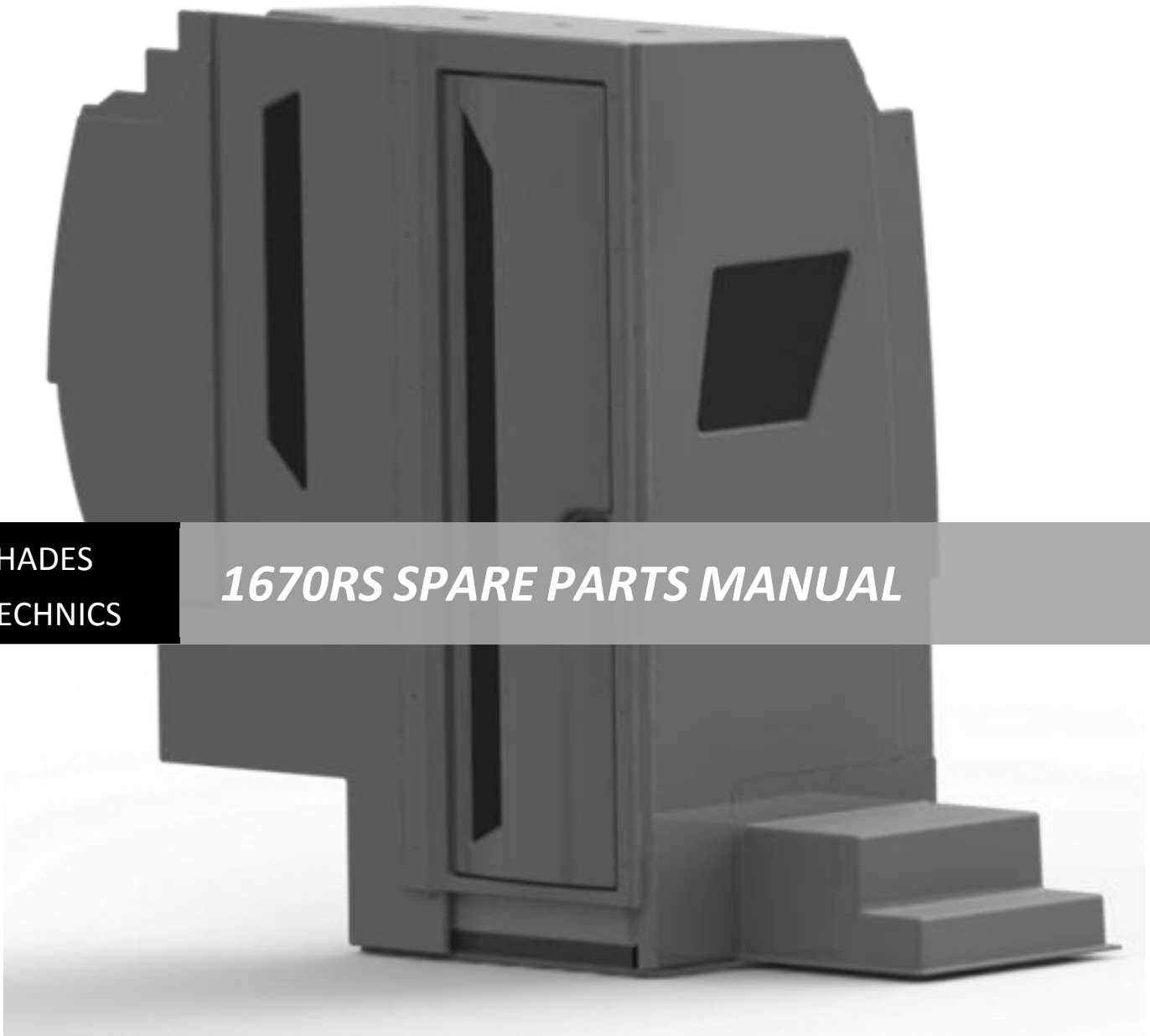




SHADES
TECHNICS

1670RS SPARE PARTS MANUAL



Tel: +44(0)1992 476830 | *Issue 1 01/08/2012*

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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 night (optional) light above the sink will work 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. NOTE:

(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 handwash button once to dispense a set amount of water. 

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

Cubicle Extractor Fan

The ventilator fan runs continuously when the master switch is ON but has the option to only work when the light is activated. A pair of cables close to the fan connector can be swapped over to provide the alternative option.

Water Tank Filling & Emptying

Tanks are filled via the hose connectors located in the side locker or boot. 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 underneath the coach or underneath 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. In some cases a push-pull knob is used but this is also located inside the locker. The knob must be pushed back in to close the valve when finished.

Smoke Alarm

The smoke alarm is mounted behind the mirror of the toilet and is powered via the main toilet control board and not a battery, in most cases. It may also be connected to a light on the dashboard which illuminates should the smoke alarm be activated. To reset the alarm, push the RED button on the unit.

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.

Cubicle Water Systems

HYDROFLUSH

The Shades Hydroflush system uses a preset 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.

DUAL SOIL TANK SYSTEM

An option on some 15M vehicles, the cubicle features the standard soil tank fitted below the toilet bowl (Primary) plus a second larger tank located in the boot or locker below the saloon floor. (Secondary)

This system is designed to increase the available waste water capacity and prevent blockages occurring in the soil pipe when tanks need to be located away from the cubicle. The primary tank has a pre-set capacity controlled via a level sensor which when activated, opens a slide valve mounted in-line between the 2 tanks. At this point the transfer of approximately 30 ltrs of waste from the primary to secondary tank will occur. This operation is repeated until the secondary tank reaches full capacity. At this point, the system will then allow the primary tank to be filled to capacity at which point the system will register as FULL and disengage until emptied.

Emptying the secondary tank will open the valve between the 2 tanks and allow the primary tank to empty also. The system will reset itself and start again.

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.

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 brush.

Some units will have a Stainless Steel bowl installed but the same rules apply.

Litter Bin

The 1670 features an Aluminium bin located 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 aluminium clean and free of odour.

Soap Dispenser

To fill the dispenser, lift the lid of the dispenser and fill with liquid soap. Some dispensers are located behind a vanity door and require a key for access.

