

Airwell controllers

INSTALLATION & OPERATIONS MANUAL



AIRWELL GROUP PTY LTD | 30 Harris Rd, Malaga WA 6090 | P: +61 8 9209 2666 | www.airwellgroup.com.au



DESIGNED AND MANUFACTURED IN AUSTRALIA

A.B.N. 46 009 323 871 30 Harris Road, Malaga, Western Australia 6090 Tel: (61) 08 9209 3355 - Fax: (61) 08 9209 2666 Email: sales@airwellgroup.com.au <u>http://www.airwellgroup.com.au</u>



Read this manual

Carefully read this manual before commissioning or servicing the product.



Notes:

- This documentation is part of the product.
- Retain the documentation during the entire service life of the product.
- Pass on the documentation to any subsequent user.
- Ensure that any supplement to this documentation is included, if necessary.

The contents and specifications herein are subject to change without notice. All rights reserved.

1	INTRODUCTION4					
	1.1 How the Airwell pump works					
2	SAFET	Ύ5				
3	UNIVE	ERSAL VALVE7				
	3.1	Standard flow universal valve (SV202-V8) – Rev2				
	3.2	High flow universal valve (SV202HF-V8) – Rev2 10				
4	SUPPO	ORTING POSTS - EXHAUSTS				
5	PRESS	URE REGULATORS				
	5.1	GA0058 - Underground airline setup (optional) 14				
	5.2	GA0059 - Above ground airline setup (optional) 15				
6	CONT	ROLLERS				
	6.1	Solar controller with S/S valve (SCICC-V9) – Rev3 16				
	6.2	Basic controller with S/S valve (ASSY0100) – Rev10				
	6.3	E _x controller (ASSY0099) – Rev4				
	6.4	Portable controller (BCICC-BP) – Rev11				
7	INSTA	LLATION AND OPERATION				
	7.1	Mounting the post				
	7.2	Mounting the controller 24				
	7.3	Connecting the controller				
	7.4	Adjusting air pressure				
	7.5	Calculate air usage				
	7.6	Calculate daily flow				
	7.7	Automatic operation				
	7.8	Resistor packs				
	7.9	Manual (dual timer) connection				
	7.10	Using the dual timer to set a specific flow rate 30				
	7.11	Using the dual timer for bore sampling (DTC002)				
	7.12	Helpful tips				
8	MAIN	TENANCE				
	8.1	Regular checks				
	8.2	Purging the pump – Method A				
	8.3	Purging the pump – Method B				
	8.4	Depressurising the system				
	8.5	Removing the solenoid valve				
	8.6	Cleaning the air filter				
	8.7	Disassembling the universal valve				
9	TROU	BLESHOOTING				
	9.1	Pump is not cycling				
	9.2	Pump is cycling				
10	CABLE	KIT				
11	BASIC	CONTROLLER REMOTE CONNECTION PLUG				
12	IMPU	LSE CONTROLLER				
13	TORQ	UE SETTINGS				
14	WARF	ANTY DETAILS				
15	WARRANTY REGISTRATION CARD46					

1 INTRODUCTION

This manual covers the operation, maintenance, servicing and troubleshooting of various type standard Airwell Pump controllers.

Although these controllers can be found in different formats or combinations, their basic principles are in common.

1.1 How the Airwell pump works

Compressed air is a particularly useful means of transferring energy to pump water. Air compressed at an existing power source can be carried significant distances through MDPE polyethylene pipe with limited loss of pressure, saving a costly power installation to the water source, whilst allowing the compressor to be used for multiple pumps, or other local purposes.

The Airwell pump component is a 316L grade stainless steel tube that can be manufactured in varying forms and sizes to suit a variety of different applications. The tube is enclosed at each end and incorporates a foot valve(s) to allow the submerged vessel to fill with water and a check valve on the outlet preventing the return of the expelled water. The valves are our own design and incorporate special features to provide exceptional ability to handle silt and sand, whilst keeping a very simple, maintenance free construction. The clean, hard valve seats provided for the polyurethane balls to close on are kept clean by the circulation of the water and are raised above the bottom of the pump to minimise contamination.

