracket and the channel pump
 - 2.1 Remove the two CCUK4x6UO screws that secure the channel pump bracket to the equipment chassis.
 - 2.2 Remove the channel pump bracket and the channel pump together.

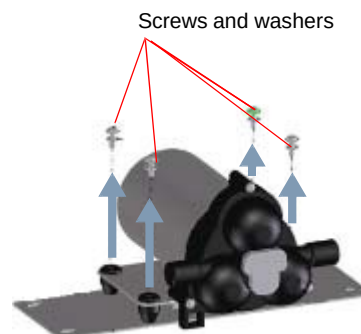


Tools:

Phillips
screwdriver

3.0 Detaching the channel pump bracket from the channel pump

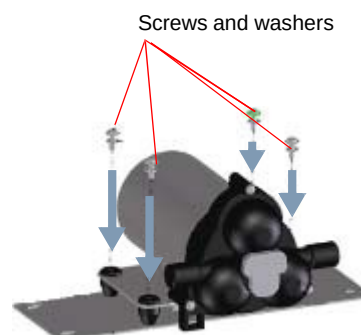
- 3.1 Remove the four CCUK4x20UO screws that secure the channel pump bracket to the channel pump.
- 3.2 Remove the four BNW5UO washers from the screws.



4.0 Installing the new channel pump

- 4.1 Align the screw holes on the new channel pump and the channel pump bracket.
- 4.2 Place four BNW5UO washers on four CCUH4x20UO screws.
- 4.3 Tighten the four screws into the screw holes.

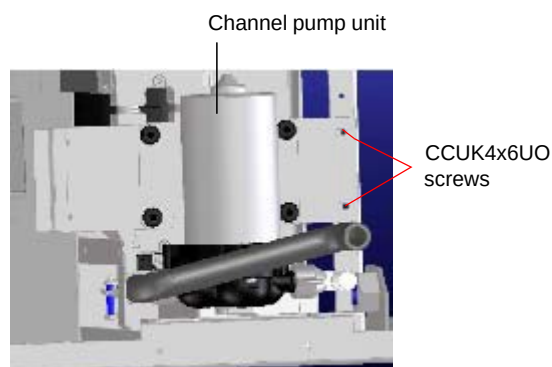
Important: Tighten the screws until only 1 thread is visible.



- 4.4 Align the screw holes on the chassis and the channel pump bracket.
- 4.5 Tighten two CCUK4x6UO screws into the screw holes with a torque of 1.274 ± 0.098 N m.

Tools:

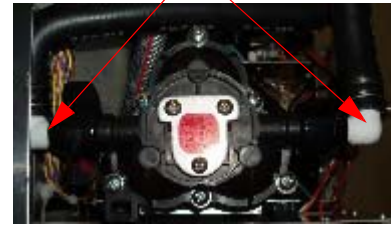
Torque driver



- 4.6 Tighten the joints onto both sides of the channel pump by hand.

Important: Care must be taken when tightening the pump joints to prevent cross-threading.

Tighten pump joints by hand

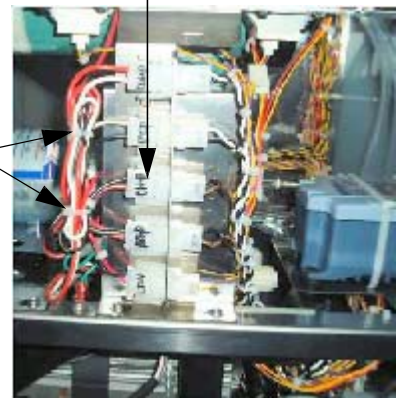


- 4.7 Connect the CH-P connector to the connector bracket.

- 4.8 Bind the cable from the channel pump as shown.

Connect CH-P

Tie the tie wraps



Relief Valve Replacement – OER-Pro [3010E.02]

Tools:

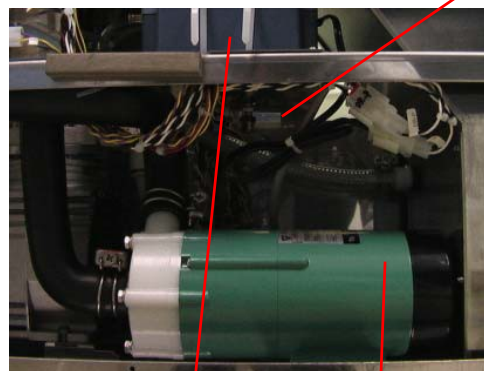
Wrench

1.0 Removing relief valve

1.1 Detach the relief valve from the leakage test block.

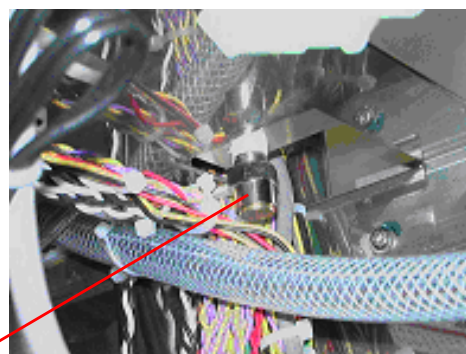
Important: If needed, a wrench may be used to detach the relief valve.

The relief valve for the leakage test pump is located under the leakage test block and above the draining pump.

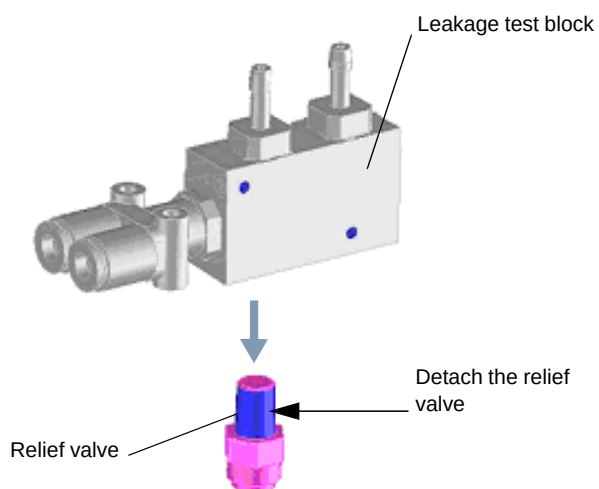


Leakage test pump

Draining pump



Relief valve



Tools:

Reagent alcohol

Teflon tape

2.0 Preparing the relief valve

2.1 Clean the threads of screw with alcohol.

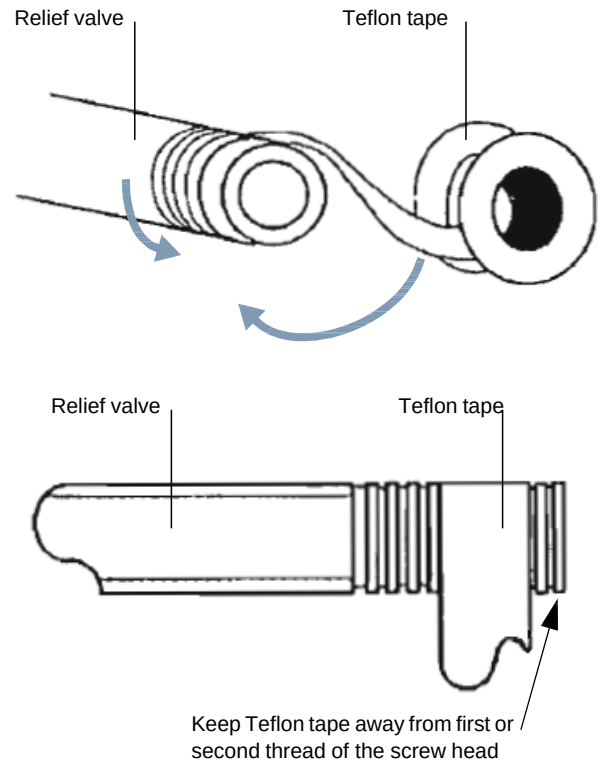
2.2 Wrap a piece of Teflon tape around the screw of the new relief valve.

Important:

The orientation of the thread and the Teflon tape has to be opposite.

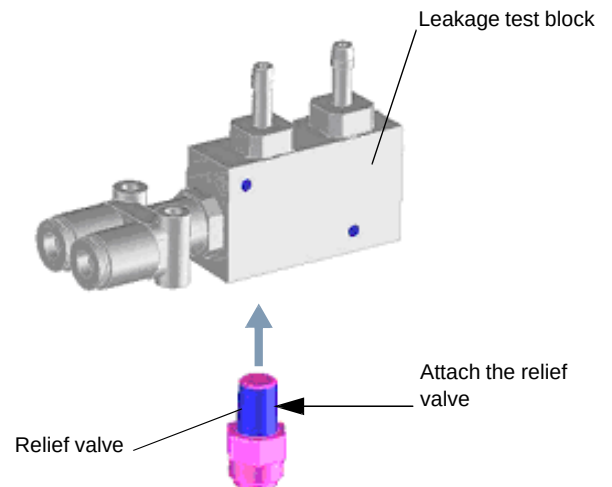
Do not wrap the Teflon tape around the first or second thread of the screw head.

The length of the Teflon tape is 3 or 4 times the circumference of the screw. Wrap it uniformly.



3.0 Assembling the relief valve

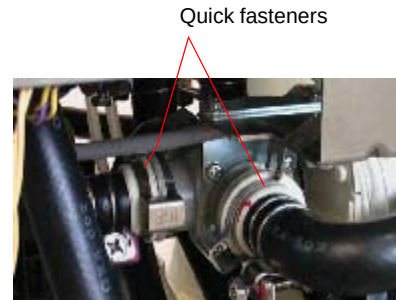
3.1 Attach the relief valve to the leakage test block by hand.



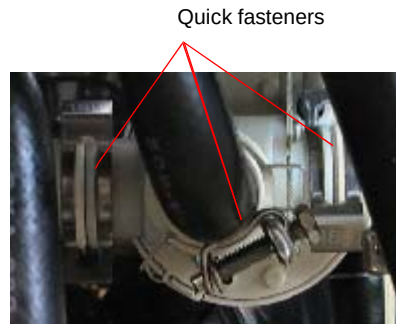
3 Port Valve Replacement – OER-Pro [3010I.02]

- 1.0 Removing the 3 port valve and bracket
 - 1.1 Place a cloth towel under the tubes.

Important: Fluid may leak during this procedure.
 - 1.2 Detach the 3 quick fasteners.



Side view



Rear view

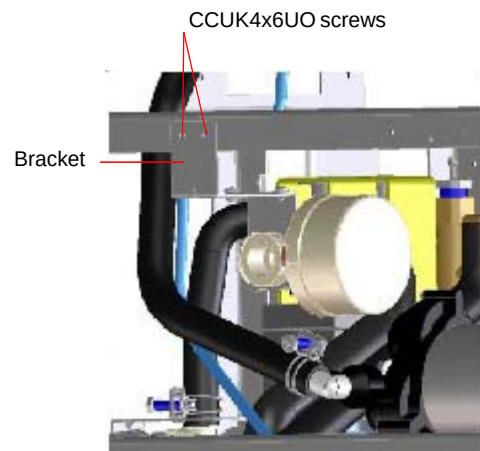
Tools:

Cloth towel

Tools:

Phillips
screwdriver

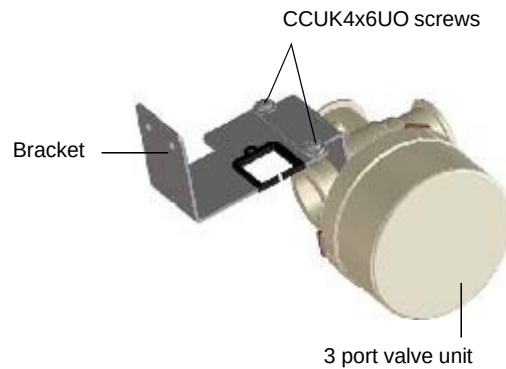
- 1.3 Disconnect the tubes connected to the 3 port valve.
- 1.4 Remove the two CCUK4x6UO screws that secure the 3 port valve and bracket.



