PoolCop®

“Your pool on automatic pilot”

Maintenance Manual

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Manual Version: V32EN

Firmware Version: V27, V28, V29, V30, V31, V32

Product Versions: PoolCop, PoolCop Junior

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Section 1 TECHNICAL SUPPORT AND SUPPORT LEVELS

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1.1 L1 Level Support

L1 is the support level for initial client contact and basic client issues.
The first objective of L1 support personnel is to gather the client's information and to determine the client's issue by analyzing the symptoms and to determine the underlying problem. Once identification of the underlying problem is established, the specialist can begin sorting through the possible solutions available. L1 support typically handles straightforward and simple problems using basic troubleshooting, the product User and Installation Manuals, and this Service Manual.
L1 support can be carried out by all personnel acting as initial contact for user requests and, if required, creating an incident to notify other business teams/units to satisfy user request. The goal is to handle 70%-80% of the user problems before finding it necessary to escalate the issue to a higher level. L1 support requires good basic knowledge of the products, as well as terms and conditions offered by the business rather than detailed technical information on the product or pool maintenance.

1.2 L2 Level Support

L2 is more in-depth technical support than L1 and carried out by personnel with and more experience and technical knowledge. Technicians are responsible for assisting L1 support personnel solve basic technical problems and for investigating elevated issues by confirming the validity of the problem and seeking for known solutions related to these more complex issues.
Prior to further troubleshooting, it is important that the L2 support personnel review what has already been accomplished by during L1 support and how long the issues has been apparent for the particular client. This is a key element in meeting both the client and business needs as it ensures prioritization of the troubleshooting and proper management of time and allocation of resources.
If L2 support personnel cannot determine a solution, they will elevate this issue to L3 support. Solutions are performed by this group to help ensure the intricacies of a challenging issue are solved by providing experienced and knowledgeable technicians. This may include, but is not limited to onsite installations or replacements of various hardware components, software repair, diagnostic testing, and the utilization of remote control tools used to take over the user's machine for the sole purpose of troubleshooting and finding a solution to the problem.

1.3 L3 Level Support

This is the highest level of support in a three-tiered technical support model responsible for handling the most difficult or advanced problems. It denotes expert level troubleshooting and analysis methods. These individuals are experts in their fields and are responsible for not only assisting both Level 1 and Level 2 personnel, but with the research and development of solutions to new or unknown issues. Note that Level 3 technicians have the same responsibility as Level 2 technicians in reviewing the work order and assessing the time already spent with the customer so that the work is prioritized and time management is sufficiently utilized. If it is at all possible, the technician will work to solve the problem with the customer as it may become apparent that the Tier I and/or Tier II technicians simply failed to discover the proper solution. Upon encountering new problems; however, Tier III personnel must first determine whether or not to solve the problem and may require the customer's contact information so that the technician can have adequate time to troubleshoot the issue and find a solution. In some instances, an issue may be so problematic to the point where the product cannot be salvaged and must be replaced. Such extreme problems are also sent to the original developers for in-depth analysis.

1.4 L4 Level Support

L4 represents an escalation point beyond the organization. This is generally a hardware or software vendor.

Section 2 TOOLS, EQUIPMENT AND CONSUMABLES

2.1 General Guidelines on Tools and consumables

Installers and Technicians will to carry their own full tool kit of the tools, parts and consumables needed for pool and equipment maintenance.
Over and above this there are specific items which may be specific to PoolCop installations and maintenance, or items which help and speed up installation and maintenance tasks. Some of these items are available from PCFR and listed in the current catalogue of pool equipment; these items have Part Codes indicated.

2.2 Tool Kit

Installer Tool Kit	Part Code	Comment
1. Spanners :		
a. 5mm spanner		
b. 5.5mm spanner		
2. Phillips screwdriver		PH1 size
3. screwdriver		4mm
4. 5mm hex bit		For power drivers
5. 5mm spherical head Allen key		
6. Adjustable wrench		25mm
7. Syringe with needle		To refill pressure sensor oil

2.3 Recommended Consumables

Agreed Installers can also source installation and maintenance consumables directly from PCFR at preferential rates. We source our consumables directly from suppliers and manufacturers when possible, to ensure the best rates on these consumables for the installer and maintainer.

Recommended Consumables	Part Code	Comment
1. Main Unit:		
a. Silicone lubricating paste	GEB	
b. Silicone sealant, clear		
c. Silicone Oil 350cst		Silicone oil is required to refill the pressure sensor.
2. Power Supply Unit:		
a. Mini fuse Ø5x20mm	FUS001	10x200mA temporized + 10x2A rapid
b. Wago connectors		Recommended, may be substituted.
3. ORP 470mV buffer liquid		Recommended to control sensor
4. pH 7 buffer liquid		Recommended, not required.

2.4 Recommended Spare parts Kit

The following is a recommended spares kit to be carried. Carrying adequate spares ensures that any malfunctions or failures can be rectified timeously.

Recommended Spares Kit	Part Code	Comment
1. Main Unit (MU):		
a. Rotating part kit 1,5	CF1510	
b. Rotating part kit 2,0	CF2010	
c. Micro PCB	CF1220.01	PCB004-B
d. Connection PCB	CF1217.01	PCB003-B (3 wires sensors)
	CF1217.02	PCB003-D (4 wires sensors)
e. Analog PCB	CF1216.01	PCB002-B
f. Pickup PCB	CF1215.01	PCB001-B
g. Piston kit	CF1214	
h. Motor/Gearbox Assembly	CF1210.03	
i. pH Sensor	CO1901	3 wires sensor
j. pH/ORP Pt Sensor	CO1902	3 wires sensor
k. pH/ORP Au Sensor	CO1903	3 wires sensor
l. pH Sensor	SO4901	4 wires sensor
m. pH/ORP Pt Sensor	SO4902	4 wires sensor
n. pH/ORP Au Sensor	SO4903	4 wires sensor
o. Water temperature sensor	CF1210.19	
2. Power Supply Unit (PSU) :		
a. 12V SLA Backup Battery	CO2202	
b. Power supply PCB	CF1120.01	PCB102-B
c. Main PCB	CF1130.01	PCB101-B

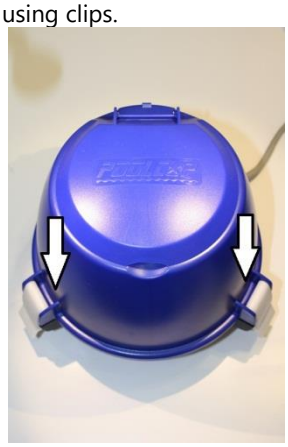
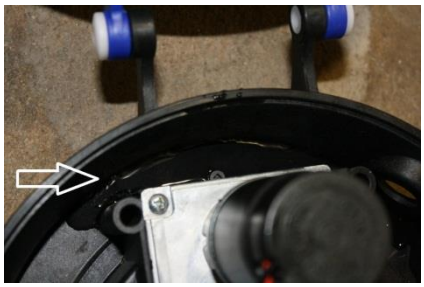
Section 3 PREVENTATIVE MAINTENANCE

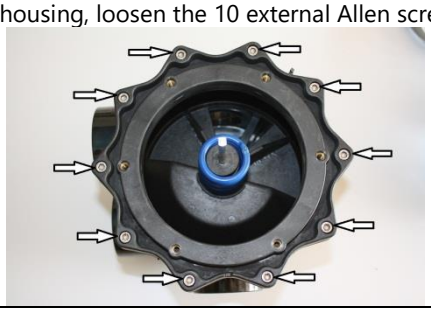
3.1 MPM_01_EN: Checking the battery

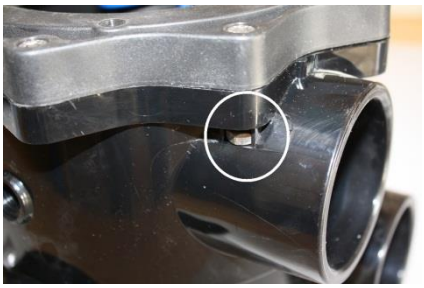
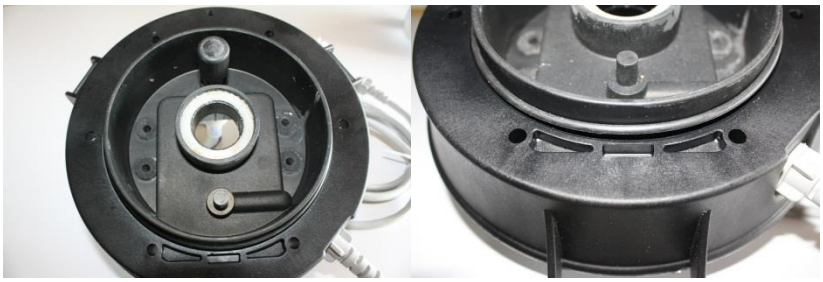
Preventative Procedure			Support : L1
This Preventive Maintenance Procedure details steps to check battery. The 12VDC SLA battery performs critical safety functions and ensures that the valve can always be secured into a safe position FILTER in the event of power loss If the battery function check fails, charge the battery for 10 hours using an appropriate charger, then retest. If the battery is left to charge in the PSU, ensure that all water valves are closed and the pump remains off to ensure that water is not drained from the pool			Procedure: **MPM_01_EN** Revision: **01**
Tools & consumables required:			Time:
- screwdriver			0:05
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	○ In MENU>MANUAL CONTROL>VALVE ROTATION ask the valve to rotate to **BYPASS position**. **Note**: Although any position other than **FILTER** can be selected for this check, selecting **BYPASS** results in the least risk of water loss.		
2	○ In MENU> MANUAL CONTROL >PUMP, switch the pump ON **Note:** After starting the pump, make sure to come back to main menu by pressing QUIT several times.		
3	○ Remove the mains power supply at the circuit board to simulate a power failure leaving PoolCop switch **ON**. **Note:** Power supply must be removed in the electrical connection.		
4	○ Check the following: ○ The pump must stop, even if the pump is still powered independently of the PSU. ○ The **Power On** red LED extinguishes. ○ The **Battery On** red LED remains illuminated. ○ After a brief delay the valve rotates to FILTER or CLOSED position depending on the pool settings. Then LCD displays **"AC POWER FAILURE POOLCOP DEACTIVATED"**. ○ If valve does not reach its position or if the screen come black immediately, follow the "Checking/Replacing the 12V Battery" Service Procedure.", in particular check that battery is correctly charged. Depending on storage conditions, batteries must not be fully charged.	SPSU_05_FR	
5	○ Reconnect the main power supply.		

6	○ The **Power On** red LED must illuminated. ○ The **Battery On** red LED remains illuminated. ○ **"POOLCOP REACTIVATED"** is displayed on the PoolCop main unit. ○ Depending on firmware version, the valve may turn again to **FILTER** or **CLOSED** position. ○ If programmed to run, the pool pump starts.		
End of Preventative Procedure			

3.2 MPM_02_FR: Checking Wagon wheel gasket on "SG" valve

Preventative Procedure			Support : L1
This Preventive Maintenance Procedure details steps to check the "SG" rotating part. "ZA" rotating parts gaskets are inserted into the valve housing grooves. They cannot be checked without dismantling PoolCop as describe in "Checking/Replacing Gaskets « ZA » Type Valve" Service Procedure (SMU_19_EN). "SG" gaskets are glued on the rotating parts. A visual control is therefore possible without dismantling PoolCop entirely as describe is this Procedure.		Procedure	**MPM_02_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 10mm spanner - 5mm Allen key - Silicon sealant - silicon paste			0:20
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	LEAKAGE VERIFICATION		
2	○ In MENU>MANUAL CONTROL>VALVE ROTATION ask the valve to go into **FILTER** position.		
3	○ In MENU>MANUAL CONTROL>PUMP, turn the pump ON		
4	○ Check leak to waste. ○ Open the cover using clips.  ○ Check leak inside PoolCop, behind gear motor.  ○ If a leak is detected, proceed to rotating part replacement following the Service Procedure "Checking/Replacing Gaskets « SG » type valve".	SMU_20_EN	
5	○ Follow "Shut down the Unit" Service Procedure	SPSU_01_EN	

6	○ Remove water from inside valve housing using either the purge plug either the sight glass.		
7	DESASSEMBLING		
8	○ On 1;5" valve housing, loosen the 6 Allen screws 		10 mm spanner 5mm Allen key
9	○ On 2.0" valve housing, loosen the 10 external Allen screws 		10 mm spanner 5mm Allen key
10	○ Check gasket condition and wear ○ Check if the gasket shows signs of snagging ○ In case of any doubt, proceed to rotating replacement following Checking/Replacing Gaskets « SG » type valve". ○ If gasket is in good shape, clean and add pure silicon grease (provided with a new gasket) on gasket and valve housing.	SMU_20_EN	Pure silicon grease
11	RESASSEMBLING 2.0"		
12	○ For 2.0" valve, check adapter O-ring. In case of any doubt proceed to replacement.   ○ Fit the adapter ring to the valve housing.		

13	**CAUTION:** Make sure to respect the correct orientation of adapter ring. The pin must be aligned with valve housing sight glass. 		
14	○ Make sure the captive nut close to the 'Pump In' entry is in place.  ○ Tighten the 10 bolts.		5mm Allen key 10 mm spanner
15	REASSEMBLE 1.5" and 2.0"		
16	○ Check the Main Unit O-Ring. In case of any doubt proceed to replacement.  ○ Fit the PoolCop main base in place.		JT0001
17	○ Tighten the 6 Allen bolts (or screws on 2.0" valve housing). ○ You will need to partially bend the spring by pressing the main base.		5mm Allen key 10 mm spanner
18	○ Power the unit up. ○ Open hydraulic circuits	SPSU02_EN	
19	○ Check for any leak inside the PoolCop and to the waste line. ○ In case of leak, repeat this Service Procedure and especially look for any damage on the gasket or valve housing.		
End of Preventative Procedure			

Section 4 SERVICING THE POWER SUPPLY UNIT PSU

4.1 SPSU_01_EN: Shut down the unit

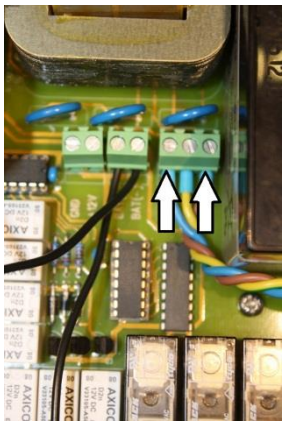
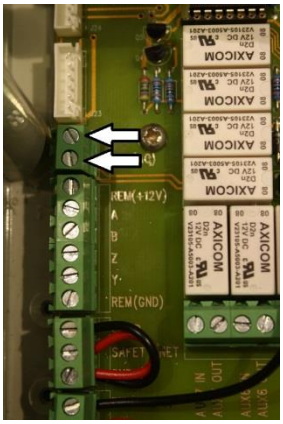
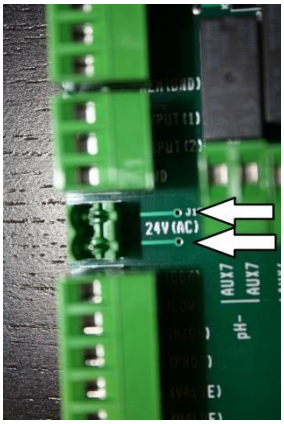
Servicing the Power Supply Unit PSU			Support : L1
This Service Procedure details steps to shut down the main unit and secure the pool if unit is on the field.		procedure	**SPSU_01_EN**
		Revision	**01**
Tools & consumables required:		Time:	
- screwdriver		0:05	
Parts required	QTY	Codes	
-	-	-	
Steps	Cross Ref.	Tool, Part	
1	○ Disconnect power from the PSU.		
2	**Enclosures without external rocker switch** ○ Remove transparent PSU cover. 		Screwdriver
3	○ Switch OFF the PSU.		
4	○ Close all valves to or from the pool ○ Disconnect power to the pump and auxiliaries (booster pump...) ○ Depressurize and drain the multiport valve using the sight glass or purge plug. ○ Make sure there is no pressure on the valve housing.		
End of Service Procedure			

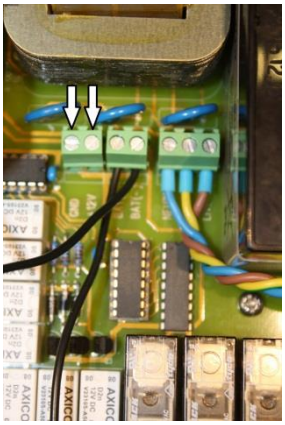
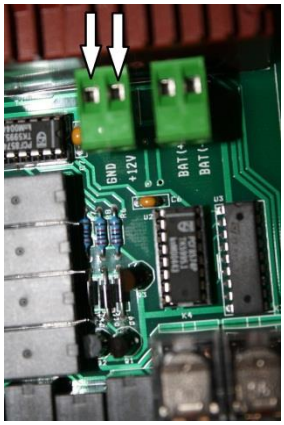
4.2 SPSU_02_EN: Powering Up the Unit

Servicing the Power Supply Unit PSU			Support : L1
This Service Procedure details steps to power up the main unit and prepare the pool if unit is on the field.		procedure	**SPSU_02_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver			0:05
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	○ Check if sight glass and purge plug in place and are secure. ○ Open the valves to or from the pool for normal operation (as they were before closing them all). ○ Reconnect power to the pump and auxiliaries (booster pump…). ○ Check if there is no leak at this stage.		
2	○ Reconnect power to the PSU.		
3	○ Switch ON the PSU. ○ Verify pump, valve and auxiliaries are pulsed ON/OFF. ○ Check firmware version displayed at the LCD screen.  ○ If displayed screen stay blank, or blink switch OFF the PSU and review your latest operation for any error /default. Verify valve rotation to filter or closed position depending on pool settings in PoolCop. ○ If pump is running continuously or valve is rotating continuously, switch OFF the PSU and review your latest operation.		
4	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
5	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

4.3 SPSU_03_EN: Checking Voltages in Power Supply Unit

Servicing the Power Supply Unit PSU			Support : L2	
This Service Procedure details steps to check if mains is apply to PSU.			procedure	**SPSU_03_EN**
			Revision	**01**
Tools & consumables required:			Time:	
- screwdriver - 5.5mm spanner - voltmeter compliant with 240Vac voltage			0:10	
Parts required		QTY	Codes	
-		-	-	
Steps		Cross Ref.	Tool, Part	
1	DISASSEMBLE			
2	**WARNING! ELECTRIC SHOCK HAZARD!** This Service Procedure is strictly reserved to trained and authorized personnel.			
3	○ Remove transparent PSU cover. 		Screwdriver	
4	○ Depending on versions, remove the metallic face plate. 		5.5mm spanner	
5	CHECK 220Vac (110Vac)			

6	○ Using a voltmeter on VAC range, check voltage between "**NEUTRAL**" and "**LIVE**" terminals close to the transformer. ○ Valid ranges are: ○ **200Vac** to **240Vac** for 220Vac networks. ○ **100Vac** to **120Vac** for 110Vac networks.  		Voltmeter
7	○ If voltage is not in the valid range, please contact electrical distribution network. PoolCop may encounters malfunctions.		
8	CHECK 24Vac		
9	○ Using a voltmeter on VAC range, check voltage on the **24V(AC)** terminal located on the left side of the PCB. ○ Valid range is **22Vac** to **28Vac**.  		Voltmeter
10	○ If voltage is not in the valid range, please note that PoolCop may encounters malfunctions in time. ○ This PCB should be replaced as soon as possible following "Replacing the PCB101 Board" Service Procedure.	SPSU_10_EN	
11	○ If 24Vac voltage is null with switch ON and fuses controlled as correct (following SPSU_04_EN Service Procedure), then the transformer is out of order. ○ The Power Main PCB cannot be repaired. ○ Replace this PCB following "Replacing the PCB101 Board" Service Procedure.	SPSU_04_EN SPSU_10_EN	
12	CHECK 12VDC		
13	○ Disconnect battery on one end.		

