

PIV Centre Toilet



Parts & Service Manual

Contents

Information & Instructions **Cubicle Operating Instructions** page 2 **Cubicle Water Systems** page 3 Coolbox page 4 Cleaning & Hygiene - Cubicle page 5 Maintenance - Cubicle page 6 Winterisation page 8 **Jump Starting** page 8 Fault Reporting Procedure page 8 Warranty Claim Procedure Flow Chart page 9 **Parts Lists Toilet Bowl Assembly** page 10 Soil Tank Evacuation Valve Assembly page 11 Cubicle Exterior Parts page 12 **Cubicle Interior Parts** page 13 Plumbing Connectors page 14 Miscellaneous Plumbing Spares page 15 Coolbox spares page 17 Cubicle Symbol Labels page 19 **Electrical Information & Diagrams** Printed Circuit Board Layout & References page 20 Printed Circuit Board Wiring Diagram page 21 Vehicle Wiring Diagram page 22 **Cubicle Wiring Diagram** page 23 **Fault Analysis Flow Charts** Parts Location Reference List page 24 Fault Chart Index page 25 **General Service Instructions** Replacing The Pneumatic Valve Assembly page 37

Vehicle Dealer	Toilet Cubicle Serial No

page 38

page 39

page 40

Replacing The Flush/Handwash Pumps

Shades Technics UK Sales & Service Points

Using Push-Fit Plumbing Fittings

Cubicle Operating Instructions

To Switch The Cubicle On:

Engage the WC Master switch wc on the dashboard.

(It is recommended that the vehicle engine is running)

Cubicle Interior Light

Entering the cubicle automatically illuminates the light and toilet engaged light if fitted. The light will extinguish shortly after leaving the cubicle

To Flush The Toilet:

Depress the flush button once. A timed action opens the valve and rinses the bowl with a set quantity of water. Should a further flush be required, wait for the flush cycle to complete then depress the button again.

(When the **HYDROFLUSH** holding tank is full, the dashboard FAIL light will illuminate and power to the flush pump will be cut. Emptying the holding tank will restore power.)

(When the WC water supply tank is empty the dashboard FAIL light will illuminate and power to both the handwash and flush pumps will be cut. Re-filling the WC supply tank will restore power.)

To Wash Your Hands:

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

(When the WC water supply tank is empty the dashboard FAIL light will illuminate and power to both the handwash and flush pumps will be cut. Re-filling the WC supply tank will restore power.)

In Case of Emergency:

Depressing the red alarm button will alert the driver.

Cubicle Extractor Fan:

The cubicle extractor fan is energised when the cubicle is on.

To Operate The Hand-Drier: (Optional Fit)

To start the cycle push the button on the front. The unit stops automatically

Water Tank Filling & Emptying

The WC supply tank is filled via the orange hose connector located behind the central near side locker flap.

This holding tank is emptied by firmly pulling the handle on the evacuation valve connected to the underside of the cubicle.

Cubicle Water Systems

HYDROFLUSH Toilet System

The push button operated flushing system is pre-set to give a powerful full covering rinse.

The water is flushed straight into a sealed holding tank which is directly coupled to the toilet bowl.

Handwash Water System

One push of the button delivers a pre-set amount of water.

All water from the cubicle sink will drain away outside the vehicle.

Water Levels

The WC supply tank provides water for both the handwash and the flushing system.

WC High Water Level

A full holding tank will illuminate the FAIL light on the dashboard and electrically disconnect both pumps. Emptying the holding tank will re-energise the pumps and extinguish the dashboard LED

WC Low Water Level

An empty WC supply tank will illuminate the Fail light on the dashboard and electrically disconnect both pumps. Re-filling the WC supply tank will re-energise the pumps and extinguish the dashboard LED.

Description:

The Premiere 4 features a single 'Coolbox' located in the stairwell wall of the cubicle top section.

Description:

Designed for the storage of canned drinks, a 80W thermo-electric Supercool unit is installed in the rear wall of the cabinet. An internal fan draws fresh air up through the top grille to the back of the unit while another fan ventilates the supercool heat-sink and expel the air out through the grille located at the bottom.

The thermo-electric unit is pre-set and powered directly from the Cubicle EDC board.

The cabinet features a removable shelf and safety cords.

NOTE:

The Ventilation grilles for the cabinets must be kept clear from dust and glass fibres as any blockages will effect the performance of the Coolboxes. Please refer to the Cleaning & Hygiene section of this manual for recommended cleaning procedures.

Recommended Coolbox Loading:

To maximise the performance of the coolbox it is recommended that canned drinks and any food are pre-chilled prior to loading.

Loading the cabinet with un-chilled products will effect the performance of the coolbox as will leaving the door open for any period of time. This is more critical in the summer months due to increase in ambient temperature both inside and outside the vehicle.

Toilet Cubicle

Cubicle Cleaning

The toilet cubicle is manufactured from Glass Reinforced Plastic (GRP) with high gloss interior surfaces and lightly textured exterior surfaces, both of which can be washed down using a mild detergent. The use of a caustic or abrasive material is not recommended to clean internal or external surfaces.

Toilet Bowl Cleaning

The toilet bowl is also manufactured from GRP and can be cleaned using a stiff brush with a non-abrasive, anti-bacterial detergent.

Internal Litter Bin

The cubicle features a re-usable waste sack, located inside the vanity under the sink. The sack is attached to the vanity with a black plastic bushing.

Soap Dispenser

To re-fill, unscrew grub screw, draw out dispensing mechanism, refill bottle, reinsert mechanism and refit grub screw.

Toilet Roll

It is recommended that a high biodegradable paper is used at all times. (Cat no: 800103-320 sheet X 36) available from Shades Technics.

The toilet roll holder is incorporated into the vanity service door located above the sink. The spindle is sprung loaded into the recess and is simply remove by pushing to one side

Do not use domestic type toilet paper (i.e Andrex) as this will clog the Hydroflush valve and tank due to its stronger construction.

Worktop

Cleaning

The worktop is manufactured from Glass Reinforced Plastic (GRP) with an easy clean surface which can be washed down using a mild detergent.

The use of a caustic or abrasive material is not recommended.

Cubicle Maintenance

 The recommended product is Shades Super Sani RC (800021). A disinfecting and deodorising sachet with a water soluble membrane, which is available in various sizes to treat a range of tank capacities. For optimum performance it is recommended that soil tanks are emptied and charged daily.

To apply:

- 1. Ensure the holding tank is empty.
- 2. Check the tank evacuation valve is closed
- 3. Check the WC supply tank is full.
- 4. Switch on power to the cubicle
- 5. Press the flush button to open the sldie and drop the complete sachet into the holding tank.