Tools:
Phillips
screwdriver

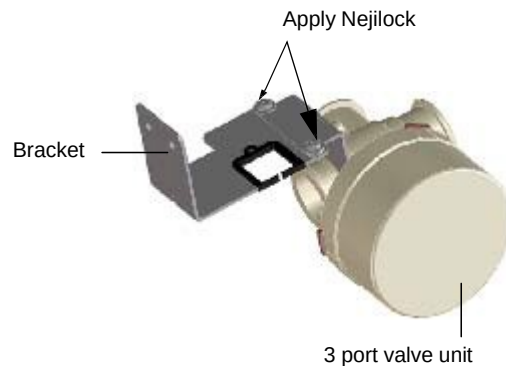
- 1.5 Disconnect the BO-V electrical connector.
- 1.6 Disconnect the 2 pin connector # 38.
- 1.7 Remove the 3 port valve and bracket.

- 2.0 Detaching the bracket from the 3 port valve
 - 2.1 Remove the two CCUK4x6UO screws that fasten the 3 port valve to the bracket.
 - 2.2 Remove the 3 port valve from the bracket.



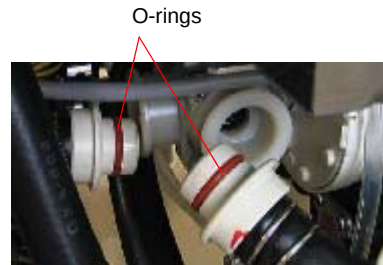
Tools:
Torque driver
Nejilock 1401C
(part# OT-1026)

- 3.0 Attaching the 3 port valve to the bracket
 - 3.1 Align the screw holes on the new 3 port valve and the bracket.
 - 3.2 Tighten the two CCUK4x6UO screws into the holes with a torque of 1.274 ± 0.098 N m.
 - 3.3 Apply Nejilock to the heads of the tightened screws.

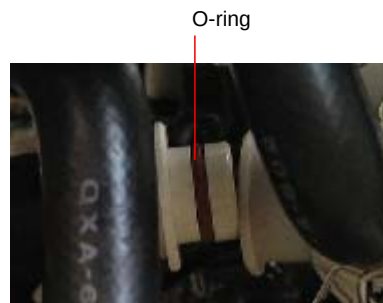


4.0 Installing the 3 port valve and bracket

- 4.1 Replace the O-rings on each of the three tubes.



Side view

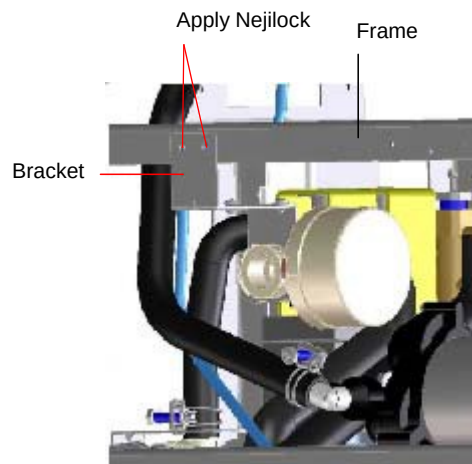


Rear view

Tools:

Torque driver
Nejilock 1401C
(part# OT-1026)

- 4.2 Align the screw holes on the bracket and the frame.
- 4.3 Tighten two CCUK4x6UO screws into the holes with a torque of 1.274 ± 0.098 N m.
- 4.4 Apply Nejilock to the tightened screw heads.



Tools:

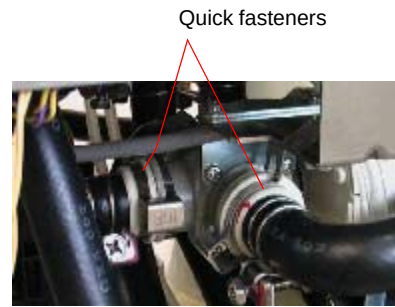
Reagent alcohol

- 4.5 Apply alcohol to the O-rings on the tubes.

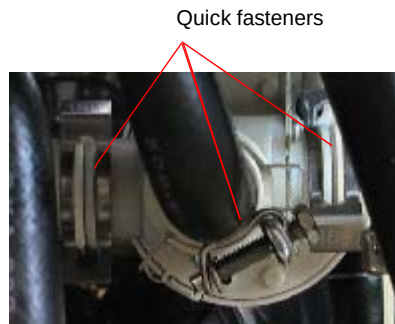
- 4.6 Insert the tubes to the 3 port valve.

Important: The tubes must be inserted straight into the 3 port valve.

- 4.7 Attach the quick fasteners to secure the tubes.

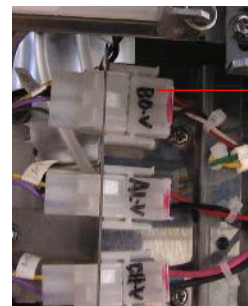


Side view



Rear view

- 4.8 Attach the BO-V connector for the 3 port valve.



BO-V connector

- 4.9 Connect the 2 pin connector #38 to the 3 port valve.

- 4.10 Apply Sony bond to the electrical connections.

Tools:

Sony bond

1/2 Inch Check Valve in the CH Block CU Replacement – OER-Pro [3010I.03]

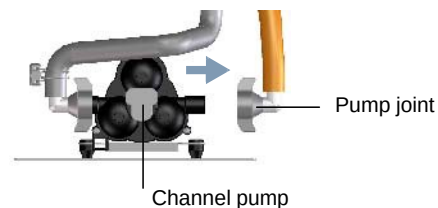
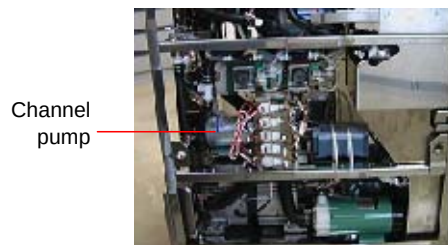
Note: The CH block CU must be removed before this procedure can be performed.

1.0 Disconnecting the pump joint

- 1.1 Place a piece of cloth under the pump joint.

Important: Fluid may leak when the pump joint is removed.

- 1.2 Disconnect the pump joint from the pump.



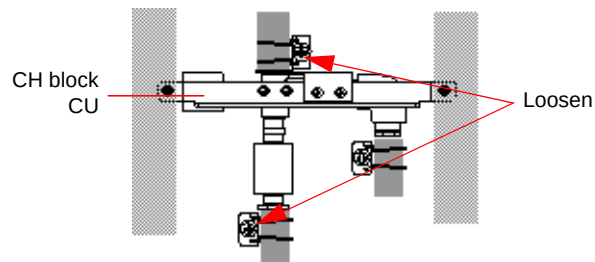
Tools:

No.2 Phillips screwdriver

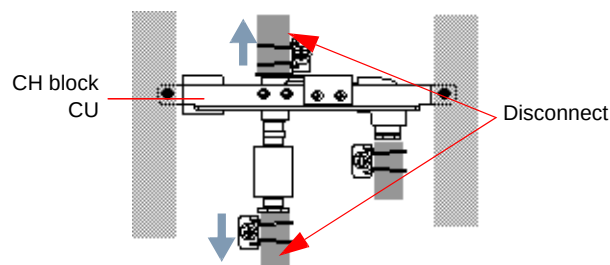
2.0 Disconnecting the tubes

- 2.1 Loosen the H bands that secure the tubes to the CH block CU.

Important:
One tube comes from the front plate.
One tube comes from the cleaning tub.



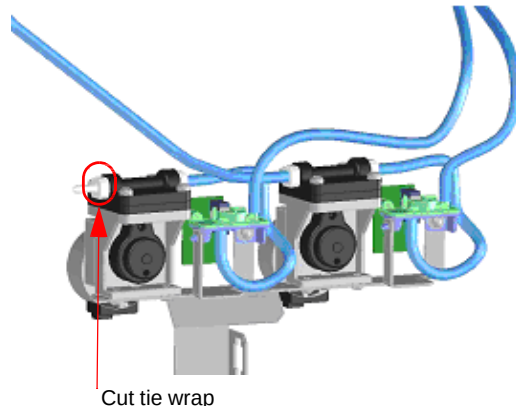
- 2.2 Disconnect the tubes from the CH block CU.



Tools:

Wire cutter

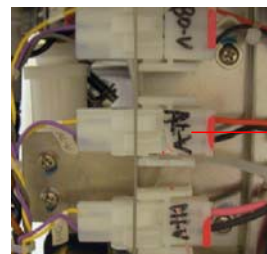
- 2.3 Cut the tie wrap connecting the tube on the alcohol pump unit.



- 3.0 Disconnecting the connectors

- 3.1 Disconnect the AL-V connector.

Important: This connector is for the alcohol valve unit.



AL-V connector

Tools:

Precision flathead screwdriver

- 3.2 Scratch away any sealant that is on the connector.

Important: There may not be sealant.

- 3.3 Disconnect the connector marked "1."

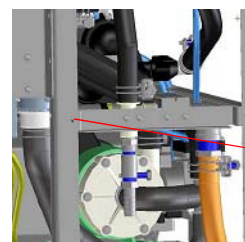
Important: This connector is for the pressure sensor.

Tools:

No.2 Phillips screwdriver

- 4.0 Disassembling the CH block CU

- 4.1 Remove the 2 screws that secure the CH block CU.

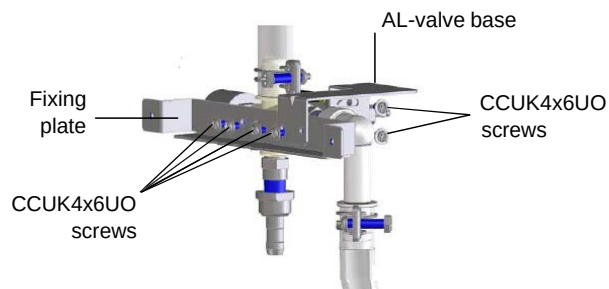


HBCK4x6UO screws

Tools:

No.2 Phillips
screwdriver

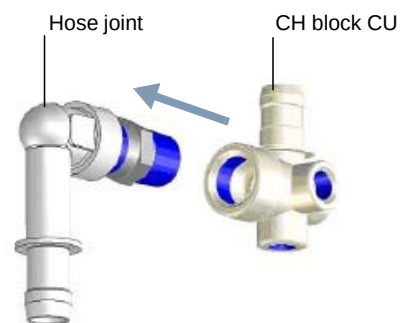
- 4.2 Remove the 6 screws securing the fixing plate and the AL-valve base to the CH block.



Tools:

Adjustable wrench

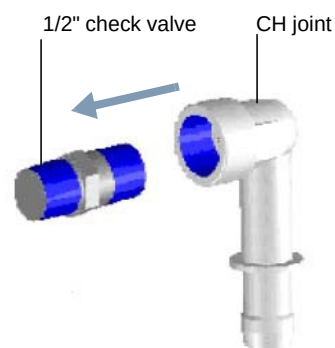
- 4.3 Remove the hose joint from the CH block CU.



Tools:

Adjustable wrench

- 4.4 Remove the 1/2" check valve from the CH joint.



Tools:

Alcohol-ether
Cleaning tissue

5.0 Assembling the CH block CU

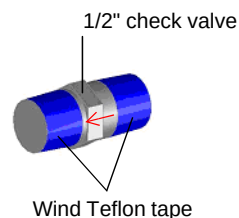
- 5.1 Clean the threads of the screws of the new 1/2" check valve with an alcohol-ether treated cleaning tissue.

Tools:

Teflon tape

- 5.2 Wind Teflon tape around the threads of the new 1/2" check valve.

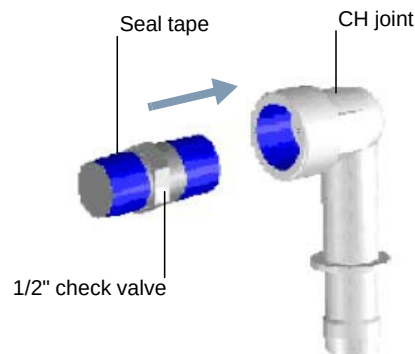
- 5.3 Verify that the arrow on the check valve is positioned correctly.



Tools:

Torque wrench
Open head for torque wrench, 22 mm

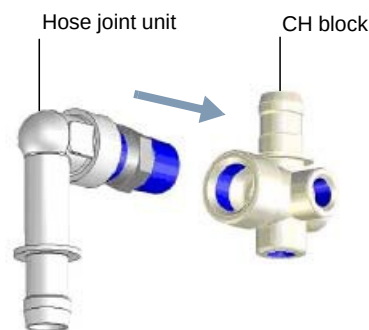
- 5.4 Tighten the 1/2" check valve into the CH joint at 2.94 ± 0.098 Nm torque.



