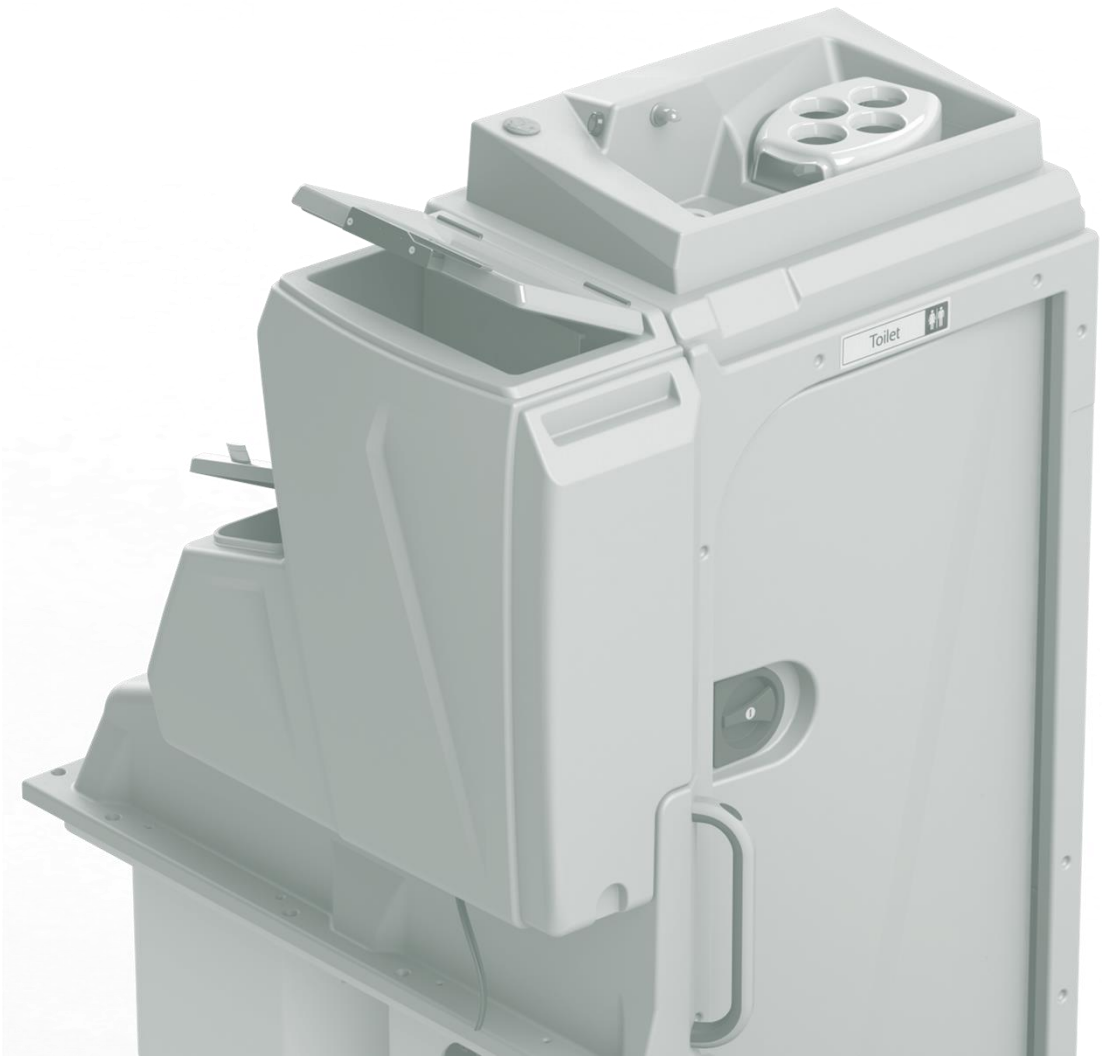
P7 User Manual

Toilet Cubicle User Guide & Spare Parts

Shades Technics



SUITABLE FOR BOTH NEAR-SIDE AND OFF-SIDE VARIANTS
(P7 & P7M)

Contents

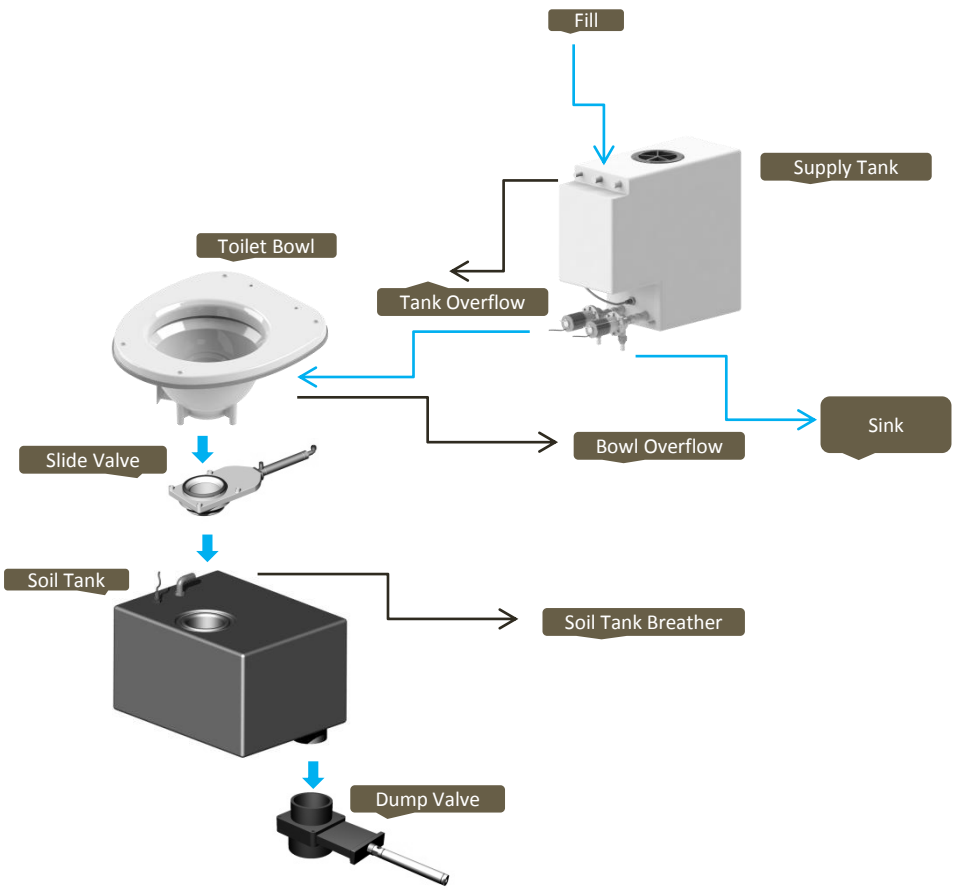
Introduction

HYDROFLUSH

- The Shades Hydroflush system uses a pre-set quantity of fresh water dispensed via a high pressure pump. Using a maximum of 500ml on a timed cycle that also controls an inline solenoid and slide valve fitted to the bottom of the bowl. A small quantity of clean water should remain in the bowl to seal the slide valve and prevent odour returning into the cubicle. For consistent operation of this valve the maintenance guidelines must be followed, using the correct toilet paper and chemical will prolong the life of the system.
- The Shades system will either have a single supply tank for both hand wash and flush or individual tanks. All tanks will be controlled by level sensors to protect the system electrically which is controlled by a PIR sensor that comes on when entering the cubicle. The system will not work unless the PIR has been activated.

System Schematic

Below shows a typical system layout of the water system.



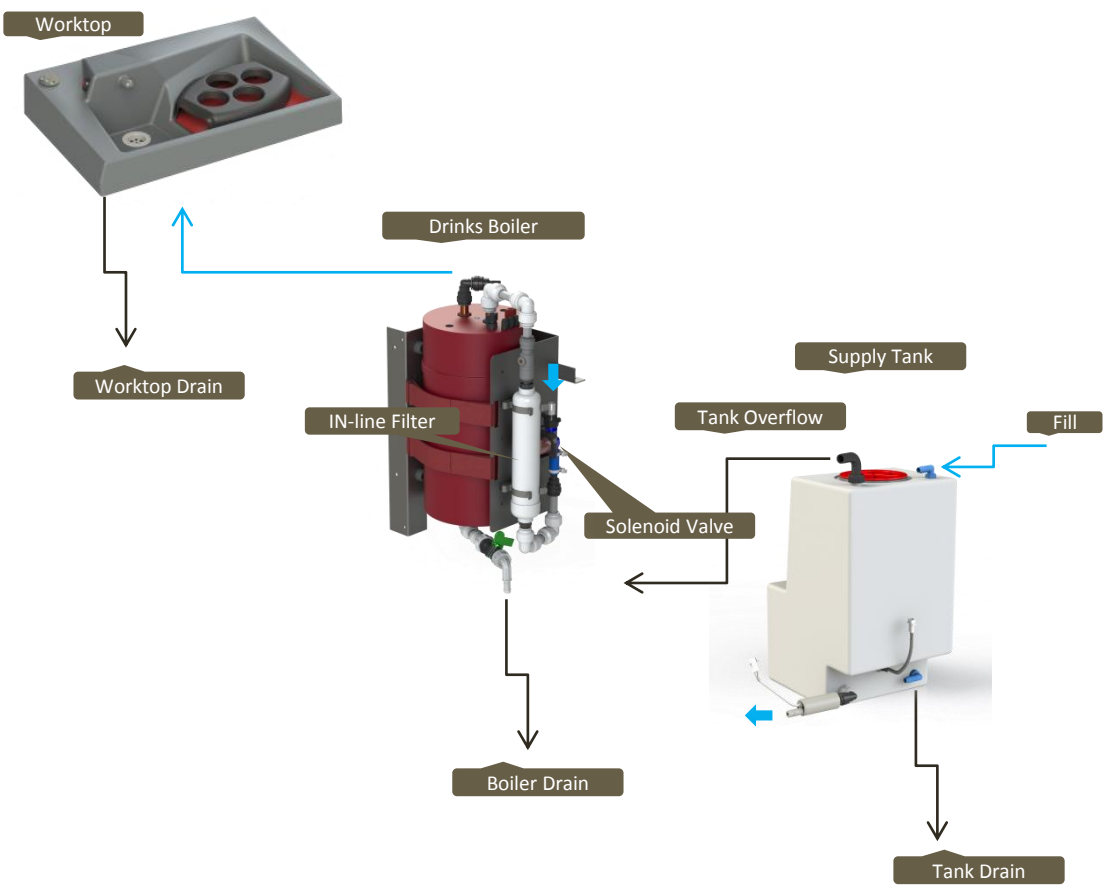
Introduction

HOT DRINKS SYSTEM

- The Shades Hydrocalor drinks system provides hot drinking water on-board the vehicle. Using a pump on demand setup the worktop mounted push button activates a pump located next to the supply tank that sends cold water in to the boiler, displacing the hot water out of the tap. An in-line filter purifies the water and needs to be changed every 6 months. A solenoid valve is also used to maintain a head of water in the system to prevent the boiler from over heating although a thermal trip is integrated into the heater for safety and a reset button fitted on the side of the boiler should the system develop a fault.
- The boiler capacity is 5l and from cold will take approximately 25 minutes to heat up to 85Deg C. 10-12 cups in succession should be possible before the boiler needs more time to re-heat.

System Schematic

Below shows a typical layout.



Cubicle Operating Instructions

- Switching the cubicle 'ON'

  Engage the WC master switch on the dashboard. The cubicle interior lamps will turn on for 60 seconds and then switch off. The cubicle is now ready to use. (*It is recommended that the vehicle engine is running to protect the batteries*).

- Interior Light

  A blue LED ambient light at the back of the seat will illuminate when power is switched to the cubicle and upon entry the 2 main spot lamps will illuminate automatically. The interior lamp is controlled by a movement sensor which will switch off the light shortly after the cubicle is vacated.

- To Flush The Toilet 

  Push the flush button once to flush the toilet with a set quantity of water. Should a further flush be required, wait for the flush cycle to complete then press the button again.

  NOTES:

  (When the soil tank is full, the dashboard LED  ***will illuminate and the "Occupied" lamp will signal. The toilet is now out of use until the soil tank is emptied.***

  (When the clean water tank is empty the dashboard LED  ***will illuminate and the "Occupied" lamp will signal. The toilet is now out of use until the water tank is re-filled.)***

- To Wash Your Hands 

  Depress the hand wash button once to dispense a set amount of water.

  NOTE: (When the hand wash tank is empty the dashboard LED  ***will illuminate to alert the driver)***

- Cubicle Extractor Fan

  The ventilator fan runs at half speed when the cubicle is vacant and switches to full speed when the cubicle is occupied.

- Water Tank Filling & Emptying

  Tanks are filled via the hose connectors located on the front wall of the cubicle, access is via the side locker. Each tank also has its own drain for cleaning or winterization.

Cubicle Operating Instructions

Soil Tank Emptying

- The evacuation valve on the soil tank is either controlled pneumatically or manually. If the manual option is fitted a pull handle can be found on the front wall of the toilet inside the locker. If a pneumatic system is installed a button on the dashboard or on the front wall of the cubicle will activate the valve.

Smoke Alarm

- The unit is fitted with a smoke alarm that alerts the driver as well as sounding an alarm inside the toilet. It takes power from the vehicle, not a battery.

In Case of Emergency

- Depressing the RED alarm button inside the cubicle will alert the driver.

To Operate the Hand-Drier: (Optional Fit)

- To start the unit, push the button on the front or the remote push button (plunger) when the unit is concealed behind a vanity door. The unit stops automatically.

Fridge

- The P7 is fitted with a compressor style fridge. A thermostatic valve inside the fridge compartment controls the temperature. A master switch for the fridge is fitted next to the PCB in the locker and separate manual for the fridge has been supplied inside the unit from new.

Drinks

- Hot water is dispensed via the tap on the worktop. An LED panel shows when the water is up to temperature and during normal operation the tap will drip. Water is pump on demand with the pump located by the tank and supplied through an inline filter. The filter requires replacing every 6 months.

Cubicle Demounting Instructions

To demount the toilet top

- The P7 is a demountable toilet whereby the top can be removed and a floor section put back for extra seats. A step by step guide for doing this is listed below, care must be taken when removing the fridge and decoupling it from the compressor.