Within our most popular pumps there are two level (conductivity) probes; one long enough to reach the bottom of the pump to detect when the pump is empty, and one short one to detect when it's full. This is the key to the automatic function of the pump. We use the conductivity of water to monitor the high and low fluid levels in the pump. This means that a 'contact' is made when the water rises to the height of the short probe at the top of the vessel, (now both probes are wet) and is 'broken' when the water level falls below the lower probe at the bottom of the pump, (when both probes are dry).

An electronic circuit in the control unit detects this making and breaking of water contact, and subsequently changes the state of a 3-way solenoid valve, allowing compressed air to the pump when a 'full' signal is received, forcing the water up the discharge pipe, and then exhausting the air pressure to allow the pump to refill when the 'empty' signal is seen. The result of this is that the Airwell Pump will only cycle when a 'full' or 'empty' signal is received, regardless of this being every few seconds, minutes, hours, weeks or years.

The control unit is located close to the pump, but above water level. Besides carrying the 3-way valve for the air and the electronic control circuit, it also houses a 4.5 Amp/hour dry cell battery to power the system, which in turn is recharged by the solar panel on the lid of the controller. Mains powered systems are available for those applications where power is close to the water source, as are multiple pump controllers, flow monitoring and flow control options.

It should be noted that the solenoid valve is a 'latching' type valve and requires a short pulse of power (60 milliseconds) in one direction to change state and will stay that way until a pulse in the opposite direction changes it. A conventional solenoid requires permanent energisation to maintain either an open or closed state.

Should power be lost to the microprocessor, upon reconnection, the system will initialise on pressure, expelling any water in the pump, and regaining a reference for the controller. The water delivered by an Airwell system comes in surges, not a continuous flow like that of most electric pumps. Flow rates from the Airwell pump vary dependent on many factors.

2 SAFETY

Protective equipment required for this job:



Responsibilities of the person in charge:

- Identify the hazards that arise due to the special working conditions.
- Implement these hazards in the form of operating instructions.
- Specify clearly the responsibilities for the installation, operation, troubleshooting, maintenance and cleaning of this equipment.
- Ensure all personnel is trained and informed about the dangers at regular intervals.
- Ensure that this equipment is always in technically perfect condition.



Caution

Access to the equipment is only permitted to qualified persons or persons specially trained by Airwell Group for this purpose.



Warning

This equipment is designed and constructed exclusively for the proper use described in this manual.

Misuse of this equipment can cause dangerous situations.

This page has been left intentionally blank

Page 6 of 46qs

3 UNIVERSAL VALVE

The universal value is especially designed and manufactured for the trouble-free Airwell pumps operation. It has been manufactured using high standards and with high quality materials.

When the pump is full, the universal valve supplies compressed air to the pump until empty. When the pump is empty, the universal valve discharges the compressed air from inside the pump as quick as possible, so the pump has a quick refill cycle.

The universal valve can be a standard flow (SV202-V8) or a high flow (SV202HF-V8).

The high flow valve will only be of benefit if the airline between the pump and the controller is Ø25mm poly pipe. It is also recommended for floating pumps as they are not deeply submerged, and therefore do not have a lot of pressure available to push the air out of the pump vessel.

The life expectancy of the exhaust diaphragm will be reduced with a high flow valve compared to a standard flow one.

The top (pressure) diaphragm material can be either nitrile or urethane. The urethane pressure diaphragm is suggested for operating pressure above 700kPa.

The bottom (exhaust) diaphragm material can be either nitrile or urethane. The urethane exhaust diaphragm is suggested for operating pressure above 700kPa only if the pump is submerged by more than 2m.

The compressor airline is connected to port No 1. The pump airline is connected to port No 2.

The exhaust is connected to port No 3.

A solenoid valve which controls the state of the universal valve is connected on the top face No 4.



Note: (Connecting the compressor airline)

It is good practice to run the compressor whilst laying the airline to blow out any grit and dust prior to connecting it to the controller. For long airlines, this may take about 7 mins/km. An air filter is included in the controller for additional protection.



Compressed air

- Never point compressed air at yourself or others.
- Before releasing a fitting make sure it is not under pressure.
- Safety glasses should be worn at all times.
- Use hearing protection whenever allowing compressed air to escape.