Tools:

Torque wrench
Open head for torque wrench, 22 mm

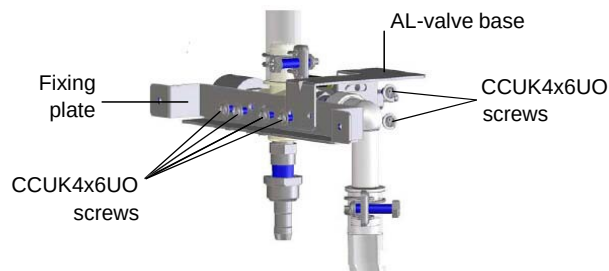
- 5.5 Tighten the hose joint unit into the CH block at 2.94 ± 0.098 Nm torque.
5.6 Tighten the hose joint unit as required to properly position the assembly for mounting.



Tools:

Phillips screwdriver, No.2

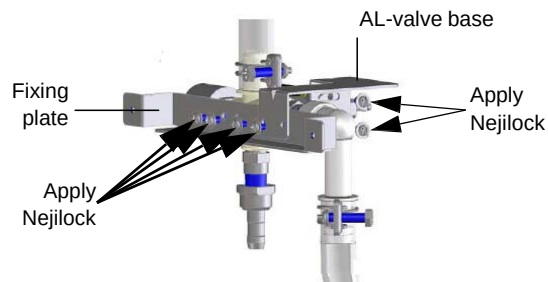
- 5.7 Tighten the 6 screws to attach the fixing plate and the AL-valve base to the CH block CU.



Tools:

Nejilock 1401C (part# OT-1026)

- 5.8 Apply Nejilock to the heads of the 6 screws.

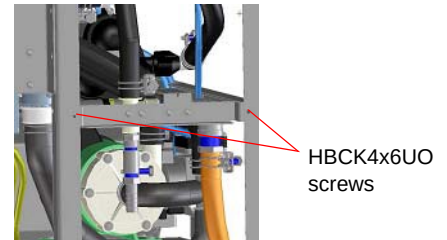


Tools:

Torque driver
No.2 torque driver
bit

6.0 Attaching the tubes

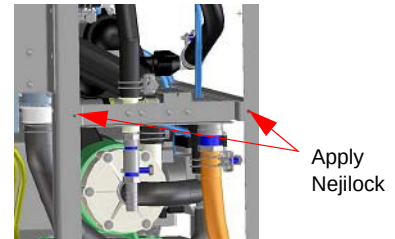
- 6.1 Tighten the 2 screws into the CH block CU and the frame at 1.274 ± 0.098 Nm torque.



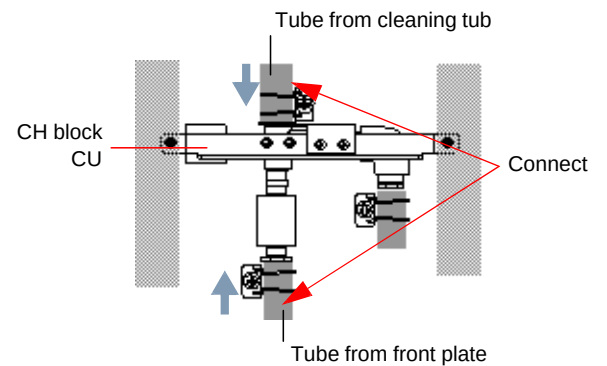
Tools:

Nejilock 1401C
(part# OT-1026)

- 6.2 Apply Nejilock to the heads of the screws.



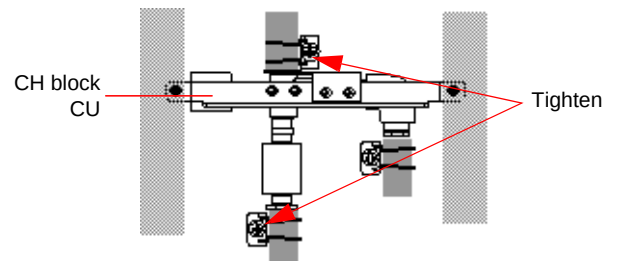
- 6.3 Connect the tubes from the front plate and the cleaning tub to the CH block CU.



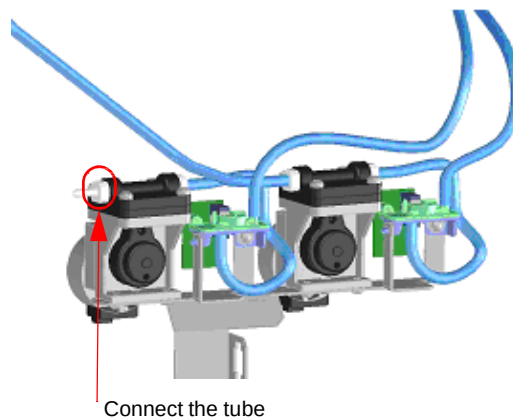
Tools:

Torque driver
No.2 torque driver
bit

- 6.4 Tighten the H bands to secure the tubes at 2.8 ± 0.1 Nm torque.



- 6.5 Connect the tube from the CH block unit to the alcohol pump.

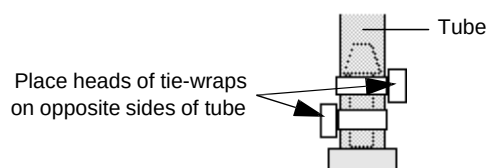


Tools:

Wire cutter
Tie-wrap.

- 6.6 Tie the connected tube with tie-wraps.

Important: Place the heads of the tie-wraps at opposite sides of the tube.



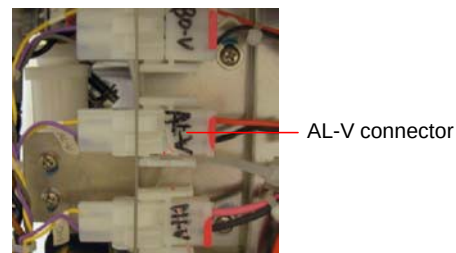
Tools:

Sony Bond

7.0 Connecting the connectors

- 7.1 Connect the AL-V connector.

Important: This connector is for the alcohol valve unit.



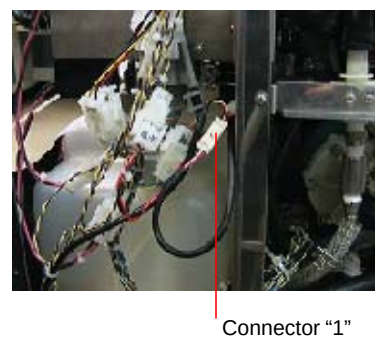
- 7.2 Apply Sony Bond to the joint of the connector.

Tools:

Sony Bond

- 7.3 Connect the connector marked "1."

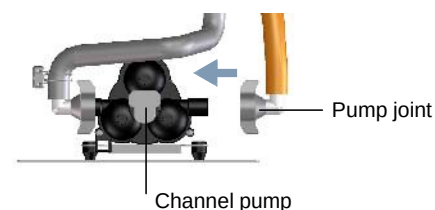
Important: This connector is for the pressure sensor.



- 7.4 Apply Sony Bond to the joint of the connector.

8.0 Connecting the pump joint

- 8.1 Connect the pump joint to the channel pump.



Electric Valve in the CH Block AU Replacement – OER-Pro [3010I.05]

Note: The hinge unit and the upper rear panel must be removed before this procedure is performed.

Please see the chapters associated with these removal procedures.

1.0 Preparing for the electric valve replacement

- 1.1 Verify that the top cover unit has been removed.
- 1.2 Verify that the hinge unit has been removed.
- 1.3 Verify that the upper rear panel has been removed.

2.0 Removing the CH block AU

- 2.1 Disconnect the quick lock under the water supply piping unit.



Quick lock

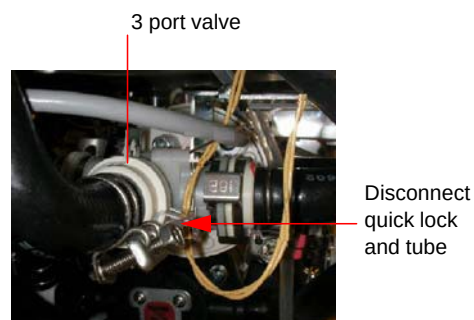
- 2.2 Place the disconnected hose in a stable position that allows access to the CH block AU hose.

- 2.3 Disconnect the CH block AU hose.



Disconnect

- 2.4 Disconnect the hose that connects the 3 port valve to the circulation nozzle.

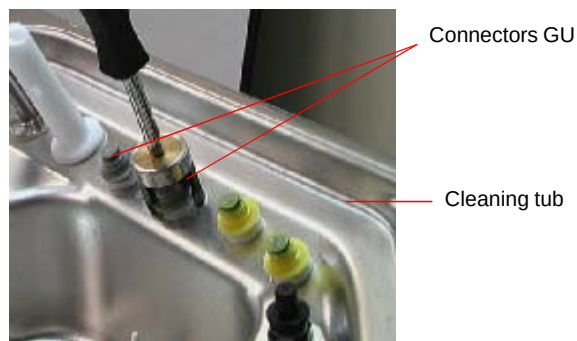


Tools:

1/4 Driver handle

Connector securing jig (part# NJ-3611)

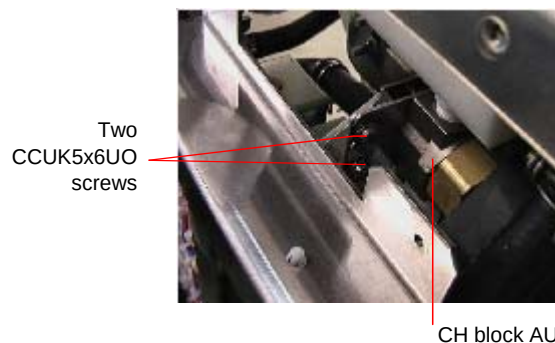
- 2.5 Remove both connectors GU from the cleaning tub.



Tools:

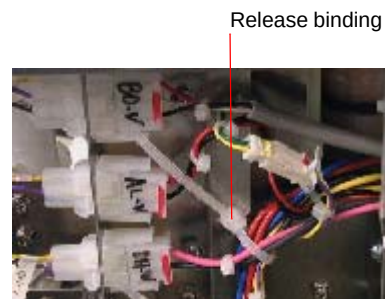
Phillips screwdriver

- 2.6 Remove the two CCUK5x6UO screws that secure the CH block AU to the cleaning tub.



- 2.7 Release the tie-wrap around the CH-V.

Important:
Do not cut the tie-wrap.
The tie-wrap is reusable.



Tools:

Precision flat
screwdriver

- 2.8 Disconnect the CH-V from the terminal
on the rear side of the equipment.

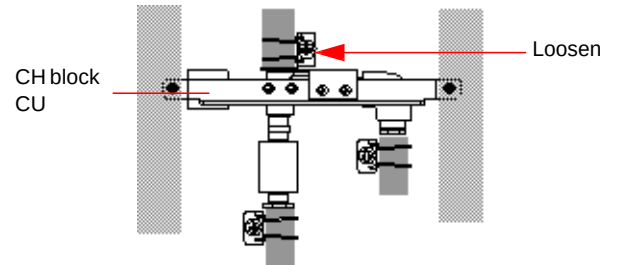


Tools:

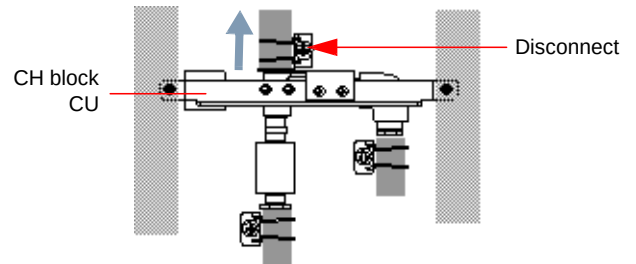
No.2 Phillips
screwdriver

- 2.9 Loosen the H band that secures the
hose to the CH block CU.