14	○ Using a voltmeter on VDC range, check voltage on the **+12V** terminal located below the transformer. ○ Valid range is **12.5Vdc** to **13.8Vdc**.  		Voltmeter
15	○ If 12Vdc voltage is null with switch ON and fuses controlled as correct following "Checking/replacing PSU fuses" Service Procedure, then the PCB102 Board is damaged. ○ The Power Supply Board PCB cannot be repaired. ○ Replace this PCB following "Replacing the PCB102 Board" Service Procedure.	SPSU_04_EN SPSU_09_EN	
16	○ Reconnect the battery.		
17	REASSEMBLE		
18	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
19	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
End of Service Procedure			

4.4 SPSU_04_EN: Checking/Replacing the PSU Fuses

Servicing the Power Supply Unit PSU			Support : L2
This Service Procedure details steps to check and replace PSU fuses.			procedure: **SPSU_04_EN**
			Revision: **01**
Tools & consumables required:			Time:
- Ohmmeter			0:15
Parts required		QTY	Codes
- Glass fuse 5x20mm 630mA Slow Blow - Glass fuse 5x20mm 2A Fast Blow		1 1	-FS5x20-0.2A -F5x20-2A
Steps		Cross Ref.	Tool, Part
1	○ Follow "Shut down the Unit" Service Procedure.	SPSU_01_EN	
2	○ Remove the power fuse (**100mA slow blow**). 		
3	○ Using the Ohm meter, check fuse continuity and sizing. ○ Replace fuse by same size and up to **200mA Slow Blow** if fuse is blown.		Ohm meter F5x20-0.2A
4	○ Remove the battery fuse (**2A Fast blow**). 		
5	○ Using the Ohm meter, check fuse continuity and sizing. ○ Replace fuse by same size and **2A Fast Blow** if fuse is blown.		Ohm meter FS5x20-2A
6	○ Follow "Checking/Replacing 12V battery" Service Procedure.	SPSU_05_EN	
7	○ Follow "Powering up the Unit" Service Procedure.	SPSU_02_EN	
End of Service Procedure			

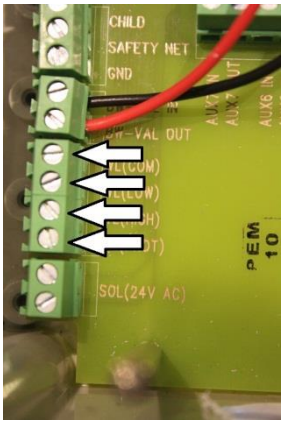
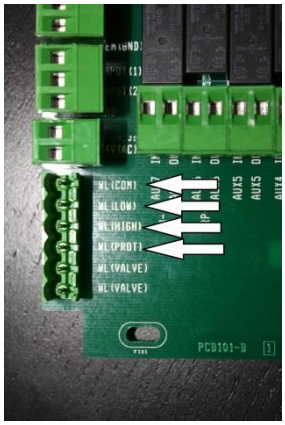
4.5 SPSU_05_EN: Checking/Replacing the 12V Battery

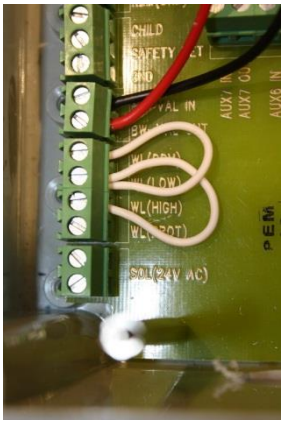
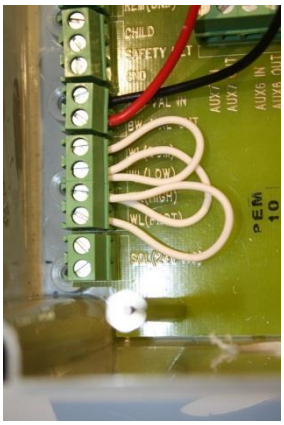
Servicing the Power Supply Unit PSU			Support : L2
This Service Procedure details steps to check and replace 12V battery			procedure **SPSU_05_EN**
			Revision **01**
Tools & consumables required:			Time:
- 5.5mm spanner - Voltmeter			0:15
Parts required		QTY	Codes
- 12V SLA battery 1.2Ah (size 40mm x 50mm x 100mm)		1	-CO2202
Steps		Cross Ref.	Tool, Part
1	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
2	○ Depending on version, remove the metallic face plate. 		5.5mm spanner
3	○ Disconnect one end of the battery connector. ○ Using the voltmeter, on VDC range, check the battery voltage. 		Voltmeter
4	○ If voltage is **less than 11.5V** and battery has been in charge for more than 4 hours, then proceed to replacement.		12V Battery CO2202
5	○ Reconnect the battery connector. ○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
6	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
7	○ Using PoolCop panel go to MENU>MANUALS_COMMAND> VALVE, rotate the valve to “WASTE” position. After rotation, make sure to return to main menu using QUIT button as much as necessary.		

8	○ Disconnect power from the PSU while leaving the switch ON.		
9	○ Valve should turn to its safe position (“Filter” or “Closed”) depending on the pool settings; and then PoolCop should display the message of power loss. ○ If valve cannot reach its end position and/or PoolCop screen becomes black, restart Service Procedure from the beginning and, in particular, make sure the battery is fully loaded. Depending on their shelf time, battery may not be correctly loaded. If possible wait for 4 hours and check these 3 last steps again. ○ If not possible or if problem persists, restart in step 1 and change the battery again.		
10	○ Reconnect power to the PSU.		
11	○ Make sure manual valves are in the right position and start the pump if required by entering and leaving MENU> FILTRATION_TIMER.		
End of Service Procedure			

4.6 SPSU_06_EN: Checking Level Sensor Inputs

Servicing the Power Supply Unit PSU			Support : L3
This Service Procedure details steps to check the level sensor inputs		procedure	**SPSU_06_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - 5.5mm spanner			0:30
Parts required		QTY	Codes
- 0.5mm^2, 10cm length wire		3	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>WATER_AND_TREATMENT> WATER_LEVEL, check that water control is installed. ○ If "lower Auto" is set to YES, set it to NO.		
3	○ Using PoolCop MENU>MANUAL_CONTROL>PUMP, stop the pump. ○ Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed.		
4	○ In the technical room, close the manual valve on refilling water network.		
5	○ Remove transparent PSU cover. 		Screwdriver
6	○ Depending on version, remove the metallic face plate. 		5.5mm spanner

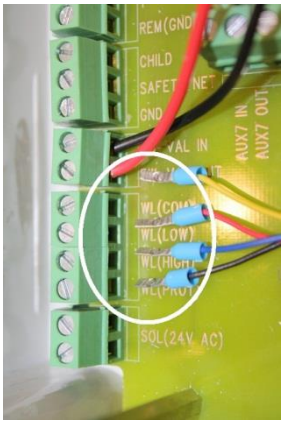
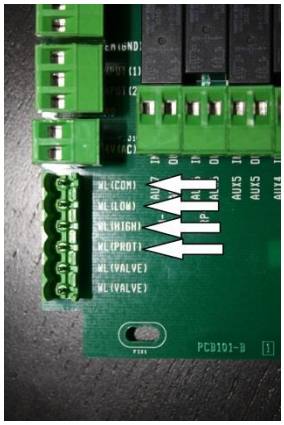
7	○ Disconnect the cables on **WL(PROT), WL(LOW), WL(HIGH)** and **WL(COM)** terminal. Make sure you will be able to reconnect these cables in the same order.  		
8	CHECK		
9	○ Using the PoolCop menu MENU>MANUAL_CONTROL> WATER_REFILL, ask for a pool refill, screen should then display 'valve open, Pool Refill'.		
10	○ If screen display a 'cable damage message', then the PSU main PCB need to be replaced. ○ Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	
11	○ Back on PoolCop main menu, level should be displayed as "**Low**" with 3 vertical blinking arrows should confirm the refill is on-going.		
12	○ Using a 0.5mm^2 wire, establish a connection between **WL(COM)** and **WL(LOW)**. 		
13	○ On PoolCop main menu, level should appear "**Normal**" within 1 minute and 3 vertical blinking arrows should confirm the refill is on-going.		
14	○ If level remains "**low**" or become "**Faulty**" after 1 minute, then the PSU main PCB need to be replaced. ○ Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	

15	○ Using 2x0.5mm^2 wire, establish a connection between **WL(COM), WL(LOW)** and **WL(HIGH).** 		
16	○ On PoolCop main menu, level should appears "**High**" within 1 minute. The 3 vertical arrows should have disappeared.		
17	○ If level remains "**low**", "**normal**" or become "**Faulty**" after 1 minute, then the PSU main PCB need to be replaced. ○ Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	
18	○ Using PoolCop menu MENU>CONFIGURATION> FACTORY_SETTINGS, check firmware version. ○ If PoolCop is running a firmware version previous to V27.0, then Very high level is not in use; jump to step 22 REASSEMBLE.		
19	○ Using 3x0.5mm2 wire, establish a connection between **WL(COM), WL(LOW), WL(HIGH) and WL(PROT).** 		
20	○ On PoolCop main menu, if the 3 vertical arrows have disappeared, go to PoolCop menu MENU>MANUAL_CONTROL>WATER_REFILL, ask for a pool refill, screen should then display 'valve open, Pool Refill'. ○ On PoolCop main menu level should appears "**V_high**" within 1 minute.		
21	○ If level remains "**low**", "**normal**", "**high**"" or become "**Faulty**" after 1 minute, then the PSU main PCB need to be replaced. ○ Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	

22	REASSEMBLE		
23	○ On PoolCop main menu, if the 3 blinking arrow are still present, then go to MENU>MANUAL_CONTROL>WATER_REFILL, ask for a pool refill, screen should then display 'valve closed'.		
24	○ Disconnect the 3x0.5mm2 temporary wires.		
25	○ Reconnect the water sensor wires to their respective terminal.		
26	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
27	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
28	○ If "lower Auto" was previously set to YES, Use PoolCop menu MENU>WATER_AND_TREATMENT>WATER_LEVEL to restore the initial settings.		
29	○ Re Open the manual valve on the fresh water network.		
30	○ If needed, Open the valve to the pool closed in step 2.		
31	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

4.7 SPSU_07_EN: Checking Solenoid Valve Output

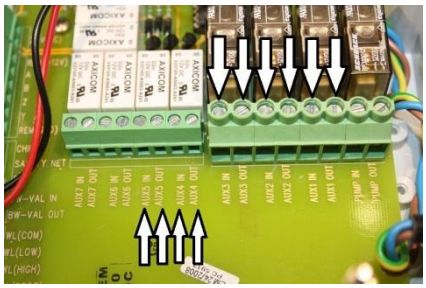
Servicing the Power Supply Unit PSU			Support : L3
This Service Procedure details steps to check the output to water refill solenoid valve.		procedure	**SPSU_07_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Voltmeter - Screwdriver - 5.5mm spanner			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>WATER_AND_TREATMENT> WATER_LEVEL, check that water control is installed.		
3	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed.		
4	○ In the technical room, close the manual valve on refilling water network.		
5	○ Remove transparent PSU cover. 		Screwdriver
6	○ Depending on version, remove the metallic face plate. 		5.5mm spanner

7	○ Disconnect the cables on **WL(PROT), WL(LOW), WL(HIGH) and WL(COM)** terminal. Make sure you will be able to reconnect these cables in the same order.  		
8	CHECK		
9	○ Using the PoolCop menu MENU>MANUAL_CONTROL> WATER_REFILL, ask for a pool refill, screen should then display 'valve open, Pool Refill'.		
10	○ If screen display a '**cable damaged'** message, then the PSU main PCB need to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	
11	○ Back on PoolCop main menu, level should be displayed as "**Low**" with 3 vertical blinking arrows should confirm the refill is on-going.		
12	○ Using the voltmeter on VAC range, check for 24VAC voltage on the **SOL(24V AC)** or **WL(VALVE)** terminal (depending on version).  ○ If no voltage or voltage is lower than **16VAC,** disconnect one of the wires to the solenoid. If voltage is now correct, the solenoid, or the wiring to the solenoid need to be checked/replaced. ○ If voltage is still not correct, then the PSU main PCB need to be replaced. Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	Voltmeter
13	○ On PoolCop main menu, if the 3 vertical blinking arrows are still present, then go to MENU>MANUAL_CONTROL>WATER_REFILL, ask for a pool refill, screen should then display 'valve closed'.		

14	○ On PoolCop main menu check for no vertical blinking arrows.		
15	○ Using the voltmeter on VAC range, check for no voltage on the **SOL(24V AC)** or **WL(VALVE)** terminal. ○ If voltage is **above 1VAC**, then the PSU main PCB needs to be replaced. Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	Voltmeter
16	REASSEMBLE		
17	○ Reconnect the wires to the solenoid (if disconnected).		
18	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
19	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
20	○ Reopen the manual valve on the fresh water network.		
21	○ If needed, Open the valve to the pool closed in step 2.		
22	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

4.8 SPSU_08_FR: Checking Pump and Aux Relays

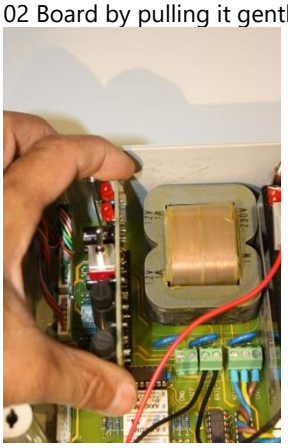
Servicing the Power Supply Unit PSU			Support : L3
This Service Procedure details steps to check pump and aux relays.		procedure	**SPSU_08_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Ohm meter - Screwdriver - 5.5mm spanner			0:15
Parts required	QTY		Codes
-	-		-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. ○ Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed. ○ Using PoolCop MENU>MANUAL CONTROL>AUXILIARIES, stop all running auxiliaries, if any		
3	○ Disconnect power to pump and auxiliaries and make sure no external electrical sources may energize them.		
4	**WARNING! ELECTRIC SHOCK HAZARD!** Make sure every energy source has been cut off before continuing		
5	○ Remove transparent PSU cover. 		Screwdriver
6	○ Depending on version, remove the metallic face plate. 		5.5mm spanner

7	CHECK PUMP		
8	 ○ Using the PoolCop menu MENU>CONFIGURATION>PUMP_DATA, configure pump as "mono speed" pump. If pump is multi speed, note the selected speed for cycle1, cycle2 and Backwash.		
9	○ Disconnect the cables on **PUMP_IN, PUMP_OUT**.		
10	○ Using the Ohmmeter check if there is no continuity between **PUMP_IN and PUMP_OUT**. ○ If the continuity is proven, then the PSU main PCB needs to be replaced. Follow "Replacing the PCB101 Board" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
11	○ Using the PoolCop menu MENU>MANUAL_CONTROL>PUMP, **start the pump**.		
12	○ Using the Ohmmeter check if there is continuity between **PUMP_IN and PUMP_OUT**. ○ If no continuity is detected, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
13	○ Using the PoolCop menu MENU>MANUAL_CONTROL>PUMP, **stop the pump**.		
14	○ Reconnect the cables on **PUMP_IN, PUMP_OUT**.		
15	CHECK AUX1 to AUX5		
16	 ○ Disconnect the cables on **AUX1_IN, AUX1_OUT**.		
17	○ Using the Ohmmeter check if there is no continuity between **AUX1_IN and AUX1_OUT**. ○ If the continuity is proven, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
18	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX1 to ON**.		

19	○ Using the Ohmmeter check if there is continuity between **AUX1_IN and AUX1_OUT**. ○ If no continuity is detected,, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
20	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX1 to OFF**.		
21	○ Reconnect the cables on **AUX1_IN, AUX1_OUT**.		
22	○ Repeat from step 15 for all Auxiliary channels up to Aux5.		
23	○ Using the PoolCop menu MENU>CONFIGURATION>PUMP_DATA, restore the pump configuration.		
24	CHECK AUX6		
25	 ○ Disconnect the cables on **AUX6_IN, AUX6_OUT**.		
26	○ Using the Ohmmeter check if there is no continuity between **AUX6_IN and AUX6_OUT**. ○ If the continuity is proven, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
26	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX6 to ON**. If AUX6 is used has a mean to control disinfection, then go to MENU> WATER_AND_TREATMENT> ORP_CONTROL and **ask for priming and stay in this menu**.		
28	○ Using the Ohmmeter check if there is continuity between **AUX6_IN and AUX6_OUT**. ○ If no continuity is detected,, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
29	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX6 to OFF**. If AUX6 is used has a mean to control disinfection, then leave the MENU> WATER_AND_TREATMENT> ORP_CONTROL.		
30	○ Reconnect the cables on **AUX6_IN, AUX6_OUT**.		

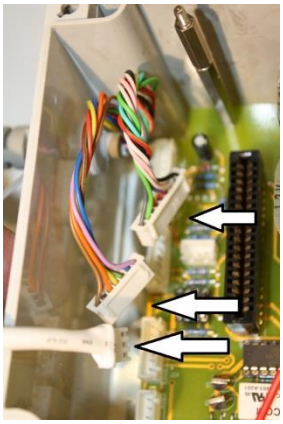
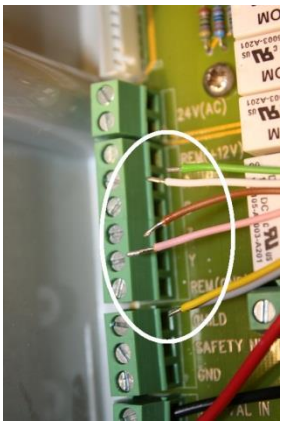
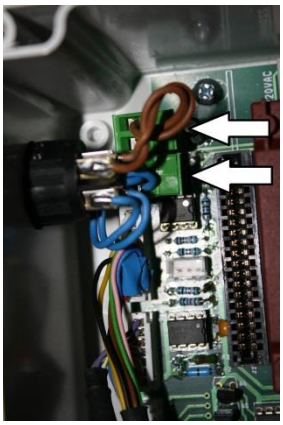
31	CHECK AUX7-pH		
32	 o Disconnect the cables on **AUX7_IN (pH-IN), AUX7_OUT (pH-OUT).**		
33	o Using the Ohmmeter check if there is no continuity between **AUX7_IN and AUX7_OUT**. o If the continuity is proven, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
34	o Using the PoolCop menu MENU>WATER_AND_TREATMENT> PH_CONTROL configure pH control installed (if not), **ask for priming and stay in this menu**.		
35	o Using the Ohmmeter check if there is continuity between **AUX7_IN and AUX7_OUT.** o If no continuity is detected,, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	Ohm meter
36	o Using the PoolCop menu MENU> WATER_AND_TREATMENT> PH_CONTROL restore pH configuration if not installed, or **leave the menu**.		
37	o Reconnect the cables on **AUX7_IN (pH-IN), AUX7_OUT (pH-OUT).**		
38	RESASSEMBLE		
39	o Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
40	o Put back transparent PSU cover and secure it with 6 screws.		Screw driver
41	o If needed, Open the valve to the pool closed in step 2.		
42	o Enter and leave PoolCop MENU>TIMER_FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

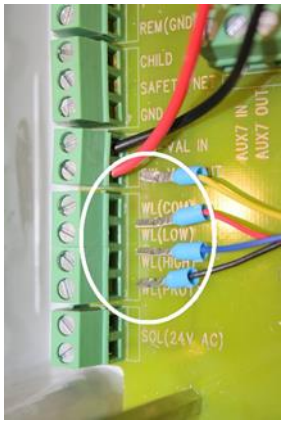
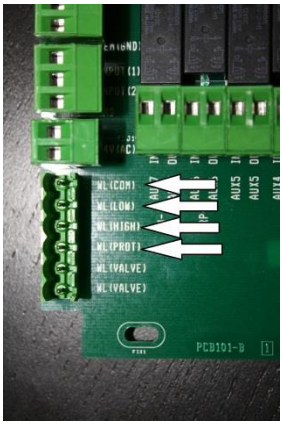
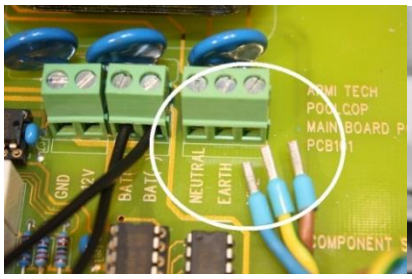
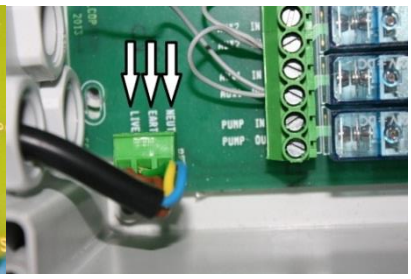
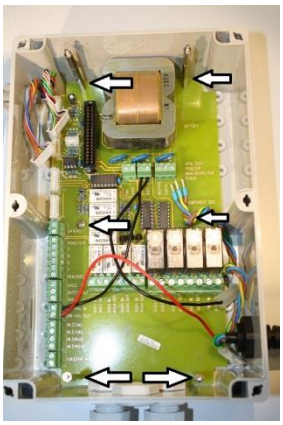
4.9 SPSU_09_EN: Replacing the PCB102 Board

Servicing the Power Supply Unit PSU			Support : L2
This Service Procedure details steps to changes the PCB102 Board.		procedure	**SPSU_09_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Ohmmeter - Screwdriver - 5.5mm spanner			0:15
Parts required	QTY		Codes
- PCB102 Board	- 1		- PC1105 or CF1120.01
Steps		Cross Ref.	Tool, Part
1	DISSASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Depending on version, remove the metallic face plate. 		5.5mm spanner
4	○ Extract the PCB102 Board by pulling it gently. 		
5	○ If needed, prior to install the Board, check fuses as describe in “Checking/Replacing the PSU fuses” service Procedure.	SPSU_04_EN	Ohm meter
6	RESSASSEMBLE		
7	○ Install the new PCB102 Board.		PC1105 or CF1120.01
8	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
9	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

4.10 SPSU_10_EN: Replacing the PCB101 Board

Servicing the Power Supply Unit PSU			Support : L2
This Service Procedure details steps to changes the PCB101 Board.		Procedure	**SPSU_10_EN**
		Revision	**01**
Tools & consumables required:		Time:	
- Screwdriver - 5.5mm spanner - 5mm spanner		0:30	
Parts required	QTY	Codes	
- Power Main PCB101 -	- 1	- PC1108 (220VAC) Or CF1130.01 (110/220VAC)	
Steps	Cross Ref.	Tool, Part	
1 DISSASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN		
3 ○ Depending on version, remove the metallic face plate. 		5.5mm spanner	
4 ○ Make sure you will be able to restore correct wiring, write some note or take a picture of the PSU before unwiring.			
5 ○ Extract the Power Supply Board PCB by pulling it gently. 			
6 ○ Disconnect the 12VSLA battery and remove it.			