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 Routine

- Prior to the vehicle entering service the holding 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 3)
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.
- The hand wash tank should be emptied and re-filled daily. To help maintain a clean tank and freshwater the use of a sanitiser is recommended. Shades can supply a suitable product that disinfects the water, that is safe to drink and non-irritable to the skin and eyes. **Cat No. 800060**

Weekly Routine

- Check extractor fan function.
- Inspect the security of the faucet, door hinges and toilet seat. Check the operation of the cubicle door and lock function.
- Open vanity door, check electrical and plumbing connections for security and leaks.
- Check water flow to the hand basin is smooth and constant.

Quartely Routine

- 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. Push a hose pipe through the flap in the bottom of the bowl and into the tank.
4. Turn on the water to the hose pipe and fill the holding tank, being careful not to overfill. .
5. Switch off the water to the hose and open the evacuation valve to empty the tank.
6. Press the flush button to open the valve and remove the hosepipe.

- Lubricate soil tank evacuation valve. (to be carried out immediately after flushing through the soil tank). Undo the four fixing bolts holding the soil valve assembly together and remove the main body section. Lubricate the slide paddle using lithium grease or similar so the open/close operation is smooth. Replace the valve body and bolt together. Do not over tighten as this will restrict the operation of the valve.
- Disinfect the hand wash tanks and flush through with clean water.

Winterization

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

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 an emergency parts kit has been supplied along with 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.

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.

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

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

Complete the warranty claim form, ensuring all details are filled in and fax back to Shades Technics on +44 (0)1992 476831

Shades Technics will dispatch any parts required or organise rectification via one of its service points.

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

Cubicle Spare Parts



Ventilator Fan
Cat No. 727515



Flush / HW Button
Cat No. 714007



Floor Drain
Cat No. 701551



Hand Wash Tap
Cat No. 663609



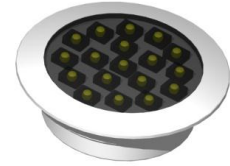
Toilet Roll Spindle
Cat No. 661618



PIR Sensor + PCB
Cat No. 712080



Smoke Alarm:
Standard: Cat No. 661120
Interconnect: 661131



LED Spot Light
Cat No. 712043



SS Toilet Bowl Assembly
(2010 onwards)
Cat No. 731320



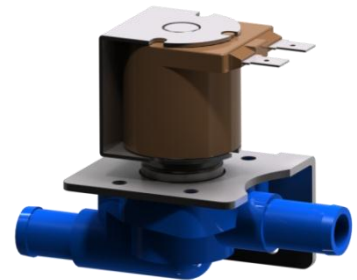
Toilet Seat Assembly (inc
hinges)
Cat No. 735100



Toilet Seat (no hinges)
Cat No. 735101
Hinges
Cat No. 735102



Litter Bin
Cat No. 661018



HW Solenoid
Cat No. 714620

Cubicle Spare Parts



Soap Dispenser
Cat No. 661660



Alarm Button
Cat No. 714030



Hand Drier/Soap Button
Cat No. 714014



Paper Towel Holder
Cat No. 661630



Sink Drain – 45Deg
Cat No. 701552



1670 Mirror
Cat No. 661828

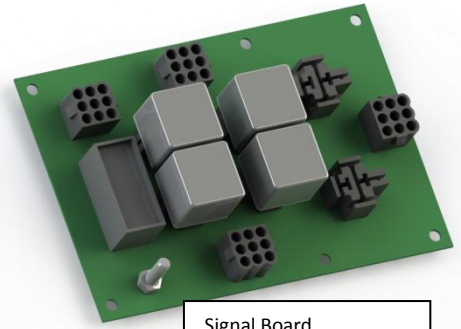
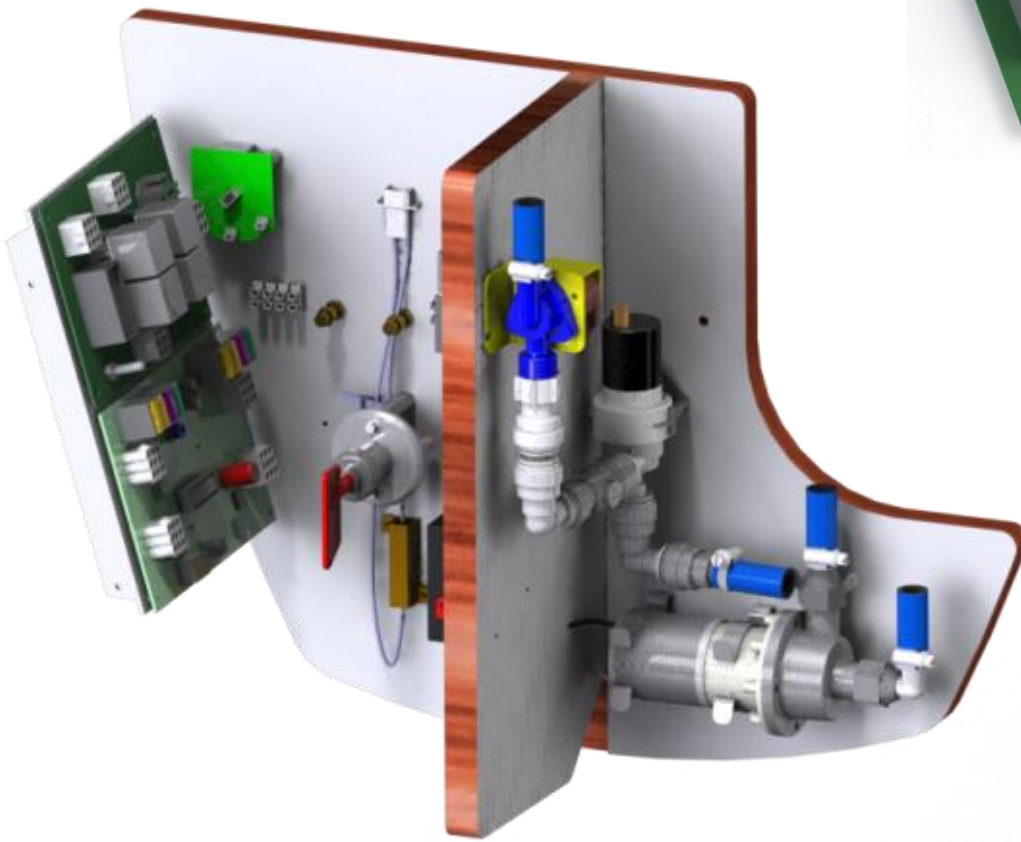