1. Drain the boiler and drinks tank and remove the centre cable from the top of the boiler.
2. Remove the grab handle at the bottom of the centre steps.
3. Remove the door fascia, the fixings are covered by screw caps around the door.
4. Remove the door keeping the door hinges on the door.
5. Remove the worktop, 3 screw fixings under the worktop mat. Disconnect the drain hose and tap feed along with the button and LED panel wires.
6. Release the fridge couplings to the compressor making sure to cap them off. This prevents any oil spilling out and moisture getting in. The compressor will need re-gasing when you reconnect the fridge and this must be done by a certified engineer.
7. Release any hose clips securing the fridge pipes and water pipes in and around the compressor. There is a fixing to the fan securing the coolant pipes.
8. Open the fridge door and remove the 4x fixing screws holding the fridge in place.
9. Remove the front service panel for improved access to the fridge.
10. Reach under the fridge and disconnect the drain. This is fitted with a 15mm push-fit connector.
11. Lift the fridge unit out of the side cover taking care when feeding the cooling pipes out from below. These pipes are copper and will flex slightly but must not be kinked. The coupling end of the pipes have very thin copper wires attached to them that must not be damaged.
12. With the fridge removed the side cover fixings should be accessible, remove this along with the aisle bin.
13. Remove the sink waste, worktop tap and fridge drain hoses.
14. Remove the fixings around the outer cover, at floor level. The inner fixings secure the top to the base and the outer fixings secure the cubicle to the vehicle. All must be removed.
15. Lift off the outer cover.
16. Disconnect the hand dryer if fitted and the ambient light, if fitted.
17. Disconnect the smoke alarm, spot lamps and PIR sensor.
18. Remove the cubicle top.
19. Fit the half door supplied. This uses two of the fixings used for the base/stairs.
20. A floor panel supplied should now fit in the base to cover the opening.
21. Take care when removing large moulded parts form the vehicle and store in a safe place.

Cleaning & Hygiene

Cubicle Cleaning

- The cubicle is manufactured from Glass Reinforced Plastic (GRP) with high gloss interior and lightly textured exterior surfaces. This surface finish is delicate and must only be washed down using a mild detergent. The use of a caustic or abrasive material is not recommended, as this will affect the appearance.

Sink

- The sink is made from Polyethylene Plastic and has a gloss interior and lightly textured exterior surface. This surface finish is soft and must only be washed down using a mild detergent. The use of a caustic or abrasive material is not recommended, as this will affect the appearance

Toilet Bowl Cleaning

- To protect the finish of the ABS toilet bowl do not use abrasives of any kind. To clean the bowl, use a mild anti-bacterial detergent and suitable soft brush.
- Some units will have a Stainless Steel bowl installed but the same rules apply.

Litter Bin

- The P7 cubicle features a 5 litre plastic bin next to the sink. It is recommended that the bin is lined with a plastic bag to make emptying the bin easy and to keep the bin clean and free of odour.

Soap Dispenser

- To fill the dispenser, push the top of the cover in and pull forward, fill with liquid soap.

Toilet Roll

- It is recommended that a high biodegradable paper is used at all times.
- **Cat No. = 800103 Pack of 36. (Available from Shades Technics)**

Domestic grade toilet paper is not recommended as this can block the system.

Maintenance - Daily

- Prior to the vehicle entering service the holding (soil) tank should be charged with an additive to sanitise the effluent.

- The recommended product is **Shades Super Sani ECO or Sani RC**, formulated from natural essential oils, this formaldehyde-free formula is contained within a water soluble membrane. A single 16 gram sachet contains the recommended dosage for 110 litre capacity holding tank and will function for a maximum of three days.

  To apply:

  1. Ensure the soil tank is empty.
  2. Check the tank evacuation valve is closed
  3. Check the WC clean water tank is full.
  4. Switch on power to the cubicle (see page 2)
  5. Press the flush button and drop the complete sachet into the bowl.

- **Cat No. 800025 (Box 100) or Cat No. 800026 (Carton 1000)**

- ***Caution:*** **Do not open the sachet .**

- It is recommended that the WC supply tank is drained and the soil tank is emptied at the end of every day.

Maintenance - Weekly

- Check extractor fan function.
- Inspect the security of the following,

1. Faucet/Tap
2. Door Hinges
3. Toilet Seat
4. Door Lock
5. Soap Dispenser
6. Toilet Paper Dispenser
7. Lights
8. Alarm Button
9. Smoke Alarm

- Push the flush button and check the operation.
- Push the hand wash button and check the operation.

Maintenance – Biweekly or Monthly

- Lubricate slide valve with Silicone grease as follows.

1. *Open the mirror vanity door*
2. *Turn gently 180º the small red lever of the isonic valve, the slide valve will automatically open.*
3. *Wearing a latex glove take some Silicone grease and distribute around the black seal where the paddle slides underneath the WC bowl. An alternative is to use Silicone grease or oil in a spray can, both lubricate and leave a protective layer.*
4. *Turn back the small red lever to close the slide valve and lock the vanity door.*

Silicon Grease is available at Volvo with code 535790 "High Vacum Grease", and could be found commercially either silicon grease or oil; bellow some options found at Grainger.

Grainger Code	*Description*	*Brand*	*Brand Code*
2YKK4	*Grease, Silicone DM(TM), 14 oz*		*Jet-Lube 73550*
2X988	*Silicone Lubricant 5%, Spray*	*Sprayon*	*S00206*
4GUR2	*All Purpose Silicone Lube*	*Sprayon*	*206LQ*

NOTE:

Lubrication periods must be adjusted in accordance with the coach and toilet usage, if usage is intensive then lubricate weekly. Use Silicone grease or lubricant compatible with rubbers, the use of another kind of grease will damage the rubber seals permanently.

Maintenance - Quarterly

- Flush out soil tank with clean water. (the soil tank must be empty and the vehicle positioned so that the soil tank evacuation valve is over a sewage drainage point)

To flush out:

1. *Switch on the cubicle.*
2. *Connect a hose pipe to a mains water supply.*
3. *Open the side door.*
4. *Connect the hose to the tap on the top of the soil tank.*
5. *Open the tap.*
6. *Turn on the water to the hose pipe and fill the holding tank, being careful not to overfill.*
7. *Switch off the water to the hose and open the evacuation valve to empty the tank.*
8. *Turn the tap off and disconnect the hose form the tank fitting.*

- Clean the grate of the hand wash and the floor drains, this will avoid blockages.

Winterization
Jump Starting
Reporting a Fault

Winterization

- If the vehicle is to be parked in zero or sub-zero temperatures, it is imperative that all water containers are completely drained. This includes the drinks boiler.

- During winter months (temperatures bellow 0°C or 32°F) we recommend to place glycol in the fresh water tank for flushing to prevent water freezing. Glycol can also be used in the soil tank, since it will experience same conditions.

Note

- No warranty claims will be accepted on any winter damaged parts.

Jump Starting

- When jump starting the vehicle, please ensure that the dashboard master Switch for the WC is **off!**

Fault Reporting Procedure

1. *In the unlikely event of a fault occurring please in the first instance refer to the enclosed comprehensive fault analysis flow chart*
2. *Using these charts, determine the cause of the fault and replace the faulty item from the kit if possible.*
3. *To order a replacement kit or non-kit part contact the dealer as specified on the contents page (Page 2) of this manual, quoting the cubicle serial number. The serial number is located behind the vanity access panel.*
4. *In order for replacement goods to be dispatched a simple warranty procedure must be followed (if applicable).*

- **Notes:**
- **Tampering, unauthorised involvement or preventable damage will result in a charge being levied**

Warranty Claim Procedure

Shades Technics offer a comprehensive warranty cover for all products, valid for 12 months from the vehicle's date in service or 100,000 miles (whichever elapses first).

N.B: Warranty does not cover shipping costs.

Contact the dealer or supplier from where the vehicle was purchased.

The dealer/supplier will contact Shades Technics who will email a warranty claim form to the customer.

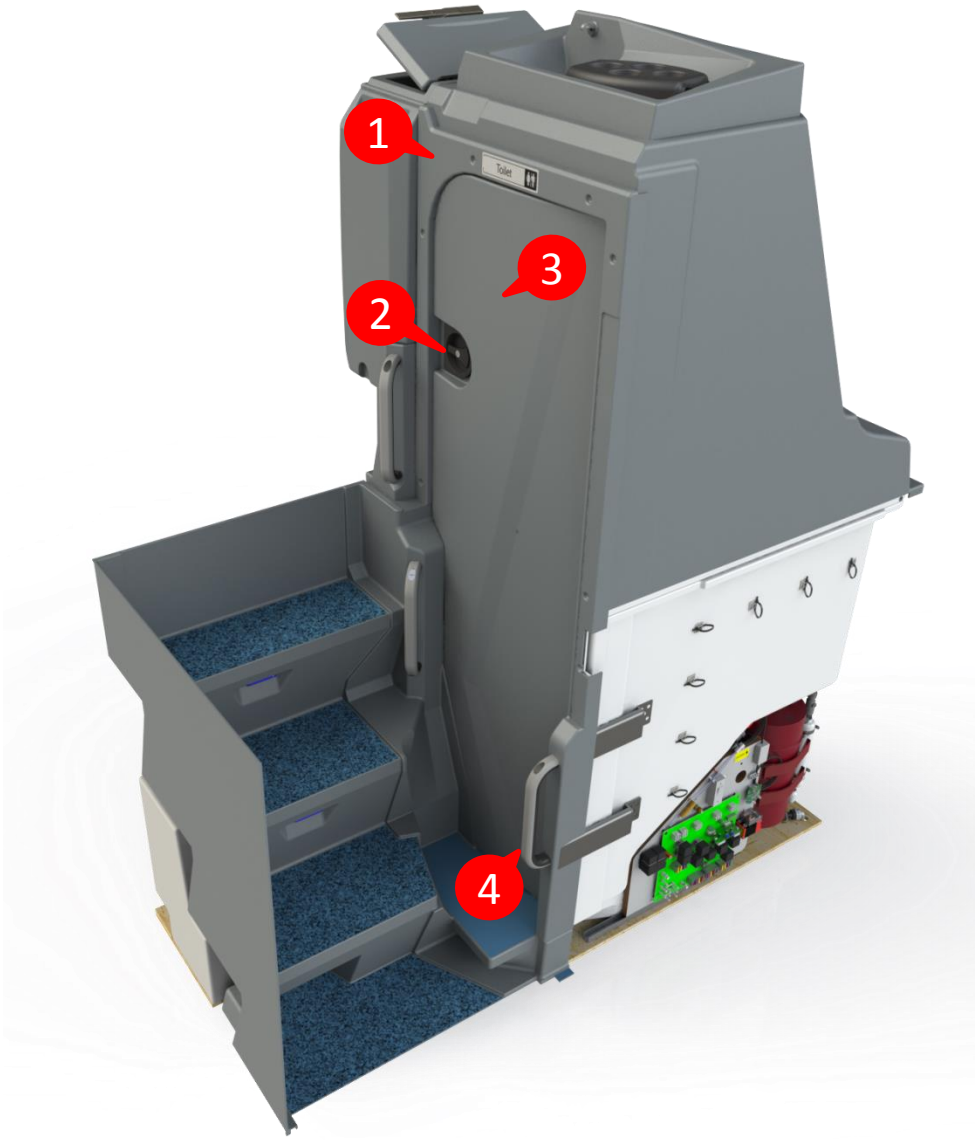
Complete the warranty claim form, ensuring all details are filled in and return to Shades on

+44(0)1992 476831

Shades Technics will despatch any pats required or organise rectification via one of its service agents.

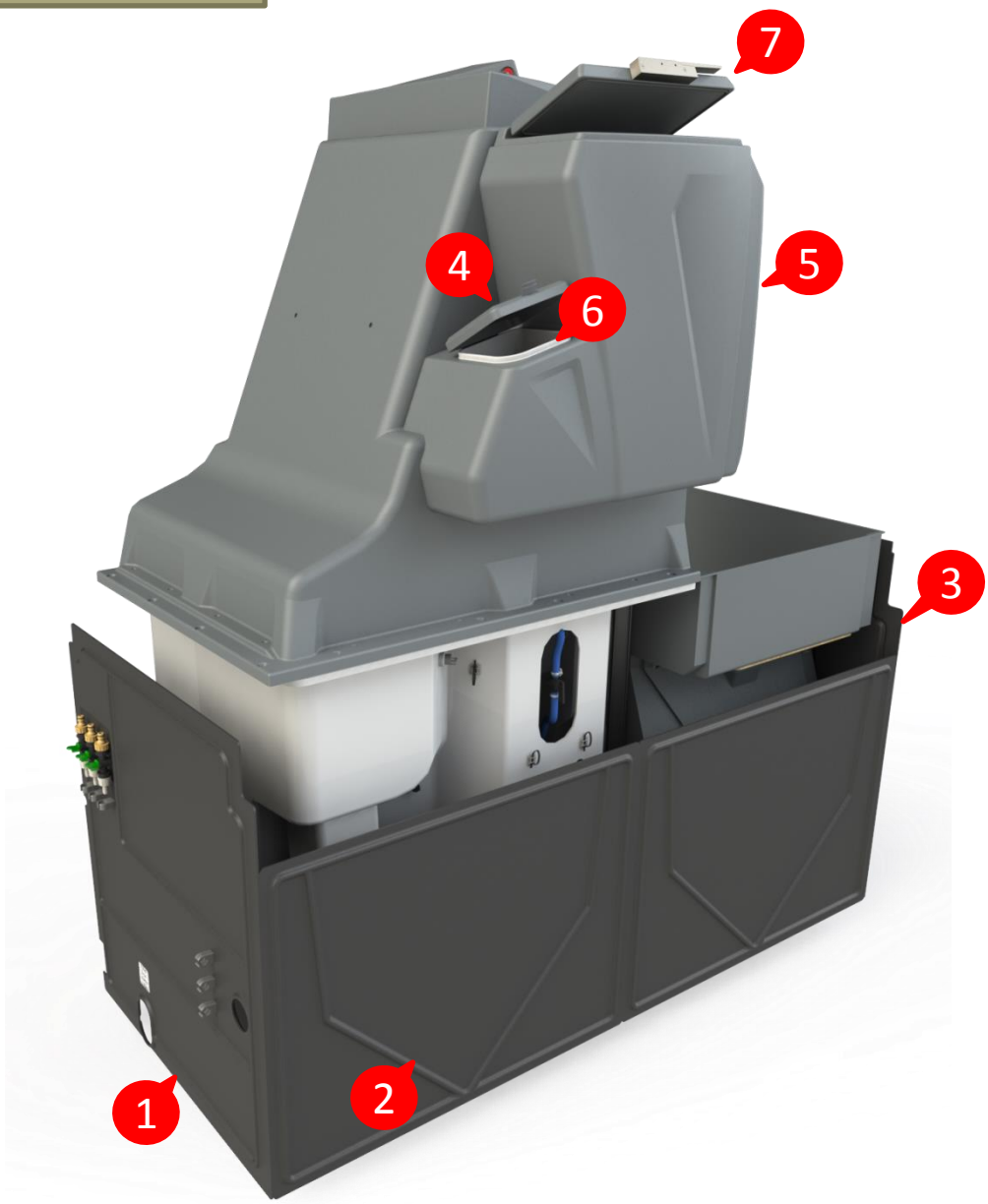
Please return any faulty parts that have been replaced under warranty within 14 days or a charge may be applied.