7	○ Disconnect the PoolCop lifeline and the Air temperature sensor (if any). 		Screwdriver
8	○ Disconnect the PoolCopilot communication cable (if any). 		
9	○ Depending on version, disconnect the connections to external switch 		Screwdriver

10	○ Disconnect the water level sensor and solenoid valve (if any). Note the ordering of colors.   		Screwdriver
11	○ Disconnect AUX and PUMP connections.		Screwdriver
12	○ Disconnect mains.   		Screwdriver
13	○ Depending on version, remove the 4 hexagonal spacers and the 2 screws retaining the Board in the enclosure. 		5mm spanner Screwdriver
14	○ Remove PCB101 Board.		
15	RESSASSEMBLE		
16	○ Put the Power Main PCB in place.		PC1108 or CF1130.01
17	○ Put the 2 screws without tightening too much. ○ Depending on version, put the 4 hexagonal spacers; tighten gently.		5mm spanner Screwdriver
18	○ Reconnect the mains.		Screwdriver
19	○ Reconnect AUX and PUMP connections as per your note.		Screwdriver

20	○ Reconnect the water level sensor and solenoid valve. Make attention to the color ordering.		Screwdriver
21	○ Reconnect the PoolCopilot communication cable.		Screwdriver
22	○ Reconnect the PoolCop lifeline and the Air temperature sensor (if any). ○ Depending on version, reconnect external switch		Screwdriver
23	○ Reconnect the 12VSLA battery.		
24	○ Insert the Power Supply Board PCB.		
25	○ Depending on version, put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
26	○ Follow “Powering Up the Unit” Service Procedure.	SPSU_02_EN	
27	○ If needed, check the PCB101 is now working using MENU>MANUAL_CONTROL>PUMP or MENU> MANUAL_CONTROL>AUXILIARIES.		

4.11 SPSU_11_EN: Replacing Air Temperature Sensor

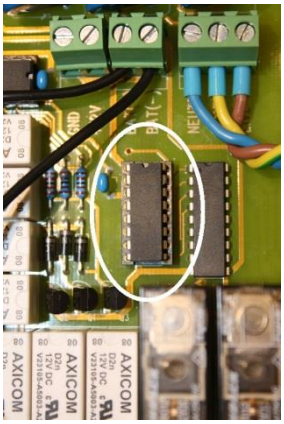
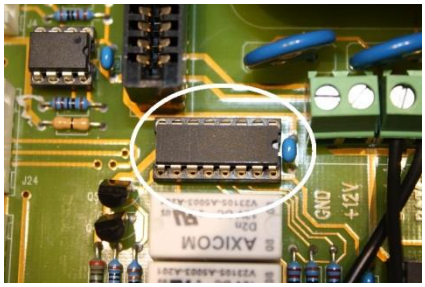
Servicing the Power Supply Unit PSU			Support : L2
This Service Procedure details steps to changes the air temperature sensor.		Procedure	**SPSU_11_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 5.5mm spanner -			0:10
Parts required		QTY	Codes
- Air temperature sensor and cable		- 1	- PC1008 or CF21100.02
Steps		Cross Ref.	Tool, Part
1	DISSASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Depending on version, remove the metallic face plate. 		5.5mm spanner
4	○ Extract the Power Supply Board PCB by pulling it gently. 		

5	○ Disconnect the temperature sensor from J27. Be careful to not pull on the cable but on the connector itself. 		
6	REASSASSEMBLE		
7	○ Connect the new sensor; make sure you respect the polarizing lug to not damage the new sensor.		PC1008 or CF21100.02
8	○ Route the sensor cable outside the enclosure using a gland (add a new compression gland if required).		
9	○ Insert the Power Supply Board PCB.		
10	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
11	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

4.12 SPSU_12_EN: Checking/Replacing I2C I/O Expander.

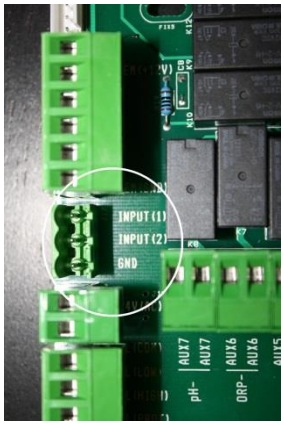
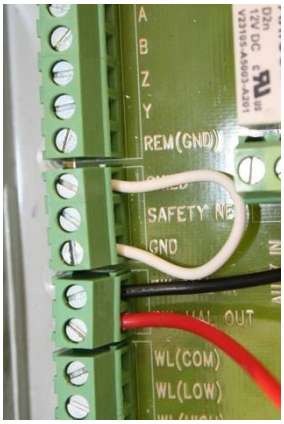
Servicing the Power Supply Unit PSU			Support : L4
This Service Procedure details steps to diagnose et change I2C I/O expander on the PCB101 Board. This Service Procedure is intended to be executed when the PCB101 Board has been changed because of problem revealed by the following Service Procedures: o SPSU_06_EN "Checking level sensor inputs" o SPSU_07_EN "Checking solenoid valve output" o SPSU_08_EN "Checking pump and Aux Relays"		Procedure	**SPSU_12_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Chip extractor - Screwdriver			0:10
Parts required	QTY		Codes
- PCF8574 - PoolCop operating Main Unit on a bench (to check the PCB101 Board) - PCB102 Board (if not on the PCB101 Board to be repaired)	1 1 1		- - PC1604 or CF1100 - PC1105 or CF1120.01

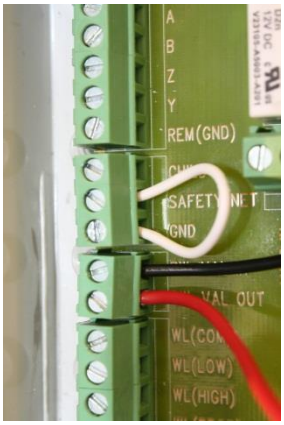
Steps		Cross Ref.	Tool, Part
1	CONNECT		
2	**CAUTION:** This Service Procedure must not be run on field. This Service Procedure is only intended for trained personal.		
3	o Connect the Life Line cable from the Main Unit to the Power Main PCB.		
4	o Plug the Power Supply Board PCB in its connector. 		
5	o Use a 2G0.75 cable to connect the Power Main PCB to 220VAC source.		
6	**WARNING! ELECTRIC SHOCK HAZARD!** From now, there is 220VAC on the power PCB's. Do not touch any metallic part with hands.		

7	REPLACE		
8	○ If the faulty part is related to pump or Aux relays, then, using the extractor, replace the PCF8574 in **vertical position**. 		Chip extractor PFC8574
9	○ If the faulty part is related to level measurement or solenoid valve, then, using the extractor, replace the PCF8574 in **horizontal position**. 		Chip extractor PFC8574
10	VERIFY		
11	○ Depending on the faulty part, verify by following the CHECK instructions of Service Procedures: ○ SPSU_06_EN "Checking level sensor inputs" ○ SPSU_07_EN "Checking solenoid valve output" ○ SPSU_08_EN "Checking pump and Aux Relays" ○ SPSU_13_EN "Checking Inputs"		
12	○ If symptoms persist, the PCB101 Board cannot be repaired. Replace it and dispose the old one in a waste container dedicated to electronic devices.		
End of Service Procedure			

4.13 SPSU_13_EN: Checking Inputs

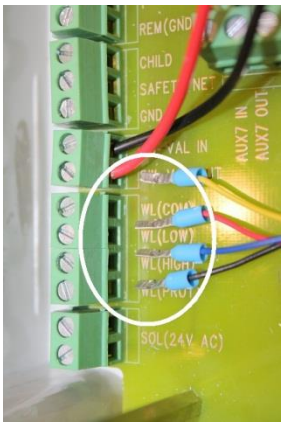
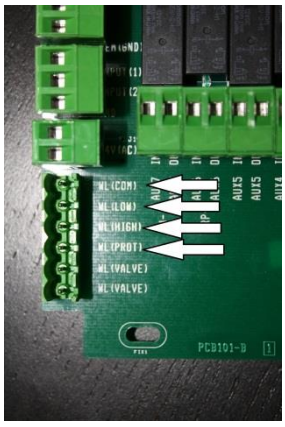
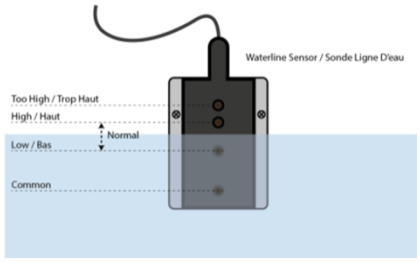
Servicing the Power Supply Unit PSU			Support : L3
This Service Procedure details steps to check the multipurpose inputs		Procedure	**SPSU_13_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - 5.5mm spanner			0:30
Parts required		QTY	Codes
- 0.25mm2, 10cm length wire		- 3	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input1 and Input 2 as **not used**. ○ Note current configuration as you will have to restore it at the end of this Service Procedure.		
3	○ Remove transparent PSU cover. 		Screwdriver
4	○ Depending on version, remove the metallic face plate. 		5.5mm spanner

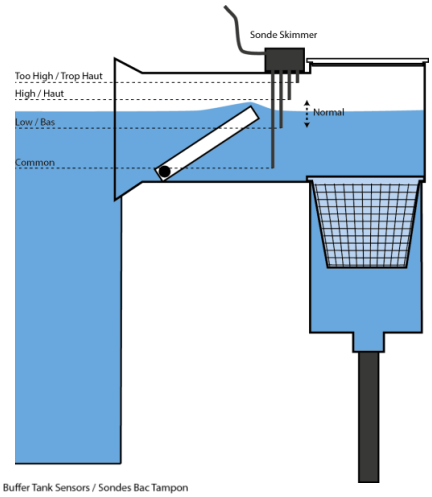
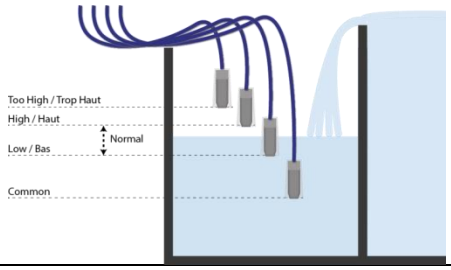
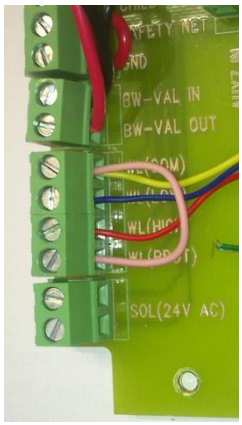
5	○ Disconnect the cables on **CHILD (INPUT1), SAFETY NET (INPUT2) and GND** terminal. Make sure you will be able to reconnect these cables in the same order.  		
6	CHECK		
7	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input1 as "**Disinf consumables**", "**Action when closed**". ○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input2 as "**pH consumables**", "**Action when closed**". ○ Back to main menu, ensure they are no alerts, and clear all present alerts if any.		
8	○ There should not remain or appear alert linked to pH or Disinfection consumables. ○ If there is an alert, then the PSU main PCB needs to be replaced. Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	
9	○ Using a 0.5mm2 wire, establish a connection between **CHILD (INPUT 1) and GND**. 		
10	○ On PoolCop main menu, the alert '**WARN: CONSUMABLE. Check pH consumable**' should appear. ○ If alert doesn't appear, then the PSU main PCB needs to be replaced. ○ Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	

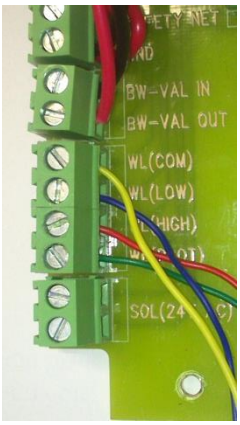
11	○ The alert '**WARN: CONSUMABLE. Check disinfection consumable**' should **not** appear. ○ If alert does appear, then the PSU main PCB needs to be replaced. ○ Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	
12	○ Disconnect the connection between **CHILD (INPUT 1) and GND**. ○ Using 2x0.5mm2 wire, establish a connection between **SAFETY NET (INPUT 2) and GND**. 		
13	○ On PoolCop main menu, the alert '**WARN: CONSUMABLE. Check Disinfection consumable**' should appear. ○ If alert doesn't appear, then the PSU main PCB needs to be replaced. ○ Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	
14	○ The alert '**WARN: CONSUMABLE. Check pH consumable**' should **not** appear. ○ If alert does appear, then the PSU main PCB needs to be replaced ○ Follow "Replacing the Power Main PCB" Service Procedure and stop this procedure.	SPSU_10_EN	
15	REASSEMBLE		
16	○ Reconnect the inputs wires to their respective terminal.		
17	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
18	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
19	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, restore inputs configuration.		
20	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

4.14 SPSU_14_EN: Replacing Water Level Sensor

Servicing the Power Supply Unit PSU			Support : L2	
This procedure describes how to replace/connect the new water level sensor ○ Old sensors are provided with 3 slots (COM, LOW, HIGH) but 4 wires. The extra 4th wire was used for continuity purpose. ○ New sensors are now provided with 4 slots – but still with 4 wires- so that it is possible to detect overfilling and reduce level. Level sensors connection on PoolCop must be adapted according to the firmware version and the numbers of slots on the sensor.			Procedure	**SPSU_14_EN**
			Revision	**01**
Required Tools:			Time:	
- Screw driver - 0.25mm2 electrical wire (5cm)			0:10	
Required Parts		QTE	Codes	
- Water level sensor Or - Water level sensor Or - Water level sensor		- 1 - 1 - 4	- NI2010 - NI3010 - NI4010	
Steps		Reference.	Tool, part	
1	○ **Get ready**			
	1.1 ○ Stop the pump (menu manual control).			
	1.2 ○ Check the firmware version in 'Factory settings' menu			
	1.2 ○ Shutdown the Unit ○	SPSU_01_EN		
	1.3 ○ Remove the metallic face plate (4 dome nuts).			
	1.4 ○ Whatever kind of sensor you use, there are 4 wires to connect to a 4 slots terminal inside the PSU. ○ The terminal labelling in the PSU is the following starting from the upper one: ○ WL(COM): to be connected to the common sensor electrode supposed to stay in water even when level is low ○ WL(LOW): to be connected to the sensor electrode defining the low level in the pool. ○ WL(HIGH): to be connected to the sensor electrode defining the high level in the pool. ○ WL(PROT): to be connected to the sensor electrode defining the very high level in the pool.			
	End of Get ready procedure			

2	○ **Remove old sensor**			
	2.1	○ Disconnect the old sensor from the PSU  			Screwdriver
	2.2	○ Extract the old sensor cable from the grommet			
	End of disassemble procedure			
3	○ **Adapting new sensor on firmware <u>prior to V26.1</u>**			
	3.1	Versions prior to V26.1 are not able to support overfilling detection. Therefore the <u>PROT input must not be connected</u>. The wire coming from the sensor will remain non connected (but insulated).		
	3.2	○ Route the new sensor cable trough the grommet		
	3.3	○ Connect COM, LOW and HIGH wires on the water level terminal.  ○ <u>Do not connect PROT.</u>			screwdriver
	3.4	Make sure to connect wires in the right order depending on the sensor being used:  ○ WL(COM) is Yellow ○ WL(LOW) is Blue ○ WL(HIGH) is Red ○ WL(PROT) is Green			screwdriver NI2010

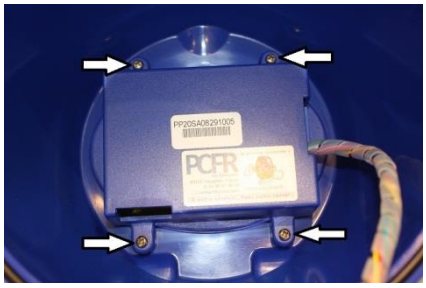
			○ WL(COM) is Black ○ WL(LOW) is Blue ○ WL(HIGH) is Red ○ WL(PROT) is Yellow		NI3010
		Buffer Tank Sensors / Sondes Bac Tampon 	○ WL(COM) is Blue ○ WL(LOW) is Blue ○ WL(HIGH) is Blue ○ WL(PROT) is Blue		NI4010
	3.5	○ With a short wire, connect COM and PROT together. 			Screwdriver Short wire
	3.6	○ Proceed to reassemble (step 5)			
	End of adapting procedure				
4		○ **Adapting new sensor on firmware <u>V26.1 and after</u>**			
	4.1	Starting from V26.1, PoolCop is able to support 4 slots sensor. Overfilling detection (very high level) will only be managed starting from firmware version V27.0 and after. Therefore the wire measuring <u>PROT level must be connected</u> to PoolCop. **<u>3 slots sensors are no more compliant with V27.0 and after.</u>**			
	4.2	○ Route the new sensor cable trough the grommet			

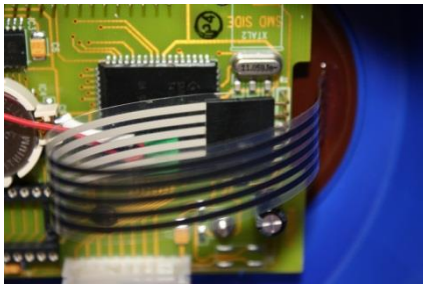
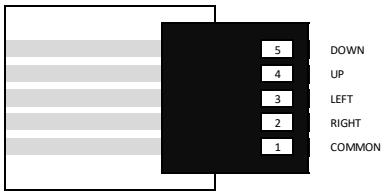
	4.3	○ Connect COM, LOW, HIGH and PROT wires on the water level terminal.  ○ See step 3.4 to identify colors		screwdriver
	4.5	○ Proceed to reassemble (step 5)		
	End of adapting procedure			
5	○ **Reassemble**			
	4.1	○ Put the metallic face plate in place and secure it with the 4 dome nuts		
	4.2	○ Power up the Unit	SPSU_02_EN	
	End of reassembling procedure			
End of Procedure				

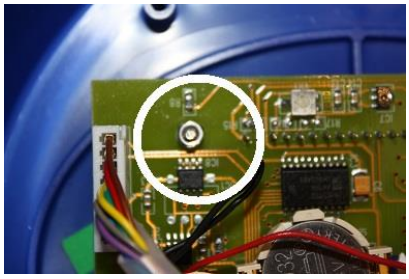
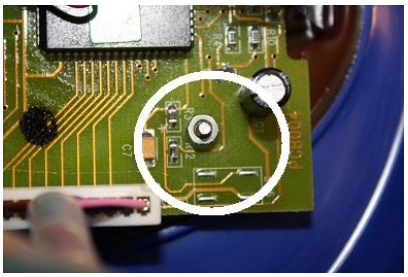
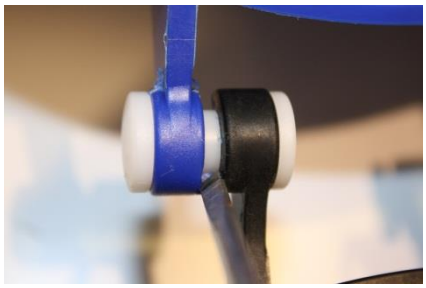
Section 5 SERVICING THE MAIN UNIT

5.1 SMU_01_EN: Checking/Replacing The Keyboard

Servicing the Main Unit			Support : L3
This Service Procedure details steps to check and replace the keyboard. This keyboard is glued on the PoolCop cover and cannot be separate from the cover. In case of damage, keyboard and cover must be replaced together.		Procedure	**SMU_01_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - 5mm spanner - Ohm meter - 2.54mm Male/Male expander			0:30
Parts required	QTY		Codes
- Main Unit cover with Keypad			- PC1604 or CF1221

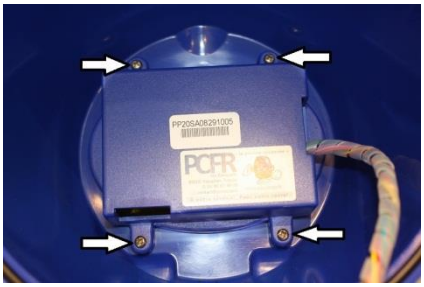
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Open the cover using clips. 		
4	○ Loosen the 4 screws retaining the microprocessor cover and remove this cover. 		Screwdriver

5	○ The keyboard is connected to the PCB004 Board with a flat cable on the right side. Disconnect this flat cable. 		Screwdriver
6	○ DIAGNOSE		
7	○ Connect the 2.54mm M/M expander to the keyboard connector. 		2.54mm M/M expander
8	 ○ With the Ohm meter and without acting on any keypad button check that there is no continuity between any of the 5 terminations. Check every possible combination. ○ If the continuity is proven in one combination, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
9	○ Place the Ohm meter between **COMMON** and **RIGHT**. ○ Return the cover and press the RIGHT down button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
10	○ Place the Ohm meter between **COMMON** and **LEFT.** ○ Return the cover and press the LEFT down button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
11	○ Place the Ohm meter between **COMMON** and **UP**. ○ Return the cover and press the UP arrow button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter

12	○ Place the Ohm meter between **COMMON** and **DOWN**. ○ Return the cover and press the DOWN arrow button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
13	○ Jump to step 20 REASSEMBLE		
14	REPLACE		
15	○ Depending on version, loosen the nuts maintaining the PCB004 Board to the cover.  		5mm spanner
16	**CAUTION:** Be careful to not lose the 2 plastics washers.		
17	○ Remove the PCB004 Board.		
18	○ Using a flat screwdriver, remove the 2 spindles retaining the cover to the main unit base. 		Screwdriver
19	○ Replace the Cover including the spindles.		PC1604 or CF1221
20	REASSEMBLE		
21	○ Install the PCB004 Board in the cover so that the connector for the flat ribbon is on the right side.		
22	○ Fix the PCB004 Board using the plastic washer and the 5mm nuts. ○ Do not over tight; usually hands tighten is enough.		
23	○ Reconnect the flat cable to the PCB004 Board. ○ Be sure to not twist the cable, it must be flat from the cover to the processor Board.		
24	○ Put the processor cover back in place and secure it with the 4 screws.		Screwdriver
25	○ Close the cover using the clips.		