Caution

Do not open the sachet or drop into the WC Supply Tank as this also supplies water to the handbasin

- It is recommended that the WC supply tank is drained and the holding tank is emptied at the end of every day (see page 3)
- The WC master switch **WC** should be turned off when the vehicle is static (parked), to reduce the risk of battery drain if any components are left on.

Weekly Routine

- Check extractor fan function by holding a single sheet of toilet paper in front of the grille. The air flow should draw the paper towards the grille.
- Inspect the security of the faucet, door hinges and toilet seat lid. Check the operation of the cubicle door and lock function. Test alarm button function.
- Remove vanity access door, check electrical and plumbing connections for security and leaks.
- Check water flows through the handwash faucet is smooth and constant.
- Clean dust and fluff from AIRCALOR (option) inlet vents using a vacuum cleaner with crevice attachment.
- Clean coolbox ventilation grilles using vacuum cleaner with small crevice attachment.

Quartely Routine

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

To flush out:

- 1. Switch on the cubicle.
- 2. Connect a hosepipe to a mains water supply.
- 3. Depress the flush button once to open the pneumatic slide valve at the bottom of the bowl.
- 4. When the valve opens, insert the end of the hosepipe down through the bowl, into the holding tank. When the valve closes the hose will be held into position by the paddle. The air pressure will not crush the pipe.
- 5. Turn on the water to the hose pipe and fill the holding tank, being careful not to overfill. .
- 6. Switch off the water to the hose, press the flush button to open the valve and remove the hose pipe.
- 7. Open the evacuation valve to empty the water from the holding tank.
- Lubricate holding tank evacuation valve. (to be carried out immediately after flushing through the holding 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.
- Clean out the extractor fan grille using a vacuum cleaner with a small crevice attachment.
- Switch Cubicle isolator switch. Remove supercoll unit by unscrewing the retaining screws and disconnecting from the electrical supply.
 - Usesing a vacuum cleaner with small crevice attachment, thoroughly clean out the back grill of the supercool unit. Failure to do so will effect the performance of the coolbox cabinet. Refit supercool unit.

Winterisation

If the vehicle is to be parked in zero or sub-zero temperatures, it is imperative that all water containers are completely drain beforehand. This also applies to the *HYDROCALOR* if it has not been in daily use

Ensure the centre grey cable to the *HYDROCALOR* centre signal terminal is removed when the unit is empty and **replaced only when the unit is re-filled.**

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 WC is off.

Fault Reporting Procedure

- 1. In the unlikely event of a fault occurring a comprehensive fault analysis flow chart has been enclosed with this manual.
- 2. Using these charts, determine the cause of the fault and replace the faulty item.
- 3. To order a replacement part contact the dealer as specified on the contents page (Page 2) of this manual, quoting the cubicle serial number.
- 4. In order for replacement goods to dispatched a simple warranty procedure must be followed. (See flow chart on page 12)

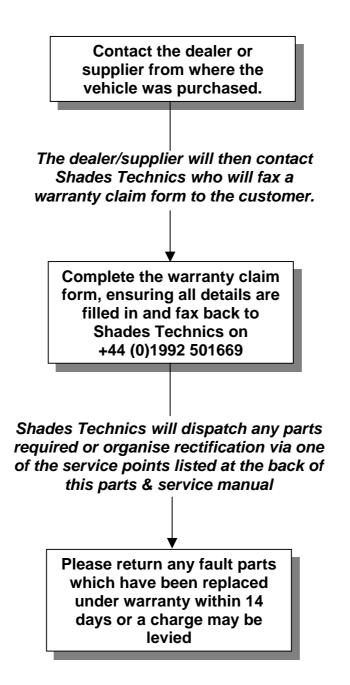
Notes:

- Call-out and travelling costs are not covered by the warranty
- Tampering, unauthorised involvement or preventable damage will result in a charge being levied

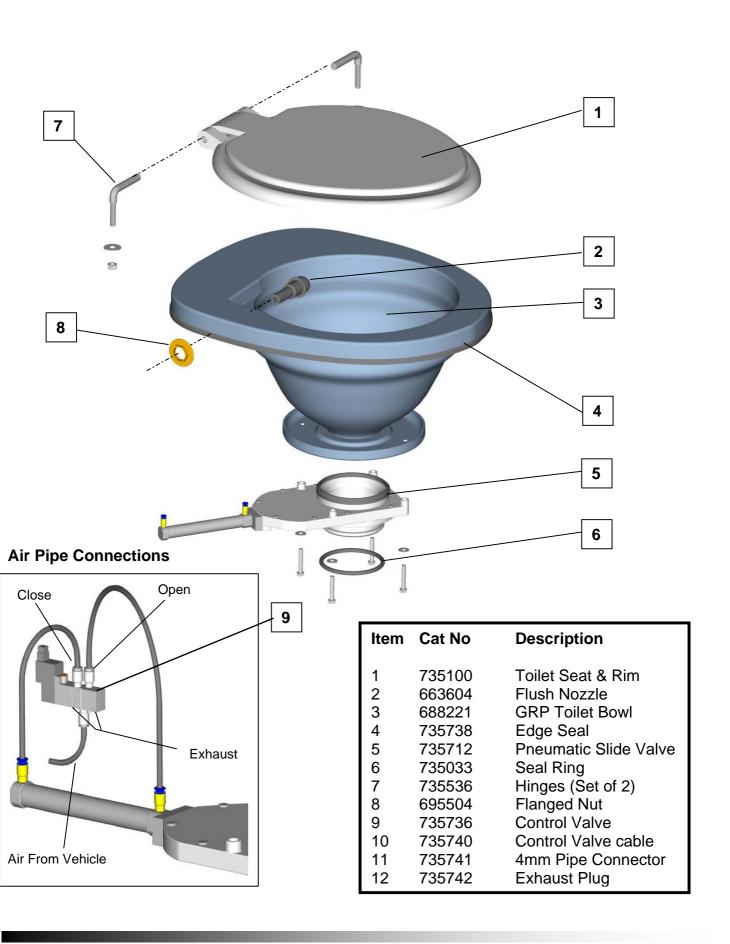
Warranty Claim Procedure

Shades Technics offer a comprehensive warranty cover for all products, valid for 12 months from the vehicle's date in service.