Nylon Screws
Cat No. 713151



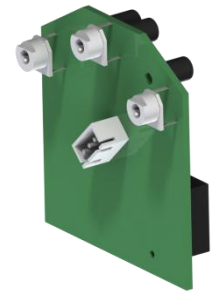
Hand Dryer
Cat No. 661800

Electrics



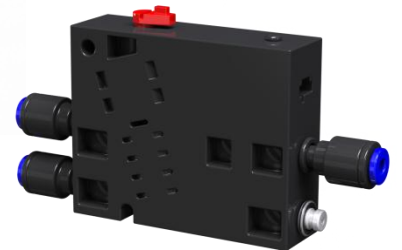
Signal Board

Cat No. 730617



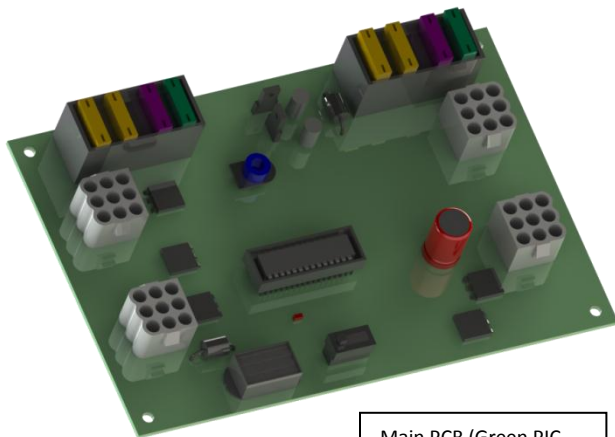
PIR PCB (Sold as complete assembly)

Cat No. 712080



Isonic Valve

Cat No. 735714



Main PCB (Green PIC Chip)