Important:
One tube comes from the front plate.
One tube comes from the cleaning tub.



- 2.10 Disconnect the hose from the CH block
CU.



- 2.11 Disconnect the BO-V connector.

- 2.12 Disconnect the connector labeled "38".

Important: The "38" connector is smaller.

- 2.13 Remove the CH block AU and its
gasket from the rear side of the
equipment.

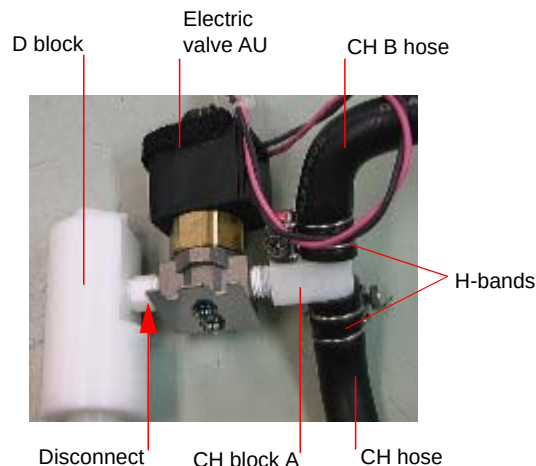
Important: Do not snag the cables when
taking out the CH block AU.



Remove CH block AU from the rear

3.0 Removing the electric valve

- 3.1 Disconnect the CH block A from the electric valve AU.
- 3.2 Disconnect the joint with the D block from the electric valve AU.
- 3.3 Loosen the screws of the H-band that secures the CH B hose.
- 3.4 Loosen the CH B hose from CH block A.
- 3.5 Loosen the screws of the H-band that secures the CH hose.
- 3.6 Loosen the CH hose from CH block A.
- 3.7 Connect the CH B hose to new CH block A.
- 3.8 Tighten the screws of the H-band that secures the CH B hose to 2.8 ± 0.1 Nm torque.
- 3.9 Connect the CH hose to new CH block A.
- 3.10 Tighten the screws of the H-band that secures the CH hose to 2.8 ± 0.1 Nm torque.
- 3.11 Remove the 2 screws that secure the electric valve AU to the B bracket.
- 3.12 Detach bracket B from the electric valve AU.



Tools:

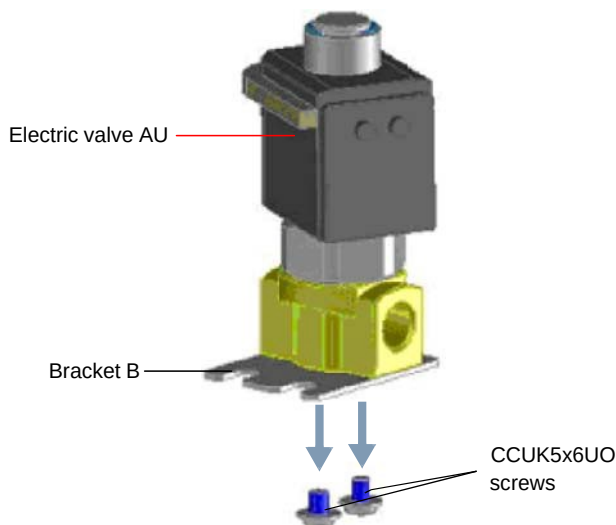
Torque driver
No. 2 torque driver bit

Tools:

Phillips screwdriver

Tools:

Phillips screwdriver
Nejilock 1401C (part# OT-1026)



- 3.13 Tighten the 2 screws in the bracket B screw holes temporarily.
- Important:** These screws are needed to connect bracket B to the new electric valve AU.

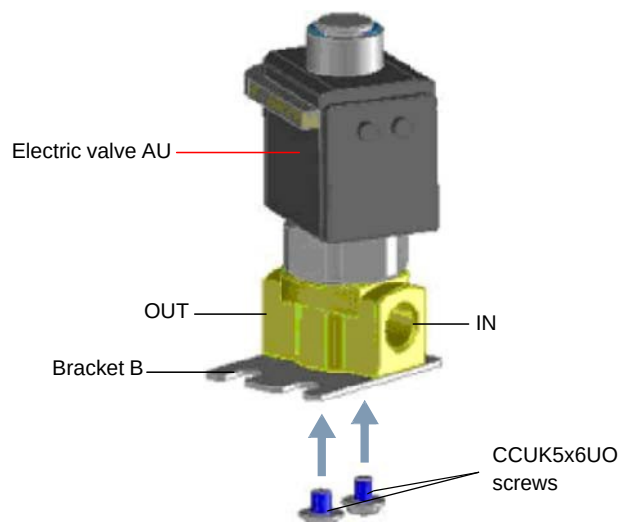
Tools:

Phillips
screwdriver

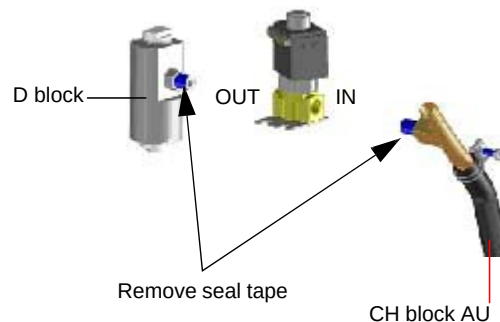
Nejilock 1401C
(part# OT-1026)

4.0 Installing the electric valve

- 4.1 Align the screw holes on the new electric valve and bracket B.
- 4.2 Tighten the two CCUK5x6 screws into the screw holes.
- 4.3 Apply Nejilock to the heads of the screws.
- 4.4 Verify that the electric valve in and out ports are positioned correctly.



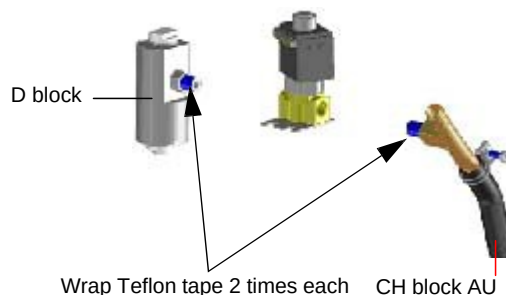
- 4.5 Remove the old seal tape from the CH block AU.
- 4.6 Remove the old seal tape from the joint on the D block.



Tools:

Teflon tape
Alcohol-ether
Cleaning tissue

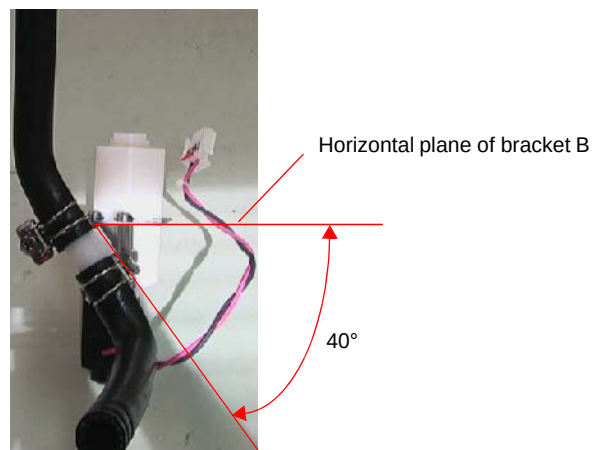
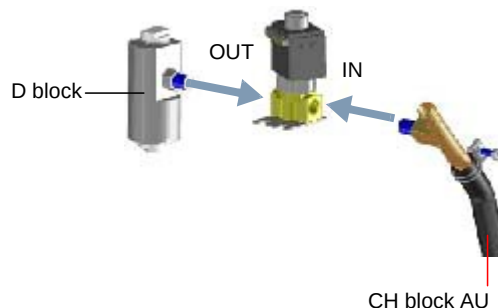
- 4.7 Clean the threads with an alcohol-ether treated cleaning tissue.
- 4.8 Wrap new Teflon tape 2 times around the threads on the joint on the CH block AU and D block as shown.



Tools:

Torque wrench
Open head
wrench, 14 mm
Open head
wrench, 17 mm

- 4.9 Connect the CH block AU to the “in” side of the electric valve.
- 4.10 Connect the joint on the D block to the “out” side of the electric valve.
- 4.11 Tighten both connections at 2.94 ± 0.098 Nm torque.
- 4.12 Verify that the hoses on CH block AU are at 40° in reference to the horizontal plane of bracket B.



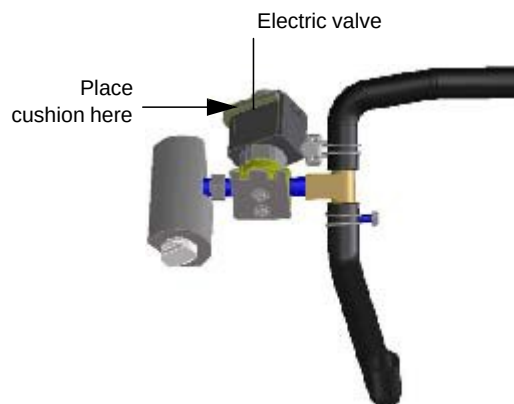
Tools:

Ruler
Single edged razor

Tools:

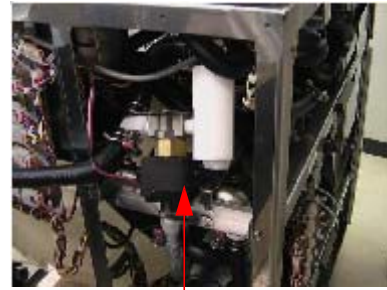
Exacto knife

- 5.0 Installing the CH block AU
 - 5.1 Cut a piece of cushion 5x10 at 70 ± 5 mm.
 - 5.2 Place the cushion on the electric valve as shown.



- 5.3 Insert the CH block AU into the equipment from the rear.

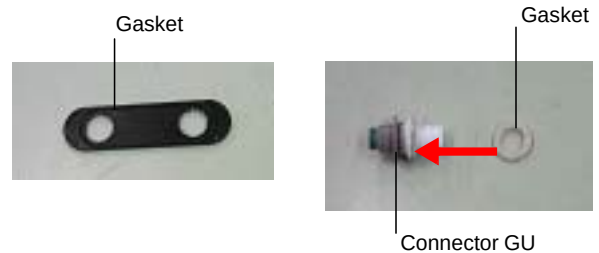
Important do not snag the tubes or wires, especially the harness for the 3 port valve.



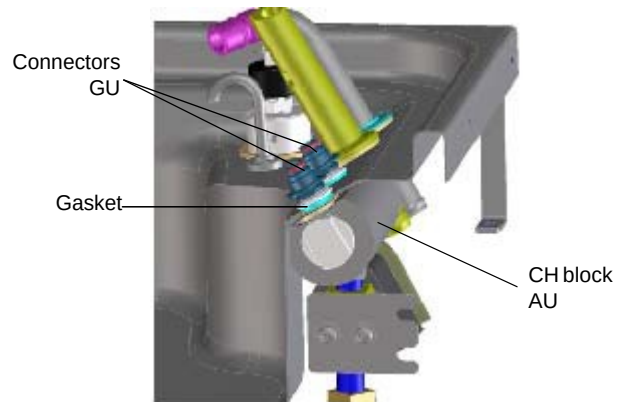
Insert CH block AU from the rear

- 5.4 Replace the old gaskets with new gaskets.

Important: There are two different gaskets.



- 5.5 Replace the old connectors GU with new connectors GU.
- 5.6 Verify that the gasket is not damaged.
- 5.7 Place the gasket on the CH block AU.
- 5.8 Align the holes on the gasket with the screw holes on the CH block AU.
- 5.9 Place the CH block AU and the gasket under the cleaning tub.
- 5.10 Verify that the new gaskets are compressed out uniformly.
- 5.11 Place the new gaskets into the connectors GU.
- 5.12 Align the holes on connector GU and the CH block AU.



- 5.13 Apply a drop of silicon glue on the threads of the connectors GU.

Important: Apply only a drop.