Cubicle Exterior



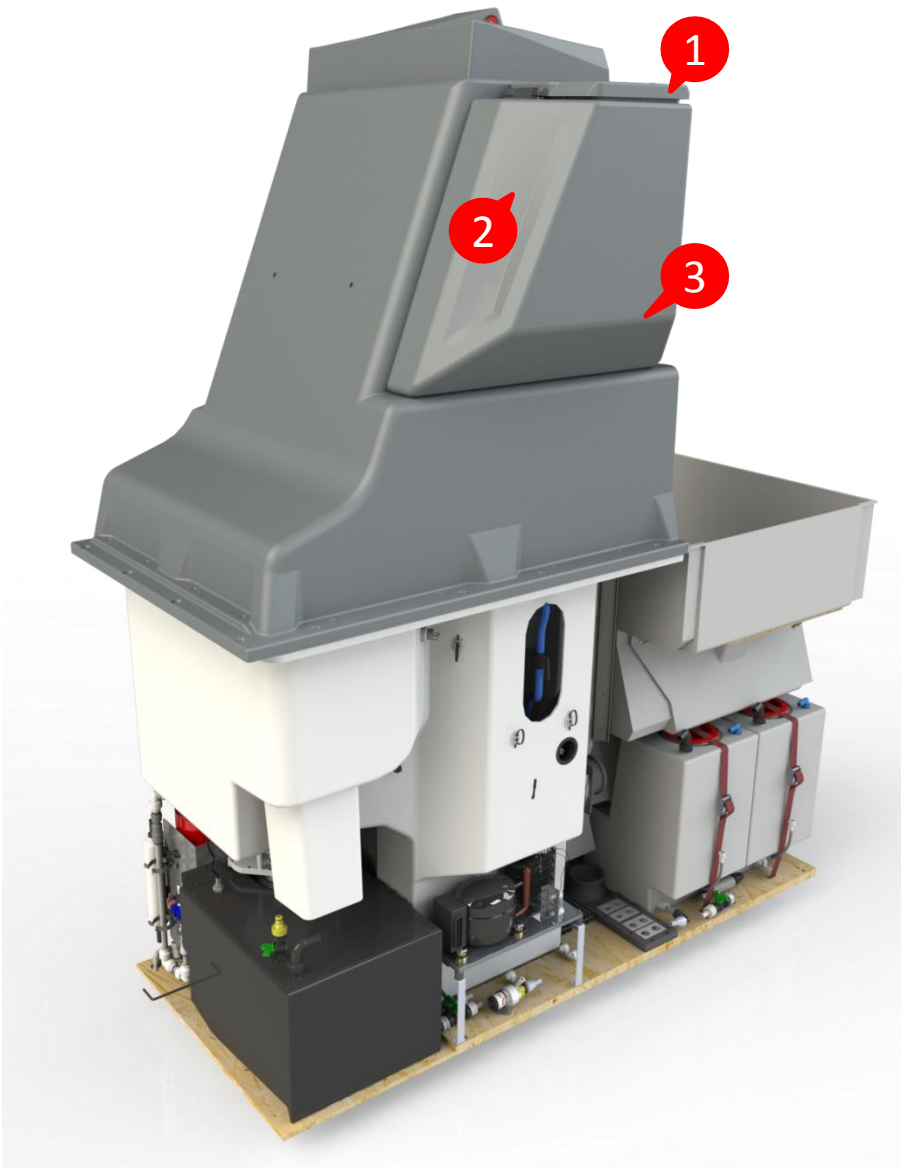
No.	Description	Part No.
1	Door Fascia	C1570008 RH C0751008 LH
2	Door Lock	661205 RH 661200 LH
3	Cubicle Door	G1570053 RH G0751053 LH
4	Grab Handle	661170

Cubicle Exterior



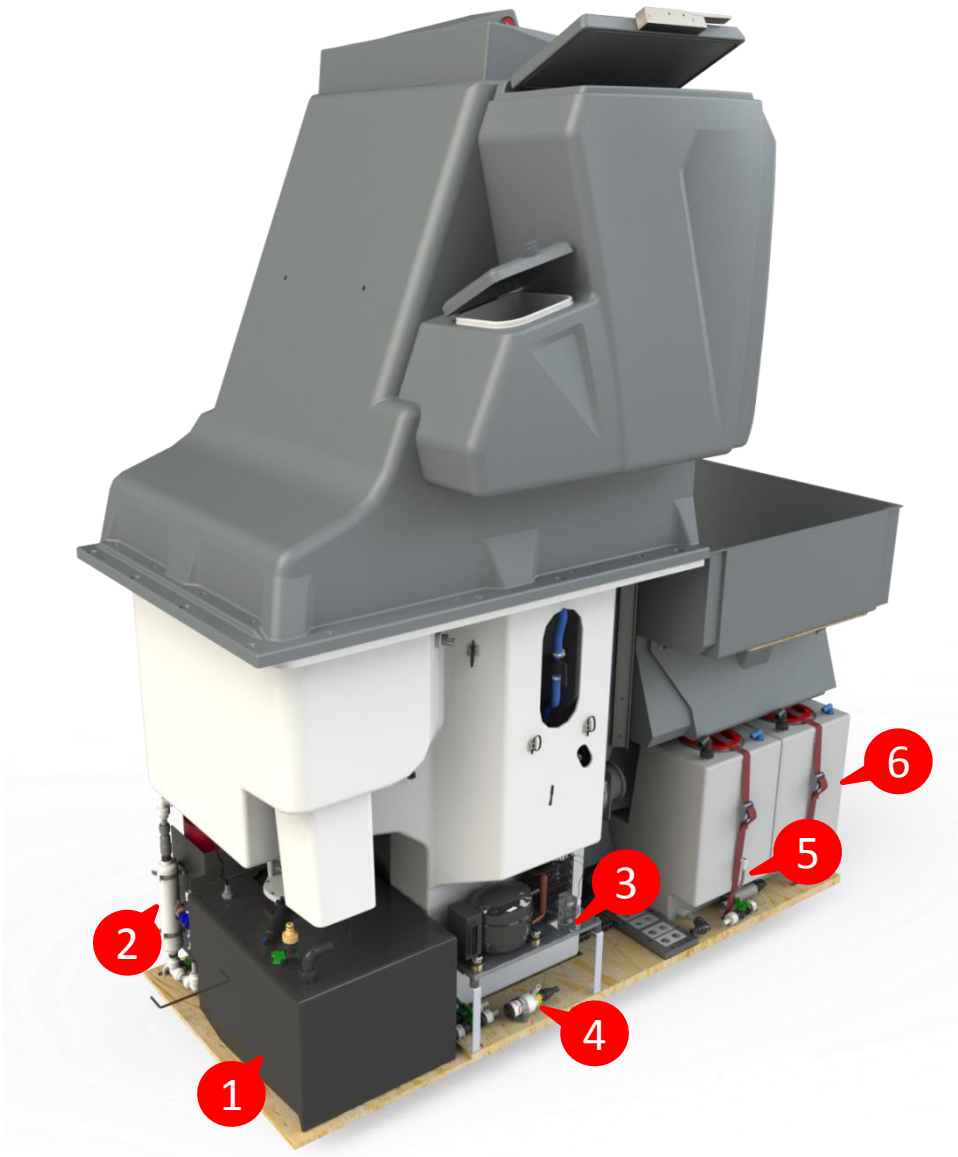
No.	Description	Part No.
1	Front Enclosure Panel	801701
2	Aisle Enclosure Panel	801702
3	Rear Enclosure Panel	801703
4	Bin Lid Assembly	G1570002 RH G0751002 LH
5	Side Cover	C1570010 RH C0751010 LH
6	5l Bin	661002
7	Fridge Assembly	E1570005

Cubicle Exterior



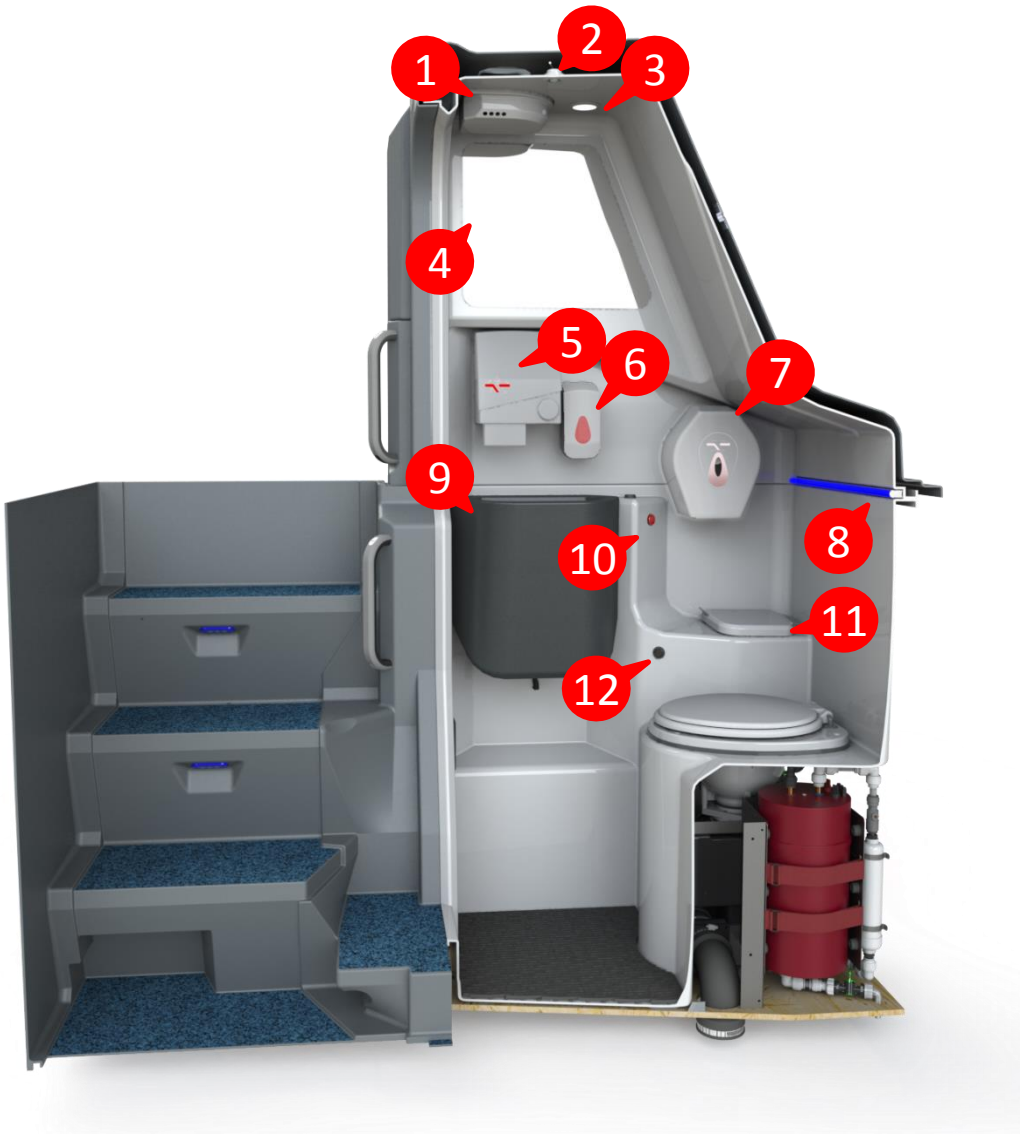
No.	Description	Part No.
1	Bin Lid Assy	E1570021 E0751021
2	Bin	661040
3	Side Cover	E1570020 E0751020

Cubicle Exterior



No.	Description	Part No.
1	Soil Tank Assy	See Page 27
2	Boiler Assy	See Page 22
3	Fridge Compressor	703200
4	Flush Pump	702112
5	Flush Tank	See Page 28
6	Drinks Tank	See Page 29

Cubicle Interior



No.	Description	Part No.
1	Smoke Alarm	661132
2	PIR Sensor	712080
3	Spot Light	712043
4	Mirror	661835 RH 661836 LH
5	Hand dryer	661800
6	Soap Dispenser	661665

No.	Description	Part No.
7	Paper Towel	661630
8	Ambient Light	712054
9	Sink	733200
10	Alarm Button	714030
11	Bin Lid	E1570001 RH E0751001 LH
12	Flush/HW Button	714007

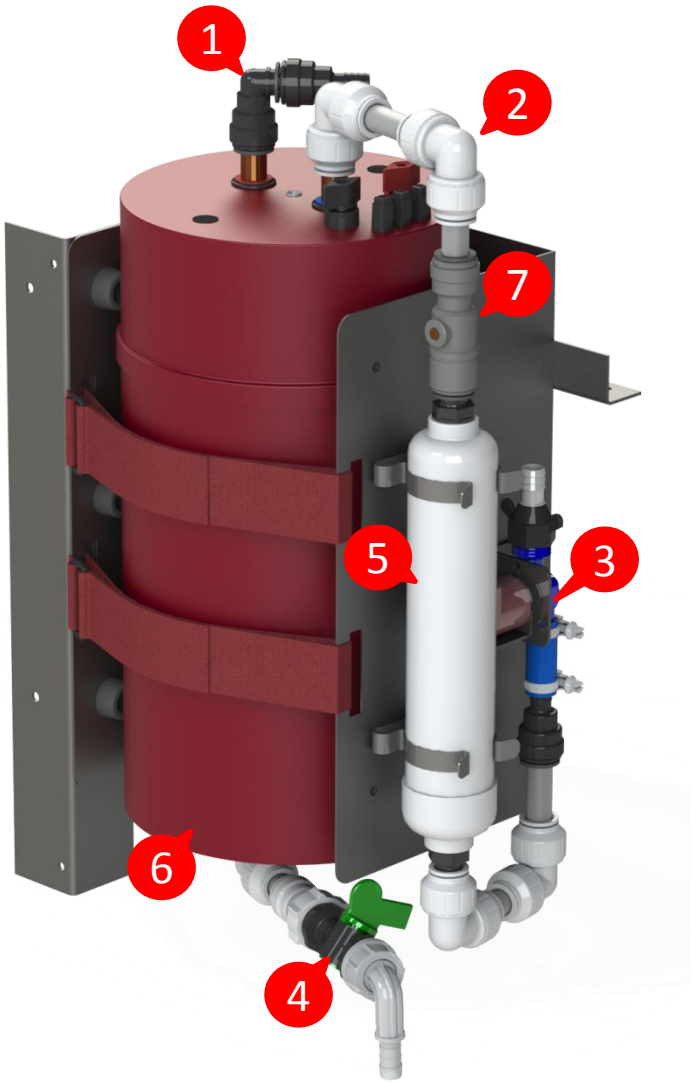
Cubicle Interior

No.	Description	Part No.
1	Toilet seat & Hinges	735100
2	Toilet Bowl Assy	731262
3	Floor Mat	661488
4	Step Light	712064