3.1 Standard flow universal valve (SV202-V8) – Rev2



ITEM	QTY	PART No	DESCRIPTION			
1	1	A020S	PRESSURE DIAPHRAGM ASY S/S			
2	1	AE094	GAUGE Ø50 x 1/4" BSP 0-1600kPa (REAR ENTRY)			
3	1	H003S	BALL VALVE (S/S) 1/2"BSP(M) x 1/2"BSP(F)			
4	1	H006	FILTER ELEMENT			
5	2	H049	O-RING Φ6 x Φ1.5 (NITRILE N70)			
6	1	H064	O-RING BS111 (NITRILE N70)			
7	1	H078	O-RING BS118 (NITRILE N70)			
8	2	H608	BOLT PAN (S/S) M4 x 0.7 x 30			
9	2	H616	GRUB SCREW M6 x 1.0 x 8 (DIN916-A4-80)			
10	4	H618	SCREW HEX M6x1.0x12 (DIN933-A4-80)			
11	1	H708A	O-RING Φ36 x Φ6 (NITRILE N70)			
12	1	H710	O-RING BS032 (NITRILE N70)			
13	1	H715S	EXHAUST SILENCER 1/8" (SS)			
14	1	M052S	FILTER RETAINING UNIT (SS)			
15	1	M418	UNIVERSAL VALVE TOP PLATE			
16	1	M419	UNIVERSAL VALVE MIDDLE PLATE			
17	1	M420	UNIVERSAL VALVE INTERNAL BODY			
18	1	M421A	UNIVERSAL VALVE BOTTOM PLATE			
19	1	M706R	EXHAUST DIAPHRAGM - V7			
20	1	M719A	PRESSURE VALVE SPRING			

Optional parts

Item	Qty	Part Number	Description
1	1	M721U	Pressure diaphragm (Urethane)
19	1	M706U	Exhaust diaphragm (Urethane)





3.2 High flow universal valve (SV202HF-V8) – Rev2



ITEM	QTY	PART No	DESCRIPTION			
1	1	A0205	PRESSURE DIAPHRAGM ASY S/S			
2	1	AE094	GAUGE Ø50 x 1/4" BSP 0-1600kPa (REAR ENTRY)			
3	1	H003S	BALL VALVE (S/S) 1/2"BSP(M) x 1/2"BSP(F)			
4	1	H006	FILTER ELEMENT			
5	2	H049	O-RING Φ6 x Φ1.5 (NITRILE N70)			
6	1	H064	O-RING BS111 (NITRILE N70)			
7	1	H078	O-RING BS118 (NITRILE N70)			
8	2	H608	BOLT PAN (S/S) M4 x 0.7 x 30			
9	2	H616	GRUB SCREW M6 x 1.0 x 8 (DIN916-A4-80)			
10	4	H618	SCREW HEX M6x1.0x12 (DIN933-A4-80)			
11	1	H708A	O-RING Φ36 x Φ6 (NITRILE N70)			
12	1	H710	O-RING BS032 (NITRILE N70)			
13	1	H715S	EXHAUST SILENCER 1/8" (SS)			
14	1	M052S	FILTER RETAINING UNIT (SS)			
15	1	M418	UNIVERSAL VALVE TOP PLATE			
16	1	M419	UNIVERSAL VALVE MIDDLE PLATE			
17	1	M420	UNIVERSAL VALVE INTERNAL BODY			
18	1	M421B	CAST U/V BOTTOM PLATE - B			
19	1	M706R	EXHAUST DIAPHRAGM - V7			
20	1	M719A	PRESSURE VALVE SPRING			

Optional parts

Item	Qty	Part Number	Description
1	1	M721U	Pressure diaphragm (Urethane)
19	1	M706U	Exhaust diaphragm (Urethane)





4 SUPPORTING POSTS - EXHAUSTS

There are a few different options of supporting posts / silencers. The selection of the correct type depends on operational and environmental factors.



Supporting post to be bolted on horizontal (floating, transfer) pump.

A silencer can be supplied as an option.



Supporting post to be bolted on the top of a sump lid.