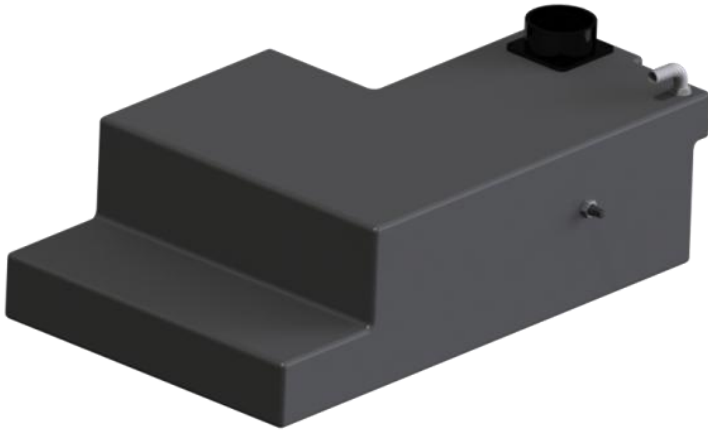
Cat No.730630



Isolator Switch

Cat No. 661221

Tanks - Pumps



Primary Soil Tank

Cat No. 732510



Flush and Hand Wash Tank

Cat No. 733976



Secondary Soil Tank

Cat No 732511



Flush Pump



Hand Wash Pump

Cat No. 702010

Plumbing Spare Parts



Hatch Cover

Cat No. 732070



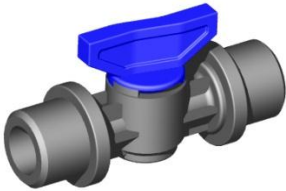
Horizontal Float Switch

Cat No. 714510



Vertical Float Switch

Cat No. 714500



Tap

Cat No. 747044



LP Direct Solenoid

Cat No. 714622



Tank Coupler

Cat No. 747028



Overflow Fitting

Cat No. 744011



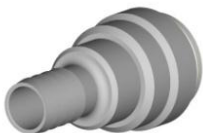
Hose Barb Filler

Cat No. 695520



Hose Barb Filler

Cat No. 747032



Hose Barb Connector

Cat No. 747027



Service Valve

Cat No. 747035



Stem Elbow

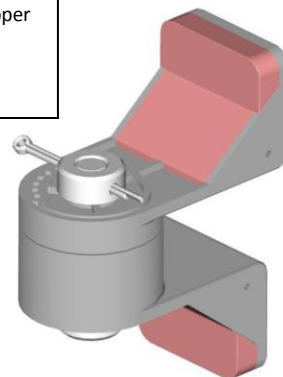
Cat No. 747016

Door Furniture



RH Door Lock
Cat No. 661205

In-Swing Door Hinge (II) Upper
& Lower Set.
Cat No. 661409

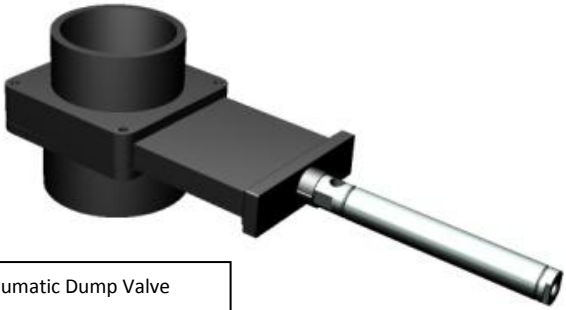


Coat Hook
Cat No. 661030



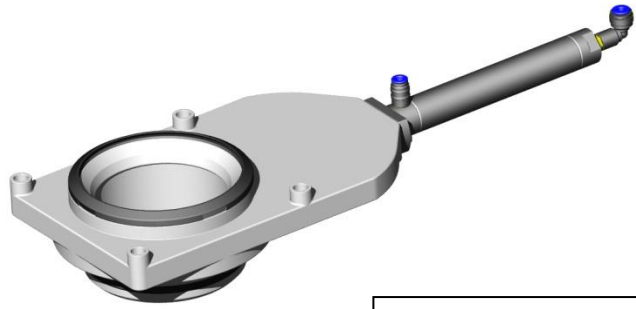
Edgemount Hinge
Cat No. 661410

Valves



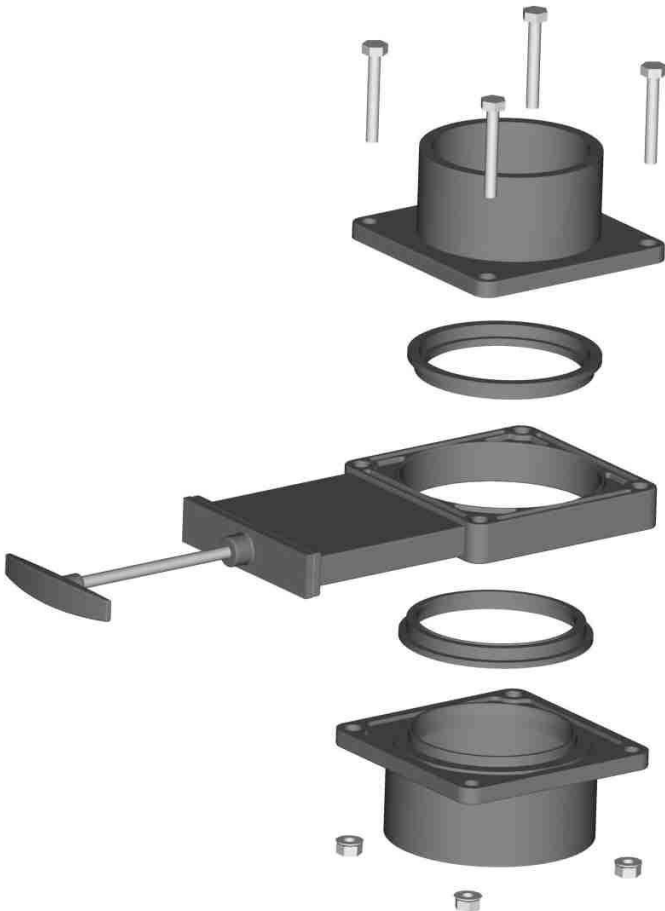
Pneumatic Dump Valve

Cat No. 735774



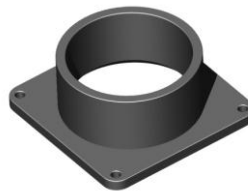
Toilet Valve

Cat No. 735713



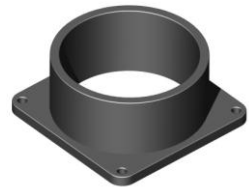
Dump Valve Assembly

Cat No. 735746



Small Slip Socket

Cat No. 735700



Large Slip Socket

Cat No. 735701

Stickers



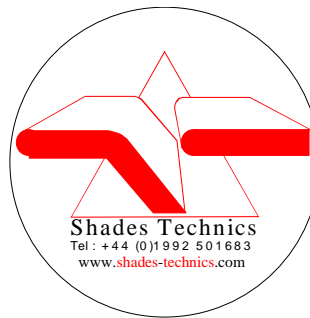
No Standing
Cat No:735560



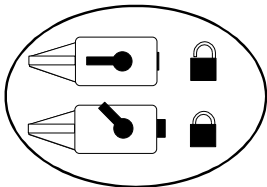
Emergency Alarm
Cat No:735566



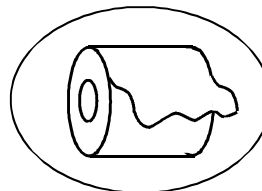
No Smoking
Cat No:735563



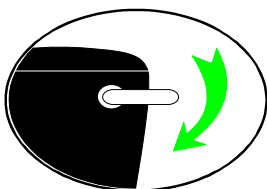
Shades Technics
Cat No:735568



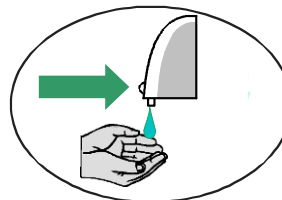
Door Lock RH
Cat No:735564



Toilet Roll
Cat No:735569



Flush
Cat No:735562



Soap Dispenser
Cat No:735572



Hand wash
Cat No:735561



Litter Bin
Cat No:735567

Full Set of Labels
Cat No: 735570

Please specify LEFT or RIGHT hand cubicle when placing orders for labels

Toilet Control Board (PCB)

Description

The Toilet Cubicle Control Board is a solid state electronic control unit that manages all toilet cubicle functions. All output devices are short circuit and over-voltage protected for reliability and safety.

Operation

Power-up & voltage low indicator

On power-up the control board enters the shut-down mode for 60 seconds. In shut-down mode, the occupied lamp will be on and all other outputs off.

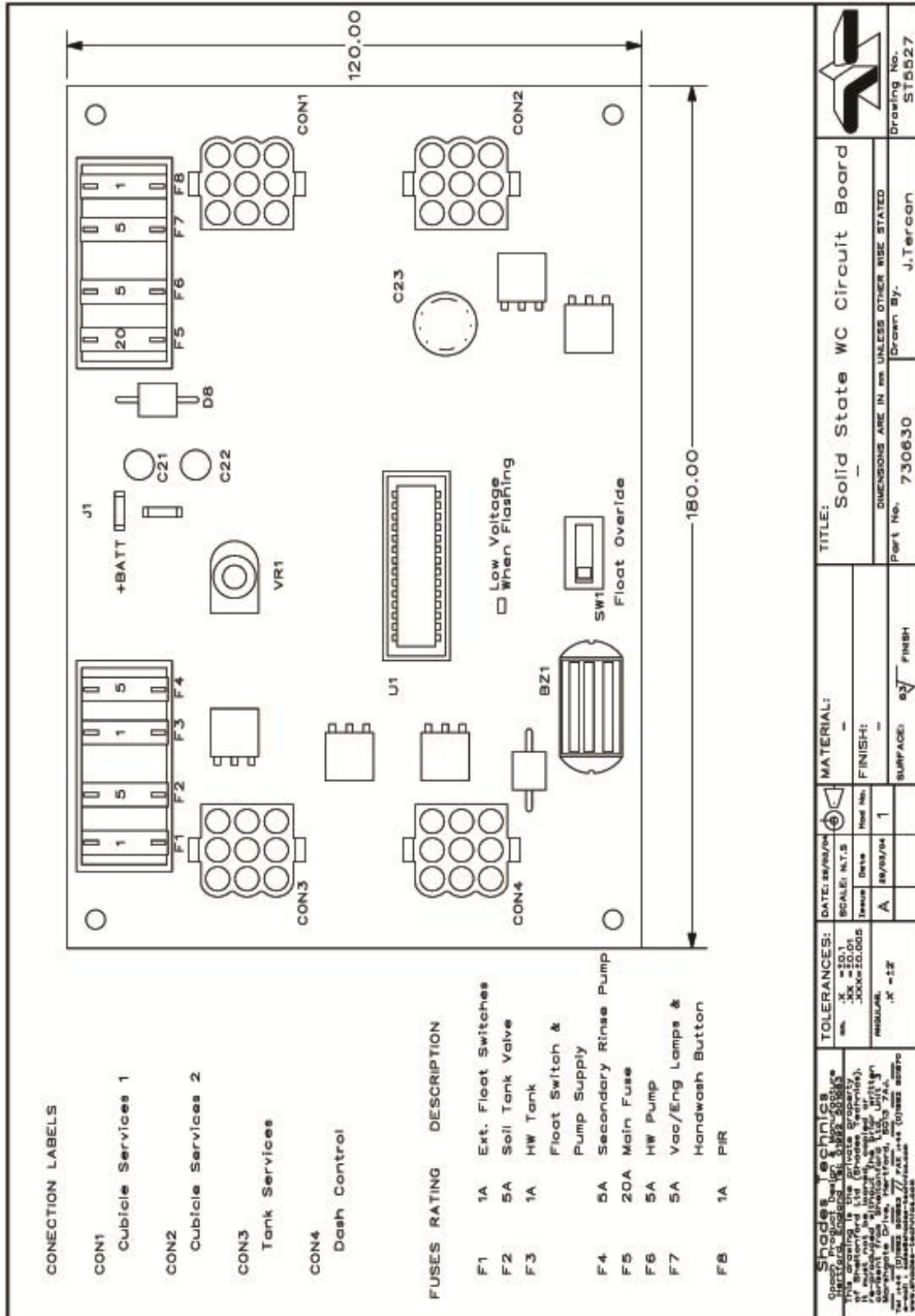
After 60 seconds, provided that the voltage is not too low, the control board will enter the normal operating mode.