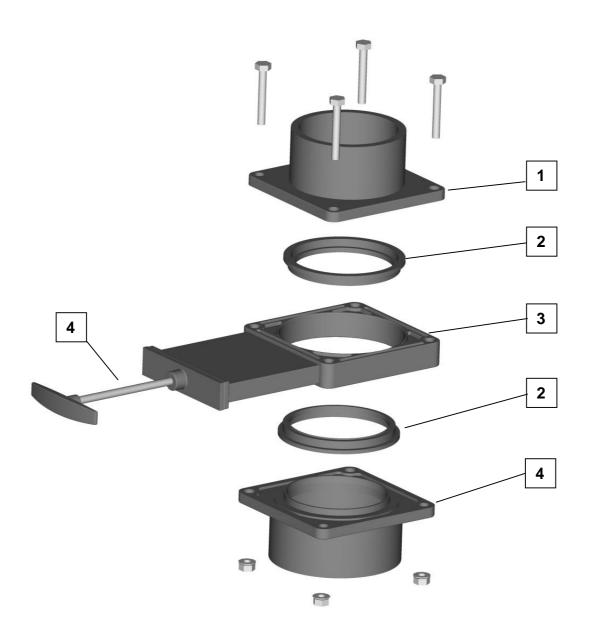
To make a claim under warranty, please follow the procedure below:



Toilet Bowl Assembly



Soil Tank Evacuation Valve Assembly



Item	Cat No	Description
1	735700	Small Spigot
2	735717	Seal
3	735711	Valve Body
4	735701	Large Spigot
5	735715	Replacement Handle

Cubicle Exterior Parts



Fan Spigot Cat No: 272504



Threaded Pipe Cat No: 735702



Hinges - Pair (Inc Hinge Pin Set) Cat No: 661400



Inspection Hatch Cat No: 661050



Hinge Pin Set Cat No: 661401



Worktop Spinning Cat No: 661012



Door Lock Cat No: 6612206



Extractor Fan Assy Cat No: 661510





Smoke Alarm Cat No: 661120

Cubicle Interior Parts



Black Button Cat No: 714007



PIR Lamp Unit Cat No: 712100

24v Fluorescent Tube Cat No: 712008



Alarm Button Cat No: 714030



Seat Stopper Cat No: 713500



Toilet Roll Spindle Cat No: 661618



Quarter Turn set Cat No: 713100



Bushing Cat No: 661051



Grille Cat No: 661130



Towel Spinning Cat No: 661615



Mirror Cat No:

Floor Mat

Cat No: 661475



Lower Vanity Door (Prepared)
Cat No:



Upper Vanity Door (Prepared)
Cat No:

Plumbing Connectors



15mm Stem Elbow Cat No: 747016



22mm Tank Connector Cat No: 745010



15mm Equal Elbow Cat No: 747015



15mm x ³/₄" BSP Tap Adaptor Cat No: 747024



15mm T Connector Cat No: 747020



15mm Male Coupler Cat No: 747028



15mm Drain Valve Cat No: 747037



15mm Service Valve Cat No: 747035



15mm Hose Connector Cat No: 747027



15mm Straight Cat No: 747010



21.5mm x ¾" Elbow Cat No: 744002



3/4" Swivel Hose Connector Cat No: 744005



3/4" x 3/4" Tank Fitting Cat No: 744003



21.5mm x 3/4" Straight Cat No: 744001

Miscellaneous Plumbing Spares



Cable Gland Cat No: 747036



15mm Non Return Valve Cat No: 747037



3/4" Sink Waste Cat No: 701501



Inspection Hatch Cat No: 732050



3/4" Elbow Sink Waste Cat No: 701500



15mm Straight Sink Waste Cat No: 701502



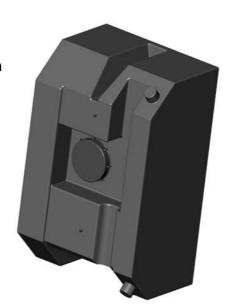
Horizontal Float Switch Cat No: 714510



3/4" BSP Solenoid Valve Cat No: 714603



Vertical Float Switch Cat No: 714500



Water Tank (Drilled) Cat No: 733650



1/2"BSP Back Nut Cat No: 695504

Miscellaneous Plumbing Spares



15mm Faucet Nozzle Cat No: 663603



One way Valve Cat No: 702601



Aircalor Hand-Drier Cat No: 661600



Soap Dispenser Cat No: 661646



HYDROCALOR M5 Water Heater Cat No: 697015



B500-U Water Heater Cat No: 717010



HYDROFILTER

Cat No: 722013 (single unit) Cat No: 722015 (pack of 6)