A silencer is not required, as the discharged air is guided straight into the sump

5 PRESSURE REGULATORS

5.1 GA0058 - Underground airline setup (optional)

PARTS LIST					
ITEM	QTY	PART No	MATERIAL	DESCRIPTION	
1	1	H009	ALUMINUM.	AIR REGULATOR 1/2"	
2	1	H003	BRASS.	BALL VALVE 1/2"BSP (M/F)	
3	1	7020001	POLY	END CONNECTOR Ø16x0.50"BSP(M)	
4	1	AL1616PM[017]	POLY	PIPE Ø16 - PN16	
5	1	AL2520PM[012]	POLY	PIPE Ø25 - PN20	
6	1	7110013	POLY	REDUCING JOINER Ø25 x Ø20	
7	1	zz649[018]	-	SOIL	
8	1	M1228	316 S/S	SPIGOT (BENT) Ø20 x 1/2"BSPT	



5

5.2 GA0059 - Above ground airline setup (optional)

	DADTE LICT							
	PARISLIST							
ITEM	QTY	PART No	MATERIAL	DESCRIPTION				
1	1	H009	ALUMINUM.	AIR REGULATOR 1/2"				
2	1	H1138	GALV	ANTENNA U-BOLT (BUNNINGS 4361347)				
3	1	H003	BRASS.	BALL VALVE 1/2"BSP (M/F)				
4	1	7020001	POLY	END CONNECTOR Ø16x0.50"BSP(M)				
5	1	AL1616PM[017]	POLY	PIPE Ø16 - PN16				
6	1	AL2520PM[012]	POLY	PIPE Ø25 - PN20				
7	1	7110013	POLY	REDUCING JOINER Ø25 x Ø20				
8	1	zz649[018]	-	SOIL				
9	1	M1228	316 S/S	SPIGOT (BENT) Ø20 x 1/2"BSPT				
10	1	H1137	C/S	STAR PICKET (L=900 mm)				



6 CONTROLLERS

6.1 Solar controller with S/S valve (SCICC-V9) – Rev3



ITEM	QTY	PART No	DESCRIPTION
1	1	ASSY0119	DIGITAL COUNTER ASSY
2	1	E060B	BATTERY LiFeP04 12V 4.5AH / F2 TERMINALS
3	1	E082A	SOLAR PANEL - 5W (NEW STYLE)
4	1	E091	IMPULSE PILOT VALVE COIL ASSEMBLY
5	1	E092A[002]	DIN PLUG 156-1001
6	1	EA0029[001]	SOLAR PANEL - 5W NEW STYLE CABLE ASSEMBLY
7	3	H049	O-RING Φ6 x Φ1.5 (NITRILE N70)
8	6	H069	RIVET (S/S) Φ4.0 x 10.3
9	1	H097A	BOLT SLOT (GALV) M3 x 0.5 x 40
10	1	H364	LABEL - SCICC - INSIDE
11	1	H364A	LABEL - SCICC - INSIDE
12	1	H369	STICKER 200 x 60
13	2	H603A	BOLT SLOT (S/S) M3.5 x 0.6 x 72
14	2	H608	BOLT PAN (S/S) M4 x 0.7 x 30
15	2	H682	WASHER M4 (DIN125A-A4)
16	1	H912A[001]	CONTROLLER LID SEAL (L=271 mm)
17	1	M006	CIRCUIT HOLDER RETAINING NUT
18	1	M833	SCICC ENCLOSURE LID
19	1	M834	SCICC ENCLOSURE
20	1	PICC-RPBL	RESISTOR BLACK
21	1	PICC-XL	PICC - XL - CIRCUIT REV XL
22	1	SV202-V8	UNIVERSAL VALVE - V7 - S/S

Note: Standard flow Universal Valve (SV202-V8) can be replaced with high flow Universal Valve (SV202HF-V8).

Controller usage

This is a solar controller for Airwell pumps, equipped with a 316-S/S universal valve. It can be used at remote locations where power supply is not available close to the pump. The solar panel provides the power supply required for the electronic circuit which controls the pump operation. The battery enables the pump operation during night or cloudy days.