26	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

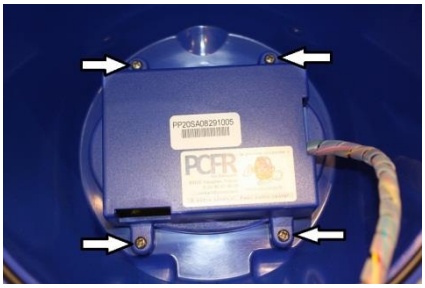
5.2 SMU_02_EN: Checking/Replacing the 3.0V Coin Cell

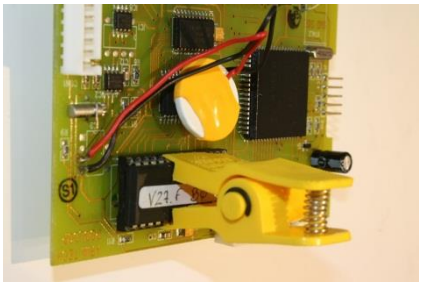
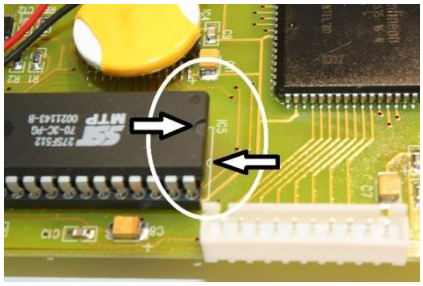
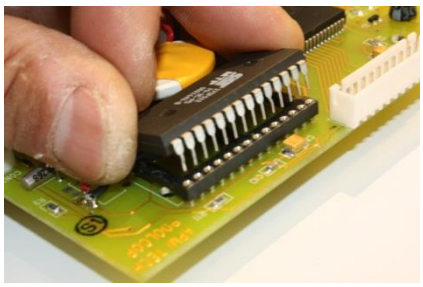
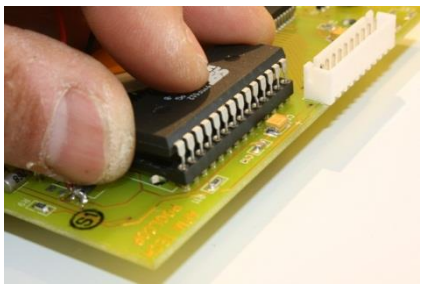
Servicing the Main Unit			Support : L3
This Service Procedure details steps to Check and replace the 3.0V coin cell. This battery is used for PoolCop real time clock.		Procedure	**SMU_02_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - 5mm spanner - Voltmeter			0:20
Parts required	QTY		Codes
- 3V Coin cell CR2032 type	1		-
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN		
3 ○ Open the cover using clips. 			
4 ○ Loosen the 4 screws retaining the microprocessor cover and remove this cover. 			Screwdriver
5 ○ The cell battery is located to the PCB004 Board.  			

6	DIAGNOSE		
7	○ Extract the battery from its holder. ○ Using the Voltmeter, check the battery voltage. ○ If voltage is above 2.9V, no need to replace the cell, otherwise replace it.		Voltmeter Cell CR2032
8	○ Put the processor cover back in place and secure it with the 4 screws.		Screwdriver
9	○ Close the cover using the clips.		Screwdriver
10	○ Follow "Powering up the Unit" Service Procedure.	SPSU_02_EN	
End of Service Procedure			

5.3 SMU_03_EN: Replacing the Firmware

5.3.1 SMU_03a_EN: Replacing the firmware, versions prior to V30

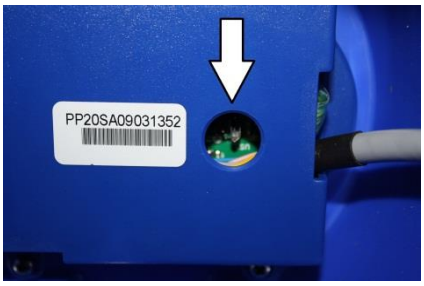
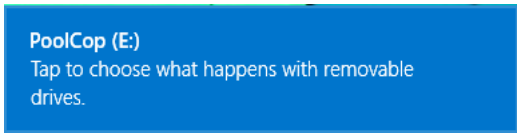
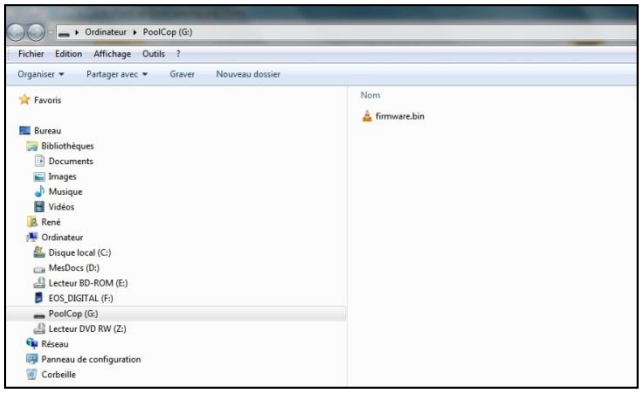
Servicing the Main Unit			Support : L3
This Service Procedure details steps to replace the firmware. Firmware stored on an EEPROM chip plugged into the processor Board for firmware previous to V30.		Procedure	**SMU_03a_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - Chip extractor (version prior to V30.0)			0:20
Parts required	QTY		Codes
- EEPROM with PoolCop firmware			- UG4726
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Take note of every setting entering the different menus. You will need to check them after firmware replacement. ○ Check the firmware version in MENU>CONFIGURATION> FACTORY_SETTINGS. ○ The version id has the following format: ○ Vxx.x-**B**0 for PoolCop ○ Vxx.x-**J**0 for PoolCop **Junior**		
3	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
4	○ Open the cover using clips. 		
5	REPLACING the FIRMWARE on EEPROM (Version Before V30.0)		
6	○ Loosen the 4 screws retaining the microprocessor cover and remove this cover. 		Screwdriver

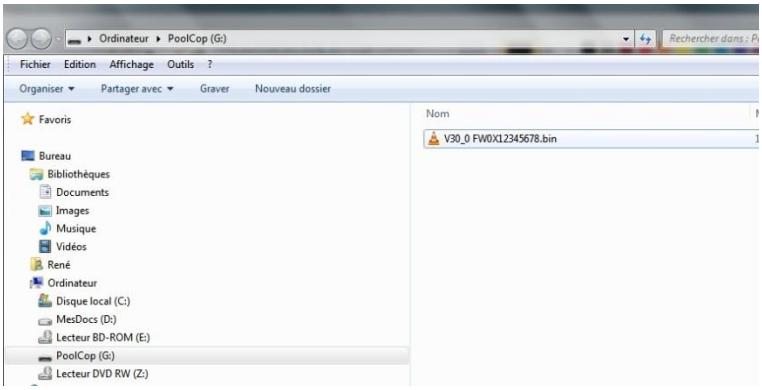
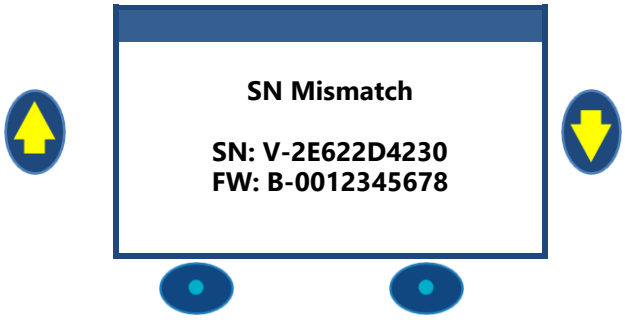
7	○ The firmware EEPROM is located on the left side of the microprocessor board. ○ Using the chip extractor, extract the EEPROM from its holder. 		Chip Extractor
8	○ Present the new chip in front of its holder. Be sure the mark is on the right side. 		UG4726
9	○ Check that all pins are right aligned on both side of the chip. ○ Align by pressing each side on a flat surface if needed. ○ Introduce partially the upper pins row. 		
10	○ Then introduce the lower row.  ○ Press gently to introduce both rows in the holder. ○ Check there is no twisted pin.		PC1111
11	○ Put the processor cover back in place and secure it with the 4 screws.		Screwdriver

12	REASSEMBLE		
13	○ Close the cover using the clips.		
14	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
15	○ Check the firmware version at start up, a welcome message should be displayed as well as the firmware version.		
16	○ Entering MENU>CONFIGURATION>FACTORY_SETTINGS, Restore factory settings parameters.		
17	○ Restore parameters as they were before changing the firmware.		
18	○ Proceed to pH calibration if pH control is installed. Follow “Calibrating/replacing pH sensor”.	SMU_07_EN	
End of Service Procedure			

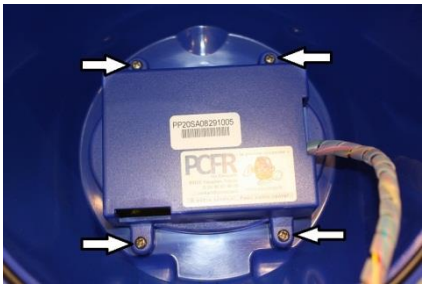
5.3.2 SMU_03B_EN: REPLACING THE FIRMWARE, VERSION V30 AND LATER

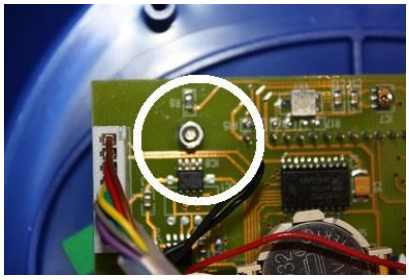
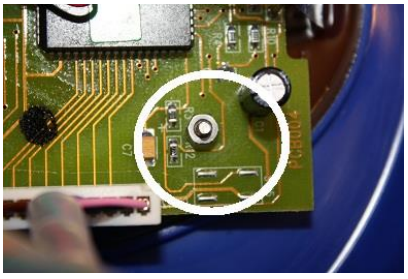
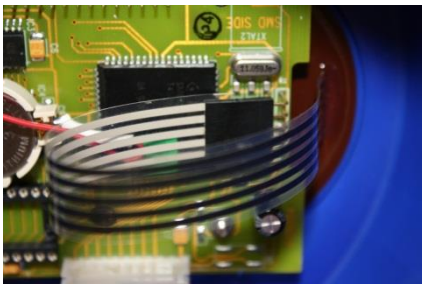
Servicing the Main Unit			Support : L3
This Service Procedure details steps to replace the firmware stored into flash memory for firmware V30 and later.		Procedure	**SMU_03b_EN**
		Revision	**01**
Tools & consumables required:			Time:
- USB-micro USB cable - Laptop with operating system Windows7 or later - **PoolCop_Vxx_x.bin** or **PoolCop_Junior_Vxx_x.bin** file			0:10
Parts required		QTY	Codes
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Take note of all settings. You will need to check them after firmware upgrade. ○ Check the firmware version in MENU>CONFIGURATION> FACTORY_SETTINGS. ○ The version id has the following format: ○ Vxx.x-**B**0 for PoolCop ○ Vxx.x-**J**0 for PoolCop **Junior**		
3	**CAUTION:** Make sure to use the correct firmware for your PoolCop. **PoolCop** and **PoolCop Junior** firmware versions are not interchangeable. Loading a **PoolCop** firmware into a **PoolCop Junior** or a **PoolCop Junior** firmware into a **PoolCop** could lock the device.		
4	○ Shut down PoolCop using the switch on the left side of the Power Supply Unit.		
5	○ Open the cover using clips. 		
6	REPLACING the Firmware		

7	○ Remove the micro USB cap (located behind the screen on the internal side of cover). 		
8	○ Connect the micro USB cable on the CPU board, and the other end to your computer. 		USB cable
9	○ On the computer screen, a new drive "PoolCop" will show up:  ○ Choose to view the content with the file explorer ○ **Note:** the drive logical name (**E:** here) may change according to the computer configuration.		Computer
10	○ The "PoolCop" drive contains a single file named "firmware.bin". Delete this file: 		

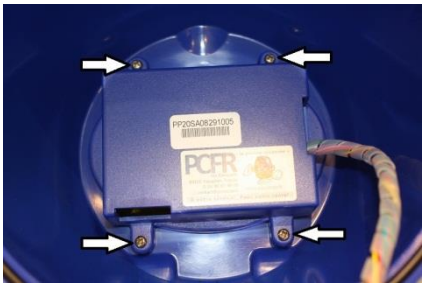
11	○ Using the file explorer, copy the provided *.bin firmware file into the PoolCop drive: 		*.bin file
12	○ Once the copy is done, eject the drive (as you would for an USB key): 		
13	○ Remove the USB cable from the CPU board and replace the cap.		
14	REASSEMBLE		
15	○ Close the cover using the clips.		
16	○ Power up PoolCop using the switch on the left side of the Power Supply Unit.		
17	○ Check the firmware version at start up, a welcome message will be displayed as well as the firmware version. ○ However if the following error message is displayed, the firmware will not run on this PoolCop. Contact your reseller with the SN number. Here the version is: **V-2E622D4230.**  ○ PoolCop will remain inactive until a compatible firmware version is loaded.		
18	○ Review the settings.		
End of Service Procedure			

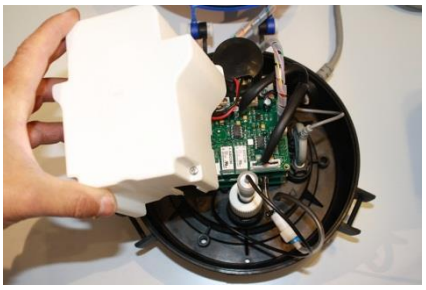
5.4 SMU_04_EN: Replacing the PCB004 Board or LCD Screen

Servicing the Main Unit			Support : L2
This Service Procedure details steps to check and replace the PCB004 Board or the LCD screen. LCD screen is soldered on the micro board and cannot be separate.		Procedure	**SMU_04_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver			0:20
Parts required		QTY	Codes
- PCB004 Board - Spanner 4mm - Chip extractor			- PC1103 or CF1220.01
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Take note of every setting entering the different menus. You will need to restore settings after changing the EEPROM.		
3	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
4	○ Open the cover using clips. 		
5	○ Loosen the 4 screws retaining the microprocessor cover and remove this cover. 		Screwdriver
6	○ Disconnect the keyboard flat cable. ○ Disconnect the 2 connection cables.		

7	○ Depending on version, loosen the nuts maintaining the PCB004 Board to the cover.  		4mm spanner
8	**CAUTION:** Be careful to not lose the 2 plastics washers.		
9	○ Remove the PCB004 Board.		
10	○ If the board was provided without EEPROM, then follow "Replacing the firmware" in order to replace the EEPROM	SMU_03_EN	
11	REASSEMBLE		
12	○ Install the Micro Board in the cover so that the connector for the flat ribbon is on the right side.		PC1103 or CF1220.01
13	○ Fix the processor Board using the plastic washer and the 5mm nuts. ○ Do not over tight; usually hands tighten is enough.		
14	○ Reconnect the flat keyboard cable. Be sure to not twist the cable, it must be flat from the cover to the processor Board.  ○ Reconnect the 2 connections cables to the Micro Board.		
15	○ Put the processor cover back in place and secure it with the 4 screws.		Screwdriver 4mm spanner
16	○ Close the cover using the clips.		
17	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
18	○ Entering MENU>CONFIGURATION>FACTORY_SETTINGS, Restore factory settings parameters.		
19	○ Restore parameters as they were before changing the firmware.		
20	○ Proceed to pH calibration if pH control is installed. Follow “Calibrating/replacing pH sensor”.	SMU_07_EN	
End of Service Procedure			

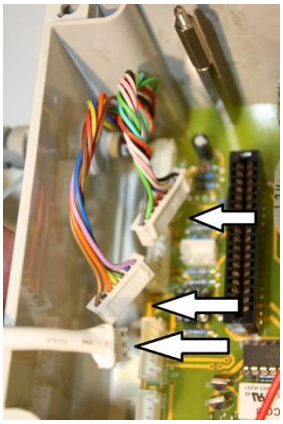
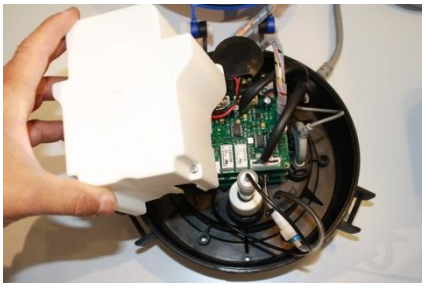
5.5 SMU_05_EN: Replacing the Connection Cable

Servicing the Main Unit			Support : L2
This Service Procedure details steps to check and replace the connection cable. This cable connects the PCB004 Board to the electronics Board set. Depending on versions, the connection can be a pair of cables (8 and 10 strands) or a single 18 strand cable.		Procedure	**SMU_05_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - 5mm spanner			0:10
Parts required	QTY		Codes
- Connection cable micro (8+10 strands or 18 strands) -			- PC1009 or CF1220.03
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Open the cover using clips. 		
4	○ Loosen the 4 screws retaining the microprocessor cover and remove this cover.  ○ Disconnect the 2 terminations of the connection cable from the microprocessor PCB.		Screwdriver

5	○ Using the screwdriver, remove the electronics cover.  Disconnect the 2 terminations of the connection cable from the PCB003 PCB		Screwdriver
6	REASSEMBLE		
7	○ Connect the new cable on both end (PCB003 and PCB004). ○ Be sure to respect the polarizing plug.		PC1009 or CF1220.03
8	○ Put the electronics cover back in place and secure it with the 4 screws.		Screwdriver
9	○ Put the processor cover back in place and secure it with the 4 screws.		Screwdriver
10	○ Close the cover using the clips.		
11	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

5.6 SMU_06_EN: Replacing Life Line Cable

Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the Life Line cable. This cable connects the PSU to the connection Board.		Procedure	**SMU_06_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - 5.5mm spanner			0:10
Parts required	QTY		Codes
- Life Line cable (2m) Or - Life Line cable (4m) -			- PC1001 Or - CF1210.05
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN		
3 ○ Depending on version, remove the metallic face plate.  			5.5mm spanner
4 ○ Extract the PCB102 Board by pulling it gently. 			