If at any time the voltage drops below the threshold (set by VR1) for more than 5 seconds, the control board will re-set. After a re-set, the board starts in the shut-down mode for another 60 seconds before being fully functional.

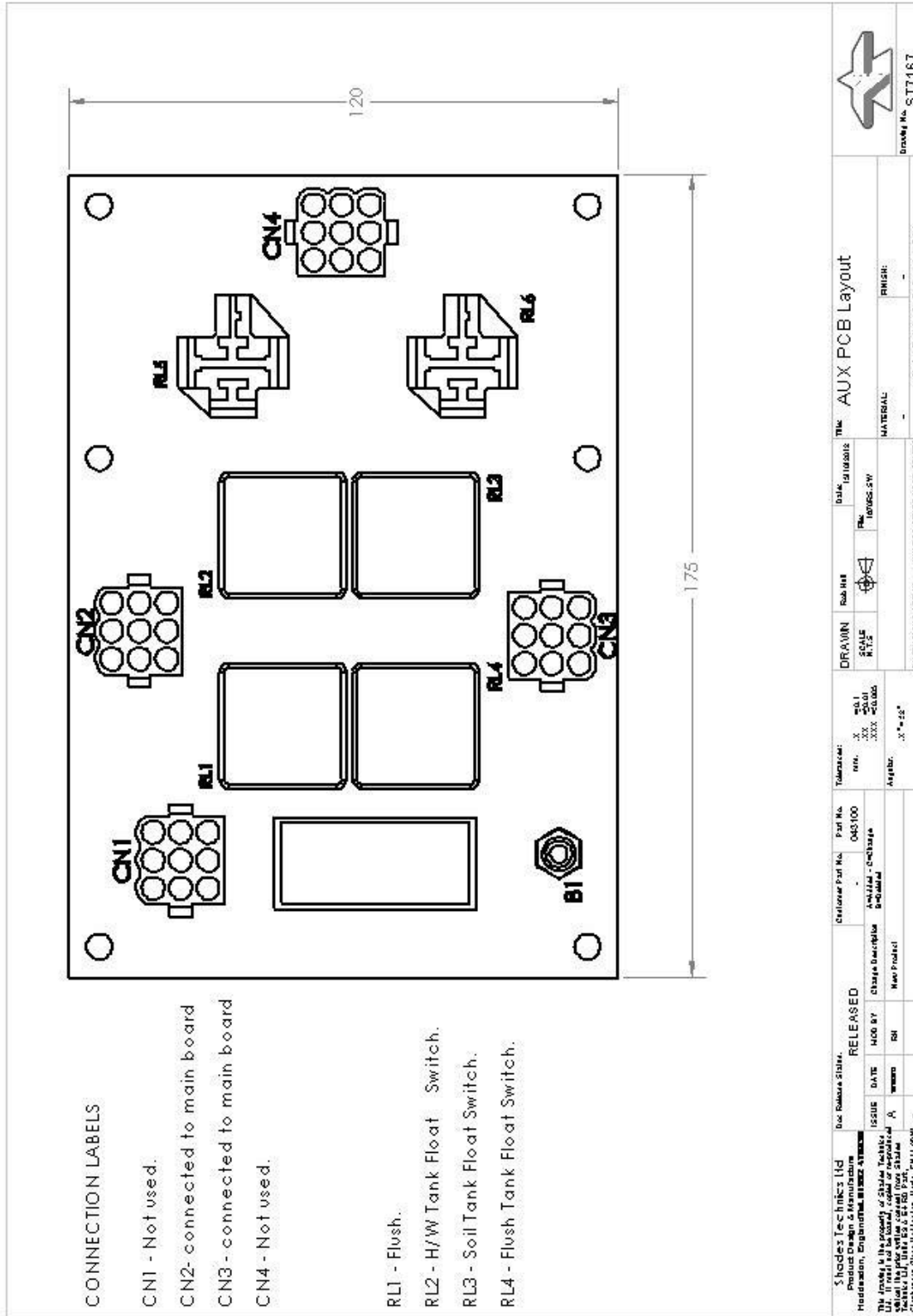
The threshold voltage is factory set to 22V, the RED 'low voltage' LED will begin to flash if the supply drops below the threshold.

SW1 – Is a float switch override and can be used to quickly determine a problem with the float switches without the need to disconnect them from the tank when the flush or hand wash system is not working. When in override mode a light will be ON. This must not be kept ON as the pumps will no longer be protected from running dry.