6.2 Basic controller with S/S valve (ASSY0100) – Rev10



	PAKIS LISI						
ITEM	QTY	PART No	DESCRIPTION				
1	1	ASSY0119[001]	DIGITAL COUNTER ASSY				
2	1	E091	IMPULSE PILOT VALVE COIL ASSEMBLY				
3	1	E092A[002]	DIN PLUG 156-1001				
4	1	E102A	POWER TRANSFORMER 240VAC / 12VDC / 2A				
5	1	FA0145	BOTTOM PLATE - BICC-INT- PLUG				
6	3	H049	O-RING Φ6 x Φ1.5 (NITRILE N70)				
7	1	H097A	BOLT SLOT (GALV) M3 x 0.5 x 40				
8	1	H105[004]	GLAND (PLASTIC) M16 x Φ12				
9	1	H369B	LABEL - BCICC - OUTSIDE				
10	2	H603A	BOLT SLOT (S/S) M4 x 0.7 x 73				
11	2	H608	BOLT PAN (S/S) M4 x 0.7 x 30				
12	2	H610B	BOLT PAN (SS) M5 x 0.8 x 15				
13	4	H683	WASHER M5 (DIN125A-A4)				
14	2	H703	NUT M5x0.8 (DIN934 - A4 - 80)				
15	1	H706B	WING NUT (S/S) M10x1.5				
16	1	M006A	CIRCUIT HOLDER NUT MACHINED				
17	1	M101	LASER CUT PLATE				
18	1	M621	TOP COVER - BCICC-V9				
19	1	PICC-RPBL	RESISTOR BLACK				
20	1	PICC-XL	PICC - XL - CIRCUIT REV XL				
21	1	SV202-V8	UNIVERSAL VALVE - V7 - S/S				

Note: Standard flow Universal Valve (SV202-V8) can be replaced with high flow Universal Valve (SV202HF-V8).

Controller usage

This is a basic controller for Airwell pumps equipped with a 316-S/S universal valve. It can be used at locations where power supply is available close to the pump.

6.3 E_x controller (ASSY0099) – Rev4



	PARTS LIST					
ITEM	TEM QTY PART No DESCRIPTION					
1	1	A003	3 PIN SOCKET - BCICC-INT			
2	1	E086	SOLENOID VALVE IS (BURKERT 147227Y)			
3	1	E092	DIN PLUG TYPE 2508			
4	1	E220C	TRAILER SOCKET 7-PIN PLASTIC SMALL			
5	1	FA0145	BOTTOM PLATE - BICC-INT- PLUG			
6	3	H049	O-RING Φ6 x Φ1.5 (NITRILE N70)			
7	1	H097	BOLT SLOT (GALV) M3 x 0.5 x 30			
8	2	H607	BOLT PAN (SS) M4 x 0.7 x 25			
9	2	H608	BOLT PAN (S/S) M4 x 0.7 x 30			
10	2	H610B	BOLT PAN (SS) M5 x 0.8 x 15			
11	1	H616	GRUB SCREW M6 x 1.0 x 8 (DIN916-A4-80)			
12	2	H683	WASHER M5 (DIN125A-A4)			
13	2	H703	NUT M5x0.8 (DIN934 - A4 - 80)			
14	1	H706B	WING NUT (S/S) M10x1.5			
15	1	H753	ELBOW Φ6 x 1/8"BSP(M)			
16	1	H753A	ELBOW Φ6 x 1/8"BSP(F)			
17	1	M003	CABLE KIT JOINER LOCKING UNIT			
18	1	M621	TOP COVER - BCICC-V9			
19	1	M699S	VALVE ADAPTOR - INTRINSIC SAFE			
20	1	M795G	LABEL - COMPANY LOGO AND ZONE 0			
21	1	SV202-V8	UNIVERSAL VALVE - V7 - S/S			

Controller usage

This is an Ex-IS rated controller for Airwell pumps. It can be used in zone 0 hazardous areas. It contains an intrinsically safe solenoid valve which is powered from a remote location, outside the potentially explosive zone.