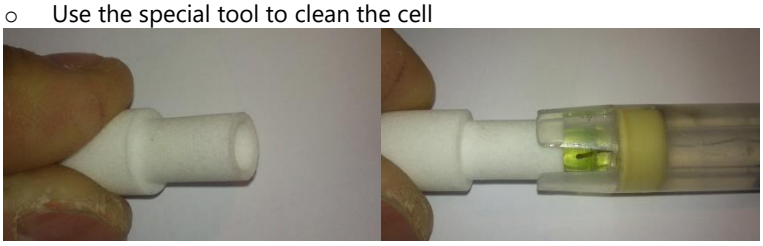
5	○ Disconnect the Life Line cable from the PCB101 Board. ○ Route the cable outside the enclosure by loosen the compression gland.  Note: temperature sensor can be removed if it helps to disconnect Live Line Cable.		
6	○ Open the cover using clips. 		
7	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
8	○ Disconnect the Life Line cable from the PCB003 Board and gently extract the compression gland from the main base. 		

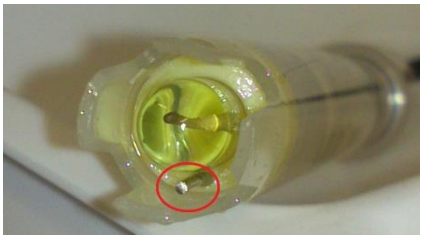
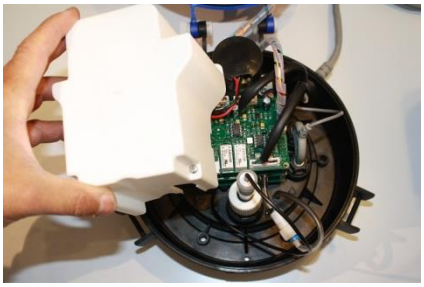
9	REASSEMBLE		
10	○ Route the new Life Line cable into the main base and secure the compression gland.		PC1001 / CF1210.05
11	○ Connect the Life Line cable to the PCB003 Board. ○ Be sure to respect the polarizing plug.		
12	○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
13	○ Close the cover using the clips.		
14	○ Route the Life Line cable to the PSU enclosure; enter the enclosure using the compression gland.		
15	○ Connect the Life Line to the PCB101 Board.		
16	○ Re Install the PCB102 Board in its socket.		
17	○ Put back the face plate and secure it with its 4 dome nuts.		5.5mm spanner
18	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

5.7 SMU_07_EN: Cleaning/Calibrating/Replacing the pH/ORP Sensor

Servicing the Main Unit			Support : L2
This Service Procedure details steps to calibrate the pH using a buffer solution, clean or replace the sensor. **Note:** When the sensor is assembled to the PoolCop, it's possible to calibrate the sensor 'on line' using the pool water pH as a reference without needing to extract the sensor from its holder. **Note**: Probes are sensitive to leakage currents. Always make sure that the pool water is **properly bounded to earth (<20 Ohms)**. The sensitive part of the ORP probe can be contaminated in the presence of metals in water. Always treat the water with **metal fixer before installing** the probe.			Procedure: **SMU_07_EN** Revision: **01**
Tools & consumables required: - Screwdriver - pH 7.0 buffer solution - pH 4.0 buffer solution - ORP 470mV buffer solution - Cotton bud - Household cleaner			Time: 0:15
Parts required		QTY	Codes
- pH or pH/Redox sensor		- 1	- CO1901 (pH) - or CO1902 (pH + ORP Pt) - or CO1903 (pH + ORP Au)
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow in the pool or buffer tank when pump is stopped, close the manual valves. ○ Disconnect power to the pump and auxiliaries (booster pump...).		
3	○ Using PoolCop MENU>MANUAL CONTROL>ROTATE_VALVE, turn the valve to CLOSE position. ○ Loosen the valve sight glass and make sure all the water inside the valve housing is drained.		
4	○ Open the cover using clips. 		

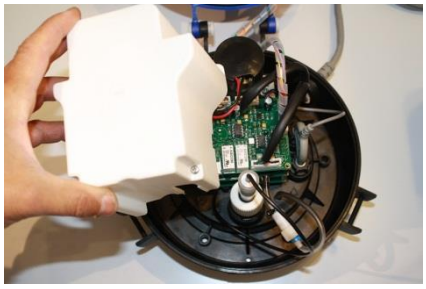
5	○ Loosen the pH sensor and remove from its holder. 		
6	**CAUTION:** Proceed progressively and continuously check there is no risk of water projection when loosen. If so, tighten the pH sensor immediately and check step 3.		
7	○ For sensor replacement jump to step 22 REPLACE.		
8	CALIBRATE pH		
9	○ Put the sensor in pH7 buffer solution and stir for few seconds.		pH7 buffer solution
10	○ Using MENU>MAINTENANCE>pH_CALIBRATION, ask for calibration with pH 7.0. ○ After calibration, PoolCop reads pH automatically. ○ Should the pH be unstable or calibration impossible, proceed to sensor replacement. See step 22 REPLACE.		
11	○ Remove sensor from buffer solution. ○ Rinse with clear water ○ Put the sensor in pH4 buffer solution and stir for few seconds.		pH4 buffer solution
12	○ Using PoolCop MENU>MAINTENANCE>MEASURE PH, ask for pH reading. ○ If the pH is stable and below pH4.5, go to step 28 REASSEMBLE, otherwise follow the cleaning procedure as describe in step 13 CLEANING the pH cell.		

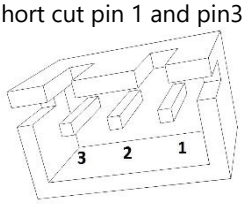
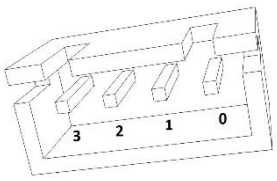
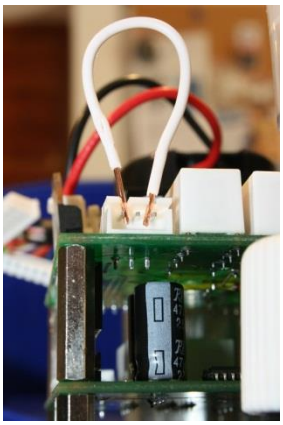
13	CLEANING the pH cell		
14	○ If the pH is unstable or measurement reacts slowly, the cell may be partially clogged. ○ Use the special tool to clean the cell  ○ Carefully apply the tool on the glass cell and perform a few rotations by maintaining the tool between your thumb and forefinger. ○ Repeat calibration procedure from step 8. If cleaning didn't improve measurement, proceed to probe replacement as described in step 22 REPLACEMENT.		Cleaning tool
15	**CAUTION:** Make sure to not damage the metallic rod (pH+ORP sensor) during the cleaning.		
16	CHECKING ORP SENSOR		
17	○ Put the sensor in ORP 470mV buffer solution and stir for few seconds.		ORP 470mV buffer solution
18	**CAUTION** Make sure the power has been removed from the pump so that it cannot start.		
19	○ Using MENU>MANUAL CONTROL>PUMP, start the pump to activate ORP reading. ○ Reading must quickly stabilize around 470mV. A+/- 30mV error is acceptable. ○ Using MENU>MANUAL CONTROL>PUMP, stop the pump. ○ If reading is correct, go to step 28 REASSEMBLE. ○ If cleaning has not already been performed go to step 20 CLEANING sensitive part of ORP. ○ Otherwise replace the sensor as described in step 22 REPLACE.		

20	CLEANING sensitive part of ORP		
21	○ The sensitive part of the ORP sensor (red circle below) is likely to be contaminated by presence of metals in the water. In such cases, the ORP sensor does not react. After completing a water treatment based on metal fixer for the pool, it may be useful to decontaminate the ORP probe if it still does not react within days after the treatment.  ○ Using a cotton bud with a mildly abrasive household cleaner (like Jif cream cleaner), gently rub the metal rod to rid the metal oxides. Rub the best all sides. ○ Then rinse the probe thoroughly with fresh water. ○ Repeat step 16 CHECKING ORP SENSOR		Cotton bud Household cleaner
22	REPLACE		
23	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
24	○ Disconnect the pH sensor from the PCB003 Board 		
25	○ Connect the new pH sensor to the connection Board. ○ Be sure to respect the polarizing plug. ○ Note: there are 6 reference for pH sensors: Type of data / 3 strands / 4 strands pH sonly / CO1901 / SO4901 pH and ORP for liquid chlorine / CO1902 / SO4902 pH and ORP for salt water chlorinators / CO1903 / SO4903		CO1901, CO1902, CO1903 Or SO4901, SO4902, SO4903

26	○ When delivered, the sensor is provided with accessories. Please check the order: ○ First should be the securing cap to the sensor. ○ Next, the star lock grab ring, the grab ring must be between 9-9.5cm from the sensor tip. ○ Next, the first compression ring with conical shape ○ Next, the second compression ring with O footprint. Note : the two compression rings may be combined in a single one. ○ Last, the O-ring. 		
27	○ Proceed to sensor calibration, go to step 8 CALIBRATE.		
28	REASSEMBLE		
29	○ Put the sensor into its housing and secure it with the screw. Make sure to tighten enough in order to avoid leakage.		
30	○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
31	○ Reconnect power to the pump and auxiliaries. ○ Start the filtration Pump in PoolCop MENU>MANUAL CONTROL> PUMP. ○ When the pump is primed, check leakage around the sensor. ○ Leave the filtration running for a couple of minutes. ○ Stop the pump. ○ In MENU>MAINTENANCE>MEASURE pH, ask for pH reading ○ Check that pH reading is stable and representative. ○ If not, go back to Trouble Shooting Procedures “Ph measurement is inconsistent “ and “ pH measurement is stuck”		TWT_01_EN TWT_02_EN
32	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
33	○ Close the cover using the clips.		
End of Service Procedure			

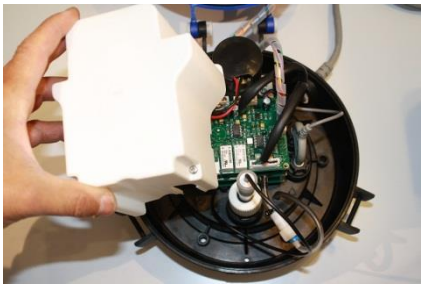
5.8 SMU_08_EN: Checking pH Reading Circuitry

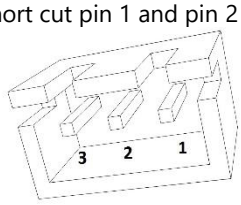
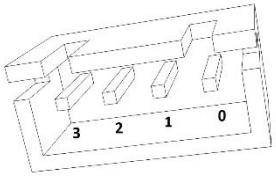
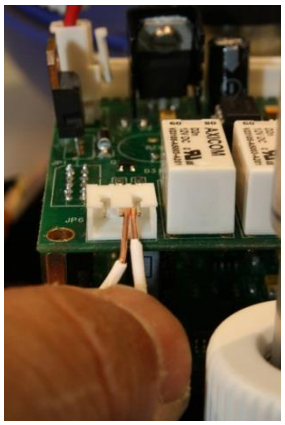
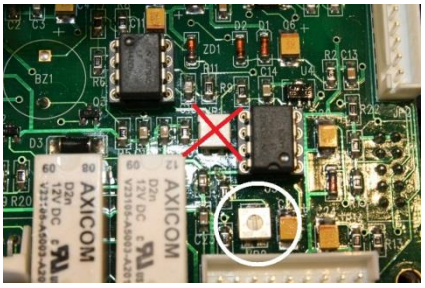
Servicing the Main Unit			Support : L4
This Service Procedure details steps to check pH reading circuitry.			Procedure: **SMU_08_EN**
			Revision: **01**
Tools & consumables required:			Time:
- Voltmeter - Voltage generator - JST HX3 Connector			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump.		
3	○ Open the cover using clips. 		
4	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
5	○ Disconnect the pH sensor from the connection PCB. 		
6	CHECK		

7	○ Short cut pin 1 and pin3 of the pH Board connector.     ○ Using PoolCop MENU>MAINTENANCE>MEASURE PH, ask for pH reading. ○ If the pH is unstable, follow "Replacing PCB003 Board" Service Procedure and stop this procedure. ○ If the **reading is not pH7**, use the potmeter on PCB003 Board to adjust reading at pH7.0. 	SMU_10_EN	
8	**CAUTION:** Do not exceed +/-500mV when generating signal to the pH input. The electronic Board could be damaged.		
9	○ Connect the voltage generator between pin 1 and pin 3 of the connector. ○ Pin 1 is the negative input (reference) ○ Pin 3 is the positive input ○ In order to facilitate the test, you can use a JST HX3 connector to wire the voltage generator in.		Voltage generator
10	○ Generate **-177mV** (negative value) on the input. ○ Using PoolCop MENU>MAINTENANCE>MEASURE PH, ask for pH reading. ○ If the pH is unstable or **above pH4.5**, follow "Replacing connection PCB" Service Procedure and stop this procedure.	SMU_10_EN	Voltage generator

11	○ Generate **+177mV** (positive value) to the sensor. ○ Using PoolCop MENU>MAINTENANCE>MEASURE PH, ask for pH reading. ○ If the pH is unstable or **below pH9.0**, follow "Replacing connection PCB" Service Procedure and stop this procedure.	SMU_10_EN	
12	REASSEMBLE		
13	○ pH input circuitry is calibrated and correct. ○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
14	○ Close the cover using the clips.		
15	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

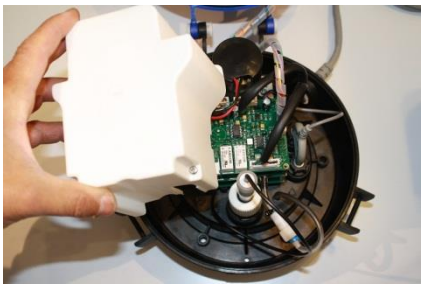
5.9 SMU_09_EN: Checking ORP Reading Circuitry

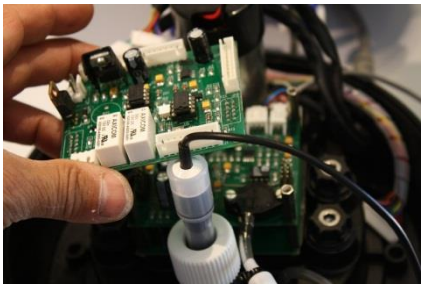
Servicing the Main Unit			Support : L4
This Service Procedure details steps to check ORP reading circuitry.			Procedure: **SMU_09_EN**
			Revision: **01**
Tools & consumables required:			Time:
- Voltmeter - Voltage generator - JST HX3 Connector			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump.		
3	○ Open the cover using clips. 		
4	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
5	○ Disconnect the pH/ORP sensor from the connection PCB. 		
6	CHECK		

7	○ Short cut pin 1 and pin 2 of the pH Board connector.     ○ Using PoolCop MENU>MANUAL CONTROL>PUMP, ask for pump to run. ○ ORP reading should be zero or should slowly go to zero. Remember that ORP value is filtered, so increase and decrease are slowed down. ○ Should the ORP be unstable, or far from zero, follow "Replacing connection PCB" Service Procedure and stop this procedure.	SMU_11_EN	
8	**CAUTION:** Do not exceed +1500mV when generating signal to the pH input. The electronic Board could be damaged.		
9	○ Connect the voltage generator between pin 1 and pin 2 of the connector1 ○ Pin 1 is the negative input (reference) ○ Pin 2 is the positive input ○ In order to facilitate the test, you can use a JST HX3 connector to wire the voltage generator in.		Voltage generator
10	○ Generate 800mV (positive value) on the input. ○ Make sure the pump is still running. ○ ORP should slowly rise to 800mV. ○ If ORP is unstable, follow "Replacing PCB003 Board" Service Procedure and stop this procedure. ○ If the ORP is less than 790mV or over 810mV, use the mini potmeter to calibrate at 800mV +/-5mV. 	SMU_10_EN	Voltage generator

11	REASSEMBLE		
12	○ ORP reading is calibrated and correct. ○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
13	○ Close the cover using the clips.		
14	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

5.10 SMU_10_EN: Replacing PCB003 Board

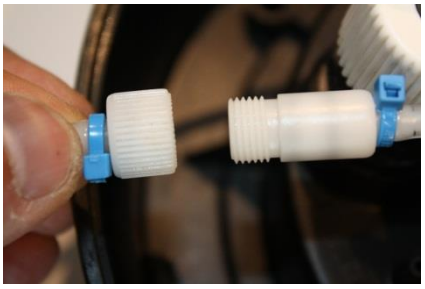
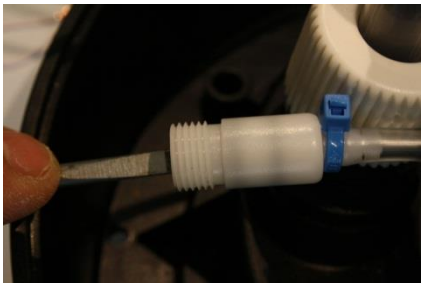
Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the Connection PCB. This Board is the upper Board in the mezzanine arrangement of Boards under the white cover. **Warning**: there are 2 versions of this board: o For 3 wires sensors codes CO1901, CO1902, CO1903: CF1217.01 o For 4 wires sensors codes SO4901, SO4902, SO4903: CF1217.02			Procedure **SMU_10_EN** Revision **01**
Tools & consumables required:			Time:
- screwdriver - 5mm spanner			0:10
Parts required		QTY	Codes
- Connection PCB		- 1	- CF1217.01 or CF1217.02
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	o Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	o Open the cover using clips. 		
4	o Using the screwdriver, remove the electronics cover. 		Screwdriver
5	o Disconnect the Life Line cable. o Disconnect the connection cables. o Disconnect the motor cable. o Disconnect the pH/ORP cable.		
6	o Using the screwdriver, remove the 2 screws on the rear side of the PCB (motor side).		Screwdriver

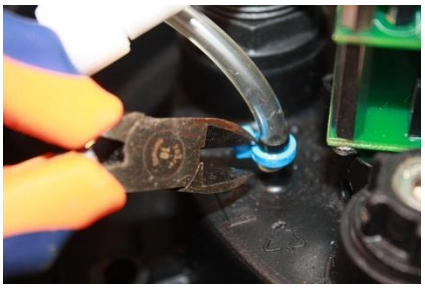
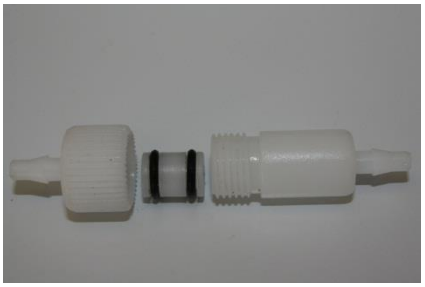
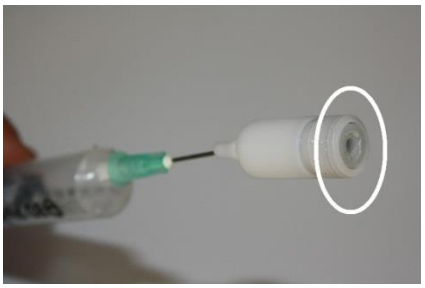
7	○ Gently pull the PCB up, until its extraction from the board on the underneath level. 		
8	○ REASASSEMBLE		
9	**CAUTION:** Make sure of the correct orientation, and push it gently on the connectors.		
10	○ Put the new PCB003 Board in place.		CF1217.01 or CF1217.02
11	○ Using the screwdriver, gently tighten the 2 screws on the rear side of the PCB.		Screwdriver
12	○ Reconnect the Life Line cable from the connection PCB. ○ Reconnect processor cables from the connection PCB. ○ Reconnect the motor connector from the connection PCB. ○ Reconnect the pH/ORP connector from the connection PCB.		
13	○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
14	○ Close the cover using the clips.		
15	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
End of Service Procedure			

5.11 SMU_11_EN: Checking/replacing Pressure Sensor

Servicing the Main Unit			Support : L3
This Service Procedure details steps to check and replace the pressure sensor.		Procedure	**SMU_11_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - side cutter - 5mm spanner			0:30
Parts required	QTY		Codes
- Pressure sensor piston - Piston O-ring - Cap O-ring - Silicon Oil 350cst (5ml) - Syringe10ml - 2mm collars - Rags	- 1 - 2 - 1 - 1 - 1 - 2 - As needed		- PC2700 or CF1214 - JT0010 - JT0009

Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed. ○ Using PoolCop MENU>MANUAL CONTROL>AUXILIARIES, stop all running auxiliaries, if any.		
3	○ Disconnect power to pump and auxiliaries and make sure no external electrical sources may energize them.		
4	○ Using PoolCop MENU>MANUAL CONTROL>ROTATE_VALVE, turn the valve to CLOSE position. ○ Loosen the valve sight glass and make sure all the water inside the valve housing is drained.		
5	○ Open the cover using clips. 		