Toilet System

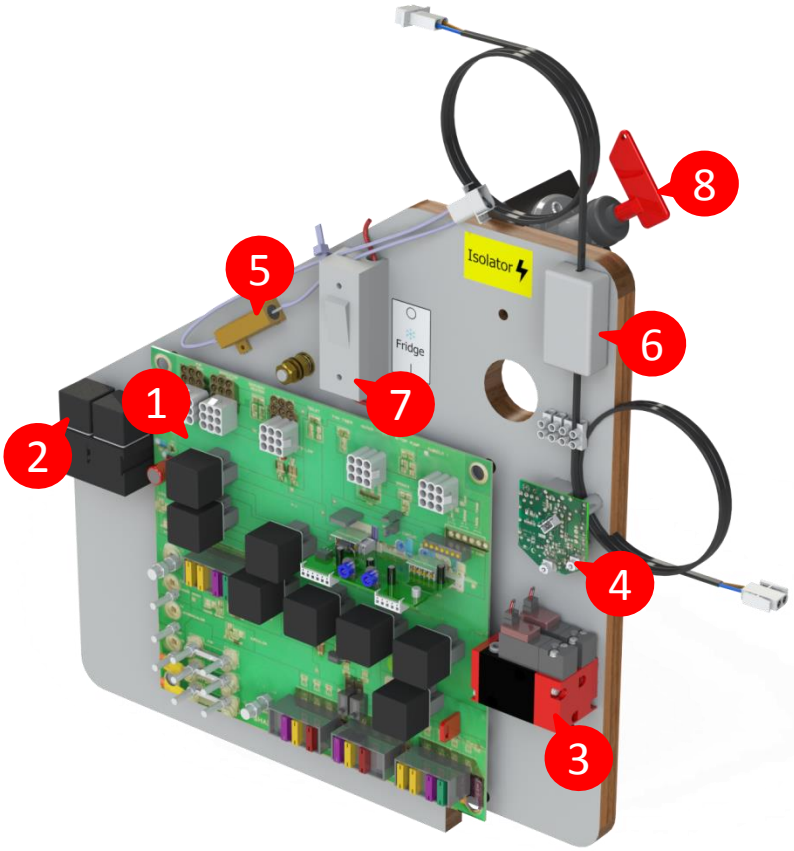
No.	Description	Part No.
1	Toilet Seat Hinges	735102
2	Toilet Seat & Lid	735101
3	Toilet Bowl Assembly	731262
4	Slide Valve	735713
5	Solenoid Valve	714622
6	Fir Tree Fitting	731736

Drinks System



No.	Description	Part No.
1	Stem Elbow	747016
2	Elbow	747015
3	Solenoid Valve	714622
4	Tap	747044
5	Hydrofilter	722017
6	Boiler	697016
7	Flow control tap	747035

Electrical System



No.	Description	Part No.
1	PCB	730616
2	Relay	715016
3	Air Solenoid	735716
4	PIR Board	712080
5	Hand wash Resistor	730703
6	LED Control box	731219
7	Fridge switch	714011
8	Isolator Switch	661221

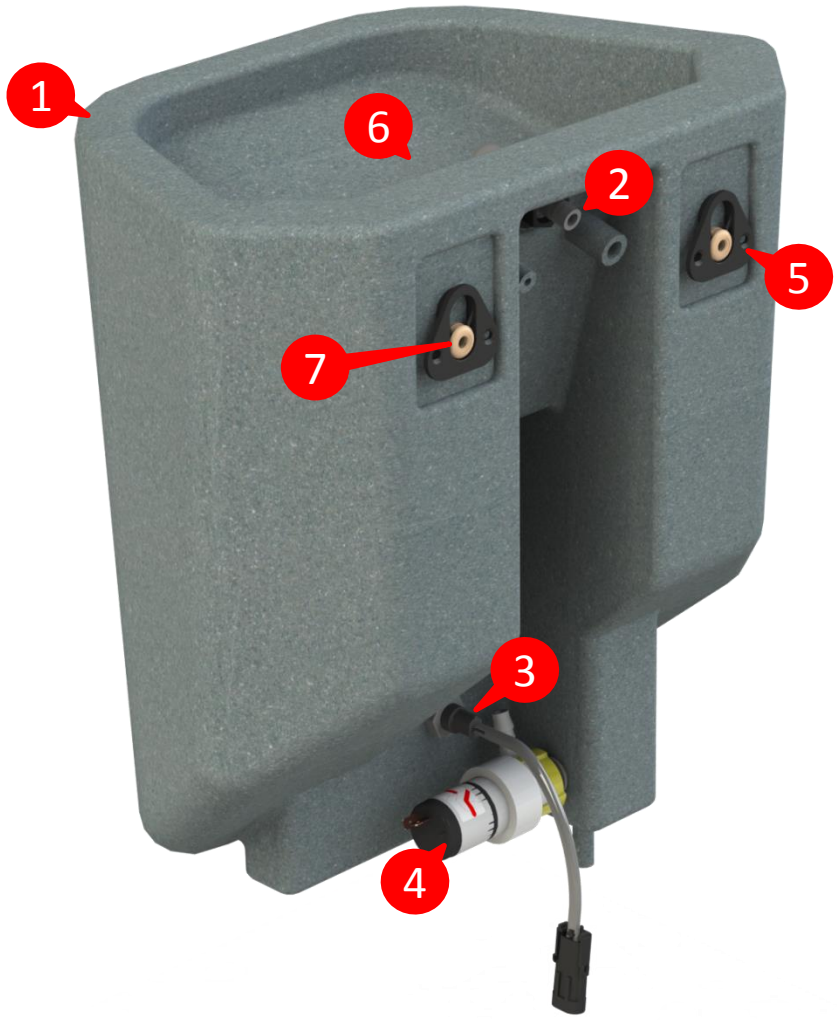
Worktop

No.	Description	Part No.
1	LED Panel	712511
2	Button (RED)	714012
3	Tap	663609
4	Drain	701552
5	Mat	663317
6	Cup Tray	663304

Worktop

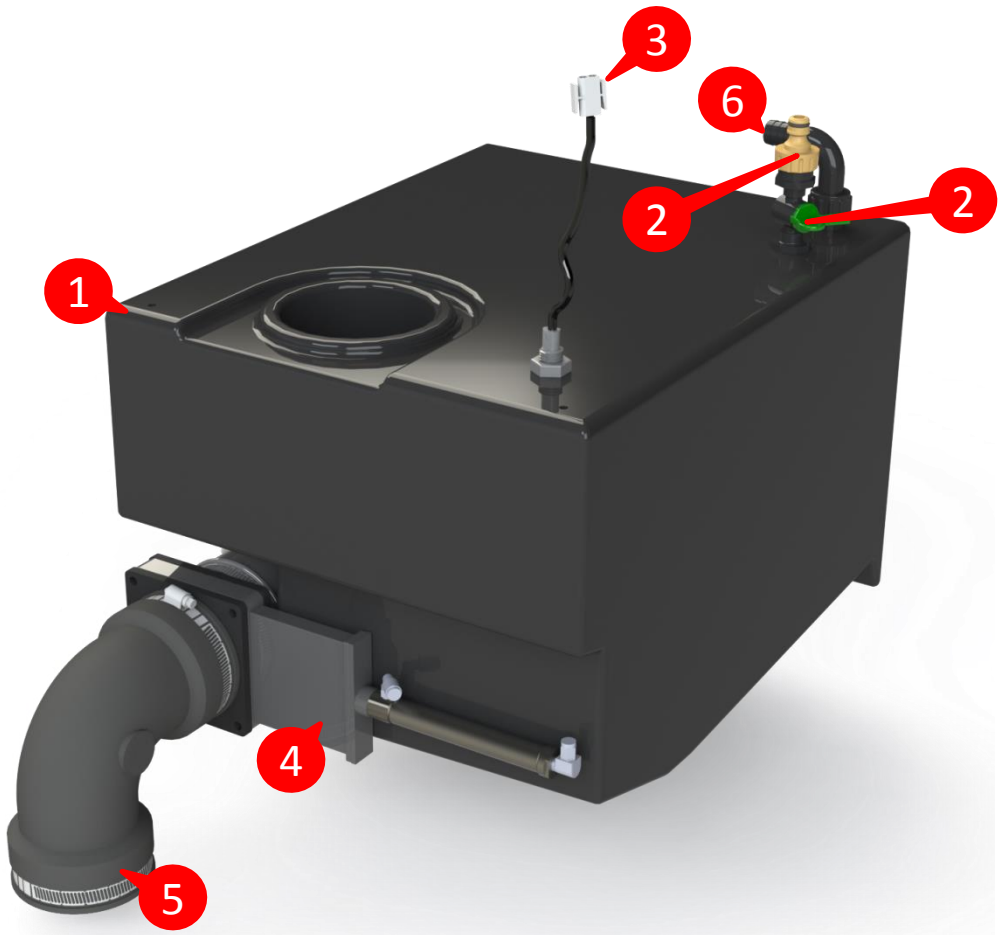
No.	Description	Part No.
1	Door Lock	663020
2	Door Assembly	E1570006
3	Compressor Plate	703201
4	Hinge	661417

Water Tanks



No.	Description	Part No.
1	Hand wash Sink-Tank	733200
2	Faucet	663609
3	Float Switch	714516
4	Hand Wash Pump	702112
5	Fixing Bracket	713154
6	Sink Waste	701504
7	Button Clip	713156

Water Tanks

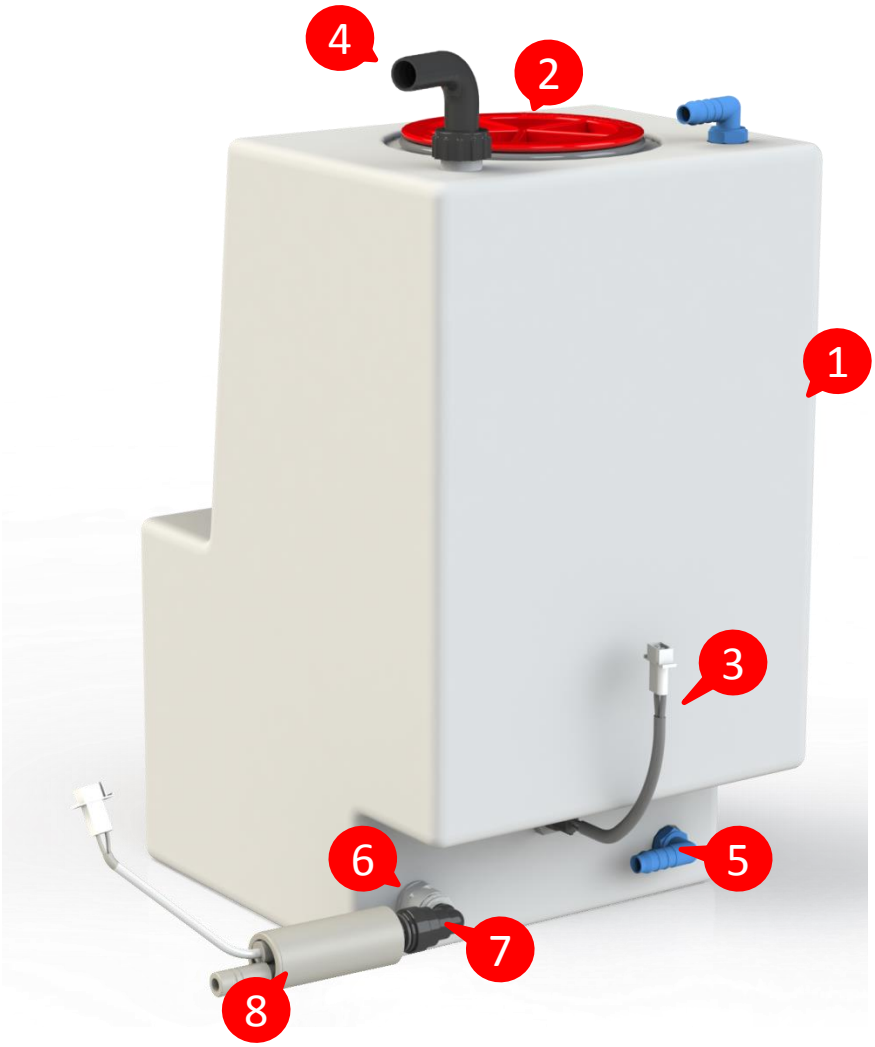


732 014	Description	Part No.
1	Soil Tank	733963 RH 733964 LH
2	Rinse Out Tap	747044
3	Float Switch	714500
4	Dump Valve	735774 P 735746 MANUAL
5	Rubber Elbow	735767
6	Breather	744012
7	Hoselock Fitting	732014

Water Tanks

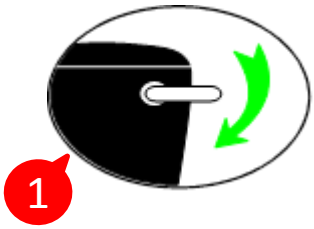
No.	Description	Part No.
1	Freshwater Tank	733666
2	Hatch Cover & Seal	732070
3	Float Switch - H	714510
4	¾” Elbow Tank Fitting	733666
5	Tank Coupling	747028
6	Stem Elbow	747016
7	Hose Barb Elbow	747032
8	Flush Pump	702112
9	Hose Barb Con	747027

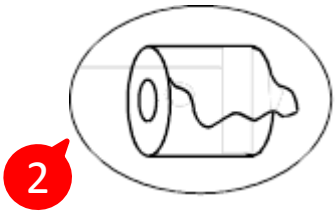
Water Tanks

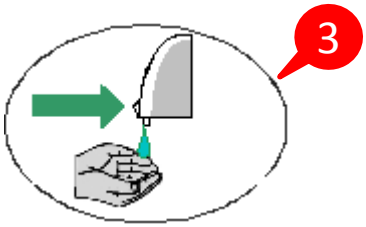


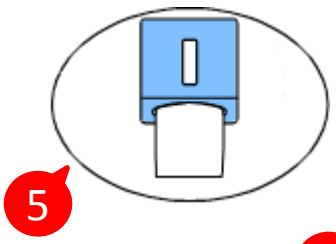
No.	Description	Part No.
1	Freshwater Tank	733666
2	Hatch Cover & Seal	732070
3	Float Switch - H	714510
4	¾” Elbow Tank Fitting	744012
5	Hose Barb Elbow	747032
6	Tank Coupling	747028
7	Stem Elbow	747016
8	Drinks Pump	702102?