6.4 Portable controller (BCICC-BP) – Rev11



10 12	PARTS LIST						
ITEM	QTY	PART No	MATERIAL	DESCRIPTION			
1	2	H608	316 S/S	BOLT PAN M4 x 0.7 x 30			
2	1	H097A	GALV	BOLT SLOT M3 x 0.5 x 40			
3	2	H603A	316 S/S	BOLT SLOT M4 x 0.7 x 73			
4	1	ASSY0119A		DIGITAL COUNTER REAR MOUNT ASSEMBLY			
5	1	E092A[002]	PLASTIC	DIN PLUG 156-1001			
6	1	DTC001		DUAL TIMER CONTROLLER			
7	1	M1229	316 S/S	FOLDED PART M620-02 MODIFIED			
8	1	H396[001]	RUBBER.	HOSE - BLUE 290PSI 10mm ID (L=1600mm)			
9	1	H041A[001]	RUBBER.	HOSE - YELLOW G.P. 12.5mm ID1/4" (L=1100mm)			
10	1	E091	ALUMINUM.	IMPULSE PILOT VALVE COIL ASSEMBLY			
11	1	H948[001]	PLASTIC	KINCHROME CASE HD			
12	1	H700	BRASS	LOCK NUT 3/4" BSP (SLIM)			
13	1	H217A	316 S/S	NITTO PLUG - 1/4" MALE SUIT 3/8" NYLON			
14	1	H283	316 S/S	NITTO SOCKET - 1/2" HOSE			
15	1	M006A	PLASTIC	NUT (MACHINED) FOR CIRCUIT HOLDER			
16	2	H692	316 S/S	NUT (NYLOC) M4x0.7			
17	2	H705	316 S/S	NUT M8x1.25 (DIN934)			
18	4	H013C	316 S/S	O CLIP - 18mm HOSE			
19	3	H049	NITRILE N70	Ο-RING Φ6 x Φ1.5			
20	1	PICC-XL		PICC - XL - CIRCUIT REV XL			
21	1	E424A	PLASTIC	PLUG 6-PIN FOR CABLE (MALE)			
22	1	E424[001]	PLASTIC	PLUG 6-PIN FOR ENCLOSURE (FEMALE)			
23	1	E143D[001]	PLASTIC	POWER SUPPLY 12V CIGARETTE ADAPTER			
24	1	H138	BRASS.	REDUCING BUSH 3/4"BSPT x 1/2"BSP			
25	1	PICC-RPBL	-	RESISTOR BLACK			
26	2	H628C	316 S/S	SCREW COUNTERSUNK SOCKET M8x35			
27	2	H606A	316 S/S	SCREW COUNTERSUNK\ SOCKET M4x0.7x20			
28	1	H718	ALUMINUM.	SILENCER 1/2"BSP - ALLIED WITAN			
29	1	H218	BRASS.	SOCKET - 3/4"BSP			
30	2	H248	BRASS.	TAILPIECE 1/2" HOSE x 1/2" BSP			
31	1	H279	BRASS.	THREADED HOLLOW BAR 3/4" BSP			
32	1	SV202-V8		UNIVERSAL VALVE - V7 - S/S			
33	2	H682	316 S/S	WASHER M4 (DIN125A)			
34	2	H685	316 S/S	WASHER M8 (DIN125A)			

Controller usage

This is a portable controller for Airwell pumps. This controller can be operated manually (fill and empty in user specified time intervals) or automatically (by the pump's probes control signals). Needs external power supply 12VDC.

7 INSTALLATION AND OPERATION

7.1 Mounting the post

Post to be concreted in the ground

- Dig a hole into the ground close to the bore, while allowing room to walk around the bore (1m approx.).
- Put the post in the hole.
- Pour the concrete (a bag of rapid set concrete is very handy).
- Keep the post vertical by using a spirit level.
- Allow the concrete to set.



- Mount the base on the ground.

Post to be mounted on a base

- Thread the post on the base until hand tight.
- Tighten the post slightly using a pipe wrench.

Post to be mounted on a horizontal pump

- Thread the post on the base until hand tight.
- Tighten the post slightly using a pipe wrench.

Note: Do not overtighten the post to prevent damage to the pump body.

Mounting the controller 7.2

- Ensure the brass nut is fully threaded at the post.
- Screw the controller on the post using the ¾" BSPT thread in the valve bottom.
- Stop when the controller is bottomed.
- You can unscrew the controller a bit to let it head the desired direction.
- Lock the controller in place with the brass lock nut.

Notes:

- This is the exhaust and it is not critical for the thread to seal.
- If a solar powered system, the solar panel must face towards the Equator.







Ø250mm



7.3 **Connecting the controller**

Submerge the pump in the bore according to the pump's specific directions

- Turn the controller's air inlet tap to the "OFF" position (5).
- Connect the Airwell pump's cable kit to the controller (1).
- Connect the Airwell pump's airline to the controller (2).
- Connect the compressor's airline to the controller (4).