6	○ The pressure cylinder is sealed with a screwed cap. ○ Loosen the cap will give access to the piston inside the cylinder.  ○ At this stage, check for any debris inside the cylinder which may block the piston travel. Clean if necessary ○ Check also the status of O-ring inside the cap. Replace if damaged.		JT0009
7	CHECK		
8	○ Using the screwdriver, gently push on the piston.  ○ Make sure the piston does not go to the bottom of the cylinder. This can be checked looking at the piston O-rings by transparency; they must be located approximately in the middle of the cylinder. ○ If not correct, go to step 11 to ADD OIL.		Screwdriver
9	○ On the LCD screen, check the response of the pressure displayed according to the pressure you apply on the piston. ○ If residual pressure remains without any effort on the piston, go to step 11 to ADD OIL. ○ In case of any doubt, proceed to PCB replacement. Follow "Replacing PCB002 Board" Service Procedure and stop this procedure.	SMU_14_EN	
10	○ Check the tubing coming from the main base. Some small object may block the entry. ○ If needed, cut the collar and disconnect the tube from the base for cleaning.  ○ Check is done, go to step 18 to REASSEMBLE		Side cutter Rags

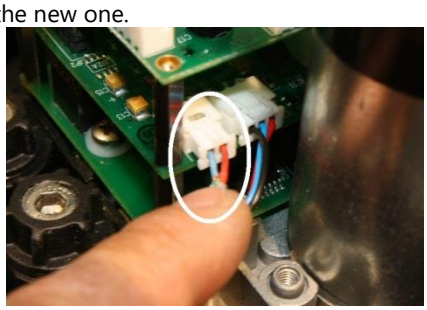
11	ADD OIL		
12	○ Cut the collar and disconnect the tube from the. 		Side cutter
13	○ Using a thin screw driver, push the piston back outside the cylinder. Use rags to recover oil. ○ Following picture shows cap, piston and cylinder: 		Screwdriver Rags
14	○ Inspect piston/cylinder for any damage/stripe. ○ If ok, change piston O-rings, if not change the hole piston. ○ Clean cylinder.		2 x JT0010 1 x PC2700 or CF1214 Rags
15	○ Fill the syringe with 2ml of oil. ○ Put the needle deep in the electronic sensor (black part) located on the PCB002 Board and eliminate every air bubble form inside the electronic sensor. ○ **This is critical for reliability.**		Syringe Silicon Oil
16	○ Introduce the piston in the cylinder so that the top is aligned with cylinder thread.  ○ Introduce the needle by the tube end of the cylinder and fill it with oil. Make sure there is not air bubble inside. ○ Take the needle off and push the piston so that no air remains. The piston should be located in the middle of the cylinder.		Syringe Silicon Oil
17	○ Reconnect the cylinder to the tube. ○ Secure the assembly with a collar. ○ Restart a check from step 7 to CHECK.		Collar Side cutter
18	REASSEMBLE		

19	○ Verify the presence and status of cap O-ring. ○ If O-ring is damage use the cap from the part PC2700. ○ Tighten the cap to the cylinder.		PC2700
20	○ Reassemble the tube to the base (if previously removed) and secure it with a collar.		Collar Side cutter
21	○ Close the cover using the clips.		
22	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
23	○ Check for the pressure reading. ○ Adjust pressure settings in pump parameters and cleaning filter parameters if needed.		
End of Service Procedure			

5.12 SMU_12_EN: Checking Ionizer Current/Banana Plug

Servicing the Main Unit			Support : L3
This Service Procedure details steps to check ionizer current. This Service Procedure is intended to be use when ionizer kit is properly installed in the Main Unit.		Procedure	**SMU_12_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - Voltmeter			0:20
Parts required	QTY		Codes
- Banana plug (should be already installed in the Main Unit) - 100Ohms resistor 1 Watts	- 2 - 1		- PC0901.03

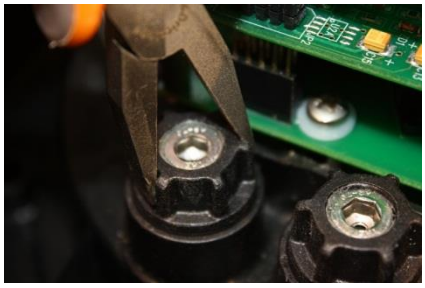
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Open the cover using clips. 		
3	○ Disconnect both ionizer electrodes banana plugs located on each side of the white cover. 		
4	○ Wrap the 100 Ohms resistor around a banana plug as shown in the picture. 		100 Ohms resistor (PC0901.03 optional)

5	○ Using PoolCop MENU>WATER_AND_TREATMENT>IONISATION, configure ionization: ○ AUTO MODE to OFF. ○ CURRENT to HIGH ○ Using PoolCop MENU>MANUAL_CONTROL>PUMP, ask the pump to stop. ○ Using PoolCop MENU>FILTRATION TIMER, set timers so that pump is ask to run on cycle1 or cycle 2. When leaving this menu, ensure that pump starts. Note: remember the settings as you will need to restore them later.		
6	○ Ionizer current will rise slowly to be in 90mA-110mA range. This could take up to 2 minutes. ○ When current is rising, you should sense the resistor heating.		
7	○ After 2 minutes, using MENU>WATER_AND_TREATMENT> IONISATION, check the current value. ○ If value in the range 90ma-110mA, ionizer current control device is functioning properly; jump to step 11 to REASSEMBLE. ○ Otherwise, repeat form step 4 using the second banana plug, if not already checked.		
8	**CAUTION:** Check the correct orientation, and push it gently into the connectors.		
9	○ If one banana plug is malfunctioning, it must be replaced. ○ Using the screwdriver, remove the electronics cover. ○ Disconnect banana plug from the rear of the PCB002 Board and connect the new one.  ○ Repeat form step 4 using the new banana plug.		Screwdriver PC0901.03
10	○ If no current appears with new banana plug, the Analog PCB must be replaced. ○ Follow "Replacing Analog PCB" Service Procedure and stop this procedure.	SMU_14_EN	
11	REASSEMBLE		
12	○ Put the electronics white cover back in place and secure it with the 4 screws.		
13	○ Close the cover using the clips		
14	○ Enter PoolCop MENU>TIMER FILTRATION and restore previous timer settings. ○ Enter PoolCop MENU>WATER_AND_TREATMENT> IONISATION and restore previous settings.		
End of Service Procedure			

5.13 SMU_13_EN: Replacing Ionizer Copper Electrodes

Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace ionizer electrodes. These electrodes are consumables part and need to be changed on regular basis depending on the pool size and water conditions.		Procedure	**SMU_13_EN**
		Revision	**01**
Tools & consumables required:			Time:
- flat nose pliers - 5mm Allen key			0:20
Parts required	QTY		Codes
- Copper electrodes replacement kit - Silicon paste	- 1		- CO0901

Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the manual valves. ○ Disconnect power to the pump and auxiliaries (booster pump...)		
3	○ Using PoolCop MENU>MANUAL CONTROL>ROTATE_VALVE, turn the valve to CLOSE position. ○ Loosen the valve sight glass and make sure all the water inside the valve housing is drained.		
4	○ Open the cover using clips. 		
5	○ On each side of the Main Unit, Disconnect the banana plugs from the copper electrode plug. 		
6	REPLACE		

7	**CAUTION:** Proceed progressively and continuously check there is no risk of water projection when loosen. If so, tighten the plug immediately and check step 3.		
8	○ Using the flat nose pliers, loosen the copper electrode plug. ○ Once loosen, use the 5mm Allen key to remove totally. ○ Repeat for each 4 plugs. 		flat nose pliers 5mm Allen key
9	For each electrode: ○ Using the 5mm Allen key, remove old worn copper electrode from the screw. ○ Clean the screw and the plug. ○ Remove old O-ring gasket from the plug. This gasket may still be located inside the Main Unit. ○ Put a drop of silicon past on the top of the new electrode (thread side) and mount this electrode on the cap using the screw. ○ Tighten firmly. ○ Add a new O-ring gasket.		CO0901 5mm Allen key Silicon paste
10	REASSEMBLE		
11	**CAUTION:** Do not use 5mm Allen key to tighten, but better choose flat noise pliers. Hand tightening is not sufficient to prevent leaks.		
12	○ Screw each electrode plug on the Main Unit.		flat nose pliers
13	○ Reconnect the banana plugs.		
14	○ Close the cover using the clips.		
End of Service Procedure			

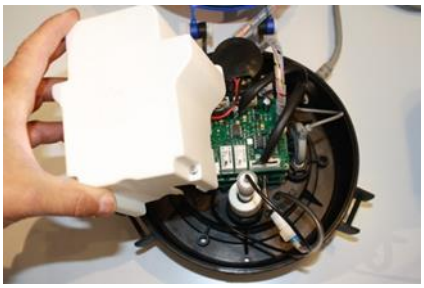
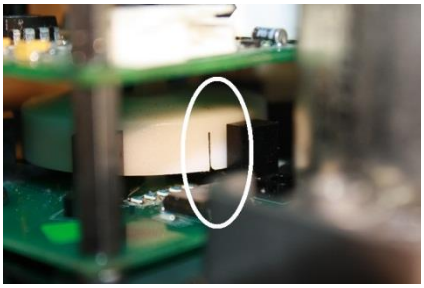
5.14 SMU_14_EN: Replacing the PCB002 Board

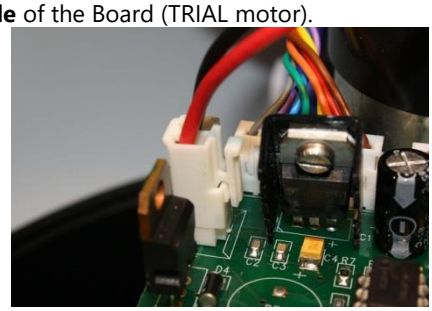
Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the PCB002 board. This Board is the middle Board in the mezzanine arrangement of Boards under the white cover.		Procedure	**SMU_14_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 5mm spanner - side cutter -			0:15
Parts required	QTY		Codes
- PCB002 Board 2mm collar	- 1 - 1		- PC1107.01 or CF1216.01

Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow DISASSEMBLE part of "Replacing connection PCB" Service Procedure.	SMU_10_EN	
3	○ Disconnect the water temperature sensor from the rear side of the PCB002 Board. ○ Disconnect the 2 connectors to ionizer banana plug on the rear side of the PCB002 Board (if any). 		
4	○ Cut the collar retaining the pressure piston tube to the Main Unit and disconnect the tube. 		5mm spanner
5	○ Loosen the 4 spacers on the PCB002 Board. 		5mm spanner
6	○ Gently pull the PCB up, this will disconnect it from the connectors on the solder side.		
7	REASSEMBLE		

8	**CAUTION:** Make sure to respect the correct orientation, and push it gently into the connectors located on the solder side.		
9	○ Put the new PCB in place.		PC1107.01 or CF1216.01
10	○ Tighten the 4 spacers on the PCB.		5mm spanner
11	○ Reconnect the water temperature sensor on the rear side of the PCB. ○ Reconnect the 2 connectors to ionizer banana plug on the rear side of the PCB (if any).		
12	○ Connect the pressure tube to the Main Unit. ○ Secure it with the collar		Collar Side cutter
13	○ Follow RESASSEMBLE part of "Replacing PCB001 Board" Service Procedure.	SMU_10_EN	
End of Service Procedure			

5.15 SMU_15_EN: Checking Valve Position And Positioning Disk

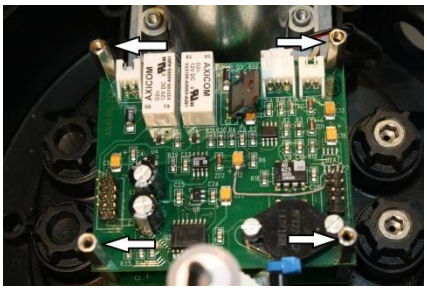
Servicing the Main Unit			Support : L4
This Service Procedure details steps to valve position and positioning disk. Valve position is ensured by a positioning disk and opto-electronics forks on Pickup PCB. The positioning disk cut the forks signal with 2 consecutives slits. Position is determined using the second slit.		Procedure	**SMU_15_EN**
		Revision	**01**
Tools & consumables required:			Time:
- soldering iron - screwdriver			0:40
Parts required		QTY	Codes
-			
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ On the LCD screen, check valve position.		
3	○ Open the cover using clips. 		
4	○ Using the screwdriver, remove the electronics cover.  ○ Positioning disk is located on the first PCB001 Board of the mezzanine arrangement.		Screwdriver
5	○ If valve is reported in FILTER position, looking at the disk form the rear side, one slit should be visible after the optoelectronic fork and the second slit should be in the middle of the fork (clockwise). 		

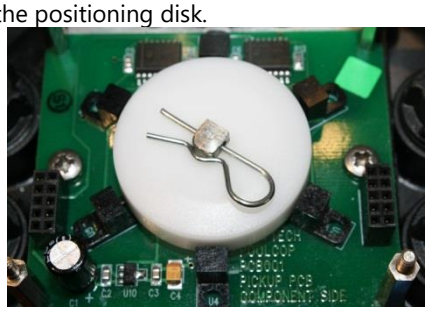
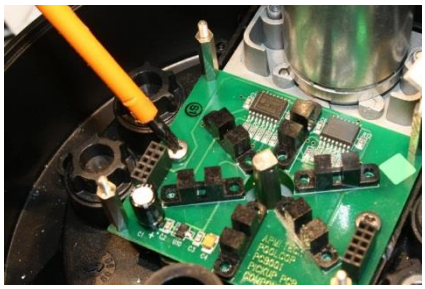
6	○ If PHYSICALLY, the valve if leaking because not REALLY in filter position, but slits are as described above, then the main base is not properly oriented on the valve housing. Check for Main Unit orientation in installation manual.	Installer and user Manual, section « Installation guide »	
7	CHECK		
8	○ Using PoolCop MENU>MANUAL_CONTROL>VALVE_ROTATION, ask for any position different from current position. ○ You should hear the motor running. ○ If motor is not running, first check that there is no ALERT on the LCD screen as valve rotation may be inhibited by high pressure or high temperature. Solve this ALERT first using "Valve reports rotation errors" Trouble Shooting Procedure.	TFM_17_EN	
9	○ When valve is asked for a new position, you should hear the motor running. ○ If motor is not running, first try to replace the control PCB. Follow "Replacing PCB003 Board" Service Procedure. ○ Repeat step 7 to CHECK.	SMU_10_EN	
10	○ If new PCB003 does not solve the issue, then proceed to gear motor replacement; follow "Replacing Gearmotor" Service Procedure. ○ Repeat step 7 to CHECK.	SMU_17_EN	
11	○ Motor is running but the positioning disk is not moving. The gear motor is damaged. Follow "Replacing Gearmotor" Service Procedure. ○ Repeat step 7 to CHECK.	SMU_17_EN	
12	○ Motor is running but positioning disk is turning **Anti-Clockwise**, so motor is turning in the wrong direction. ○ Check motor connector on PCB003 Board. ○ For **PoolCops sold before 2014**, the lock leg should be **turned to the inside** of the Board (TRIAL motor). 		

13	○ For **PoolCops sold after 2014**, the lock leg should be **turned to the outside** of the Board (KENTA motor).  ○ If not, disconnect motor connector. Using a screwdriver, pull up the connector male base from the PCB and turn it 180°. ○ Reconnect the motor connector respecting the new orientation. ○ Repeat step 7 to CHECK.		screwdriver
14	○ When the positioning disk is rotating, check for any damage or slit obstruction. ○ If disk is damaged or dirty, follow "Replacing PCB001 Board/positioning disk" Service Procedure.	SMU_16_EN	
15	REASASSEMBLE		
16	○ Using the screwdriver put back the electronics cover.		Screwdriver
17	○ Close the cover using the clips		
18	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status. Valve will rotate to FILTER position prior to start the pump.		
End of Service Procedure			

5.16 SMU_16_EN: Replacing PCB001 Board/Positioning Disk

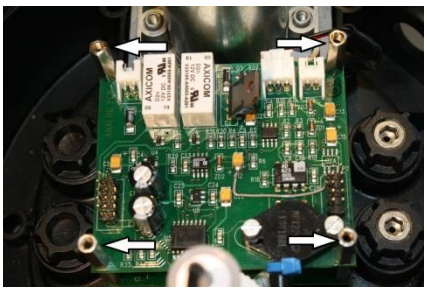
Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the PCB001 board. This Board is the lower one in the mezzanine arrangement of Boards under the white cover.		Procedure	**SMU_16_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 5mm spanner - pliers - screwdriver			0:20
Parts required	QTY		Codes
- Pickup PCB -positioning disk	- 1 - 1		- PC1104.01 or CF1215.01 - PC1610 or CF1210.16

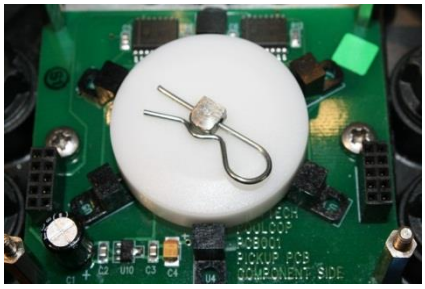
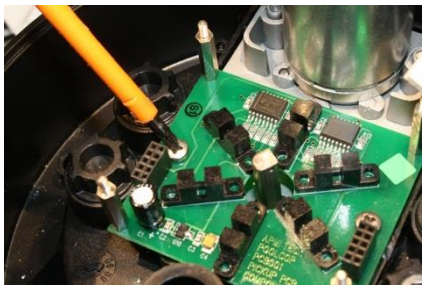
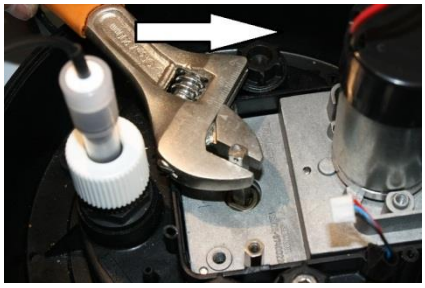
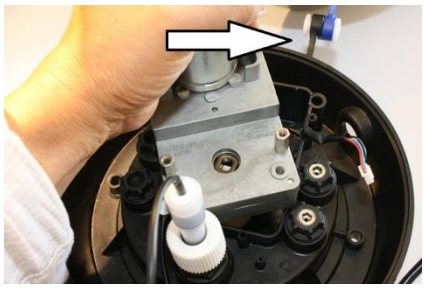
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow DISASSEMBLE part of "Replacing PCB003 Board" Service Procedure.	SMU_10_EN	
3	○ Disconnect the water temperature sensor from the rear side of the PCB002 Board. 		
4	○ Loosen the 4 spacers on the PCB002 Board. ○ Remove the PCB002 Board without disconnecting the pressure sensor neither the banana plugs (if any). 		5mm spanner
5	**CAUTION:** If the Main Unit is not mounted on a multiport valve (bench), you may need assistance from another people when releasing the Clip. At this time, the rotating part spring may unbend brutally.		

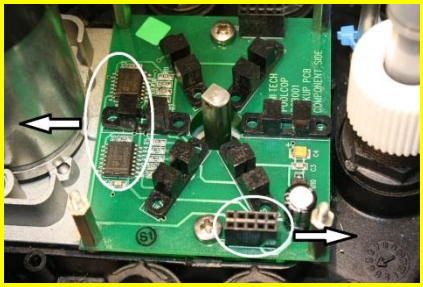
6	○ Pull the Clip (or cotter pin) retaining the rotating disk on the shaft. ○ Remove the positioning disk.  ○ If the board must not be changed, jump to step 12 (REASSEMBLE phase).		pliers
7	○ Loosen the 2 screws on each side of the PCB001 Board. ○ Be careful to not lose plastics washers or plastics spacers. ○ If the motor unit is provided with 2 metallic spacers, do not remove them. 		5mm Allen key or screwdriver, 7mm spanner
8	REASSEMBLE		
9	○ Put the new PCB001 Board in place.		PC1104.01 or CF1215.01
10	**CAUTION:** Make sure to respect the correct orientation as shown on the picture. 		
11	○ Tighten the 2 screws on each side of the PCB001. ○ Be sure to not omit plastics washers or plastics spacers.		Screw driver or 5mm Allen key
12	○ Put the positioning disk back in place and fit Clip into the shaft. ○ Ask for help if Main Unit is not on a multiport valve as the spring must be compressed.		pliers
13	○ Put the PCB002 back in in place.		
14	○ Tighten the 4 spacers on the PCB002.		5mm spanner
15	○ Reconnect the water temperature sensor on the rear side of the PCB002.		
16	○ Follow RESASSEMBLE part of “Replacing PCB001” Service Procedure.	SMU_10_EN	
End of Service Procedure			

5.17 SMU_17_EN: Replacing Gearmotor

Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the gear motor unit. This valve actuator is located in the base of Main Unit, and it is use to fix the 3 mezzanine PCB.		Procedure	**SMU_17_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 5mm spanner - 7mm spanner - 5mm Allen key - pliers - screwdriver - wrench			0:30
Parts required	QTY		Codes
- Motor Unit	- 1		- PC2301.01 or CF1210.03

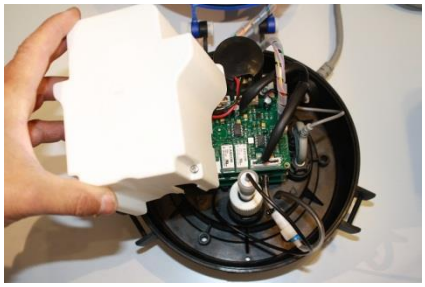
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow DISASSEMBLE part of "Replacing the PCB003 Board" Service Procedure.	SMU_10_EN	
3	○ Disconnect the water temperature sensor from the rear side of the PCB002 Board. 		
4	○ Loosen the 4 spacers on the PCB002 Board. ○ Remove the PCB002 Board without disconnecting the pressure sensor neither the banana plugs (if any). 		5mm spanner
5	**CAUTION:** If the Main Unit is not mounted on a multiport valve (bench), you may need assistance from another people when releasing the Clip. At this time, the rotating part spring may unbend brutally.		