Direct Acting Solenoid

Cat No: 714620

Coolbox Spares

Supercool AA/LK5 Cat No: 703100

Centre shelf Cat No: 703800



Ventilation grill Cat No: 727200

Bungee cords Cat No: 663920

Nut caps

Cat No: 713504

Rubber door seal Cat No: 661455



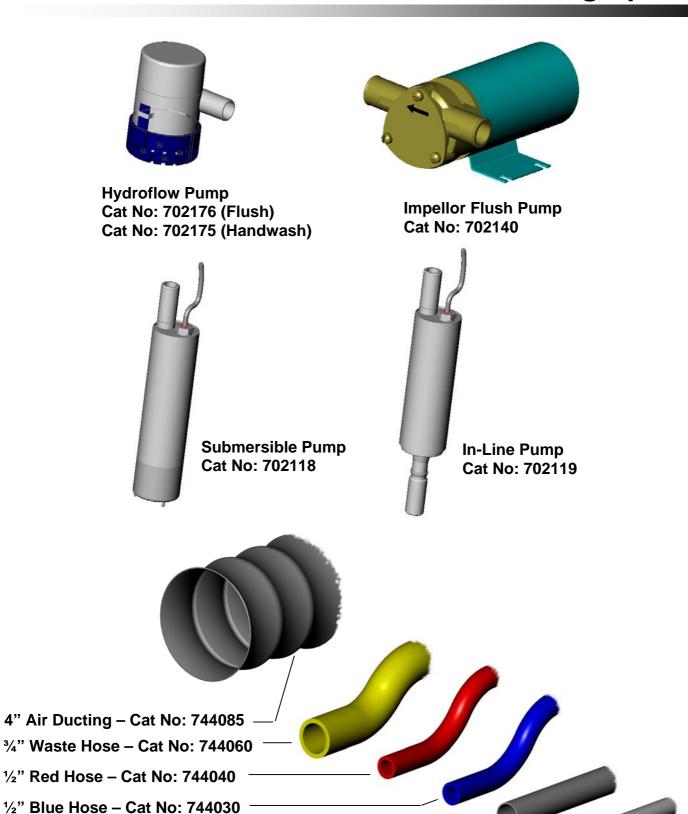
Fridge Door Handle Cat No: 663020

Blower fan Cat No: 727500

Fridge door catch Cat No: 663021

Back panel Cat No: 688302

Miscellaneous Plumbing Spares



21.5mm Grey Pipe - Cat No: 745003

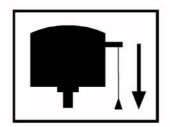
15mm White Pipe – Cat No: 747052

Cubicle Symbol Labels

3







2



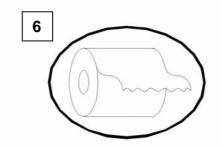




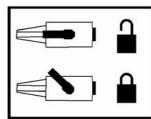








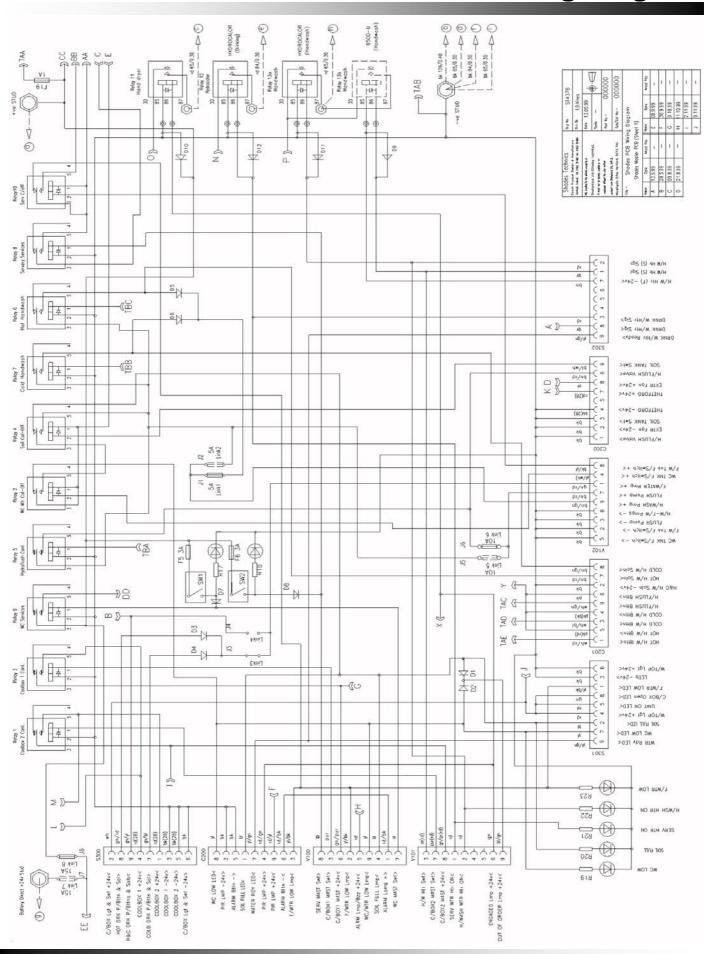






Item	Cat No	Description
1	735560	'Do Not Stand' Label
2	735562	'Flush' Label
3	735563	'No Smoking' Label
4	735567	'Litter Bin' Label
5	735561	'Handwash' Label
6	735564	'Lift To Lock' Label
7	735569	'Toilet Paper' Label
8	735566	'Emergency Alarm' Label
-	735570	Full Set Of Symbol Labels