Tools:

Silicon glue

Tools:

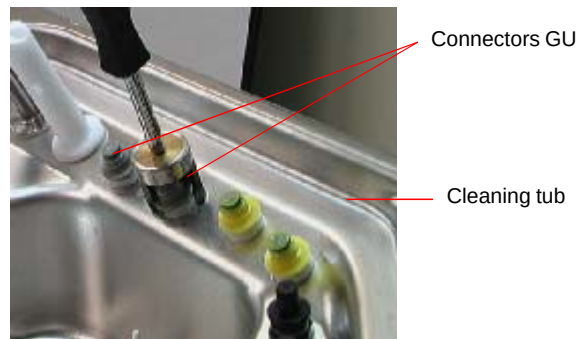
1/4 Driver handle

Connector
securing jig
(part# NJ-3611)

- 5.14 Tighten both connectors GU through the hole in the cleaning tub and into the hole on the CH block AU.

Important: The gasket must be compressed out uniformly.

- 5.15 Verify that the gasket is compressed out uniformly.
5.16 Verify that there are no gaps between the tab, gasket and CH block AU.

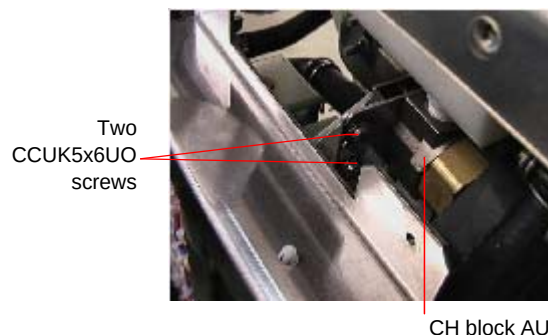


Tools:

Phillips
screwdriver

Nejilock 1401C
(part# OT-1026)

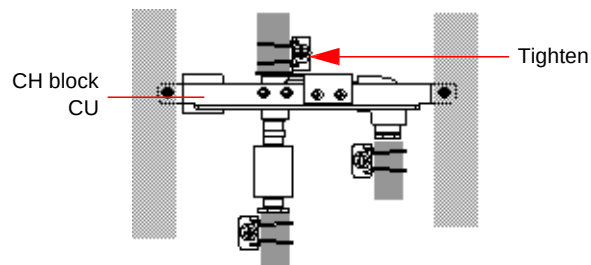
- 5.17 Align the screw holes on the CH block AU and the cleaning tub.
5.18 Tighten the two CCUK5x6UO screws into the screw holes.
5.19 Apply Nejilock to the screw heads.



Tools:

Torque driver

- 5.20 Reconnect the CH block AU hoses to the CH block BU and the CH block CU.
5.21 Tighten the screw on the H band around the CH block BU hose at 2.352 ± 0.098 Nm torque.
5.22 Tighten the H band to secure the hose at 2.8 ± 0.1 Nm torque.



- 5.23 Reconnect the CH-V to the connector terminal on the rear side of the equipment.

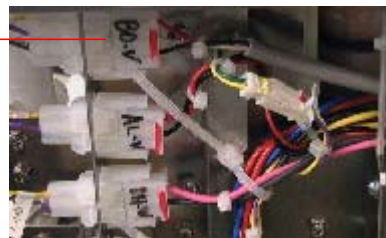


5.24 Reconnect the BO-V connector.

5.25 Reconnect the connector labeled "38".

Important: The connector labeled "38" is smaller.

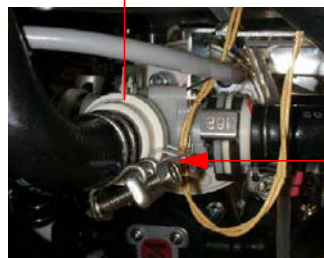
Reconnect



5.26 Connect the hose that goes from the circulation nozzle to the 3 port valve.

5.27 Install the quick lock connector.

3 port valve

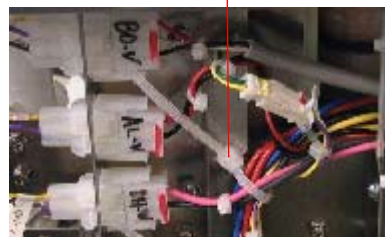


Connect quick lock and tube

5.28 Tighten the tie-wrap as shown.

Important: The binding removed earlier can be used again.

Release binding



5.29 Connect the quick lock under the water supply piping unit.



Quick lock

Upper Rear Panel Unit Installation – OER-Pro [3011C.07]

Tools:

No. 2 torque bit
Torque driver

1.0 Installing the upper rear panel unit

1.1 Verify that the packing material is correctly placed on the cleaning tub or the upper rear panel.

1.2 Align the screw holes of the upper rear panel with the screw holes at the rear side of the cleaning tub.

Tools:

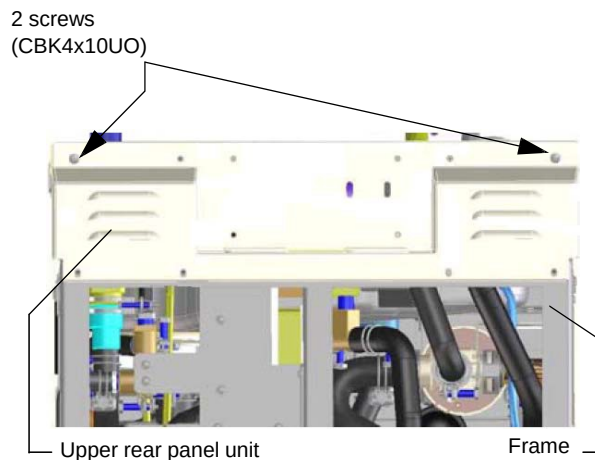
Cutter

1.3 Insert 2 screws (CBK4x10UO) into the screw holes to loosely secure the upper part of the rear panel to the rear side of the cleaning tub.

1.4 Push and hold down the upper rear panel.

1.5 Tighten the 2 screws (CBK4x10UO) at a tightening torque of 0.686 ± 0.098 Nm.

Important: The upper rear panel must be pushed down and held in place during screw tightening.



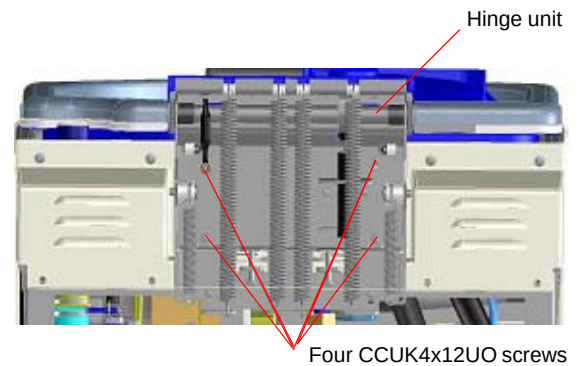
Hinge Unit Installation – OER-Pro [3011C.05]

- 1.0 Installing the hinge unit
 - 1.1 Position the hinge unit so that the 4 screws are in the center of the oblong screw holes.

Important: The oblong screw holes are on the hinge unit.
 - 1.2 Tighten the 4 screws temporarily for top cover adjustment.

Tools:

No.2 Phillips screwdriver



Hinge unit

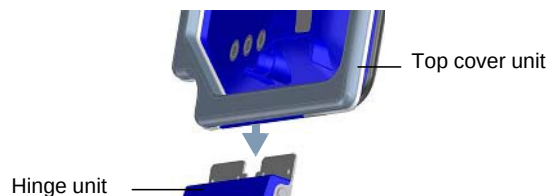
Four CCUK4x12UO screws

Top Cover Unit Installation – OER-Pro [3011C.06]

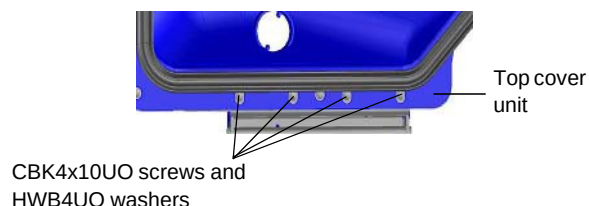
Note: If this repair requires more detail, please refer to the OER-Pro technical guide for component level repair instructions.

1.0 Attaching the top cover unit to the hinge cover unit

1.1 Insert the hinge unit between the top cover and the cover frame.



1.2 Tighten the 4 screws and washers into the hinge unit and the top cover unit temporarily.

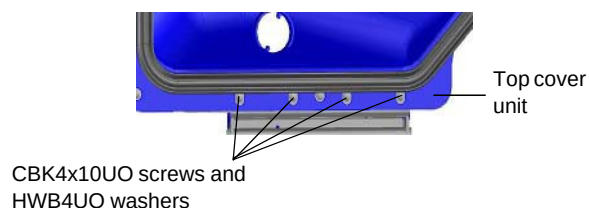


1.3 Close the top cover.

1.4 Open the top cover.

1.5 Adjust the top cover's position until the top cover packing uniformly contacts the cleaning tub casing.

1.6 Tighten the 4 screws at 1.274 ± 0.098 N m.

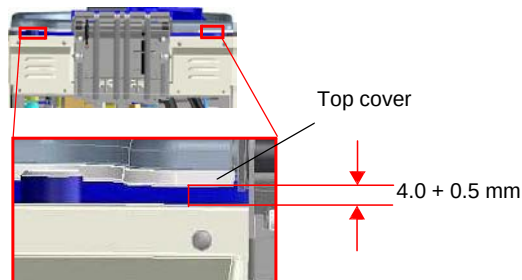


2.0 Adjusting the hinge height

2.1 Close the top cover.

2.2 Adjust the hinge height until there is a 4.0 ± 0.5 mm gap between the top cover and the cleaning tub.

Important: The hinge height must be adjusted on both sides.



Tools:

Phillips screwdriver

Tools:

Torque driver

Torque screw driver bit No.2

Tools:

Torque driver

No. 2 Phillips
screwdriver

Torque screw
driver bit No.2

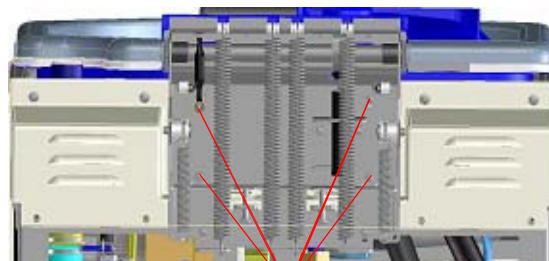
Nejilock 1401C
(part# OT-1026)

3.0 Attaching the hinge unit to the upper rear panel unit

3.1 Tighten the 4 lower screws at
 1.274 ± 0.098 N m.

3.2 Apply Nejilock around the heads of the
4 lower screws.

Important: Do not apply Nejilock to the
heads of the screw with the washer.



CCUK4x12UO screws

4.0 Inspecting the top cover unit

4.1 Verify that the top cover packing is
around the circumference of the top
cover groove.

4.2 Close the top cover.

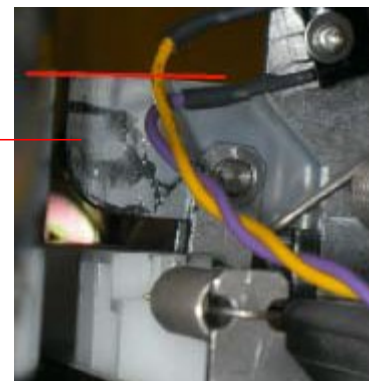
4.3 Verify that the R cam of the lock
mechanism is parallel as shown.

Important:

If the R cam is parallel, proceed to the
next chapter.

If the R cam is not parallel, continue with
the next procedure after removing the
front panel (see the Front Panel Replace-
ment manual).

R cam in
correct
position



R cam in
incorrect
position



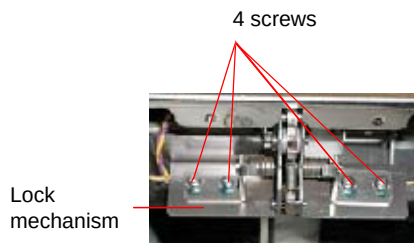
Note: The following steps are only necessary if the R cam is not parallel.