Note: (Connecting the compressor airline) It is good practice to run the compressor whilst laying the airline to blow out any grit and dust prior to connecting it to the controller. For long airlines, this may take about 7 mins/km. An air filter is included in the controller for additional protection.

- If not a solar powered system, connect the 12VDC car plug to an appropriate power socket.
- If a solar powered system, connect the battery, ensuring correct polarity (red to red, black to black).

Notes:

- Wrong polarity will result in the blowing of the in-line fuse.
- Do not replace with larger than 2A fuse.
- Disconnect the battery if the unit is to be transported or stored.



Compressed air

- Never point compressed air at yourself or others.
- Before releasing any fitting, make sure it is not under pressure.
- Safety glasses should be worn at all times.
- Use hearing protection whenever allowing compressed air to escape.



Vessel under pressure

Airline must be equipped with a high-pressure discharge valve limited to 145PSI (≈1000KPA) (≈10bar).

Over pressurized airline or vessel may rupture causing serious injury or even death.



7.4 Adjusting air pressure

An air regulator may be required on the air supply to adjust / reduce the pressure at the desired level.

The air regulator can be fitted at either the compressor or the controller end of the airline. When fitted at the compressor end, it is readily accessible and the airline does not run at as high a pressure. Operating pressure is not a concern with the recommended PN16 airline. With the regulator fitted at the controller end, the air storage capacity of your system is increased (significantly if you have a long airline).

The pressures on the side chart, describe the amount of pressure required to reach equilibrium. An extra pressure of about 150kPa has to be added to give a useful flow.

Another way to adjust the pressure is to turn the pressure down until the pump stops working (doesn't have enough pressure to lift the water), then turn the pressure up until the pump starts pumping fast enough, and then turn it up a tiny bit more.

Unlike many other types of pumping systems, the depth to water in the bore has no bearing on the pressure required to lift the water to the surface, only the pump setting depth matters.

Depth (head)		Airline p	ressure
ft	m		kPa	PSI
328.0	100	-	1020	147.9
311.6	95	-	969	140.5
295.2	90	-	918	133.1
278.8	85	-	867	125.7
262.4	80	-	816	118.3
246.0	75	-	765	110.9
229.6	70	-	714	103.5
213.2	65	-	663	96.1
196.8	60	-	612	88.7
180.4	55	-	561	81.3
164.0	50	-	510	74.0
147.6	45	-	459	66.6
131.2	40	-	408	59.2
114.8	35	-	357	51.8
98.4	30	-	306	44.4
82.0	25	-	255	37.0
65.6	20	-	204	29.6
49.2	15	-	153	22.2
32.8	10	-	102	14.8
16.4	5	-	51	7.4