PCB Wiring Diagram

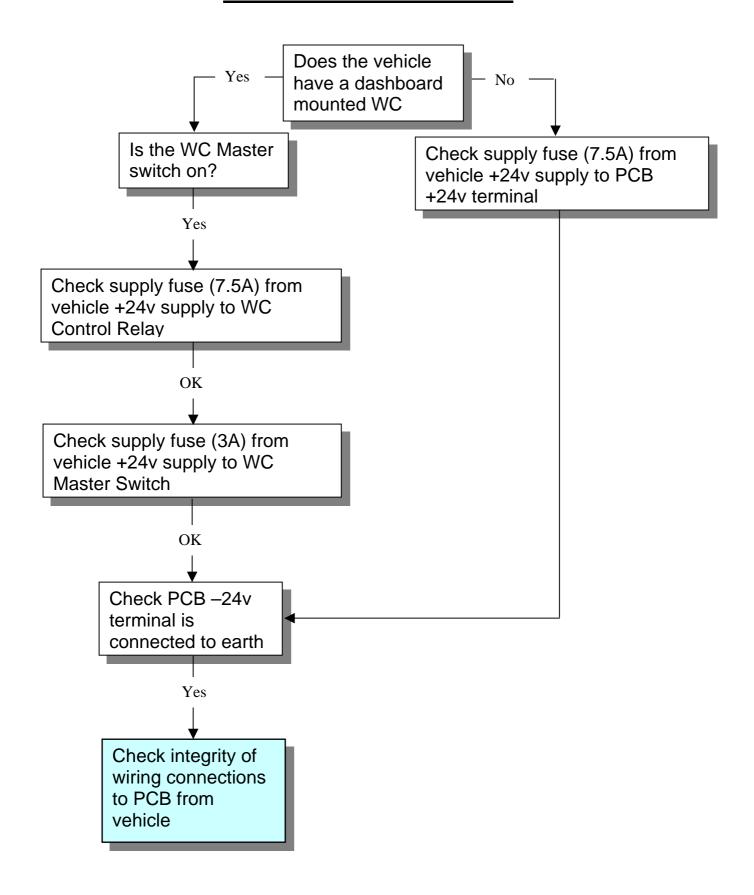


Fault Finding Analysis Charts

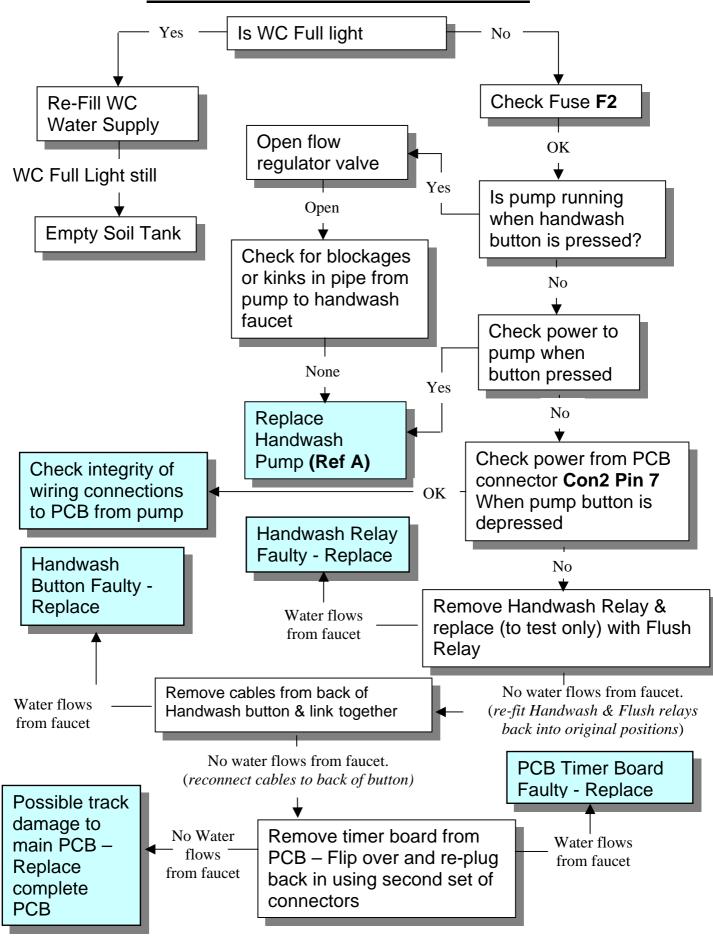
<u>Index</u>

No Power To Cubicle	Page 24
No Water From Handwash Faucet	Page 25
Handwash Water Runs Continuously	Page 26
Water Flow From Handwash Too Slow	Page 26
Water Flow From Handwash Too Fast	Page 26
Delay in Handwash Water Dispensing	Page 27
Extractor Fan Not Working	Page 27
Extractor Fan Only Working When Light On	Page 27
Hydroflush Not Working – No Flush or Pneumatic Valve	Page 28
Hydroflush Pneumatic Valve Opens – No Water Flush	Page 29
Hydroflush Water Flows – Pneumatic Valve Does Not Open	Page 29
Water Running From Flush Nozzle When Toilet Not In Use	Page 30
Water Flow Around Bowl – Not Full Coverage	Page 30
Hydroflush 'Flushing' Constantly	Page 30
PIR Light On – No Toilet Engaged Light	Page 31
PIR Light Not Working – Toilet Engaged Light On	Page 31
Alarm Button Not Functioning	Page 32
Dashboard Alarm Lamp Not Working	Page 32
Dashboard 'WC' Master Switch Not Working	Page 33
Dashboard 'WC' Full Lamp Not Working	Page 33
Supercool Unit & Internal Vent Fan Not Working	Page 34
Supercool Not - Internal Vent Fan Working	Page 34
Supercool Working - Internal Vent Fan Not Working	Page 34

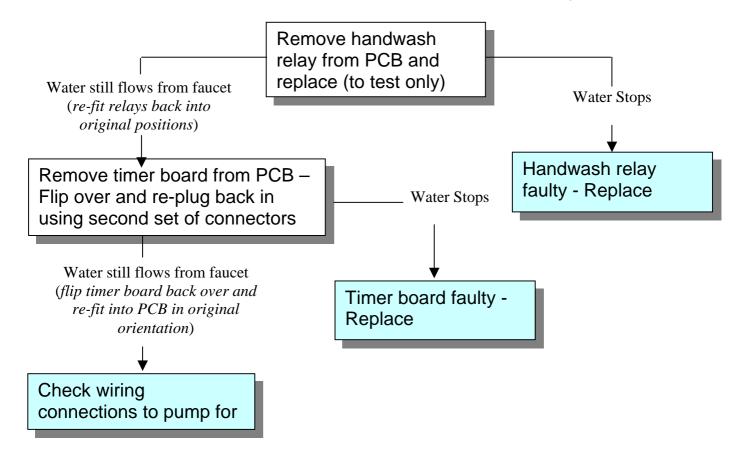
No Power To The Cubicle



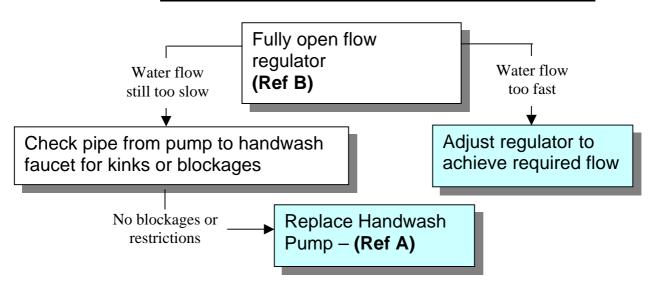
No Water From Handwash Faucet



Handwash Water Runs Continuously



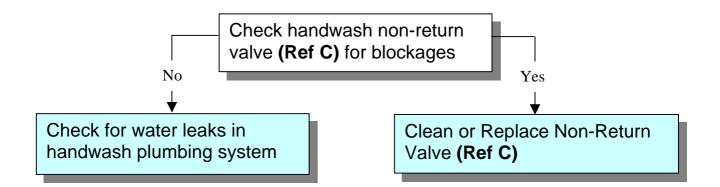
Water Flow From Handwash Too Slow



Water Flow From Handwash Too Fast

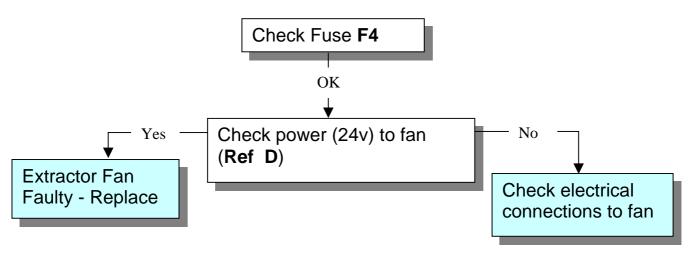
Close flow regulator (Ref B) until required flow rate is achieved

Delay in Handwash Water Dispensing



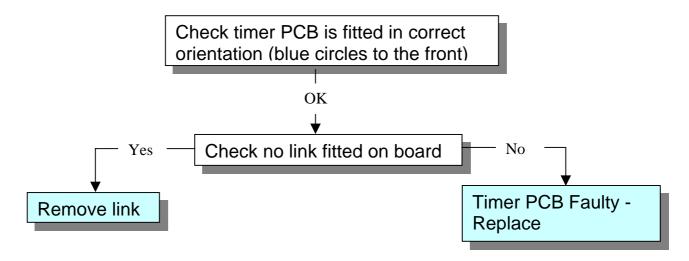
Extractor Fan Not Working

(Note: The extractor fan only works when the cubicle internal light is on and will continue for 15 seconds after the light has gone off)