Tools:

Phillips
screwdriver

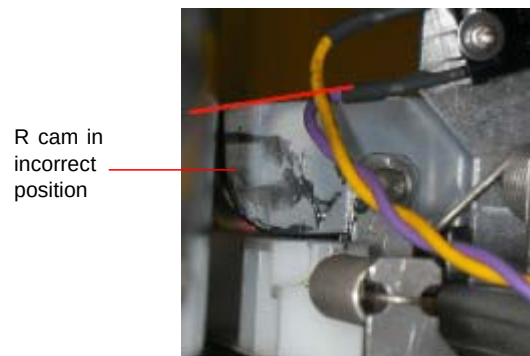
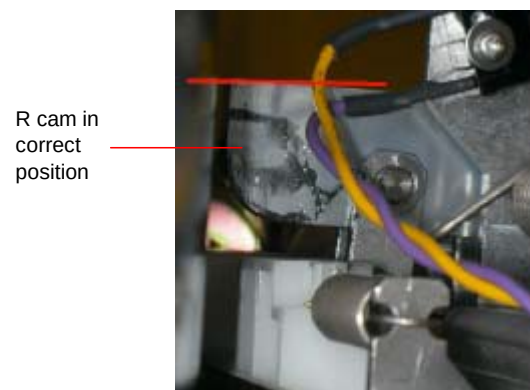
5.0 Adjusting the R cam (primary)

5.1 Loosen the 4 screws on the lock mechanism.



5.2 Open and close the top cover.

5.3 Verify that the R cam is parallel.

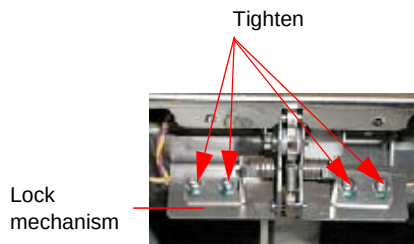


Tools:

Torque driver

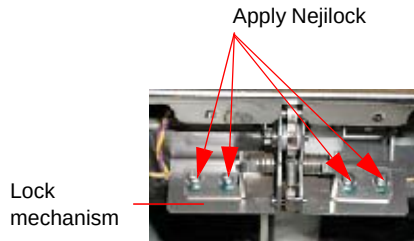
Torque screw
driver bit No.2

5.4 Tighten the 4 screws into the lock mechanism at 1.274 ± 0.098 N m.



- 5.5 Apply Nejllock around the heads of the screws securing the lock mechanism.

Important: Do not apply Nejllock unless the R cam is parallel.



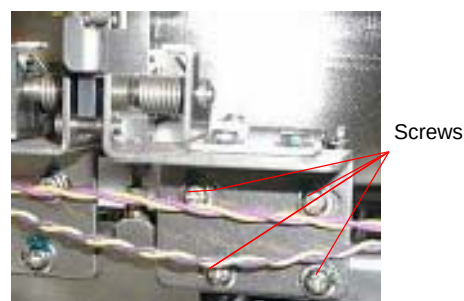
Note: The following steps are only necessary if the R cam is still not parallel after the primary adjustment.

Tools:

Phillips
screwdriver

6.0 Adjusting the R cam (secondary)

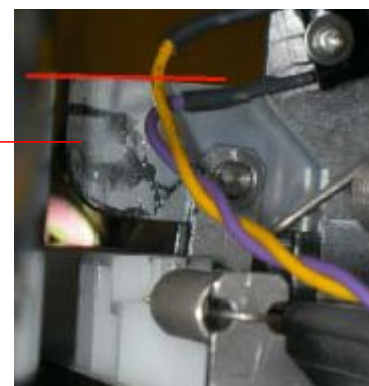
- 6.1 Loosen the 4 screws shown.



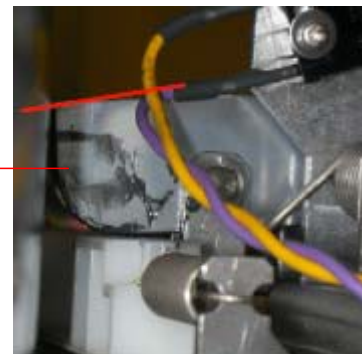
- 6.2 Open and close the top cover.

- 6.3 Verify that the R cam is parallel.

R cam in
correct
position



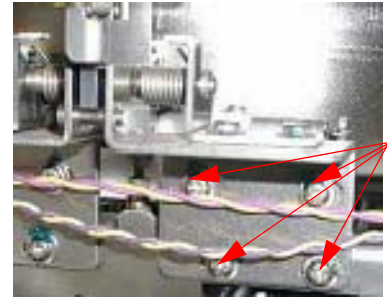
R cam in
incorrect
position



Tools:

Torque driver
Torque screw
driver bit No.2

- 6.4 Tighten the 4 screws at
 1.274 ± 0.098 N m.



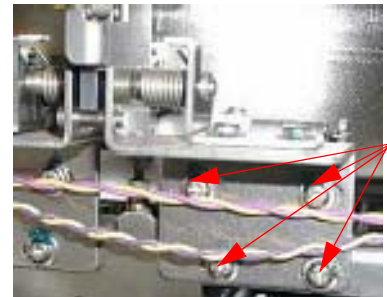
Tighten

Tools:

Nejilock 1401C
(part# OT-1026)

- 6.5 Apply Nejilock around the heads of the
screws.

**Important: Do not apply Nejilock unless
the R cam is parallel.**



Apply
Nejilock

Top Cover Position Adjustment – OER-Pro [3011C.04]

Note: Perform the following only if the top cover unit and the hinge unit have been replaced or detached.

1.0 Inspecting the lid gasket and the gap between the front panel and cover hook

1.1 Inspect the top cover gasket alignment while opening and closing the top cover several times.

1.2 Verify that the gasket evenly engages the cleaning tub on all sides.

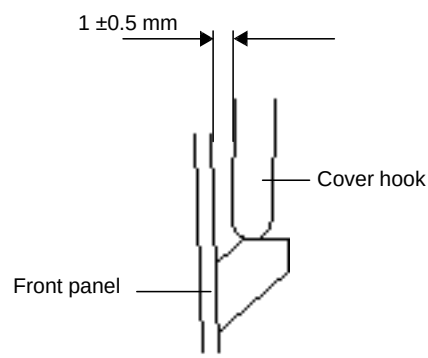
Important:

If the top cover gasket is misaligned, adjust the top cover by following the instructions in the Top Cover Replacement repair manual.

If the top cover gasket is properly aligned, continue to the next step.

1.3 Verify that the gap between the front panel and the cover hook is 1 ± 0.5 mm.

Important: If the gap is not within specification, loosen the screws that secure the cover hook and adjust as necessary.



Tools:

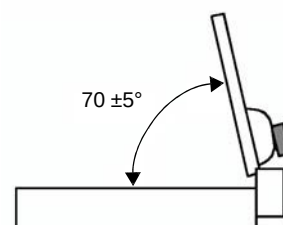
Phillips screwdriver
Hexagonal wrench, 0.71 mm

2.0 Inspecting the top cover

2.1 Mount the gas filter to the top cover.

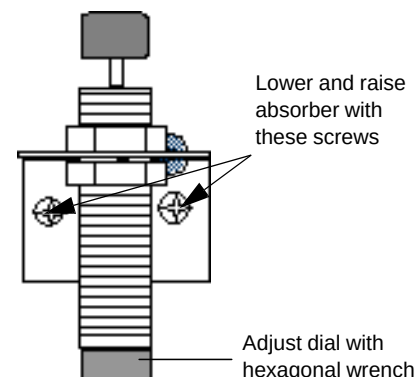
2.2 Open and close the top cover several times.

2.3 Verify that the top cover works smoothly and stops at a $70 \pm 5^\circ$ angle.



2.4 Make the following adjustments if necessary.

Symptom	First adjustment	Second adjustment
Top cover opens slow Top cover doesn't completely open	Lower the absorber	Set dial on absorber to a lower number
Top cover opens fast Top cover bounds	Raise the absorber	Set dial on absorber to a higher number



Torque
screwdriver

Torque
screwdriver bit
(No2)

Nejilock 1401C
(part# OT-1026)

- 3.0 Final tightening
 - 3.1 Tighten the absorber adjustment screws at 1.274 ± 0.098 .
 - 3.2 Apply Nejilock to the heads of the screws.

Relief Valve Pressure Adjustment – OER-Pro [3011L.03]

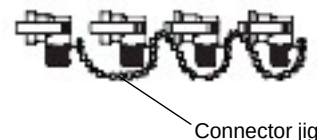
Note: If the relief valve or the CH pump unit is replaced, the following adjustments should be performed.

Tools:

Laptop computer
Software maintenance tool

1.0 Adjusting the relief valve pressure

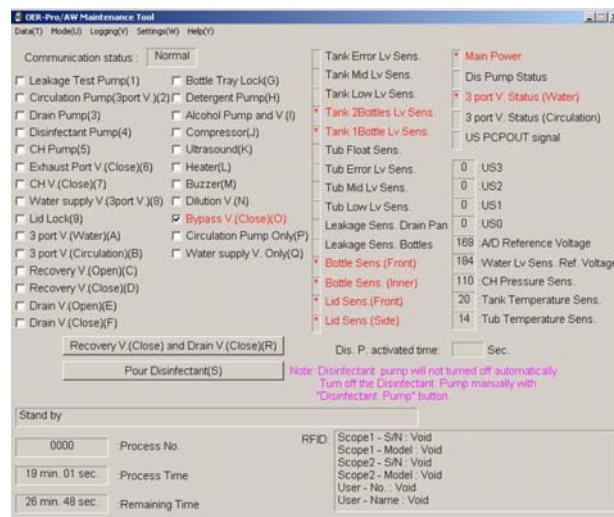
- 1.1 Remove the retaining rack, the washing case, and the connection tubes from the tub.
- 1.2 Connect the PC and start the software maintenance tool.
- 1.3 Connect the connector jig to the four connectors (gray (x 2) and yellow (x 2)) on the cleaning tub.



Tools:

Serial cable

- 1.4 Close the top cover.
- 1.5 Check [Recovery V (close) (D)] and [Drain V (close) (F)] on the maintenance tool.
- 1.6 Check [Water supply V. (3-port V.) (8)] to supply water to the cleaning tub.
- 1.7 Verify that the tub middle level sensor on the maintenance tool lights.
- 1.8 Uncheck [Water supply V only (Q)] again to stop water supply.



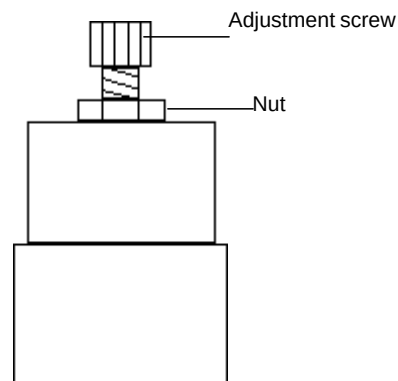
Software maintenance tool

Tools:

Adjustable wrench

Hex wrench, 6 mm

- 1.9 Check [CH pump (5)] and [Bypass V (close) (O)] to circulate water.
- 1.10 Wait for 20 seconds to remove air from the pipe.
- 1.11 Uncheck [CH pump (5)] on the maintenance tool to stop water circulation.
- 1.12 Open the top cover and remove the connector jig from the connectors.
- 1.13 Close the top cover.
- 1.14 Check [CH pump (5)] to start water circulation.
- 1.15 Check [CH V (close) (7)] to close the CH valve. At this time, the bypass valve must have been closed.
- 1.16 Use an adjustable wrench to loosen the nut and a 6 mm hex wrench to tighten the adjustment screw.
- 1.17 Adjust the relief valve with the adjustment screw until the value of [CH pressure sensor] on the maintenance tool becomes between 180 and 200.
- 1.18 Upon completion of the adjustment, sequentially check and uncheck [CH V (close) (7)] on the maintenance tool to open and close the CH valve several times.
- Important: Verify that the value of [CH pressure sensor] on the maintenance tool does not exceed the range between 180 and 200.**
- 1.19 Securely tighten the nut to prevent loosening of the relief valve.
- 1.20 Verify that the value of [CH pressure sensor] on the maintenance tool is within the range between 180 and 200 even after fixing of the nut.
- 1.21 If the value of [CH pressure sensor] deviates from the specified range, adjustment must be repeated.
- 1.22 Uncheck [CH Pump [5]] to stop water circulation.