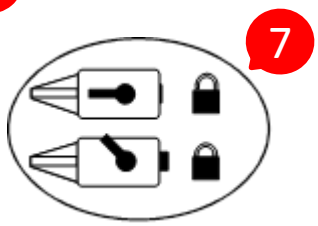
Symbols (stickers)











No.	Description	Part No.
1	Toilet Flush	735562
2	Toilet Paper	735569
3	Soap	733510
4	Trash Bin	735567
5	Paper Towel	735573
6	Do Not Stand	735560
7	Door Lock RH	735564
8	Alarm Button	735566
9	No Smoking	735563

Cubicle Electrics

Description

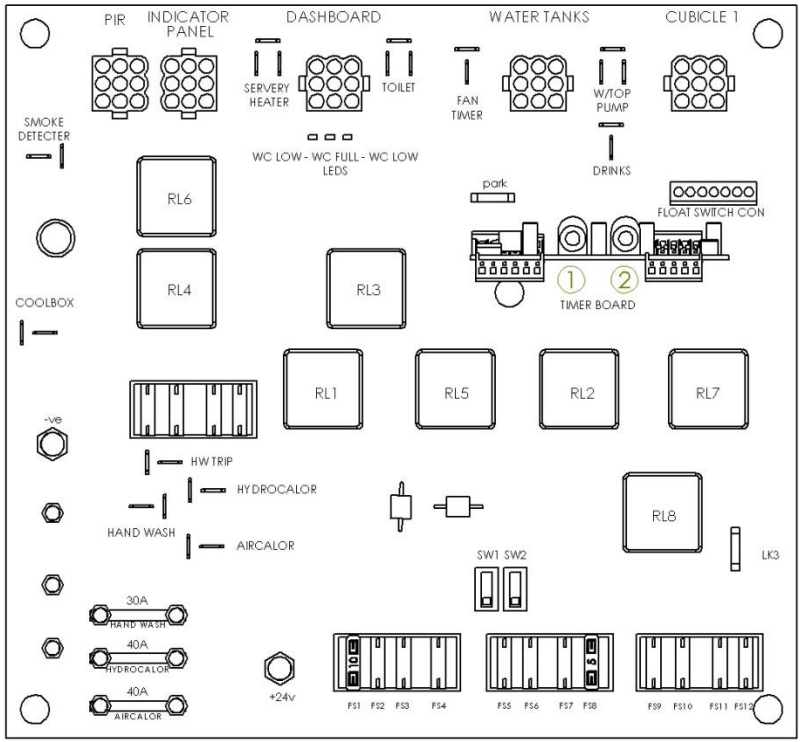
The toilet cubicle is controlled by the Shades PCB located in the off-side locker next to the toilet, serviceable from the side locker door. All output devices are short circuit and over-voltage protected for reliability and safety but for detailed fault finding please see below.

Main power to the board is via the isolator switch with the fridge having its own feed which is switchable independently.

Relays mounted away from the PCB control the hand dryer (if fitted) and the drinks boiler (if fitted).

The PIR circuit board switches power to the main board when the cubicle is in operation and timed functions such as hand wash and flush are controlled and adjusted via separate circuit board plugged in to the main board. In the event of a problem this board can be flipped and non-timed operation used.

The water systems are protected by float switches that prevent the pumps form running dry, with outputs to the dash showing their status. These can be overridden on the board for test purposes.



1 - flush timer
2 - hand wash timer

SW1 & SW2 - Can be used to override the dashboard WC & Servery master switch when off.

RELAY	NAME	RATING
RL1	WC Services	10/20A
RL2	Hydroflush Control	10/20A
RL3	WC Water Low Cut Off	10/20A
RL4	Soil Full Cut Off	10/20A
RL5	Hand wash Control	10/20A
RL6	Hydrocalor Fail	10/20A
RL7	Servery services	10/20A
RL8	Drinks water low Cut Off	10/20A

FUSE	NAME	RATING
FS1	Main Power & water levels	10A
FS2	PIR & LED Spots	5A
FS3	Fan Direct	3A
FS4	WC Override Switch	3A
FS5	Servery Override Switch	3A
FS6	Alarm	3A
FS7	Flush Pump	5A
FS8	Hand Wash Pump	5A
FS9	Timer Board	1A
FS10	Drinks Pump & Button	3A
FS11	Servery Services	5A
FS12	Boiler Signal	3A
FS13	Cool Box Direct	NIL
FS13A	Cool Box - Board Fed	NIL
FS14	PIR PCB	1A
FS15	Hand wash Trip	3A

Link	Position	Function
Boiler LK3	Top	Moved down to prime boiler
Float Switches(park)	Horizontal	Move verticle to bridge desired float switch

Shades Technics Ltd
Product Design & Manufacture
Hoddesdon, England **Tel: 01992 476830**

Doc Release Status: RELEASED
Customer Part No.
Part No.

ISSUE	DATE	MOD BY	CHECKED BY	Change Description (A=Added - C=Change B=Deleted)
A	20/04/17	Lp	KOM	New Product
-				

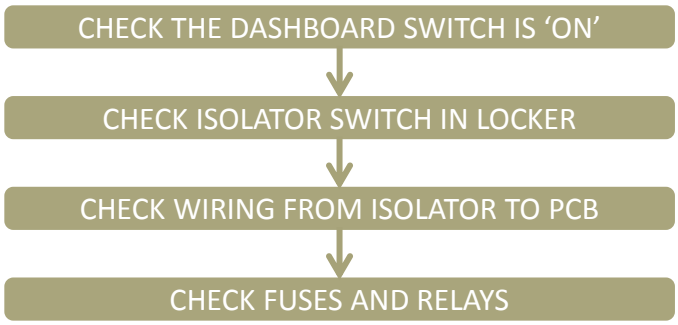
Tolerances:
mm. .X =±0.1 .XX =±0.01 .XXX =±0.005
Angular. .X° = ±2°

DRAWN: Kristian Ott Milbo
Date: 19/04/2017
SCALE N.T.S
File: Electrics.SW
DIMENSIONS ARE IN mm UNLESS OTHER WISE STATED

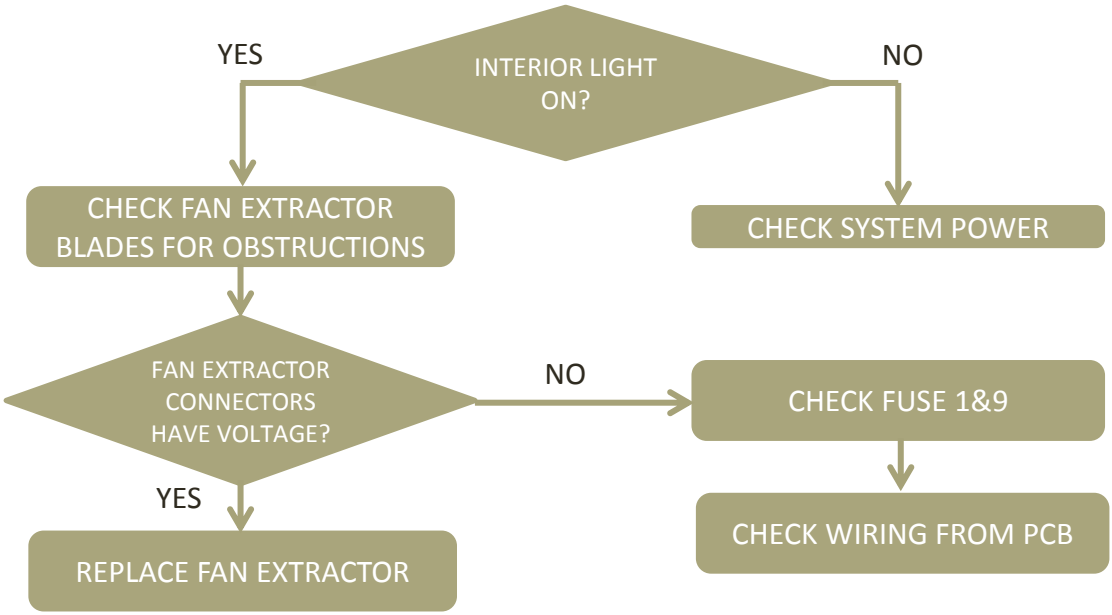
Title: Analogue Board Layout
MATERIAL: -
FINISH: -
Shades Technics Quality Procedure 7.3.1
Drawing No. ST8243

Fault Analysis Index

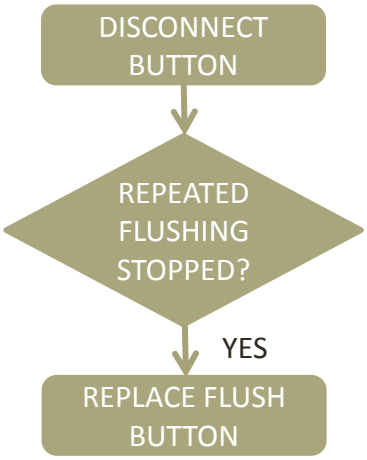
- System Without Power



- Extractor Fan Not Working



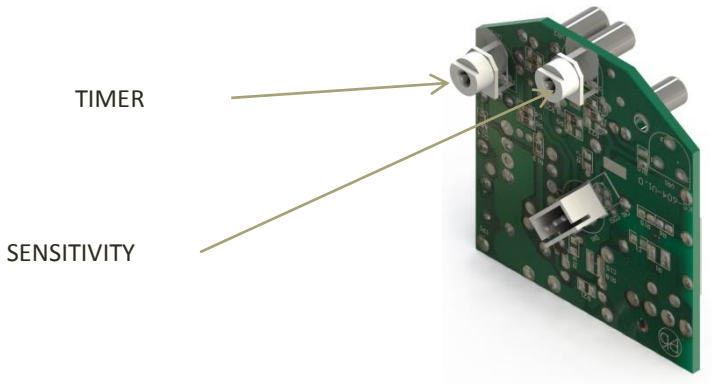
- Repeated Flushing



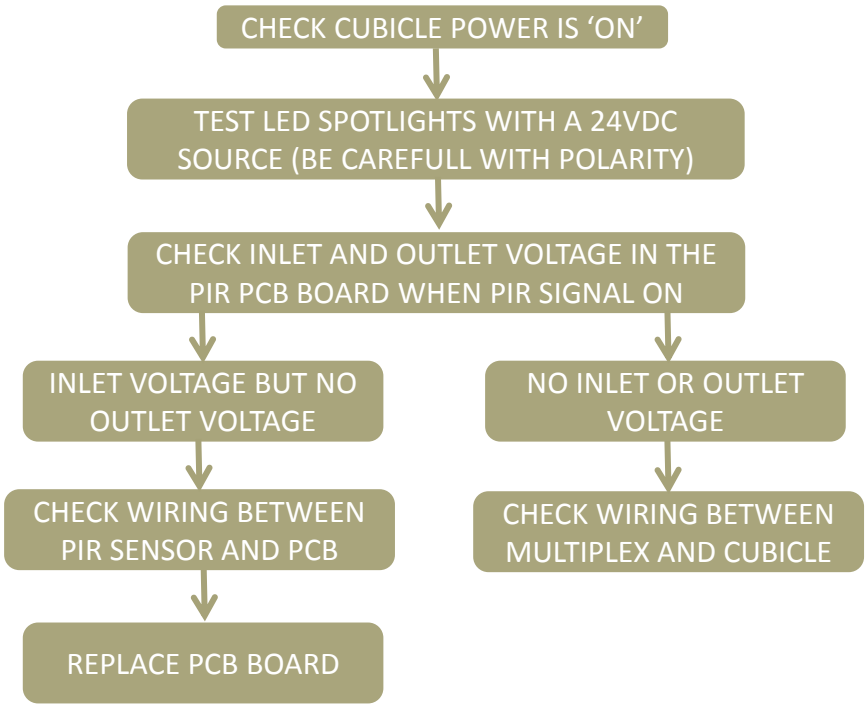
Fault Analysis Index

- Interior Lamp Timer

PIR SENSOR DETECTS HEAT AND MOVEMENT. THE TIME IS DETERMINED BY THE POSITION OF THE VARIABLE RESISTOR AND CAN BE ADJUSTED ALONG WITH THE SENSITIVTY.