6	○ Pull the Clip retaining the rotating disk on the shaft. ○ Remove the positioning disk. 		pliers
7	○ Loosen the 2 screws on each side of the PCB001 Board. ○ Be careful to not lose plastics washers or plastics spacers. ○ If the motor unit is provided with 2 metallic spacers, do not remove them. 		5mm Allen key or screwdriver, 7mm spanner
8	○ The motor unit may be in stress with valve shaft and therefore be blocked. Use a wrench to slightly rotate the valve shaft clockwise. This will release the stress. 		wrench
9	○ Lift out motor and gearbox. This is one single piece and you can use the motor as a way to pull the mechanism.		
10	REASASSEMBLE		
11	○ Put the new motor unit in place. ○ If valve shaft and motor slot are not align, just introduce valve shaft into motor slot and rotate manually the valve using the gearbox unit as lever arm. 		PC2301.01 or CF1210.03

12	○ Put the PCB001 Board in place.		
13	**CAUTION:** Make sure to respect the correct orientation as shown on the picture. 		
14	○ Tighten the 2 screws on each side of the PCB001. ○ Be sure to not omit plastics washers or plastics spacers.		Screw driver or 5mm Allen key
15	○ Put the positioning disk back in place. ○ Push the Clip into the shaft. ○ Ask for help if Main Unit is not on a multiport valve as the spring must be compressed.		pliers
16	○ Put the PCB002 back in in place.		
17	○ Tighten the 4 spacers on the PCB002.		5mm spanner
18	○ Reconnect the water temperature sensor on the rear side of the PCB002.		
19	○ Follow RESASSEMBLE part of “Replacing PCB001” Service Procedure.	SMU_10_EN	
End of Service Procedure			

5.18 SMU_18_EN: Replacing Water Temperature Sensor

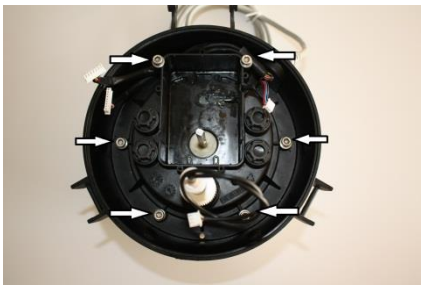
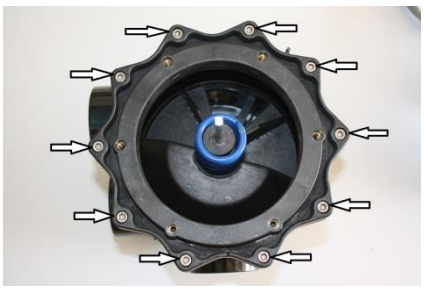
Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the water temperature sensor. Starting from 2017, the sensor is located into a threaded-hole on the right side of the electronics boards in the main unit. Previously, the sensor was located into a channel under the gear motor unit. This type of assembly is abandoned.		Procedure	**SMU_18_EN**
		Revision	**02**
Tools & consumables required:			Time:
- screwdriver			0:10
Parts required	QTY		Codes
- Water temperature sensor, cable and threaded plug	- 1		- CF1210.19

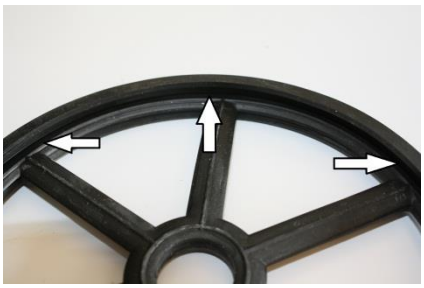
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Open the cover using clips. 		
4	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
5	○ The sensor is connected to the rear right of the second electronic board. Disconnect the cable. 		

6	○ If the temperature sensor is located under the motor unit, cut the cable close to the plastic rib. The terminal part of the sensor will simply be abandoned in its housing.  ○ Otherwise, loosen and remove the water temperature sensor nut. 		
6	REASSEMBLE		
7	○ Check the presence of O-ring on new temperature sensor. ○ Screw and tighten the temperature sensor in its housing.		CF1210.19
7	○ Reconnect the sensor to the electronic board.		
8	○ Put the electronics white cover back in place and secure it with the 4 screws.		Screwdriver
9	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	
10	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, start the pump. ○ Check water temperature indication. ○ Check tightness around the new sensor. Tighten the plug if needed.		
11	○ Close the cover using the clips.		
End of Service Procedure			

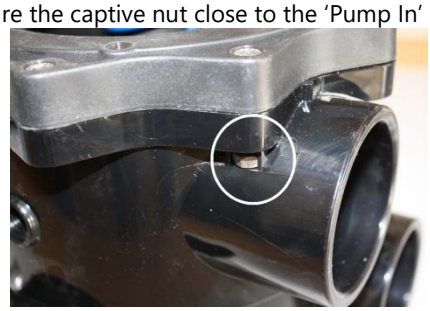
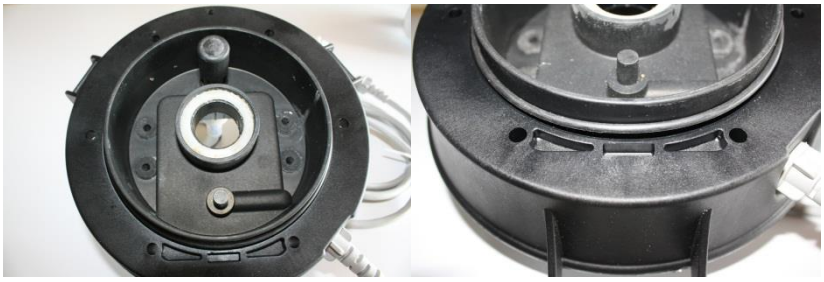
5.19 SMU_19_EN: Checking/Replacing Gaskets « ZA » Type Valve

Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the valve wagon wheel gasket. The gasket needs annual servicing and regular replacement.		Service Procedure	**SMU_19_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 10mm spanner - 5mm Allen key - Silicon sealant - silicon grease			0:40
Parts required	QTY		Codes
- Wagon Wheel Gasket 1.5" (ZA) or Wagon Wheel Gasket 2.0" (ZA) - Valve Shaft Clip 1.6mm - O-ring for valve shaft - O-Ring for Adapter 2.0 (if 2.0 inches valve)	- 1 - 1 - 2 - 1		- PC1605 or PC1607 - BO1200.10 - JT0011 - JT0003

Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow DISASSEMBLE part of "Replacing Gear motor" Service Procedure.	SMU_17_EN	
3	○ Loosen the 6 Allen screws of the PoolCop main base and remove the main base. ○ Be careful as the spring will unbend and raise the base for a few millimeters. 		5mm Allen key 10 mm spanner
4	○ For 2.0" valve, loosen the 10 bolts of the 2 inches adapter ring and remove the ring. 		5mm Allen key 10 mm spanner

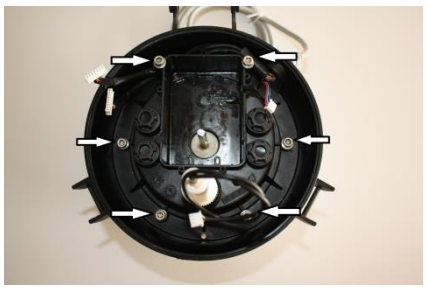
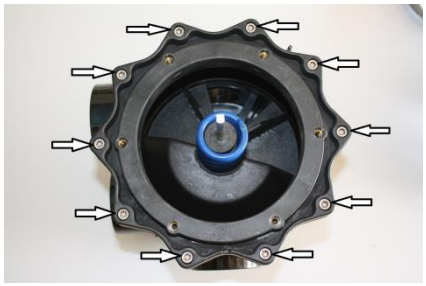
5	REPLACE		
6	○ Remove and replace the two O-rings on the valve shaft. 		JT0011
7	○ Inspect the wagon wheel gasket for any damage. Gasket can be worn, twisted, or ripped out.  ○ In case of any doubt, proceed to replacement: ○ Wagon wheel gasket is only maintained in its groove by silicon sealant. Just pull the gasket, it will remove easily. ○ Clean the groove from any impurities and silicon. 		PC1605 or PC1607
8	○ Add **pure silicon grease** on the inner groove of gasket and fit the gasket on the rotating part. 		Pure Silicon grease

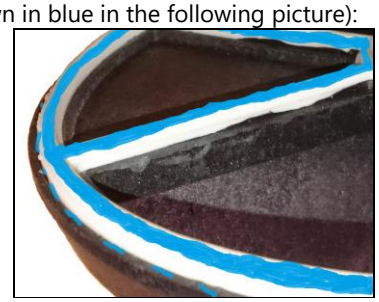
9	○ Add a thin layer of **silicon sealant** on the base of the new wagon wheel gasket on the place which will be inside the valve housing groove. 		Silicon sealant
10	○ Align wagon wheel gasket radius so that it can be easily fit in the valve housing groove.  ○ Press rotating part down into the valve housing until you "sense" the gasket fitting the groove. ○ Check for free rotation while maintaining the pressure. ○ Remove any silicon sealant excess.		
11	**CAUTION:** From now on, make sure to not remove gasket from its groove.		
12	REASSEMBLE 2.0"		
13	○ For 2.0" valve, fit the new adapter ring to the valve housing. ○ Using silicone grease will ease the gasket to remain in its place before tightening.  		JT0003 Silicon grease

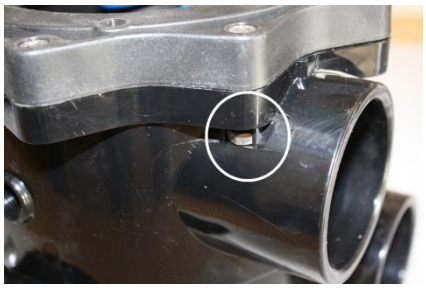
14	**CAUTION:** Make sure to respect the correct orientation of adapter ring. The pin must be aligned with valve housing sight glass. 		
15	○ Make sure the captive nut close to the 'Pump In' entry is in place.  ○ Tighten the 10 bolts.		5mm Allen key 10 mm spanner
16	REASSEMBLE 1.5" and 2.0"		
17	○ Check the Main Unit O-Ring. In case of any doubt proceed to replacement.  ○ Fit the PoolCop main base in place.		JT0001
18	**CAUTION:** Make sure to respect the correct orientation of main base. The Life Line cable entry must be aligned with valve housing sight glass. 		

19	○ Tighten the 6 Allen screws ○ You will need to partially bend the spring by pressing the main base.		5mm Allen key 10 mm spanner
20	○ Follow REASSEMBLE part of "Replacing Gear motor" Service Procedure.	SMU_17_EN	
21	○ Check for any leak inside the PoolCop and to the waste line. ○ In case of leak, repeat this Service Procedure and especially look for: ○ Wrong wagon wheel gasket orientation. ○ Silicon sealant excess. ○ Valve housing damages.		
End of Service Procedure			

5.20 SMU_20_EN: Checking/Replacing rotating part « SG » type valve

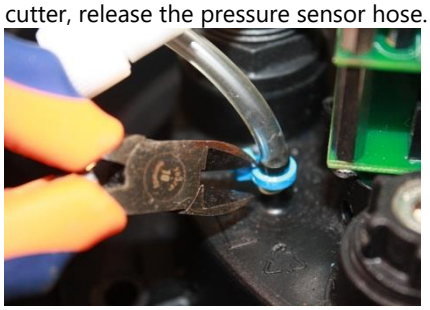
Servicing the Main Unit			Support : L2
This Service Procedure details steps to replace the valve rotating part. On "SG" type valve, wagon wheel gasket is glued in the rotating part. There is no way to replace the gasket alone, rotating part must be changed. The gasket needs annual servicing and regular replacement.		Procedure	**SMU_20_EN**
		Revision	**01**
Tools & consumables required:			Time:
- 10mm spanner - 5mm Allen key - Silicon grease			0:40
Parts required	QTY		Codes
- Diffuser 1.5'' SG Replacement Kit or Diffuser 2.0'' SG Replacement Kit	- 1		- PC1207 or PC1208
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow DISASSEMBLE part of "Replacing Gear motor" Service Procedure.	SMU_17_EN		
3 ○ Loosen the 6 Allen bolts (or screws on 2.0" valve housing) of the PoolCop main base and remove the main base. ○ Be careful as the spring will unbend. 			5mm Allen key 10 mm spanner
4 ○ For 2.0" valve, loosen the 10 bolts of the 2 inches adapter ring and remove the ring. 			5mm Allen key 10 mm spanner

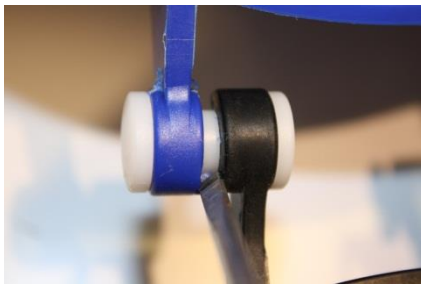
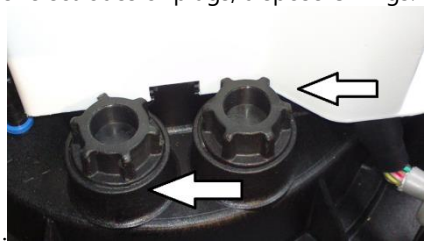
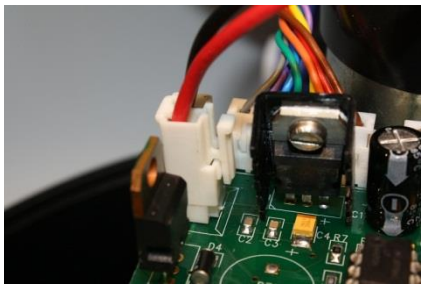
5	REPLACE		
6	○ Inspect / Replace both shaft O-rings.  ○ Before reassembling, use silicon grease on O-rings.		PC1207 or PC11208 Silicon grease
7	○ Inspect the wagon wheel gasket for any damage. Gasket can be worn, twisted, or ripped out.  ○ In case of any doubt, proceed to replacement by changing the valve rotating part. At this stage there is no need to respect any orientation, but it will be easier further if the valve rotating part is close to the Filter position. ○ Clean and grease the gasket seat with provided silicon grease. ○ Grease the wagon wheel gasket with the provided silicon grease (grease is shown in blue in the following picture):  ○ Add grease on the peripheral part of the rotating part (dotted line) so that to create an extra stock. ○ Put the rotating part back into the valve housing, replace the spring.		PC1207 or PC11208
8	REASSEMBLE 2.0”		

9	○ For 2.0" valve, check adapter O-ring. In case of any doubt proceed to replacement. ○ Silicon grease will help to maintain the O-ring in to the groove during assembly. ○ Fit the adapter ring onto the valve housing.  		
10	**CAUTION:** Make sure to respect the correct orientation of adapter ring. The pin must be aligned with valve housing sight glass. 		
11	○ Make sure the captive nut close to the 'Pump In' entry is in place.  ○ Tighten the 10 bolts.		5mm Allen key 10 mm spanner
12	REASSEMBLE 1.5" and 2.0"		

13	○ Check the Main Unit O-Ring. In case of any doubt proceed to replacement.   ○ Check that the 2 washers are in place and fit the PoolCop main base in place.		JT0001
14	**CAUTION:** Make sure to respect the correct orientation of main base. The Life Line cable entry must be aligned with valve housing sight glass. 		
15	○ Tighten the 6 Allen bolts (or screws on 2.0" valve housing). ○ You will need to partially bend the spring by pressing the main base.		5mm Allen key 10 mm spanner
16	○ Follow REASSEMBLE part of "Replacing Gear motor" Service Procedure.	SMU_17_EN	
17	○ Check for any leak inside the PoolCop and to the waste line. ○ In case of leak, repeat this Service Procedure and especially look for any damage on the gasket or valve housing.		
End of Service Procedure			

5.21 SMU_21_EN: Replacing "TRIAL" Gear Motor by "KENTA"

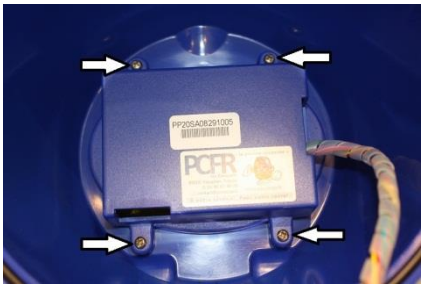
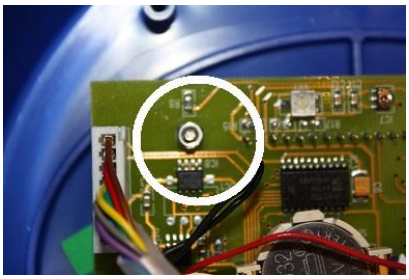
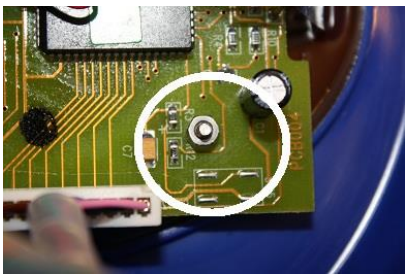
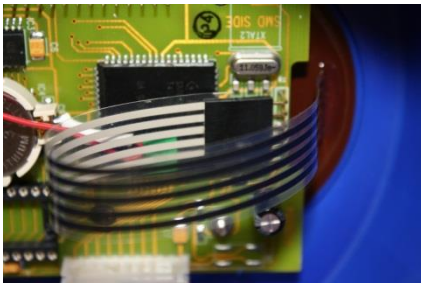
Servicing the Main Unit			Support : L2
This procedure describes how to replace Trial motor by Kenta motor. o TRIAL motors have shown weakness affecting the 2 latest stages of the gearbox. o Kenta, another Italian manufacturer, build the K917, motor with dimensions close to the R5DC but able to sustain a 50Nm torque (compare to 10Nm for TRIAL). This new motor is now the standard mount.		Procedure	**SMU_21_EN**
		Revision	**01**
Required Tools:			Time:
- Screw driver - Spanner 5mm and 26mm - 6mm Allen key - Side cutter - drill and 6mm drill-bit - hacksaw - silicon paste			0:10
Required Parts		QTE	Codes
- Kenta motor - Main Unit Base - Main Unit O-ring - Water temperature sensor - Positioning disk 28mm - Nylon screw M6x25mm - Nylon Spacer 6mm x 12mm - Tie rap - Ionizer electrodes O-rings - pH electrode O-Ring		- 1 - 1 - 1 - 1 - 1 - 2 - 2 - 1 - 4 - 1	- PC2301.01 or CF1210.03 - PC1601 or CF1210.01 - JT0001 - PC1002.01 or CF1210.06 - PC1610 or CF1210.04 - M6V25NY - M6T12LL - - JT0004 - JT0006
Steps		Reference.	Tool, part
1	o **Stop PoolCop**		
	Stop the pump (menu manual control)		
	Close all the manual valves (especially when pump is in charge)		
	Turn valve in Waste position and let the valve housing drain.		
	Open the PSU, stop the PSU and remove mains	SPSU_01_EN	Screw driver
	End of Stop procedure		
2	o **Disassemble**		
2.1	Open the Main Unit cover		
2.2	Remove the white cover and the 2 first electronic boards from the mezzanine.		Screwdriver 5mm spanner
2.3	Remove the life cable from the main unit		
2.4	With the side cutter, release the pressure sensor hose. 		
2.5	Extract the Clip et remove the positioning disk from the remaining board. (nb : the 2 spacers and the 2 screws maintaining the board will not be used anymore)		Screwdriver

	2.6	With the screwdriver, release cover spindles and separate cover from base.  Put the cover apart		Screwdriver
	2.7	Remove ionizer electrodes or plugs; dispose O-rings. 		
	2.8	Remove pH sensor housing (or plug). Keep the O-ring.		26mm spanner
	2.9	Loosen the 6 screws maintaining the Main Unit base on the valve housing (or 2.0" adapter ring), and remove the main unit base. Be sure to keep the 2 nylon washers located on the top of the compression ring and the Base O-ring.		6mm Allen key
	End of disassemble procedure			
3	○ **Adapting**			
	3.1	Use the provided new positioning disk. Or With the hacksaw, shorten the positioning disk shaft to 28mm. ○ Required length = 28mm ○ Previous length = 33mm		hacksaw
	3.2	With the 6mm drill-bit, drill the 2 fixation holes of the latest board so that the nylon screw could fit in. 		Drill + 6mm drill bit
	3.3	○ Turn the polarizing slot for motor connection on the first board. (picture show previous position, Kenta motor need a 180° rotation of the polarizing slot). 		