PCB Layout



AUX PCB



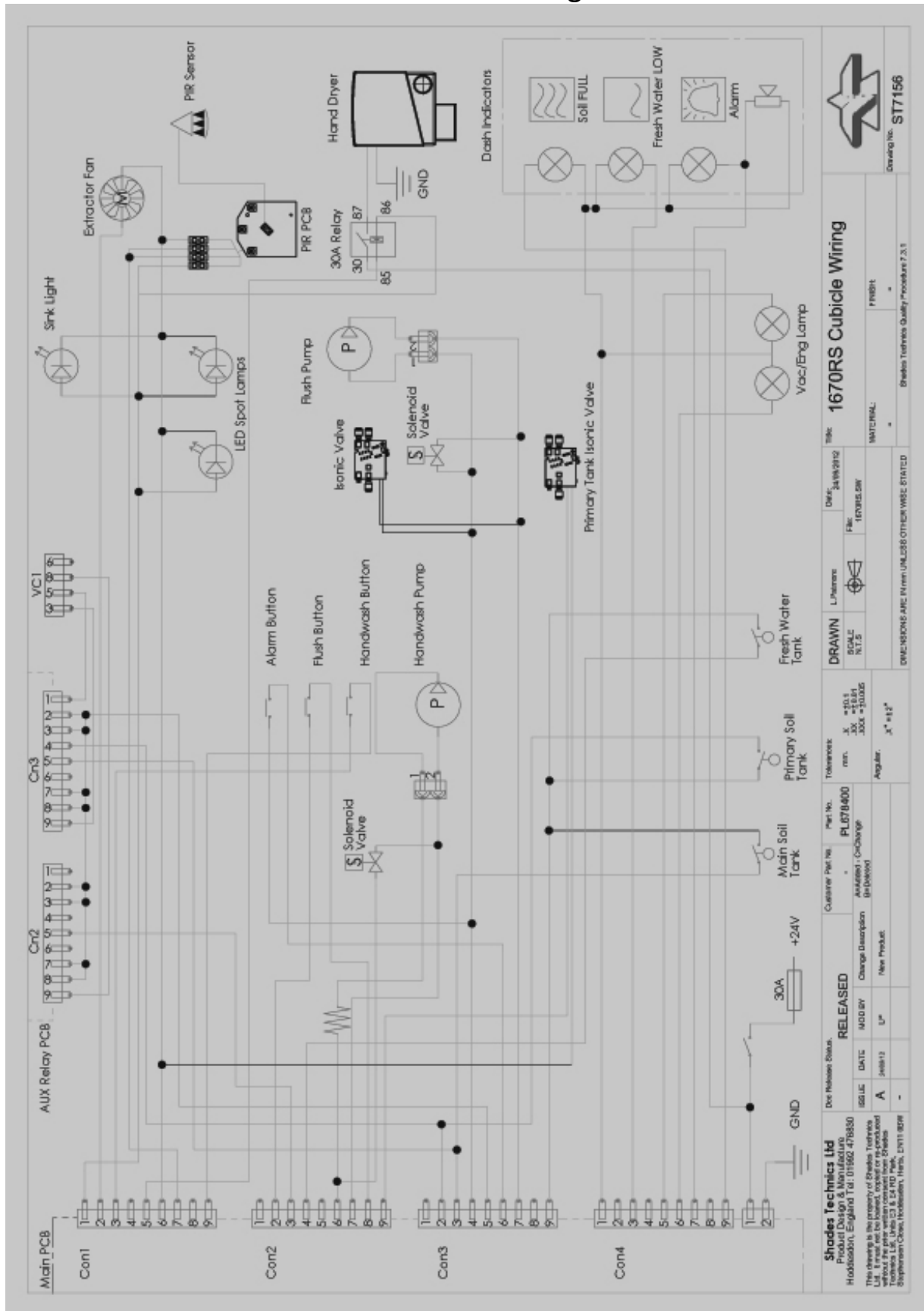
CONNECTION LABELS

- CN1 - Not used.
- CN2- connected to main board
- CN3 - connected to main board
- CN4 - Not used.

- RL1 - Flush.
- RL2 - H/W Tank Float Switch.
- RL3 - Soil Tank Float Switch.
- RL4 - Flush Tank Float Switch.

Shades Technics Ltd Product Design & Manufacturing Innovation, Engineering, Service Excellence		Due Release Status:		RELEASED		Customer Part No. 045100		Part No. 045100		Title AUX PCB Layout		Drawing No. ST7167	
This drawing is the property of Shades Technics Ltd. It shall not be loaned, copied or reproduced without the written consent of Shades Technics Ltd. (UK) Ltd. 2017. All Rights Reserved. Singapore Changi, Singapore, Mauritius, Sri Lanka		ISSUE	DATE	MOD BY	CHANGE DESCRIPTION	APPROVED	DESIGNED	DRAWN	SCALE	PROJ. NO.	REV. NO.	MATERIAL	FINISH:
1	01/01/2017	BN	New Product										
DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED													SHADES TECHNICS GROUP PROCEDURE 7.5.1

Cubicle Wiring



Shades Technics Ltd
Product Design & Manufacturing
Huddersfield, England Tel: 01484 478830

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Doc Release Status: **RELEASED**

ISSUE DATE: A 24/08/12

MOD BY: LP

Change Description: New Product

Customer Part No: PL678400

Per No: PL678400

Availability: On Change (H-Deliver)

Tolerance: max. ±0.1, min. ±0.05, 30A ±0.05, Agular. ±° ±12°

DRAWN BY: SCALE: N.T.S.

DATE: 24/08/12

DESIGNER: L.PHILLIPS

CHKD BY: TERRY.SW

DATE: 24/08/12

TABLE: MATERIAL: F.PB01

Shades Technics Quality Procedure 7.3.1

Drawing No: **ST7156**

Service

The following section details where to find key components and how to replace them.

Part = Lights

Location = Cubicle Ceiling

Replacement....

DISCONNECT THE POWER TO THE CUBICLE

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

Replacement....

REMOVE 6x SCREWS SECURING THE PIR & SMOKE ALARM COVER

TAKE OUT THE PIR SENSOR AND UNCLIP THE CABLE

RE-FIT A NEW SENSOR & CHECK THE SENSITIVITY AND TIMING ADJUSTMENT IS CORRECT



Service

Part = Hand Drier

Location = Cubicle Wall/Behind Vanity

Replacement....