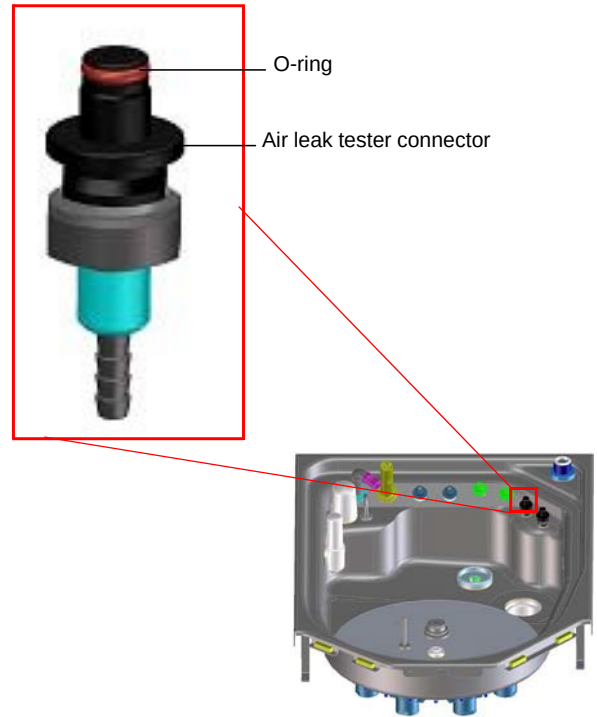


- 2.0 Draining the water from the cleaning tub
 - 2.1 Verify that the drain hose is connected prior to draining water.
 - 2.2 Check [CH V (Close) (7)] to close the CH valve.
 - 2.3 Click [Drain V (Open) (E)] to open the drain valve.
 - 2.4 Check [Drain Pump (3)] to turn off the drain pump.
- 3.0 Verify water has finished draining from the cleaning tub.
- 4.0 Uncheck [Drain Pump (3)] to turn off the drain pump.
- 5.0 Turn the equipment off.

O-ring on the Leak Tester Air Connector Replacement – OER-Pro [3010H.02]

1.0 Replacing the O-ring

- 1.1 Place a forefinger and thumb at the 9 and 3 o'clock positions on the O-ring on the air leak tester connector.
- 1.2 Push the O-ring forward to create slack.
- 1.3 Remove the O-ring with the other forefinger.
- 1.4 Insert a new O-ring onto the air leak tester and the connector.

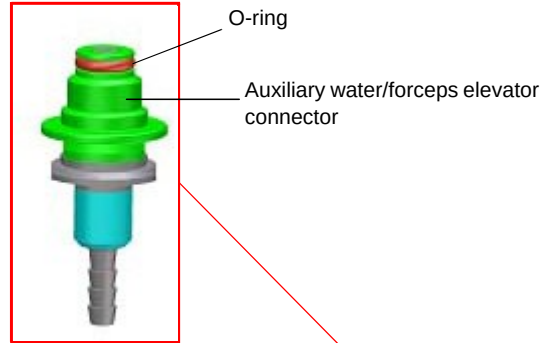


O-ring on the Auxiliary Water/Forceps Elevator Connector Replacement – OER-Pro [3010H.03]

Tools:

1.0 Replacing the O-ring

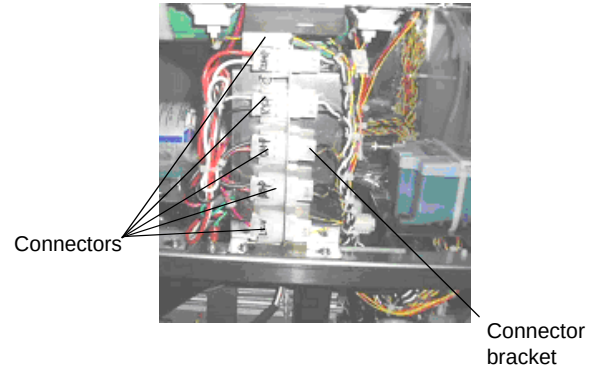
- 1.1 Place a thumb and forefinger on the 9 and 3 o'clock position on the O-ring on the auxiliary water/forceps elevator connector.
- 1.2 Push the O-ring forward to create slack.
- 1.3 Remove the O-ring with the other forefinger.
- 1.4 Insert a new O-ring onto the auxiliary water/forceps elevator connector.



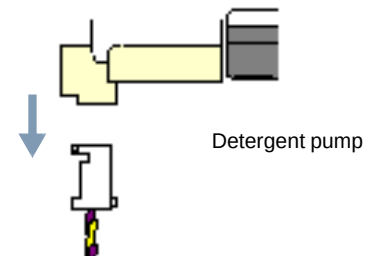
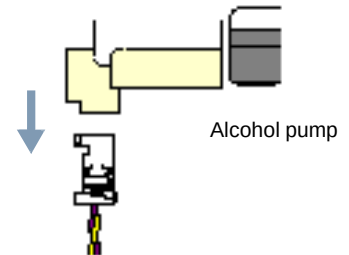
Alcohol/Detergent Pump Replacement – OER-Pro [3010F.02]

1.0 Removing alcohol/detergent pump

- 1.1 Remove all five connectors on the connector bracket.



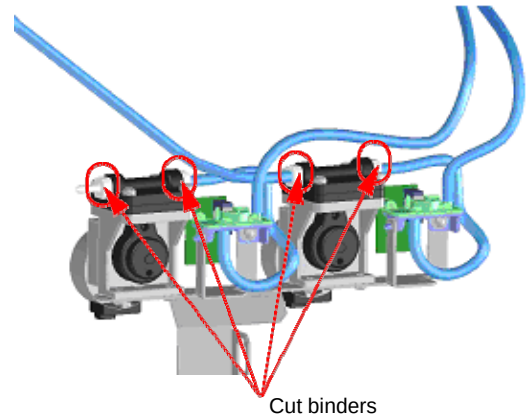
- 1.2 Remove electrical connector on the DA pump units.



Tools:

Wire cutter

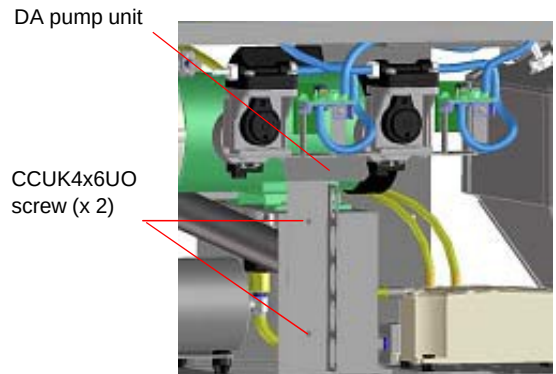
- 1.3 Cut the tie wraps connecting the tubes on the DA pump unit.
- 1.4 Disconnect the tubes.



Tools:

No. 2 Phillips
Screwdriver

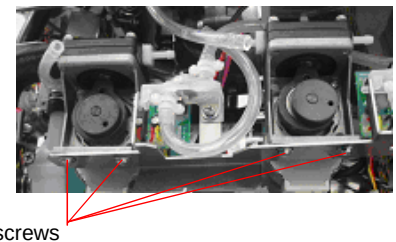
- 1.5 Remove the two CCUK4x6UO screws that hold the DA pump unit.



Tools:

No. 2 Phillips
Screwdriver

- 1.6 Remove the four CCUK4x6UO screws holding the diaphragm pump units.



- 1.7 Replace diaphragm pump unit with a brand new one.



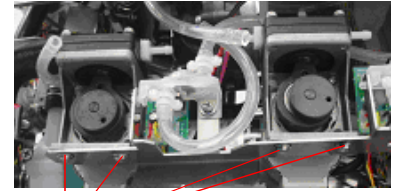
Tools:

No. 2 Phillips
screwdriver bit

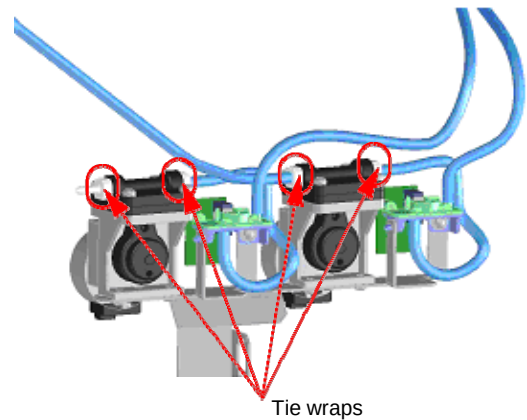
Torque driver

2.0 Installing alcohol/detergent pump

- 2.1 Secure 4 screws (CCUK4x6UO) holding the diaphragm pump units at the specified torque of 1.274 ± 0.098 Nm.
- 2.2 Apply Nejllock around the screw heads.
- 2.3 Tighten the 2 screws holding the DA pump bracket at the specified torque of 1.274 ± 0.098 Nm.
- 2.4 Apply Nejllock around the screw heads.
- 2.5 Reconnect tubes with joints.



CCUK4x6UO screws

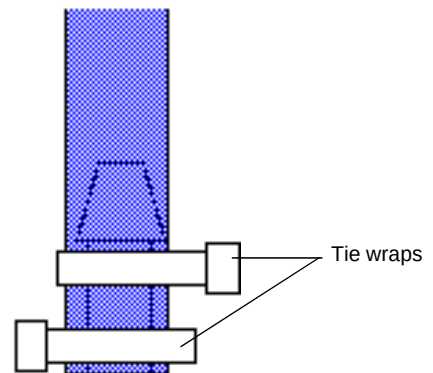


Tie wraps

Tools:

Wire cutter

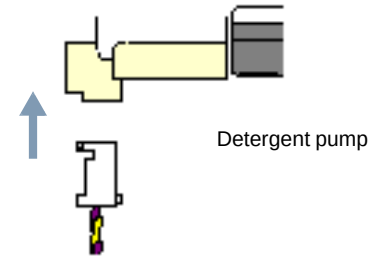
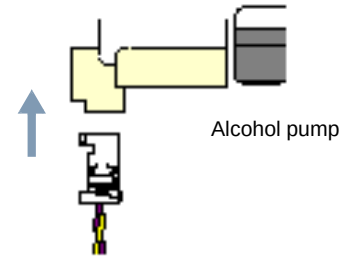
- 2.6 Secure the joints with 2 tie wraps.



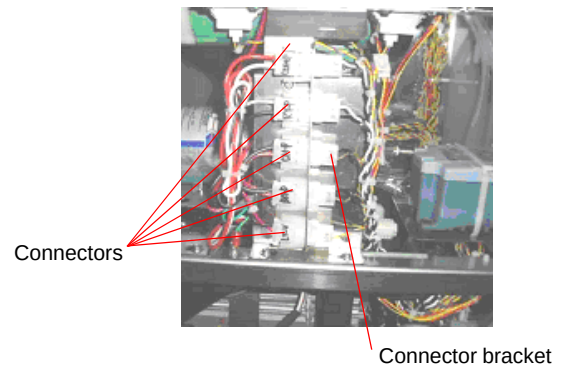
Tie wraps

- 2.7 Connect the electrical connectors of the DA pump units.

Important: Make sure that the connector is not loose when pulled.



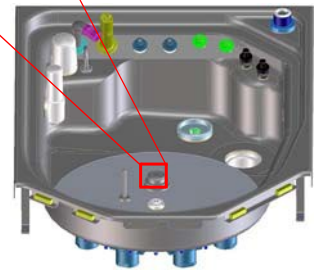
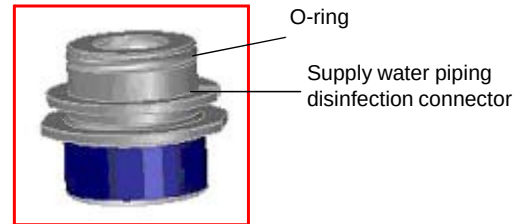
- 2.8 Reconnect all five connectors on the connector bracket.



O-Ring on the Supply Water Piping Disinfection Connector Replacement – OER-Pro [3010H.04]

1.0 Replacing the O-ring

- 1.1 Remove the O-ring on the supply water piping disinfection connector.
- 1.2 Insert a new O-ring on the supply water piping disinfection connector.