	3.4	If you do not have a new cut main unit base, cut the wall on rear side of the motor location. As shown on the picture. 		Alternative saw
	End of adapting procedure			
4	○ **Reassemble**			
	4.1	If you do have a new main unit base, fit the water temperature sensor in its housing and seal it with silicon paste.		Silicon paste
	4.2	Fix the latest electronic board with nylon screws and spacers on the Kenta motor.		6mm Allen key
	4.3	Place the motor in the Main unit base.		
	4.4	Check the 2 nylon spacers on the top of compression spring.		
	4.5	Place O-ring on the modified main unit base and fix the base on the valve housing (or 2.0" adapter) with the screws. Turn the valve rotating part so that it allows the motor to fit its place before tighten the screws.		6mm Allen key
	4.6	Put the shortened positioning disk. On ZA type valve, beta may not fit. Just don't fit it....		
	4.7	Refit the 2 other boards on the mezzanine. Use tie rap to secure the pressure hose.		Side cutter Screw driver 5mm spanner
	4.8	Route the life cable into the main unit base and connect it to the upper board.		
	4.9	Put the cover back and secure manually the spindles.		
	4.10	Connect the cables form the cover to the upper board.		
	4.11	Put the white cover in place and secure it with 4 screws.		Screw driver
	4.12	Restore power to the PSU and close cover	SPSU_02_EN	Screw driver
	End of reassembling procedure			
End of Procedure				

5.22 SMU_22_EN: Replacing Micro PCB PCB004 version SA for version CF

Servicing the Main Unit			Support : L2
This procedure describes how to replace the ZA Micro PBC for a CF version ○		Procedure	**SMU_21_EN**
		Revision	**01**
Required Tools:			Time:
- Screw driver - Spanner 5mm and 4mm - Side cutters			0:20
Required Parts		QTE	Codes
- PCB Micro PCB004 - PCB Micro cover drilled		- 1 - 1	- CF1220.01 - CF1220.02
Steps		Reference.	Tool, part
1	DESASSEMBLING		
2	○ Memorize all parameter settings in the various menus. You will need these settings to restore the configuration.		
3	○ Remove transparent PSU cover. 		Screwdriver
3	○ Switch the PSU OFF		
4	○ Open the cover using clips. 		

5	○ Loosen the 4 screws retaining the microprocessor cover and remove this cover. 		Screwdriver
6	○ Disconnect the keyboard flat cable. ○ Disconnect the 2 connection cables.		
7	○ Loosen the nuts maintaining the PCB004 Board to the cover.  		4mm spanner
8	○ Remove the PCB004 Board.		
9	MODIFICATION		
10	○ Using a side cutter, cut, as short as possible, the 2 screws used to maintain the PCB. This screws are no more used to maintain the new PCB. 		Side cutter
11	○ Install the new PCB into the cover so that the flat ribbon cable is on the right side.		CF1220.01
12	○ Reconnect the flat keyboard cable. Be sure to not twist the cable, it must be flat from the cover to the processor Board.  ○ Reconnect the 2 connections cables to the Micro Board.		

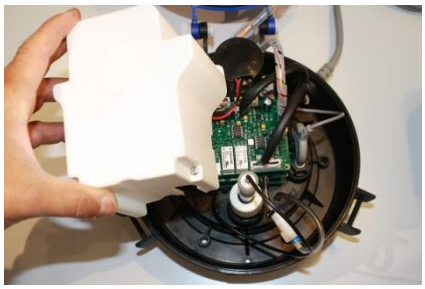
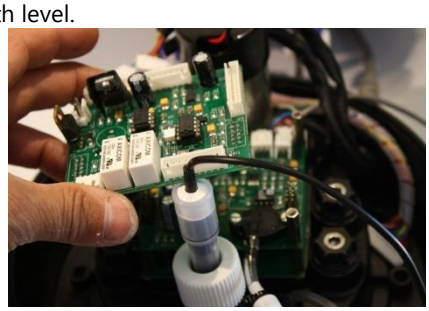
13	○ Place the PCB in the cover and check that the board is maintained by its four corners. Make sure to place the plug to access USB connector on the right side.  ○ Put the cover back and secure it with 4 screws.		Screwdriver
14	**CAUTION** The micro board is inserted with its 4 corners into the cover. The board must be correctly placed when tightening the screws to avoid any deformation or constraint which could damage it.		
15	○ Close the cover using the clips.		
16	○ Remove the metallic face plate.  		5.5mm spanner
17	○ Inside the PSU, cut the R3 resistor using a side cutter. R3 is the second horizontal starting from bottom, close to U5. 		Side cutters
18	○ Replace the font face plate and secure it with the dome nuts.		5.5mm spanner
19	○ Switch the PSU to ON ○ Check the pulse on Pump and auxiliaries outputs when turning ON.		

20	○ Check firmware version displayed at the LCD screen.  ○ If displayed screen stay blank, or blink switch OFF the PSU and review your latest operation for any error /default. Verify valve rotation to filter or closed position depending on pool settings in PoolCop. ○ If pump is running continuously or valve is rotating continuously, switch OFF the PSU and review your latest operation.		
21	○ Put back transparent PSU cover and secure it with 6 screws.		Screw driver
22	○ Go into menus and restore all the settings as they were before.		
23	○ Proceed to pH calibration if pH control is installed. Follow “Calibrating/replacing pH sensor”.	SMU_07_EN	
End of Service Procedure			

5.23 SMU_23_EN :Kit SE Upgrade

Servicing the Main Unit			Support : L2
This Service Procedure details steps to install the SE Upgrade kit. This kit, includes a PCB003 electronic board and a pH/ORP 4 wires sensor, and allows pH and ORP measures to be insensitive to stray currents . **Warning**: there are 3 versions of the kit: ○ pH sensor, SOK4921 ○ pH/ORP Pt sensor (for liquid chlorine injection) ; SOK4922 ○ pH/ORP Au sensor (for salt system) ; SOK4923		Procedure	**SMU_10_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver -			0:15
Parts required	QTY		Codes
- SE Upgrade kit	- 1		- SOK4921, or SOK4922, or SOK4923

Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow in the pool or buffer tank when pump is stopped, close the manual valves. ○ Disconnect power to the pump and auxiliaries (booster pump...).		
3	○ Using PoolCop MENU>MANUAL CONTROL>ROTATE_VALVE, turn the valve to CLOSE position. ○ Loosen the valve sight glass and make sure all the water inside the valve housing is drained.		
4	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
5	○ Open the cover using clips. 		

6	○ Using the screwdriver, remove the electronics cover. 		Screwdriver
7	○ Disconnect the Life Line cable. ○ Disconnect the connection cables. ○ Disconnect the motor cable. ○ Disconnect the pH/ORP cable.		
8	○ Using the screwdriver, remove the 2 screws on the rear side of the PCB (motor side).		Screwdriver
9	○ Gently pull the PCB up, until its extraction from the board on the underneath level. 		
10	○ REASASSEMBLE		
11	**CAUTION:** Make sure of the correct orientation, and push it gently on the connectors.		
12	○ Put the new PCB003 board from the kit in place.		
13	○ Using the screwdriver, gently tighten the 2 screws on the rear side of the PCB.		Screwdriver
14	○ SENSOR REPLACEMENT		
15	○ Loosen the pH sensor and remove from its holder. 		

<table>
<tr><td>16</td><td>CAUTION:
Proceed progressively and continuously check there is no risk of water projection when loosen. If so, tighten the pH sensor immediately and check step 3.</td><td></td><td></td></tr>
<tr><td>17</td><td>

When delivered, the sensor is provided with accessories. Please check the order:

First should be the securing cap to the sensor.
Next, the star lock grab ring, the grab ring must be between 9-9.5cm from the sensor tip.
Next, the first compression ring with conical shape
Next, the second compression ring with O footprint.

Note : the two compression rings may be combined in a single one.

Last, the O-ring.

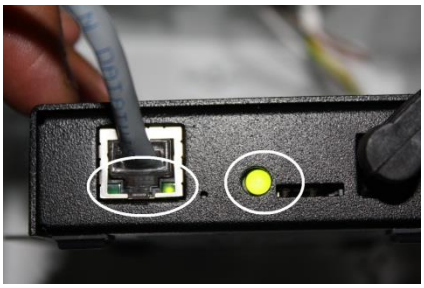
There are 3 references for the sensor depending on the kit:
<table>
<tr><th>Type of data</th><th>Kit</th><th>Sensor</th></tr>
<tr><td>pH sonly</td><td>SOK4921</td><td>SO4901</td></tr>
<tr><td>pH and ORP for liquid chlorine</td><td>SOK4922</td><td>SO4902</td></tr>
<tr><td>pH and ORP for salt water chlorinators</td><td>SOK4923</td><td>SO4903</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>18</td><td>Put the sensor into its housing and secure it with the screw. Make sure to tighten enough in order to avoid leakage.</td><td></td><td>SO4901, SO4902, SO4903</td></tr>
<tr><td>19</td><td>Reconnect the new sensor
Make sure to respect the correct connection</td><td></td><td></td></tr>
<tr><td>20</td><td>Reconnect the Life Line cable from the connection PCB.
Reconnect processor cables from the connection PCB.
Reconnect the motor connector from the connection PCB.</td><td></td><td></td></tr>
<tr><td>21</td><td>Put the electronics white cover back in place and secure it with the 4 screws.</td><td></td><td>Screwdriver</td></tr>
<tr><td>22</td><td>Close the cover using the clips.</td><td></td><td></td></tr>
<tr><td>23</td><td>Follow “Powering up the Unit” Service Procedure.</td><td>SPSU_02_EN</td><td></td></tr>
<tr><td>24</td><td>Proceed to PH measurement and adjust calibration if needed.</td><td></td><td></td></tr>
<tr><td colspan="4">End of Service Procedure</td></tr>
</table>

Section 6 SERVICING WEB RJ45 MODULE

6.1 SPPM_01_EN: Replacing Web RJ45 Module Connection Cable

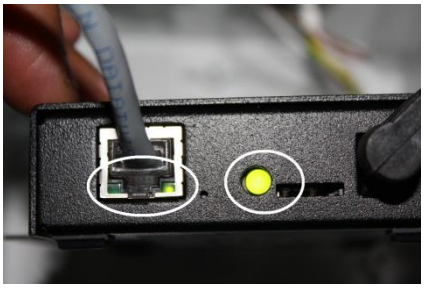
Servicing the Web RJ45 Module			Support : L2
This Service Procedure details steps to replace the communication cable between PoolCop Power supply unit and PoolCopilot module.		Procedure	**SPPM_01_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - 5mm spanner			0:10
Parts required	QTY		Codes
- Connection cable	- 1		- PI3010.01
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN		
3 ○ Depending on version, remove the metallic face plate. 			5.5mm spanner
4 ○ Disconnect the PoolCopilot communication cable. 			Screwdriver

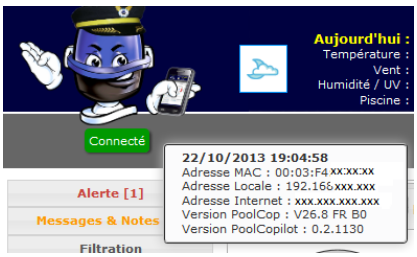
5	○ Open the Web RJ45 Module enclosure and loosen the 2 screws on both side of PoolCopilot module. 		
6	○ Loosen the compression gland and remove the cable.  ○ Route the new cable to the compression gland inside the enclosure.		PI3010.01
7	REASSEMBLE		
8	○ Connect the cable (power and communication) to the Web RJ45 Module. ○ Tighten the 2 screws to fix the module inside enclosure.		Screwdriver
9	○ Route the cable to the Power Supply Unit. ○ Connect the new cable to the Power Supply Unit.		
10	**CAUTION:** Make sure to respect the cable labelling. Always connect the GND labelled wire first. Always connect the +12V labelled wire last.		
11	○ Follow “Powering up the Unit” Service Procedure.	SPSU_02_EN	

12	○ Check for Power light on Web RJ45 Module. Power indicator is the circular led on the back of the module. ○ If power led if OFF, check connection on the Power Supply Unit, or replace the PoolCopilot Unit following the "Replacing Web RJ45 Module" Service Procedure.  ○ If Ethernet connection is active, check also for signal on the 2 rectangular leds located near the RJ45 connector.	SPPM_02_EN	
13	○ On www.PoolCopilot.com, check the connectivity status of the PoolCopilot module.  ○ If not connected, then check the internet connection of the client box to the network.		
End of Service Procedure			

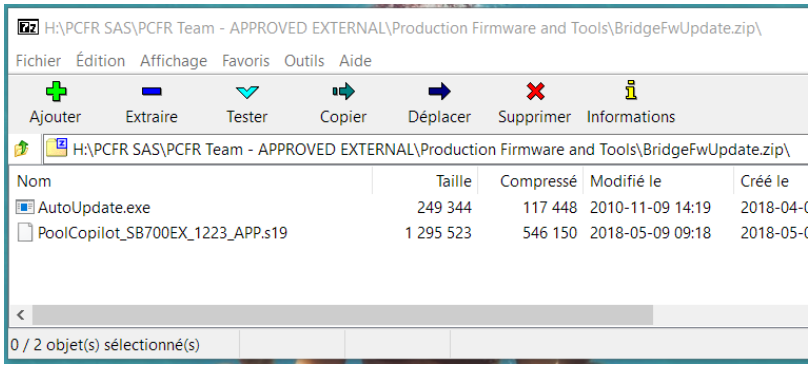
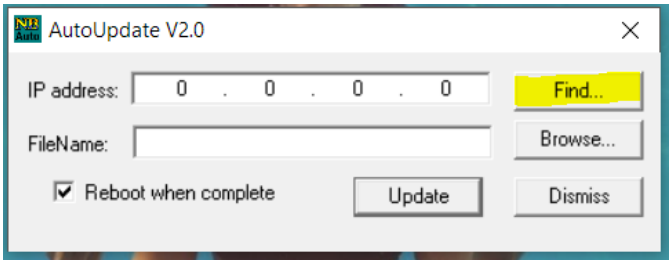
6.2 SPPM_02_EN: Replacing Module Web RJ45

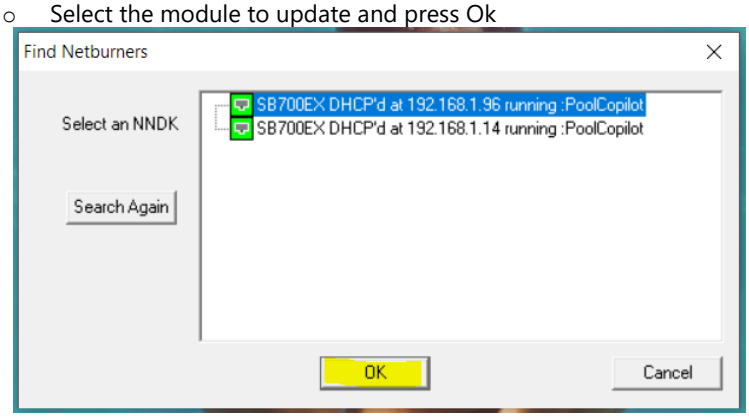
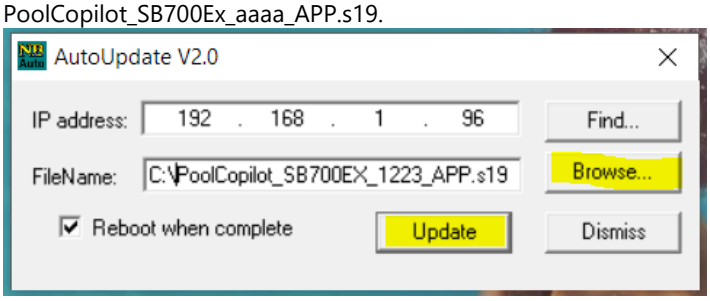
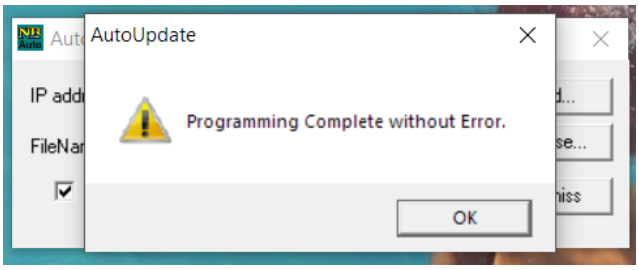
Servicing the PoolCopilot Module			Support : L2
This Service Procedure details steps to replace the Web RJ45 Module.		Procedure	**SPPM_02_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - 5mm spanner			0:15
Parts required	QTY		Codes
- PoolCopilot Module	- 1		- PI1010
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SPSU_01_EN	
3	○ Depending on version, remove the metallic face plate. 		5.5mm spanner
4	○ Disconnect the Web RJ45 Module communication cable. 		Screwdriver

5	○ Disconnect the internet communication cable from the Web RJ45 Module enclosure by loosen the compression gland.  ○ Remove the enclosure from the wall.		Screw driver
6	RESASSEMBLE		
7	○ Fix the new enclosure to the wall. ○ Insert the communication cable and tighten the compression gland.		PI1010
8	○ Route the connection cable to the Power Supply Unit. ○ Connect the new cable to the Power Supply Unit.		
9	**CAUTION:** Make sure to respect the cable labelling. Always connect the GND labelled wire first. Always connect the +12V labelled wire last.		
10	○ Follow "Powering up the Unit" Service Procedure.	SPSU_02_EN	
11	○ Check for Power light on PoolCopilot module. Power indicator is the circular led on the back of the module. ○ If power led if OFF, check connection on the Power Supply Unit.  ○ If Ethernet connection is active, check also for signal on the 2 rectangular led located near the RJ45 connector.		

12	○ Note the new mac address of the replacement module printed on the face plate sticker:  ○ On login page of www.PoolCopilot.com, use '**Contact Us**' template to request change to the site administrator. Be sure to: ○ Give a valid email address ○ Fill message title with "PoolCopilot replacement" ○ Fill text message with: ▪ Old module MAC address. ▪ New module MAC address. ▪ Pool Nickname. ▪ Pool Owner.		
13	○ As soon as the change is done, the administrator will reply to your message on the given email address. ○ On www.PoolCopilot.com, check the MAC address and connectivity status of the PoolCopilot module.  ○ If not connected, then check the internet connection of the client box to the network.		
End of Service Procedure			

6.3 SPPM_03_EN: Upgrading Web Module RJ45 firmware

Servicing the PoolCopilot Module			Support : L2
This Service Procedure details steps to upgrade the Web RJ45 Module firmware.		Procedure	**SPPM_03_EN**
		Revision	**01**
Tools & consumables required:		Time:	
- Laptop - Firmware file		0:05	
Parts required	QTY	Codes	
	-	-	
Steps	Cross Ref.	Tool, Part	
1 PREPARE			
2 ○ Connect your laptop to the local network ○ Make sure the web module in powered on and connected to the local network.			
3 ○ Unzip the BridgeFwUpdate file. This file is protected with a password: "poolcop".  ○ Zip archive contains 2 files: ○ AutoUpdate.exe is the utility tool to update the web Module ○ PoolCopilot_SB700Ex_aaaa_APP.s19 if the firmware. "aaaa" is the release number.		BridgeFwUpdate.zip	
4 UPDATE			
5 ○ Using your laptop, launch the AutoUpdate.exe utility and press the "Find" button.  ○ The utility program will find every Web Module connected on the local network (two modules in the following example).		AutoUpdate.exe	

6	○ Select the module to update and press Ok 		
7	○ Browse your Laptop to find the firmware file PoolCopilot_SB700Ex_aaaa_APP.s19. 		PoolCopilot_SB700Ex_aaaa_APP.s19
8	○ Wait for the update to finish (about 5 seconds) 		
12	○ Launch the Pool web page and wait for reconnection. 		
End of Service Procedure			