DISCONNECT THE POWER TO THE CUBICLE

REMOVE 2x SCREWS ON THE UNDERSIDE OF THE UPPER VANITY AND 1x SCREW BEHIND THE MIRROR

REMOVE 2x SCREWS ON THE UNDERSIDE OF THE HAND DRYER

REMOVE THE FRONT COVER OF THE HAND DRIER

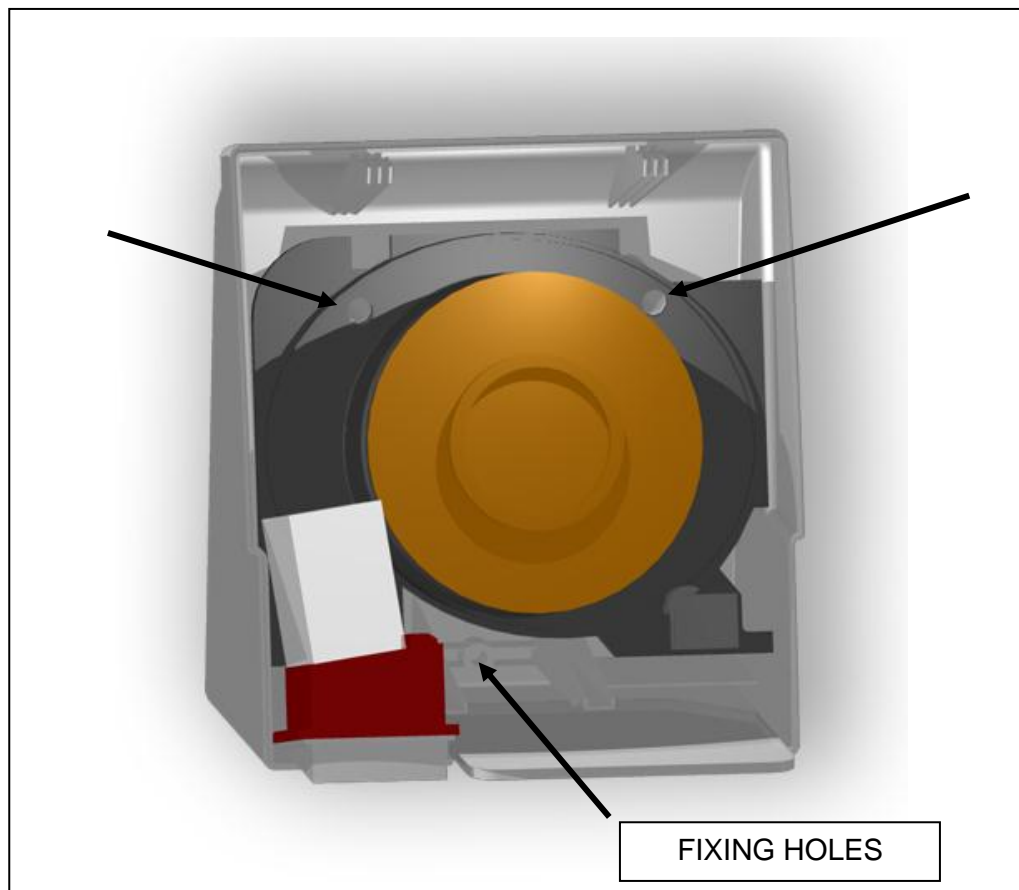
REMOVE 2x RUBBER HOLE COVERS

REMOVE 3x SCREWS RELEASING THE UNIT FROM THE WALL

DISCONNECT THE 2 CABLES PASSING THROUGH THE OUTER WALL OF THE CUBICLE MAKING SURE THEY DO NOT FALL DOWN THE BACK

RE-CONNECT A NEW UNIT AND SCREW TO THE WALL

MAKE SURE THE RUBBER HOLE COVERS ARE RE-FITTED AND FIT THE COVER SECURING WITH BOTH SCREWS



Service

Part = Hand Wash & Flush Buttons

Location = Sink Vanity

Replacement....

DISCONNECT THE POWER TO THE CUBICLE

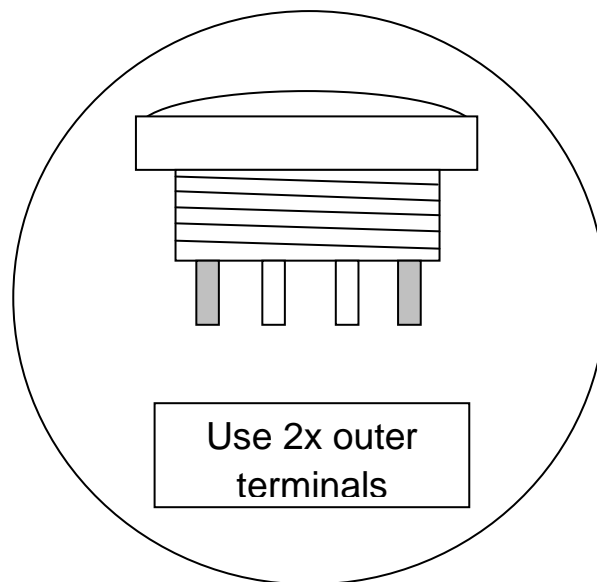
UNSCREW THE BUTTON HOLDER COVER

REMOVE TERMINALS FROM THE BACK OF THE BUTTON

UNSCREW THE COLLAR ON THE UNDERSIDE OF THE BUTTON

BUTTON SHOULD RELEASE FROM THE TOP

RE-FIT NEW BUTTON AND CONNECT THE TERMINALS



Service

Part = Hand Wash & Flush Pump

Location = Behind lower vanity door.

Replacement....