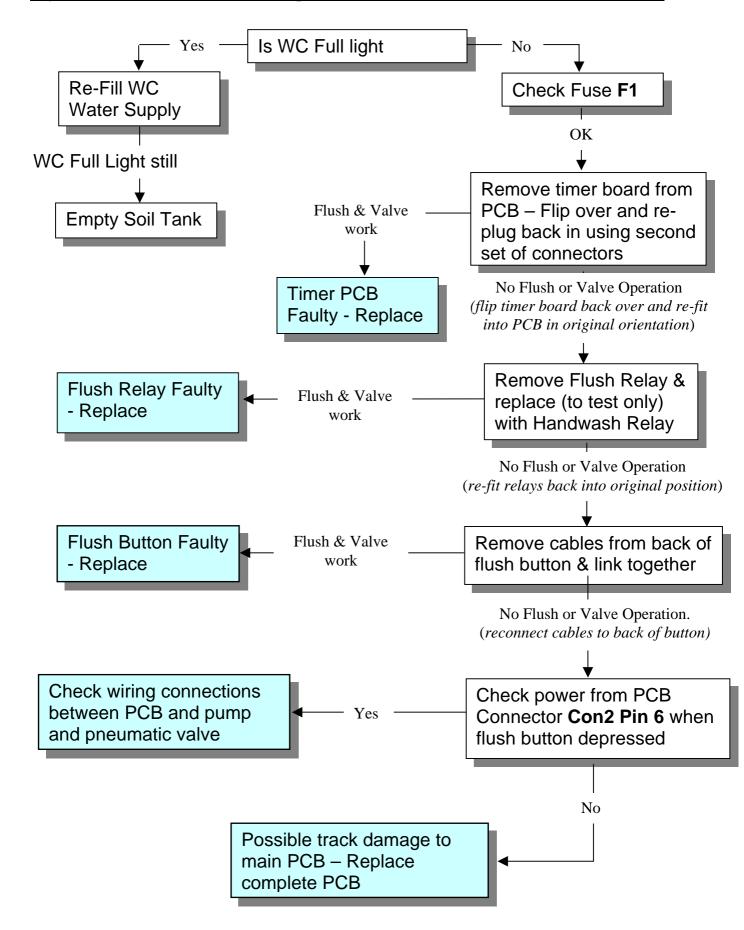


Extractor Fan Only Working When Light On

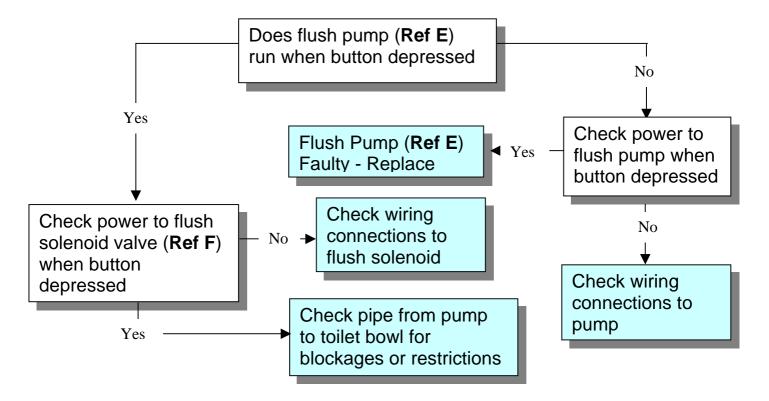
(fan does not continue for 15 seconds after light is off)



<u>Hydroflush Not Working - No Flush or Pneumatic Valve</u>

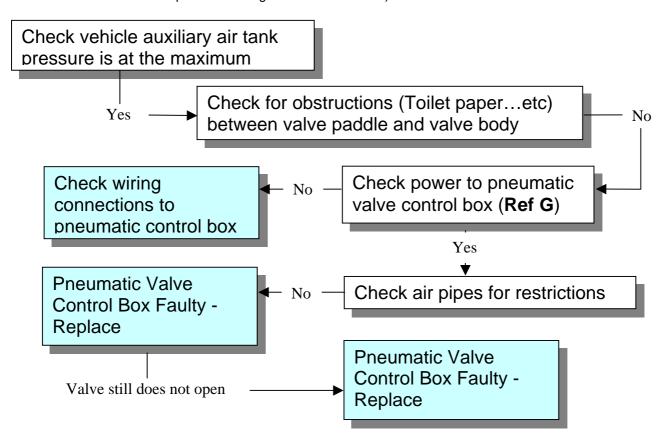


<u>Hydroflush Pneumatic Valve Opens – No Water Flush</u>

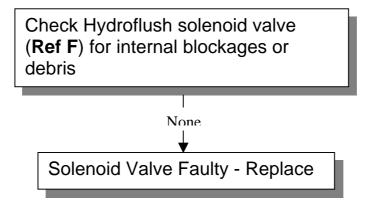


<u>Hydroflush Water Flows – Pneumatic Valve Does Not Open</u>

(The air supply to the Hydroflush pneumatic valve is normally connected to the auxiliary air tanks. Please consult the vehicle pneumatic diagram for confirmation)



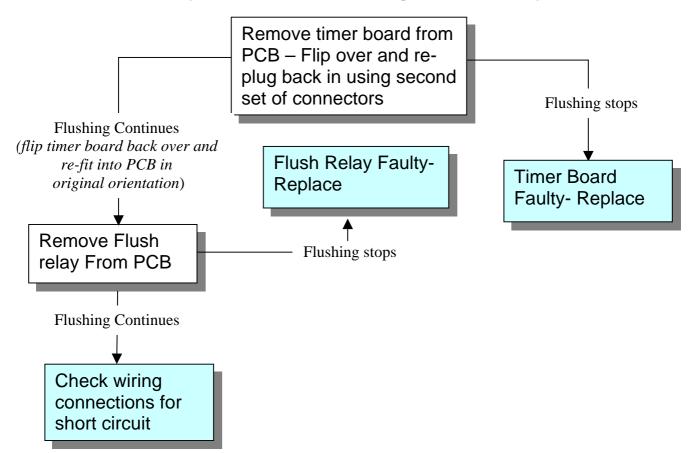
Water Running From Flush Nozzle When Toilet Not In Use