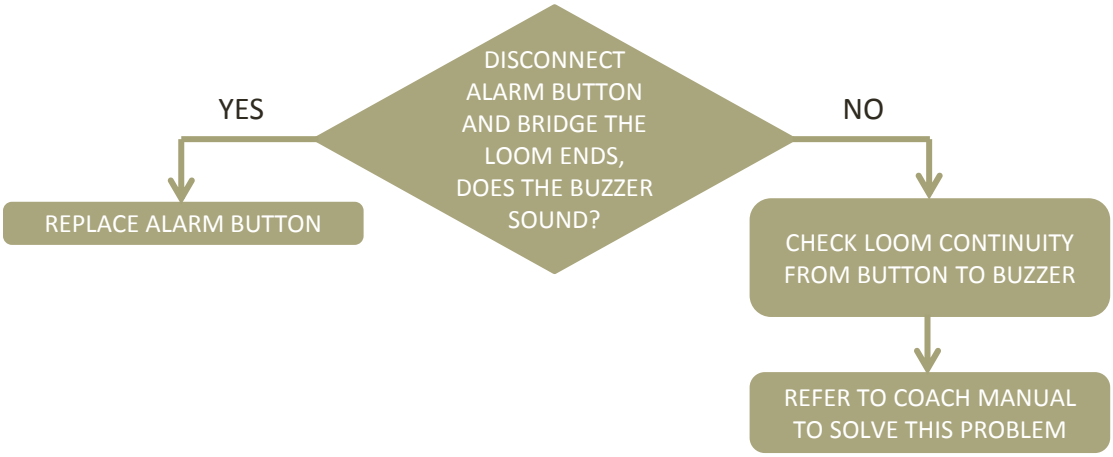


- Interior Lights Not Working



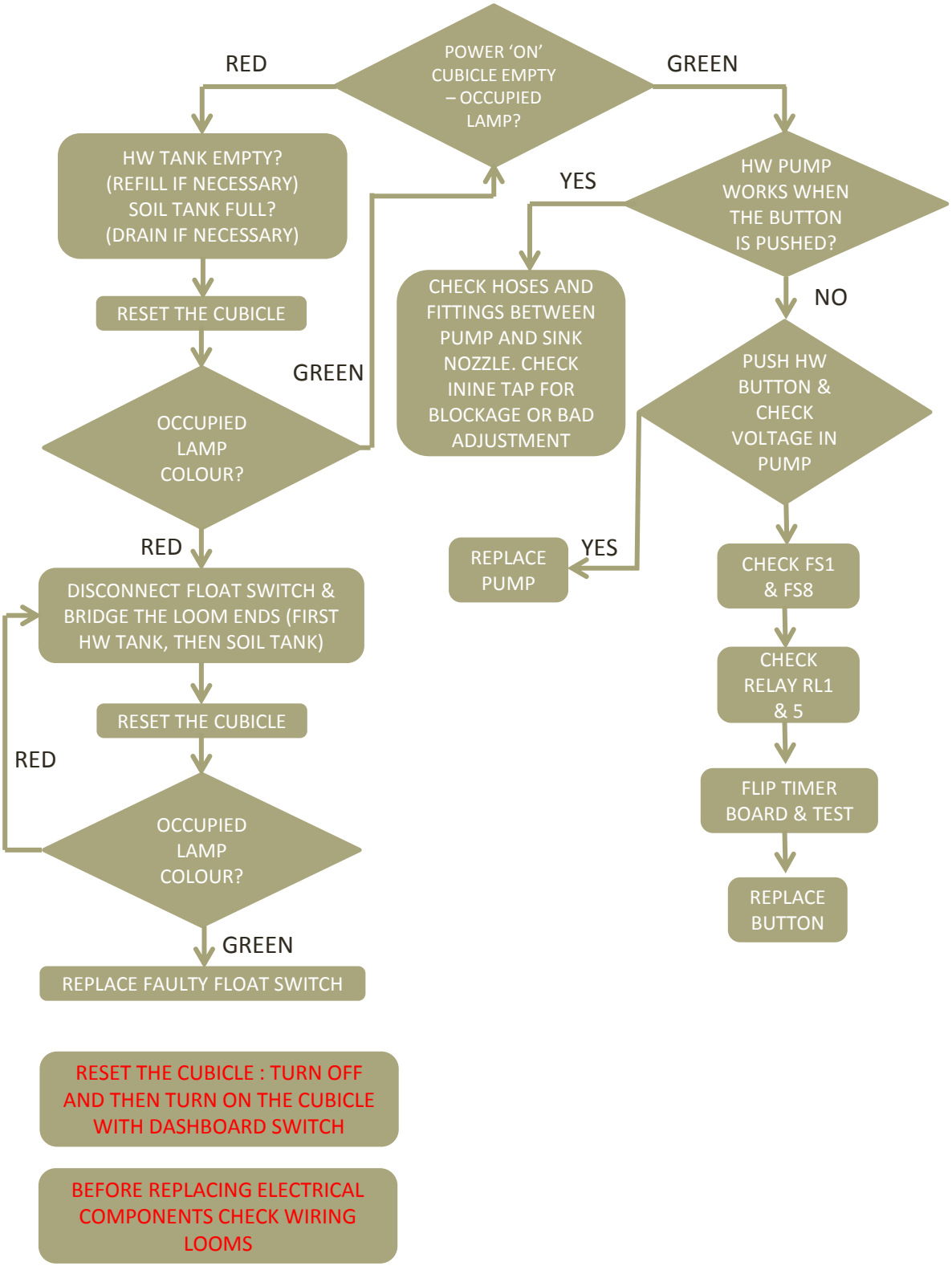
Fault Analysis Index

- Alarm Button (Buzzer) Not Working



Fault Analysis Index

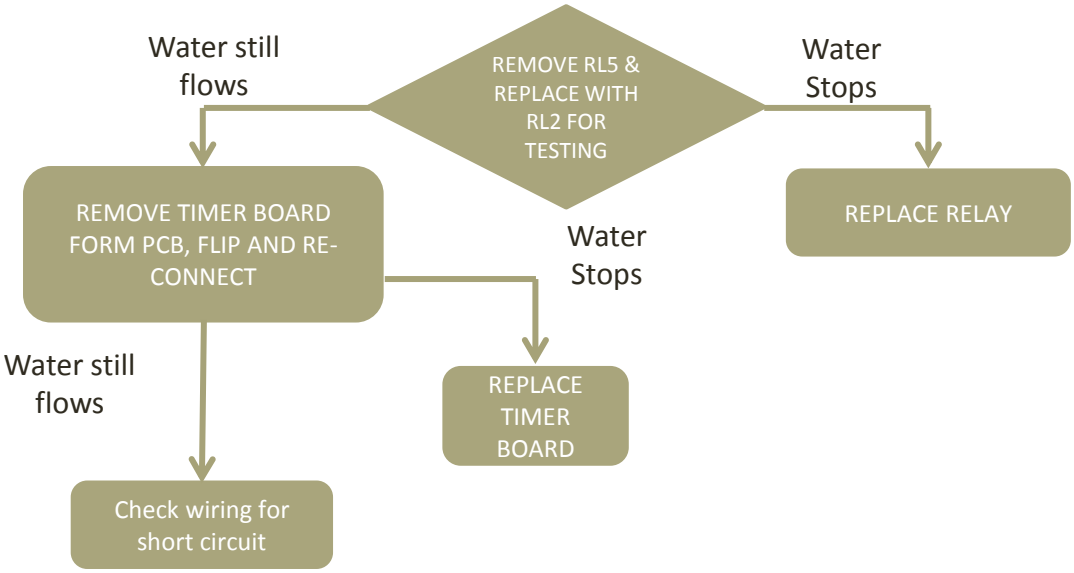
- No Water from Hand Wash Faucet



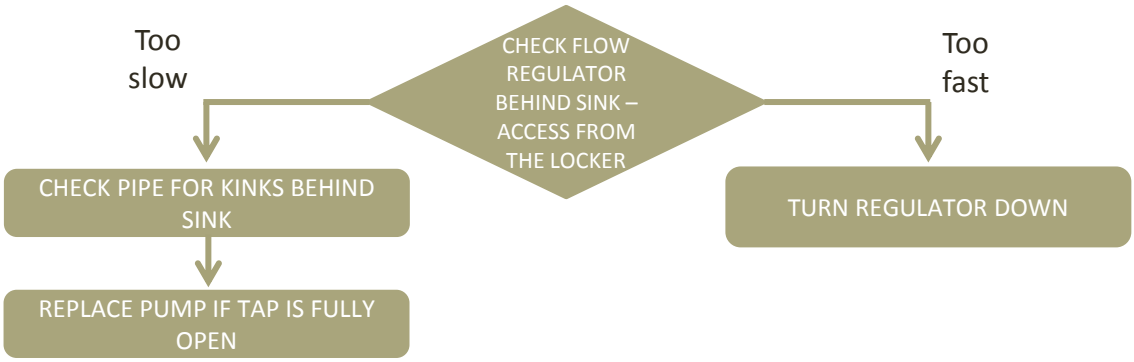
RESET THE CUBICLE : TURN OFF AND THEN TURN ON THE CUBICLE WITH DASHBOARD SWITCH

BEFORE REPLACING ELECTRICAL COMPONENTS CHECK WIRING LOOMS

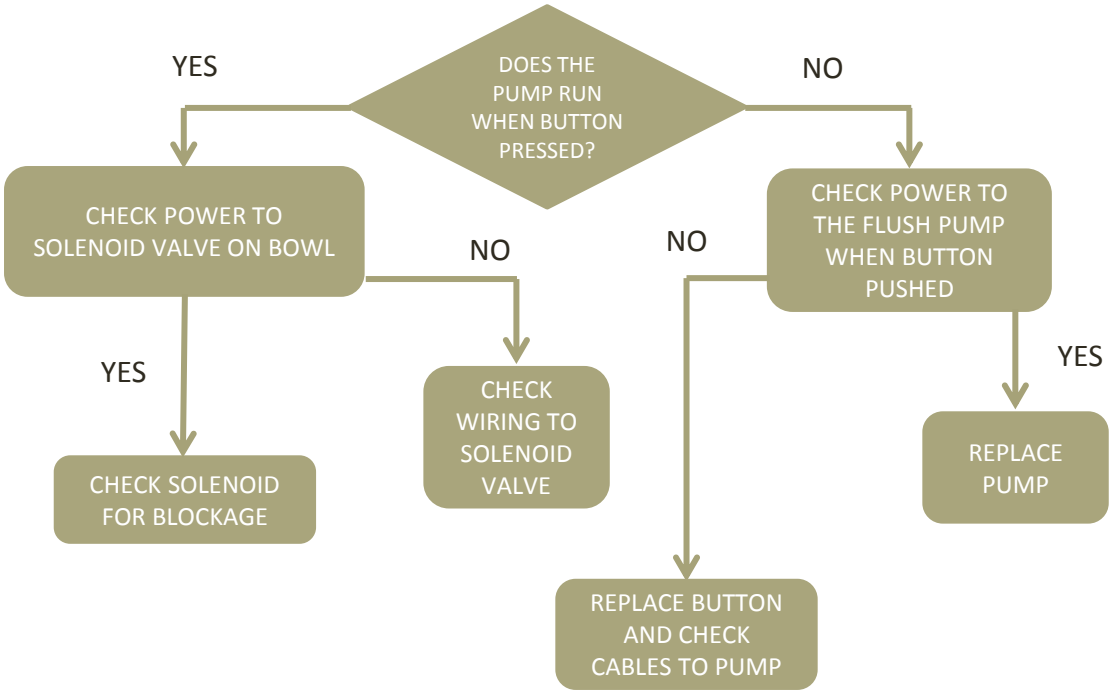
- Hand Wash Runs Continuously



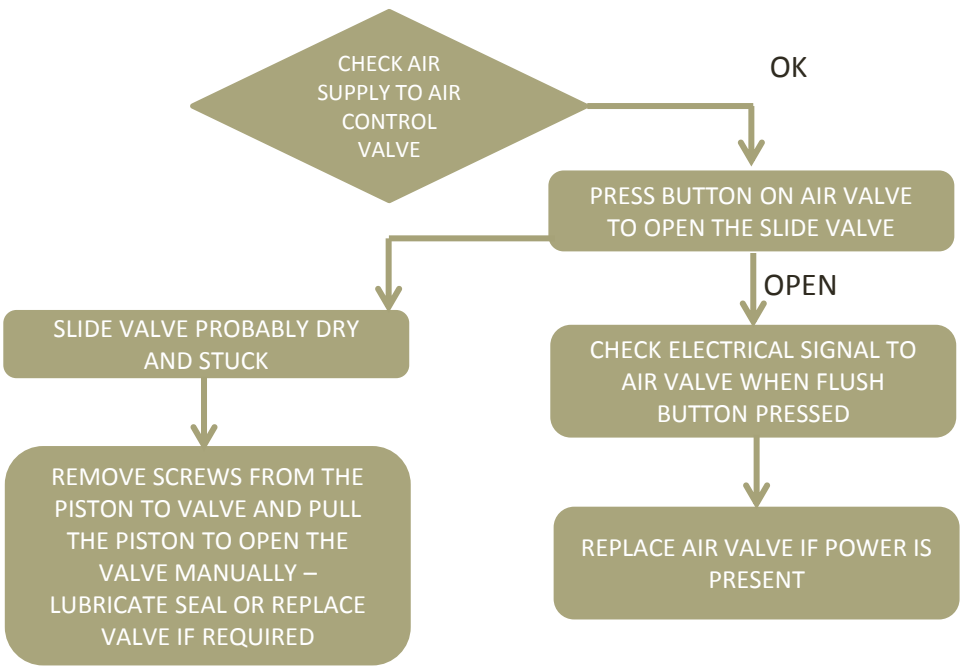
- Hand Wash Water Flow Too Fast or Slow



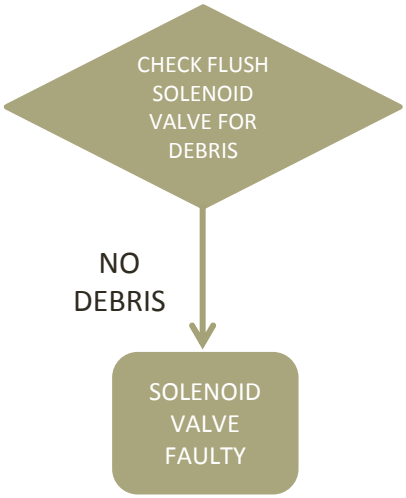
- Hydroflush Valve Opens – No water



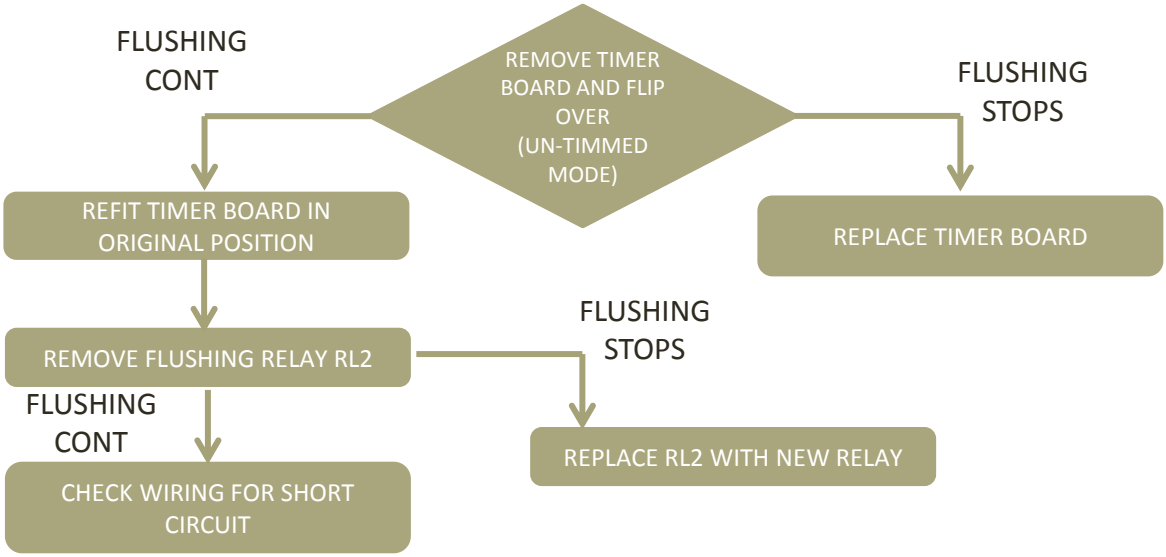
- Hydroflush Water Flows – Pneumatic Valve Does Not Open