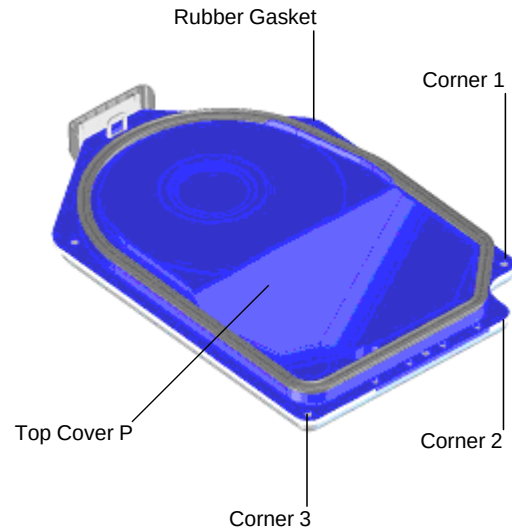


Rubber Gasket Replacement – OER-Pro [3010G.02]

Tools:
Cloth
or
Paper towel

1.0 Removing the old rubber gasket

- 1.1 Remove the rubber gasket from the top cover P.



- 1.2 Wipe out the groove area on the top cover P to remove any residue.

Important: Do not allow skin contact with the solution, as the disinfectant solution is harmful to the skin.



2.0 Inserting the new rubber gasket

- 2.1 Align the rubber gasket notch with the groove at the top of top cover P.
- 2.2 Insert at corner 1, corner 2, and then corner 3.
- 2.3 Fit the rest of the rubber gasket accordingly.
- 2.4 Verify that the entire rubber gasket is in place.
- 2.5 Check for fluid leaks after installation.

Sensor Cover Cleaning – OER-Pro [3010G.04]

Tools:
Cloth
or
Paper towel

- 1.0 Cleaning the sensor cover A/B
 - 1.1 Remove the sensor cover A/B from the electrode sensor.

Important: Do not allow direct skin contact with the solution, as the disinfectant solution is harmful to the skin.
 - 1.2 Wipe the inside of the sensor cover A/B to remove residue.
 - 1.3 Insert to attach the sensor cover A/B onto the electrode sensor.



Sensor cover A

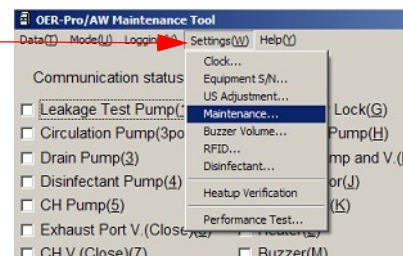


Sensor cover B

Next Maintenance Date Setup – OER-Pro [3010J.03]

- 1.0 Setting the next maintenance date
 - 1.1 Turn the equipment on.
 - 1.2 Connect the communication cable to the PC and the OER-Pro.
 - 1.3 Run the software maintenance tool.
 - 1.4 Select “Settings” on the main menu bar.

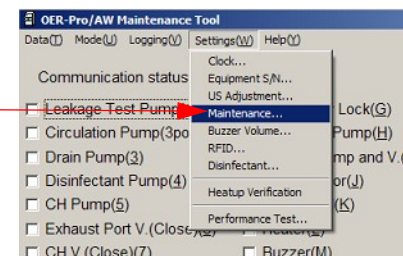
Select settings



- 1.5 Select “Maintenance...” from the drop down menu.

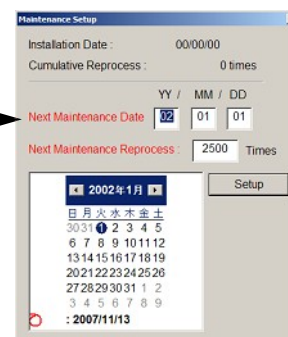
Important: The Maintenance Setup window displays.

Select Maintenance



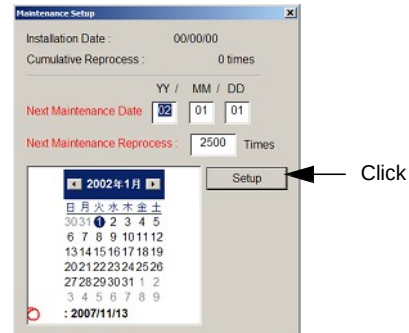
- 1.6 Set the next maintenance date as one year from the current date.

One year from the current date



- 1.7 Click on the Setup button.

Important: Clicking the Setup button makes the changes effective.



- 1.8 Turn the equipment off.
 1.9 Turn the equipment on.
 1.10 Record the maintenance date and the maintenance engineer's name on the information card.

Important: The information card is attached to the front door unit.

Final Functional Inspection – OER-Pro [3010G.03]

- 1.0 Verify that the drain hose is securely attached to the facility drain.
- 2.0 Start a performance test cycle.
- 3.0 Perform final inspection while the test cycle runs.

Important: For final inspection details, refer to chapter 6 of the OER-Pro Biomed Service Manual.
- 4.0 Verify that there are no fluid leaks.
- 5.0 Verify that the cycle has completed without errors.
- 6.0 Verify the disinfectant concentration, if program B was used during maintenance.
- 7.0 Verify that the original settings have not changed.
 - LCG usage setting
 - Program2
 - Program3
 - Leak test setting
 - Date and time

Rear Panel Installation – OER-Pro [3009W.04]

Tools:

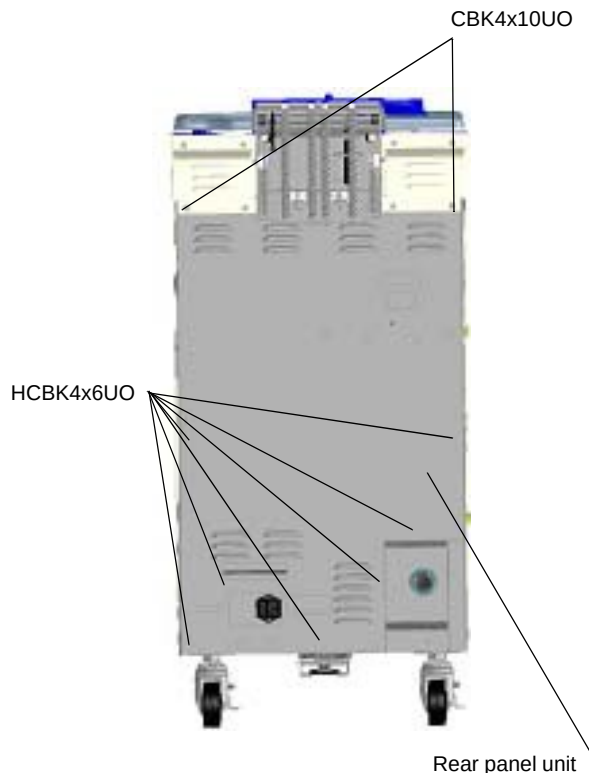
No.2 Phillips
screwdriver bit

Torque driver

1.0 Installing the rear panel

- 1.1 Insert the rear panel unit below the upper rear panel unit.
- 1.2 Align screw holes.
- 1.3 Secure the rear panel unit with 7 screws (HCBK4x6UO) and 2 screws (CBK4x10UO) at the specified torque.

Screw	Specified Torque
HCBK	1.274 ±0.098 Nm
CBK	0.686 ±0.098 Nm



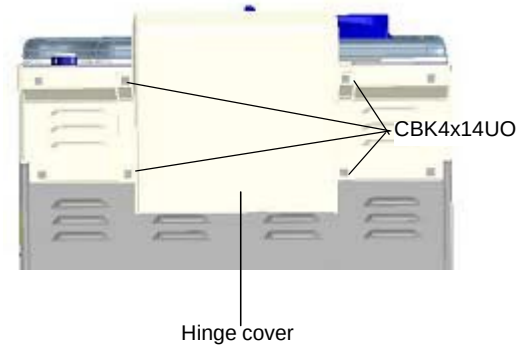
Hinge Cover Installation – OER-Pro [3009W.06]

Tools:

No.2 Phillips
screwdriver bit

Torque driver

- 1.0 Installing the hinge cover
 - 1.1 Connect the hinge cover covering the hinge unit.
 - 1.2 Align screw holes.
 - 1.3 Secure the hinge cover with 4 screws (CBK4x14UO) at the specified torque of 0.686 ± 0.098 Nm.



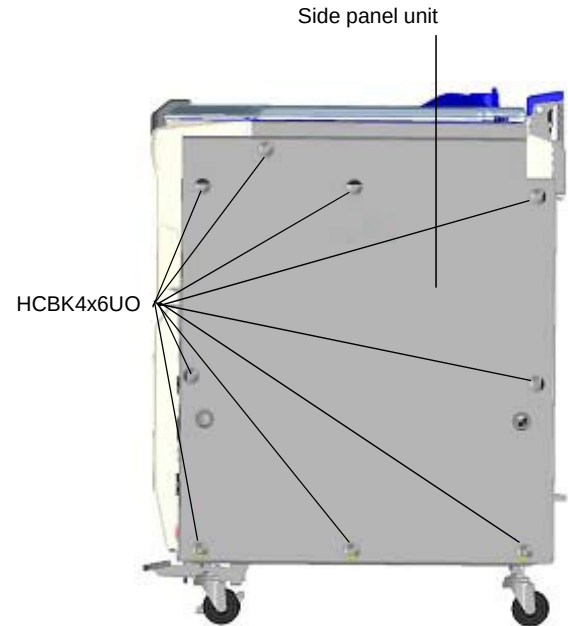
Side Panel L Installation – OER-Pro [3009W.05]

Tools:

No.2 Phillips
screwdriver bit

Torque driver

- 1.0 Installing the side panel L
 - 1.1 Align the side panel LU to the side panel main unit.
 - 1.2 Align screw holes of the side panel LU, the frame, and the waterproof cover.
 - 1.3 Secure the side panel LU with 9 screws (HCBK4x6UO) at the specified torque of 1.274 ± 0.098 Nm.



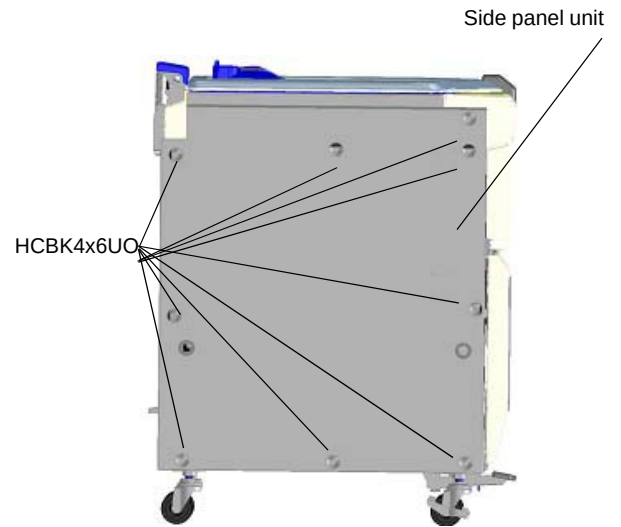
Side Panel R Installation – OER-Pro [3010F.03]

Tools:

No.2 Phillips
screwdriver bit

Torque driver

- 1.0 Assembling side panel R
 - 1.1 Align side panel RU with the screw holes on the frame.
 - 1.2 Secure side panel with 9 screws (HCBK4x6UO) at the specified torque of 1.274 ± 0.098 Nm.



Electrical Safety Test – OER-Pro [3010H.05]

- 1.0 Performing the electrical safety test
 - 1.1 Perform the electrical safety test.

Important: For final inspection details, refer to chapter 6 of the OER-Pro Biomed Service Manual.

Inspection Results Reporting – OER-Pro [3010H.06]

1.0 Reporting the inspection results (*Process is used only by Olympus FSEs*)

1.1 Report the inspection results via mobile tech link.

Important: Report any parts of the inspection that failed.

Revision History

R	CN	Description	Author	Reviewer	Date	Approver	Date
1	1000380	Initial Document Creation OERPro Service Level B 17FS020	David Moriyama (CB)	William Arroyo	12/23/09	Joel Munar	01/19/10
2	1000680	Revise OERPro Octennial PM Updates 17FS021	David Moriyama (CB)	William Arroyo	04/30/10	Joel Munar	05/13/10
3	1001099	Revise Sensor Cover Cleaning Add Chp 17FS019	David Moriyama (GK)	William Arroyo	09/15/10	Joel Munar	09/16/10
4	1001103	OT Mod 142p2032 OESPro Artwork Screw Torque 17FS020	David Moriyama (GK)	William Arroyo	09/24/10	Joel Munar	09/28/10