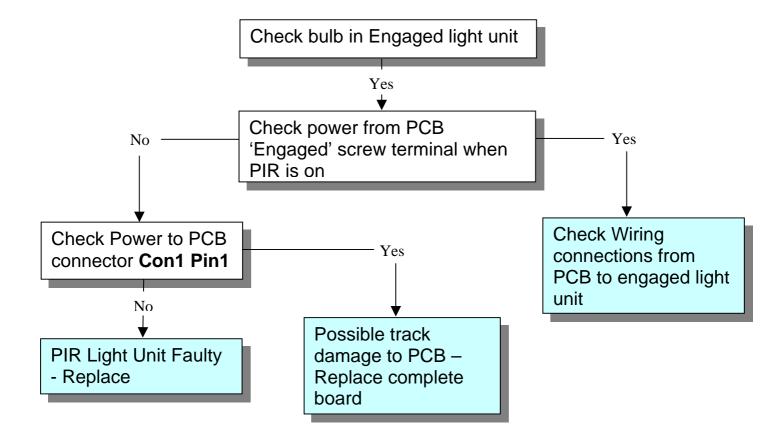
Water Flow Around Bowl - Not Full Coverage

Check pipes from flush pump for restrictions

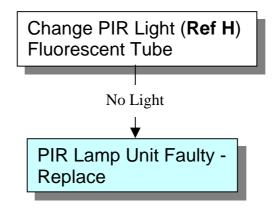
Hydroflush 'Flushing' Constantly



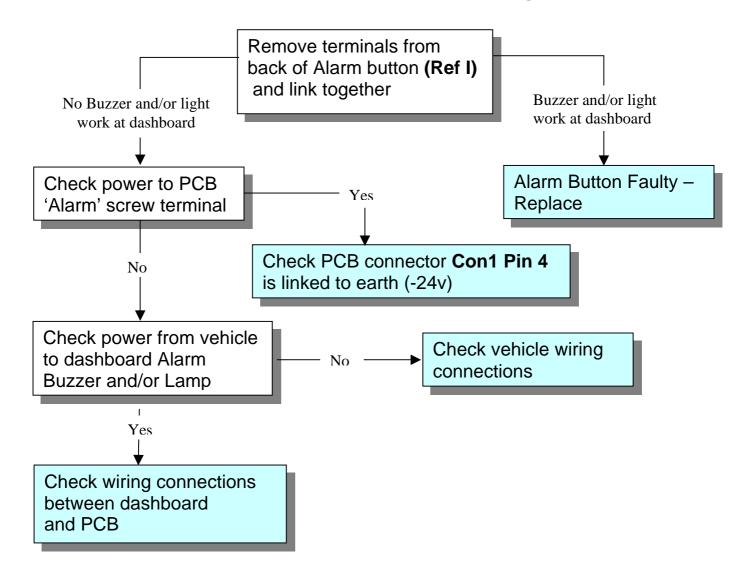
PIR Light On – No Toilet Engaged Light



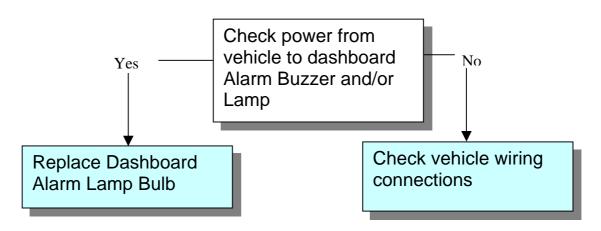
PIR Light Not Working - Toilet Engaged Light On