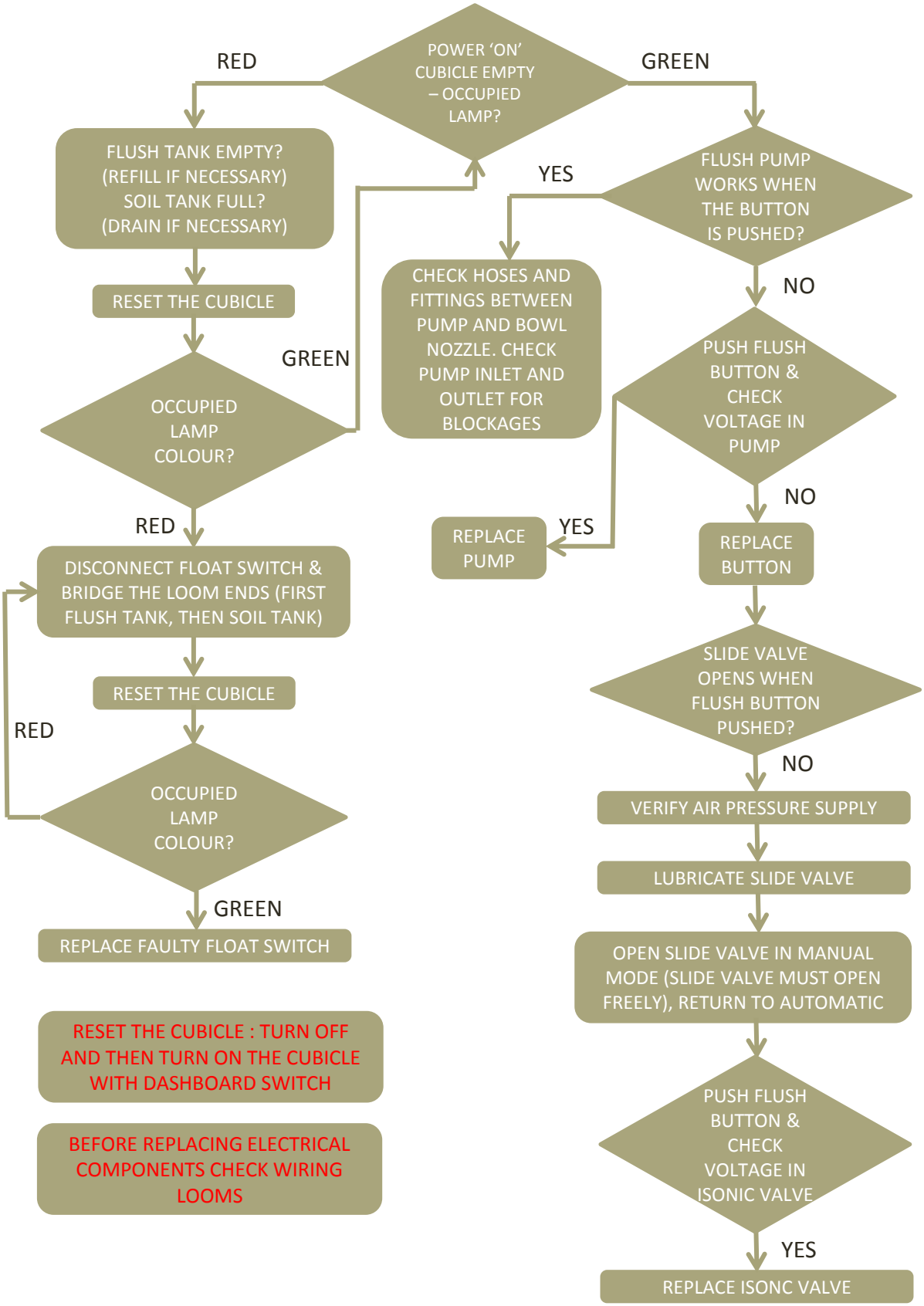
- Water Running In Bowl When Not In Use



- Hydroflush Flushing Constantly

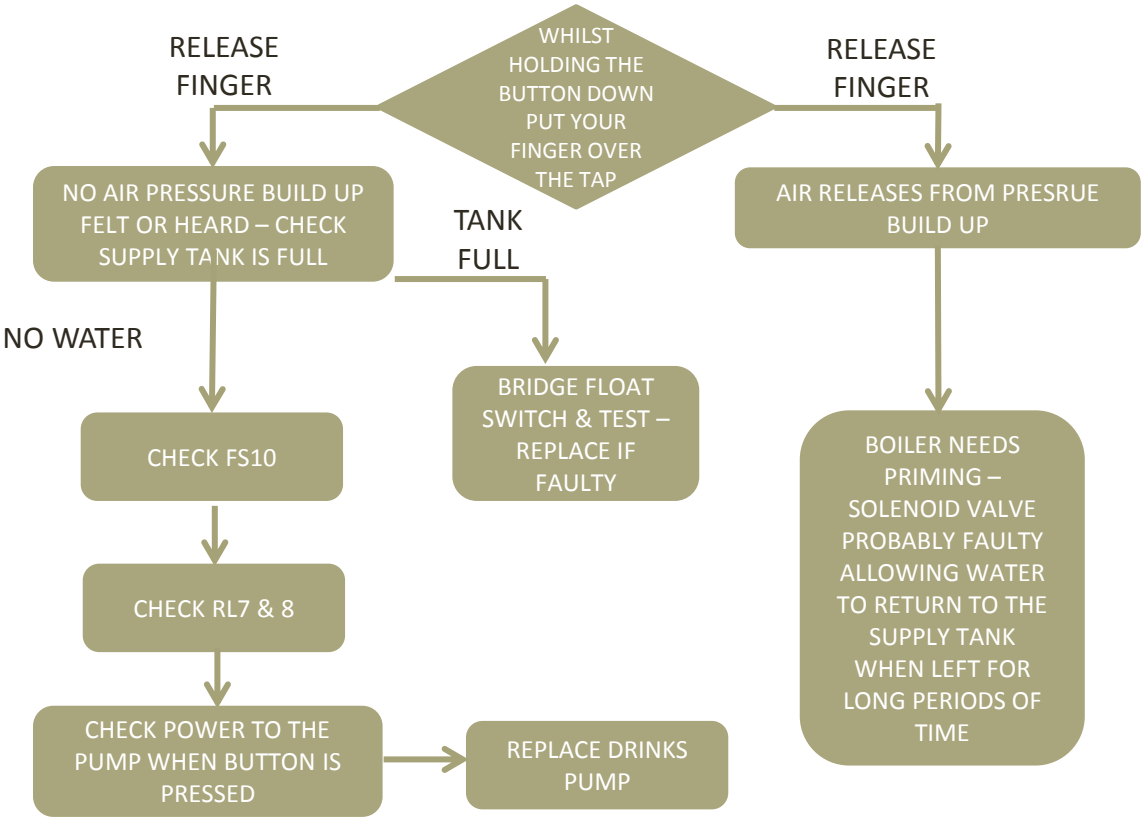


- WC Not Working (No Water, No Slide Valve)

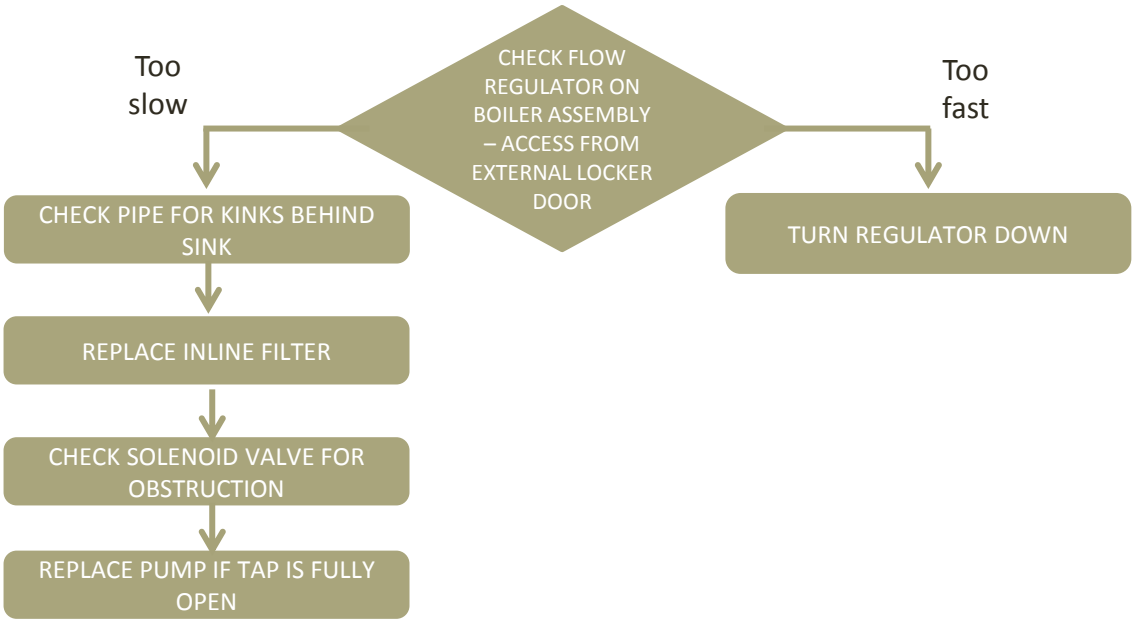


Fault Analysis Index

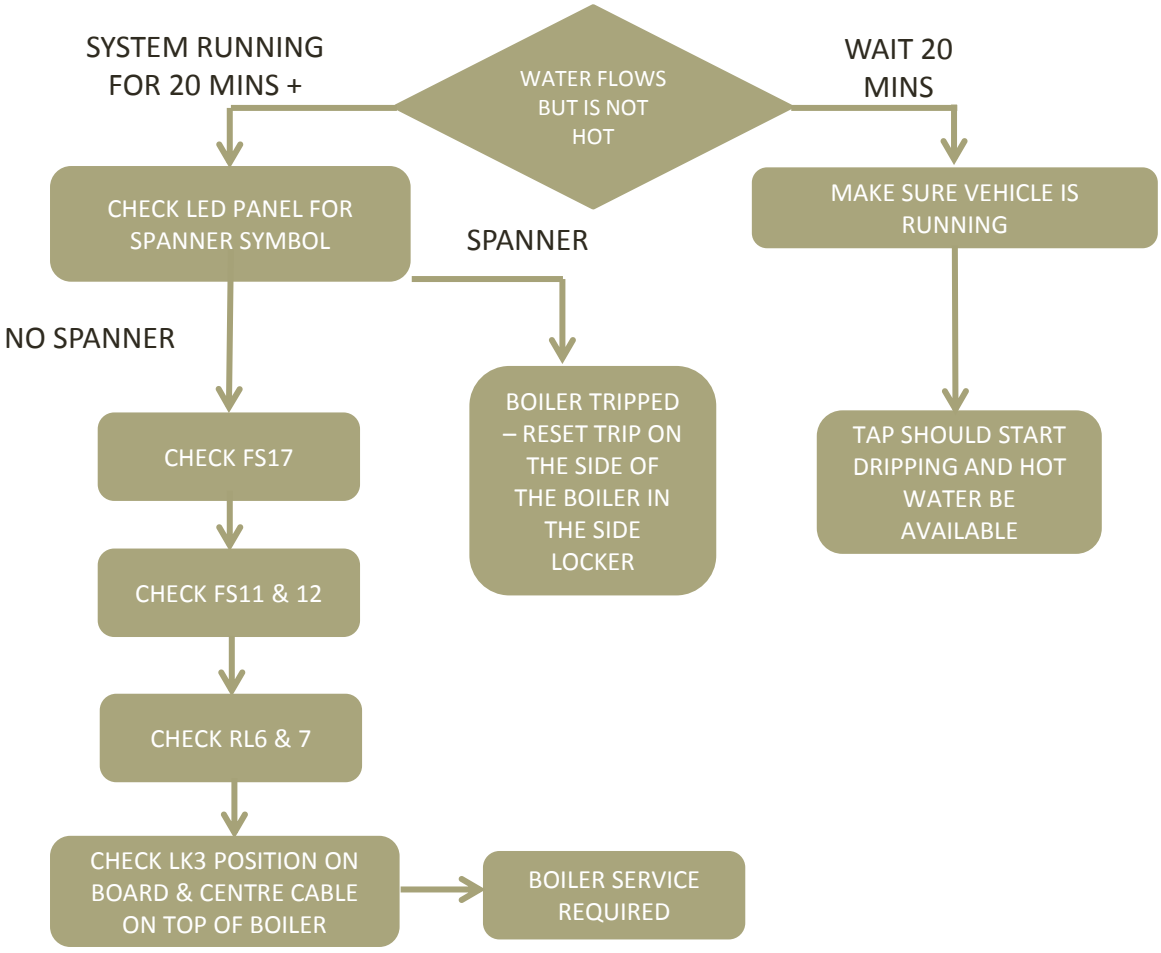
- No Water From Drinks Tap



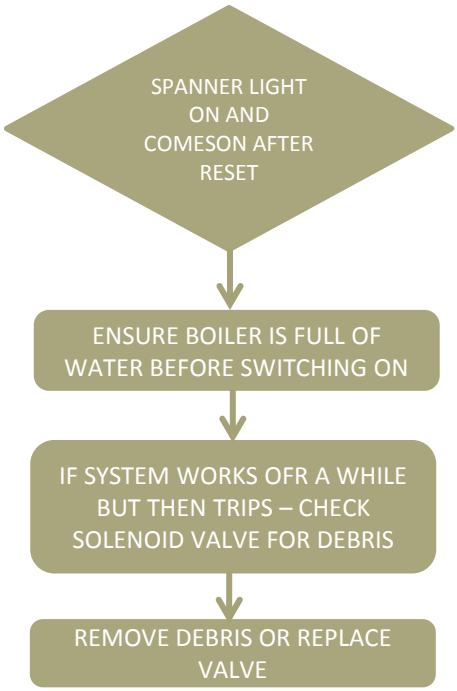
- Drinking Water Tap Flow Too Fast or Slow



- No Hot Water From Drinks Tap



- Boiler Keeps Tripping



*IF THE SOLENOID VALVE IS STUCK/FAULTY, WATER IS ALLOWED TO DRAIN BACK IN TO THE SUPPLY TANK. IF THE BOILER HEATS UP EMPTY IT WILL OVERHEAT AND TRIP OUT.