DISCONNECT THE POWER TO THE CUBICLE

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

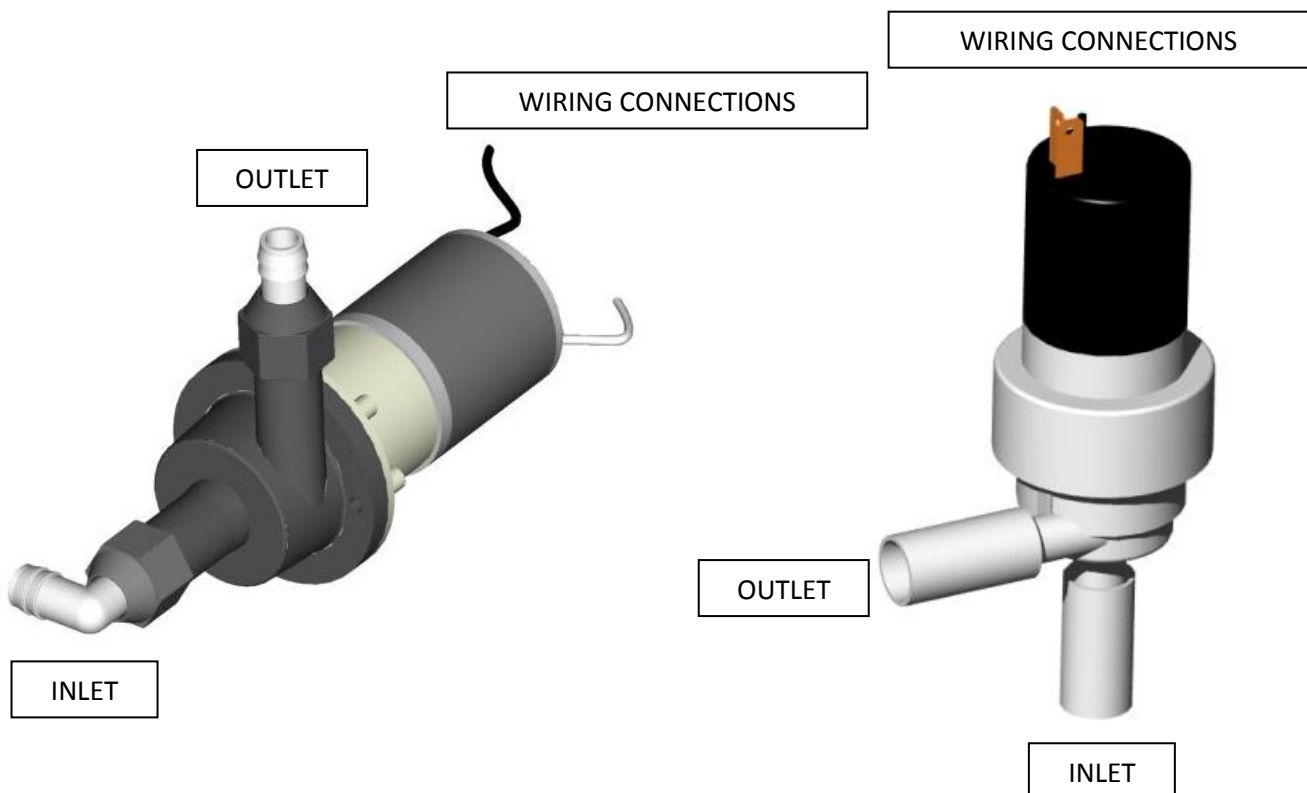
CLOSE THE DRAIN ON THE SUPPLY TANK

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



Service

Part = PCB

Location = Behind the lower vanity door.

Replacement....

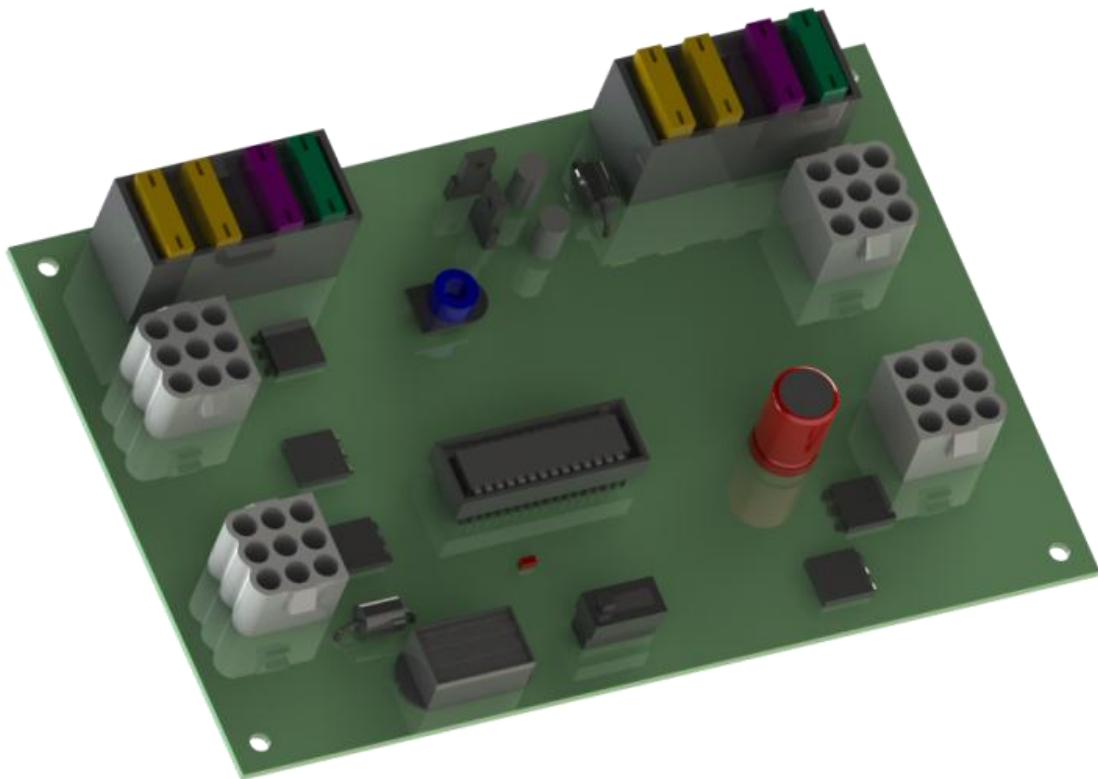
DISCONNECT THE POWER TO THE CUBCILE

REMOVE ALL CONNECTORS

REMOVE THE 5X SCREWS HOLDING THE PCB

FIT THE NEW PCB & ATTACH THE CONNECTORS MAKING SURE THAT THEY GO BACK IN THE CORRECT ORDER.

REPLACE OR SWAP TIMER BOARDS OVER CHECKING ORIENTATION IS CORRECT



Service

Part = PIR Circuit Board

Location = Behind the lower vanity door.

Replacement....

DISCONNECT THE POWER TO THE CUBICLE

REMOVE ALL WIRES IN THE SCREW TERMINALS & THE SMALL SENSOR PLUG

REMOVE THE 2X SCREWS HOLDING THE PCB

FIT THE NEW PCB & ATTACH THE SMALL PLUG & WIRES MAKING SURE THAT THE WIRES GO BACK IN THE CORRECT ORDER.

ADJUSTMENT

To alter the length of time that the lights remain ON
Adjust VR3 on the PIR PCB. VR2 & 1 adjust he sensitivity.

PIR PCB