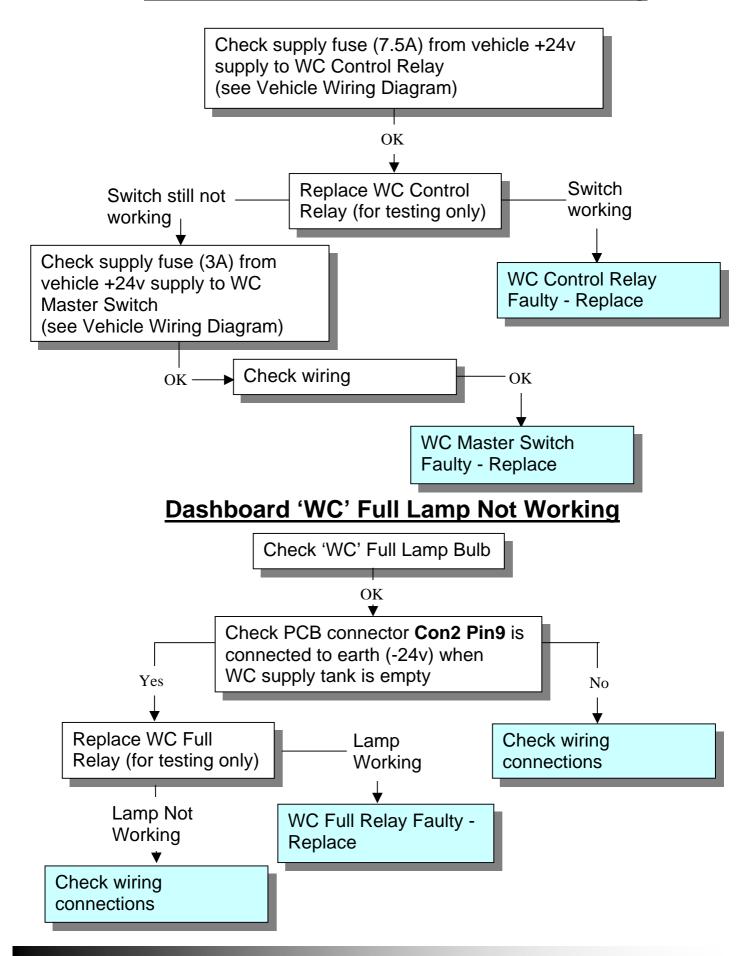
Alarm Button Not Functioning



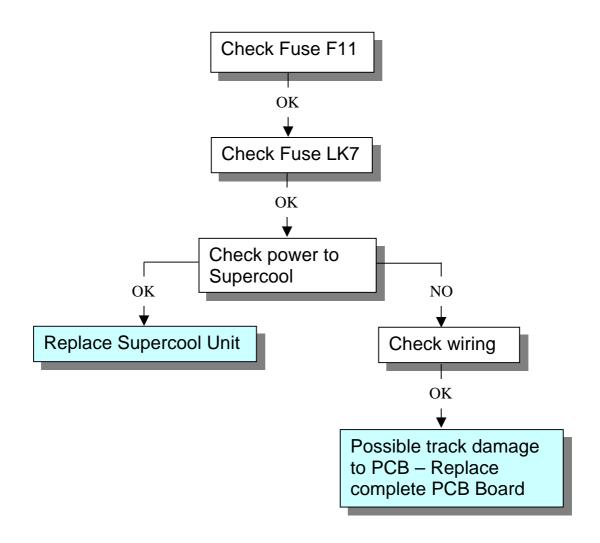
Dashboard Alarm Lamp Not Working



Dashboard 'WC' Master Switch Not Working



Supercool Unit & Internal Vent Fan Not Working



Supercool Not Working - Internal Vent Fan Working

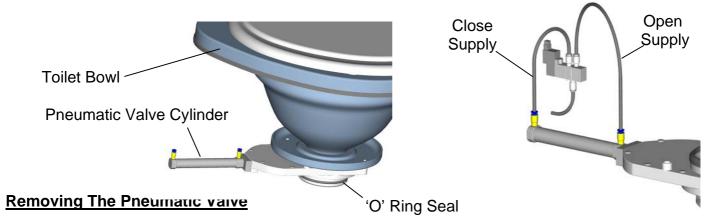
Replace Supercool Unit

Supercool Working - Internal Vent Fan Not Working

Replace Internal Vent Fan

Service Instructions

Replacing The HYDROFLUSH Pneumatic Control Valve



- i) Ensure the vehicle engine is off and switch off the WC Master Switch WC on the dashboard
- ii) Lift the toilet seat and rim and unscrew the four fixing bolts holding the bowl to the cowling
- iii) Pull the bowl assembly upwards (twisting slightly from side to side) until the bowl is free from the soil tank and the plumbing connector to the flush nozzle is exposed.
- iv) Remove the connector to the nozzle and lift the bowl clear of the cowling.
- v) Disconnect the two air pipes to the pneumatic valve cylinder to the bottom of the 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.

vi) Undo and remove the four fixing bolts holding the pneumatic valve to the bottom of the bowl and remove the valve assembly

Replacing The Pneumatic Valve

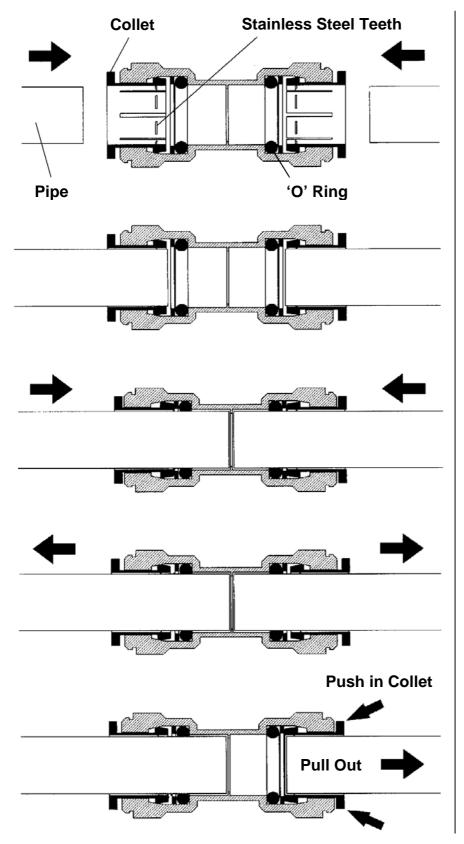
- i) Position the valve assembly on the bottom of the toilet bowl and secure in place with the bolts. Tighten bolts to 6kgf.cm using a torque wrench. (A torque conversion chart is available on request)
- ii) Smear grease or similar around the black 'O' ring on the pneumatic valve and introduce the bowl and valve assembly back into the aperture on the cowling
- iii) Reconnect the air pipes to the pneumatic valve cylinder and the plumbing pipe to the flush nozzle.
- iv) Push the bowl assembly back into the fitting on the soil tank and push down carefully but firmly until the bowl edge rests on the cowling top surface. Secure with the four bolts
- v) Start the vehicle engine and switch on the WC Master Switch. Wait until the vehicle air pressure is at the maximum before attempting to flush the toilet

Service Instructions

Replacing The Handwash & Flush Pump

- 1. Drain any water in the WC supply tank
- 2. Unscrew the white inspection cover to expose the pumps inside.
- 3. Pull the pumps off of the blue filter caps by squeezing the tabs on either side of the unit and lifting clear.
- 4. Lift the pump out of the tank, loosen the jubilee clip and pull the pump off of the black hose
- 5. Cut the electrical connector from the end of the pump cable, loosen the cable seal grommet and pull the cable through.
- 6. To re-fit, pass the cable of the new pump through the cable seal ensuring the yellow cable sleeve is clamped by the seal.
- 7. Push the black hose onto the pump outlet, tighten the jubilee clip and clip the pump back into the blue filter cap.
- 8. Re-fit the inspection cover and terminate the cable ends.

Service Instructions



PREPARTION

Cut the pipe square, ensuring it is free of score marks, burrs and sharp edges

INCOMPLETE CONNECTION

The pipe is gripped by the fitting but not sealed. The pipe must push 30mm into the fitting to seal

COMPLETE CONNECTION

Push the pipe into fitting to the internal stop. The Collet has stainless steel teeth which grip the pipe whilst the 'O' ring provides a permanent leak-proof seal

CHECK CONNECTION

Pull on the pipe to check it is secure. It is a good practice to test the system this way before use

DISCONNECTING A FITTING

Push in collet squarely against face of fitting. With the collet held in position, the pipe can be removed

DO NOT INSERT FINGERS INTO THE FITTING AS THE STAINLESS STEEL TEETH MAY CAUSE INJURY

Shades Technics UK Sales & Service Points



2. LONDON

Dorset Travel Services Ltd Victoria Coach Station (Arrivals)

3, Eccleston Place

London

Tel: 0171 730 8867 Fax: 0171 730 6492

KENT

Simon Electronic Services 738 Maidstone Road

Wigmore Gillingham Kent

Tel & Fax: 01634 364889

4. WEST COUNTRY

PCV Auto Electrical 13A Anchor Road Kingswood

Bristol

Tel: 0831 567 801 Fax: 0117 939 0089

5. NORTH EAST

Prolek Crook

Auto Electrical Services Rear High Hope Street

Crook Co Durham

Tel & Fax: 01388 762630

6. WEST YORKSHIRE

Wallace Arnold Lowfields Road (off Geldred Road)

Leeds

Tel: 0113 263 6456 Fax: 0113 231 0749

7. SOUTH YORKSHIRE

Moseley PCV Ltd Elmsall Way, Dale Lane South Elmsall

Pontefract

Tel: 01977 609 000 Fax: 01977 609 900