Fault Analysis Index

- Fridge – LED on the thermal element

No. of flashes	Error Type	Remedy
1	Battery protection shutdown	Check battery voltage and fuse
2	Fan overvoltage shutdown	Check condenser & vaporiser fan current: target value <0.5A
3	Compressor start-up fault	Reduce load on cooling system: - Ensure good ventilation around the cooling unit - Store pre-cooled goods
4	Compressor overload shutdown	Reduce load on cooling system: - Ensure good ventilation around the cooling unit - Store pre-cooled goods
5	Electronic fuse shutdown	Reduce load on cooling system: - Ensure good ventilation around the cooling unit

- Fridge – Interior temperature too low in control setting 1

Fault	Possible cause	Remedy
Compressor unit runs constantly	Thermostat sensor has no contact on the vaporiser	Secure the sensor
	Thermostat defective	Change the thermostat
Compressor runs for a long time	Large quantities have been frozen in the freezer compartment	-

- Fridge – Cooling capacity drops, interior temperature rises

Fault	Possible cause	Remedy
Compressor unit runs for a long time/ continuously	Vaporiser is iced over	Defrost vaporiser
	Ambient temperature too high	-
	Insufficent ventilation and/or cooling	Provide improved ventilation for the cooling unit
	Condenser is dirty	Clean condenser
	Fan defective	Replace fan
Compressor runs infrequently	Battery capcity exhausted	Charge battery

- Fridge – Unusual noises

Fault	Possible cause	Remedy
Loud humming	A component of the refriderant circuit cannot move freely (lies against the wall)	Bend the component carefully away from the obstruction
	Foreign body jammed between the cooling device and the wall	Remove the foreign body
	Fan noise	Clean the fan blades

Fault Analysis Index

- Fridge – Compressor does not run

Fault	Possible cause	Remedy
UT = 0v	The connection between the battery and the electronics is interrupted	Establish connection
	Main switch defective (if installed)	Replace main switch
	Additional supply line fuse has blown (if installed)	Replace the fuse
UT ≤ Uon	Battery voltage is too low	Charge battery
UT ≤ Uoff	Loose cables Poor contact (corrosion)	Establish a connection
	Battery capcity too low	Replace battery
	Cable cross section too low	Replace cable
Ut ≥ Uon	Ambient temperature too high	-
	Insufficient ventilation and/or cooling	Provide improved ventilation
	Condenser is dirty	Clean the condensor
	Fan defective	Replace fan

UT - Voltage between positive and negative electronic terminals
Uon – Switch-on voltage of the electronics
Uoff – Switch-off voltage of the electronics

- Part = Lights
- Location = Cubicle Ceiling

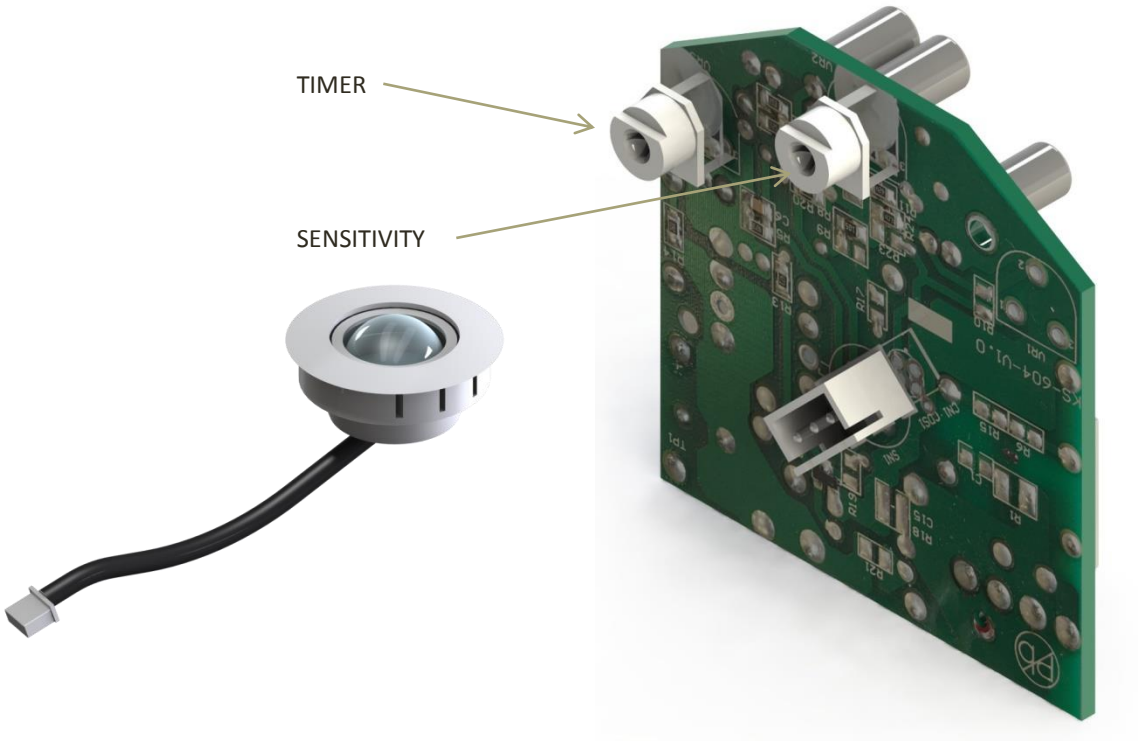
Replacement….

- DISCONNECT THE POWER TO THE CUBCILE
- GENTLY PULL THE LED LAMP FROM THE CEILING LIFTING THE EDGES WITH A FLAT SCREW DRIVER. USE MASKING TAPE TO PROTECT THE GRP CEILING PANEL FROM THE BLADE.
- DISCONNECT THE LIGHT UNIT & REPLACE

- Part = PIR Sensor
- Location = Cubicle Ceiling & Side Locker

Replacement….

- GENTLY PULL THE PIR CAP FORM THE CEILING AND DISCONNECT.
- LIFT COVER PROTECTING THE PCB IN THE SIDE LOCKER AND UNSCREW PIR PCB DISCONNECTING CABLES.
- RE-FIT A NEW SENSOR & CHECK THE SENSITIVITY AND TIMING ADJUSTMENT IS CORRECT



- Part = Flush & Hand Wash Button
- Location = Cubicle Base

Replacement….

- DISCONNECT THE POWER TO THE CUBICLE
- UNSCREW THE COLLAR ON THE UNDERSIDE OF THE BUTTON
- BUTTON SHOULD RELEASE FROM THE TOP
- RE-FIT NEW BUTTON AND CONNECT THE TERMINALS

Use 2x outer terminals

Service

The smoke alarm is powered by the vehicle but is fitted with a battery backup. If the smoke alarm beeps for 20 minutes it is most likely that the battery depleted. See below for how to replace the battery.

- Part = Smoke Alarm
- Location = Cubicle Top behind Cover

Replacement….

- REMOVE SMOKE ALARM COVER
- INSERT A BLADE SCREWDRIVER IN TO THE TAMPER PROOF CATCH ON THE MOUNTING PLATE, LOCATED AROUND THE OUTSIDE EDGE
- SLIDE TOP SECTION BACKWARDS
- RE-FIT NEW BATTERY

- Part = Hand Wash Pump
- Location = Behind Sink (SEE PAGE 26)

Replacement….

- DISCONNECT THE POWER TO THE CUBCILE
- DRAIN SINK TANK FROM INSIDE THE LOCKER
- UNDO FIXING SCREWS UNDERNEATH THE SINK
- LIFT THE SINK TANK UP TO UNCLIP IT FROM THE WALL
- LEAN SINK FORWARD AND DISCONNECT PIPES AND PUMP CABLE
- RELEASE PUMP INLET FROM TANK COUPLING
- RE-FIT NEW PUMP MAKING SURE THAT BOTH INLET AND OUTLETS ARE WATER TIGHT.
- RE-CONNECT THE POWER
- CLIP THE TANK BACK ON THE WALL, ALIGN AND PUSH DOWN
- SECURE BOTTOM FIXINGS
- CLOSE THE DRAIN
- RE-FILL TANK WITH FRESHWATER
- SWITCH ON POWER TO CUBICLE
- PRIME PUMP WITH 2-3 BUTTON PUSHES

- Part = Flush Pump
- Location = Below compressor body-side

Replacement….

- DISCONNECT THE POWER TO THE CUBCILE
- REMOVE ANY ACCESS PANEL & INSULATION PROTECTING THE PUMPS
- DRAIN FRESHWATER TANK
- DISCONNECT THE WIRES TO THE PUMP
- REMOVE FROM SECURING CLIP
- RELEASE INLET AND OUTLET PIPES
- RE-FIT NEW PUMP MAKING SURE THAT BOTH INLET AND OUTLETS ARE WATER TIGHT AND THE FLOW ARROW IS POINTING IN THE CORRECT DIRECTION
- RE-CONNECT THE POWER
- CLOSE THE DRAIN ON THE SUPPLY TANK
- RE-FILL TANK WITH FRESHWATER
- SWITCH ON POWER TO CUBICLE
- PRIME PUMP WITH 2-3 BUTTON PUSHES
- WHEN WORKING CORRECTLY REPLACE THE INSULATION AND COVER

WIRING CONNECTIONS

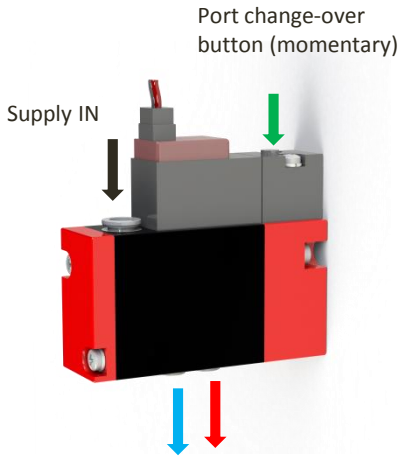
OUTLET

INLET

- Toilet Slide Valve (Toilet Bowl)
  - **Removal**
  - Disconnect the power to the cubicle.
  - Remove 4x fixing screws from around the top of the bowl.
  - Pull and twist the bowl to release the seal from the soil tank.
  - Once released, remove the supply hose to the flush nozzle and overflow.
  - Lift bowl out and remove the 2x air supply hoses to the air cylinder.
  - Remove 4x fixing bolts, securing the slide valve to the toilet bowl.

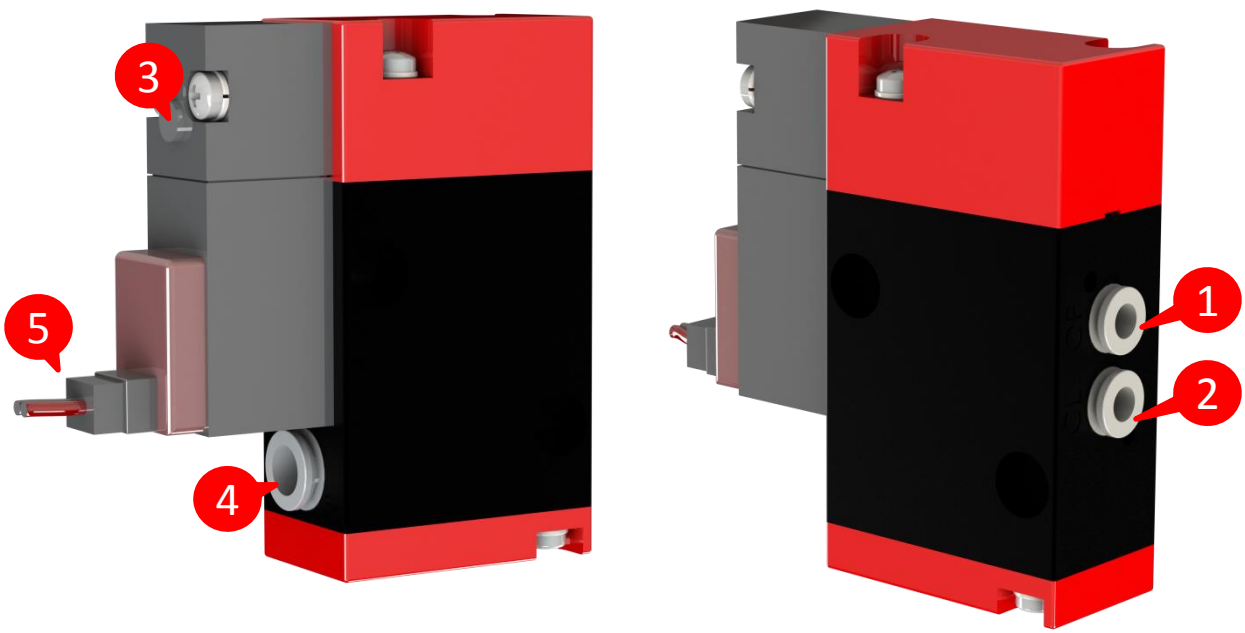
  - **CAUTION: As this air supply is from the vehicle (via the control valve), when it is disconnected the air pressure in the pipes will be at approx. 8 bar and will cause the pipe to 'snake around' violently if it is not held firmly.**

  - **Replacement**
  - Position the valve assembly on the bottom of the bowl and secure with the 4x bolts. Tighten bolts to 6 kg f/cm2 using a torque wrench
  - Smear silicone grease or similar around the black O-ring on the pneumatic valve and pass bowl through aperture on the cowling push firmly into the soil tank. Ensure that the rubber fin gasket is not in the entrance to the tank and on the bottom of the valve.
  - Reconnect the air pipes to the cylinder and the inlet pipe t the flush nozzle.
  - Connect the slide valve outlet to the routing pipe to soil tank.
  - Start the vehicle engine and switch on the WC master switch. Wait until the vehicle air pressure is at maximum before attempting to flush the toilet.



- Part = Toilet Valve Control Box
- Location = Behind Locker Door Body-side
- Replacement….
- DISCONNECT THE POWER TO THE CUBICLE
- UNCLIP THE CONTROL VALVE FROM ITS LOCATION
- REMOVE THE ELECTRICAL CONNECTOR FROM THE VALVE
- REMOVE THE 3x PIPES FROM THE VALVE
- RECONNECT NEW VALVE MAKING SURE THAT THE PIPES ARE IN THE CORRECT LOCATION

CAUTION: As this air supply is from the vehicle (via the control valve), when it is disconnected the air pressure in the pipes will be at approx. 8 bar and will cause the pipe to 'snake around' violently if it is not held firmly.



1. AIR SUPPLY OUT – TO FRONT OF CYLINDER TO OPEN SLIDE VALVE
2. AIR SUPPLY OUT – TO END OF CYLINDER TO CLOSE SLIDE VALVE
3. OVERIDE SWITCH – SWAPS PORTS 1 & 2 OVER
4. AIR SUPPLY FROM VEHICLE – 10BAR MAX
5. ELECTRICAL CONNECTOR

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