7.5 Calculate air usage

Water flow	Pump	Volume of air required in CFM – per pump							
	6″ x 2m	6.4	10.3	14.6	19.5	24.8	-	-	-
5.0 m ³ / h	4″ x 2m	6.3	10.2	-	-	-	-	-	-
	3.5″ x 2m	-	-	-	-	-	-	-	-
	3″ x 2m	-	-	-	-	-	-	-	-
	Dam/Sump	-	-	-	-	-	-	-	-
	6″ x 2m	5.1	8.2	11.7	15.6	19.9	24.5	29.5	-
	4″ x 2m	5.1	8.2	11.7	15.6	-	-	-	-
4.0 m ³ / h	3.5″ x 2m	5.1	8.5	-	-	-	-	-	-
	3″ x 2m	-	-	-	-	-	-	-	-
	Dam/Sump	-	-	-	-	-	-	-	-
	6" x 2m	3.8	6.2	8.8	11.7	14.9	18.4	22.2	26.2
	4″ x 2m	3.8	6.1	8.8	11.7	14.8	-	-	-
3.0 m³ / h	3.5″ x 2m	3.8	6.4	9.4	12.6	-	-	-	-
	3″ x 2m	-	-	-	-	-	-	-	-
	Dam/Sump	4.6	6.4	8.2	10.1	-	-	-	-
	6" x 2m	2.5	4.1	5.8	7.8	9.9	12.2	14.8	17.5
	4″ x 2m	2.5	4.1	5.8	7.8	9.9	12.0	14.7	-
2.0 m³ / h	3.5″ x 2m	2.5	4.2	6.2	8.4	10.8	13.7	-	-
	3″ x 2m	2.8	4.9	-	-	-	-	-	-
	Dam/Sump	3.1	4.3	5.5	6.7	7.9	9.2	10.4	
	6" x 2m	1.9	3.1	4.4	5.8	7.4	9.2	11.1	13.1
	4″ x 2m	1.9	3.1	4.4	5.9	7.5	9.3	11.3	13.3
1.5 m³ / h	3.5″ x 2m	2.0	3.2	4.7	6.4	8.3	10.3	12.6	-
	3″ x 2m	2.1	3.6	5.5	-	-	-	-	-
	Dam/Sump	2.3	3.2	4.1	5.0	5.9	6.9	7.8	8.7
	6" x 2m	1.3	2.1	2.9	3.9	5.0	6.1	7.4	8.7
	4″ x 2m	1.3	2.0	2.9	3.9	4.9	6.1	7.3	8.7
1.0 m³ / h	3.5″ x 2m	1.3	2.1	3.1	4.2	5.4	6.8	8.4	10.0
	3″ x 2m	1.4	2.3	3.4	4.8	6.3	8.0		
	Dam/Sump	1.5	2.1	2.7	3.4	4.0	4.6	5.2	5.8
	6" x 2m	0.6	1.0	1.5	2.0	2.5	3.1	3.7	4.4
	4″ x 2m	0.6	1.0	1.4	1.9	2.5	3.0	3.7	4.3
0.5 m³ / h	3 ½″ x 2m	0.6	1.1	1.6	2.1	2.7	3.4	4.2	5.0
	3″ x 2m	0.7	1.1	1.7	2.4	3.2	4.0	5.0	6.0
0.25 m³ / h	Dam/Sump	0.8	1.1	1.4	1.7	2.0	2.3	2.6	2.9
	6" x 2m	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.1
	4″ x 2m	0.3	0.5	0.7	1.0	1.2	1.5	1.8	2.1
	3.5″ x 2m	0.3	0.5	0.8	1.1	1.4	1.7	2.1	2.5
	3″ x 2m	0.3	0.6	0.9	1.2	1.6	2.0	2.5	3.0
	Dam/Sump	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.7
Depth		32 Ft	65ft	98ft	131ft	164ft	196ft	230ft	262ft
		10m	20m	30m	40m	50m	60m	70m	80m

Air volume conversions	1CFM =	0.47 lt/sec
	1 litre/sec =	2.11CFM

7.6 Calculate daily flow

Using a stopwatch, commence timing cycle when air first blows off (end of pumping / pressure cycle, start of filling cycle), and continue to time until it blows off again. This will give you the total of filling and pumping time. Cycle displacement (volume per cycle) is as follows: Pump displacement (litres), divided by time taken to complete a cycle (seconds) and multiplied by 86,400 gives you the number of litres pumped in one 24-hour day. (X Lit / Y seconds) · 86400 = Z Lit

The more water above the pump, the faster the filling time, although this is not relevant with Surface Water pumps.

The higher the operating pressure the faster the system will discharge the water contents.

Pump type	Diameter		Nominal	Displacement
	(inch)	(mm)	(m)	(Lit)
BF17510	1+3/4"	Ø45	1	0.8
BF17510P	1+3/4"	Ø45	1	0.7
BF17520	1+3/4"	Ø45	2	1.8
BF17520P	1+3/4"	Ø45	2	1.7
BF2005	2″	Ø51	0.5	0.6
BF2010	2″	Ø51	1	1.3
BF2020	2″	Ø51	2	2.8
BF3010	3″	Ø77	1	2.6
BF3015	3″	Ø77	1.5	4.4
BF3020	3″	Ø77	2.0	6.2
BF3505	3+1/2"	Ø89	0.5	1.3
BF35075	3+1/2"	Ø89	0.75	2.2
BF3510	3+1/2"	Ø89	1	3.4
BF3520	3+1/2"	Ø89	2	8.3
BF3530	3+1/2"	Ø89	3	13.2
BF3560	3+1/2"	Ø89	6	27.8
BF4005	4″	Ø102	0.5	1.8
BF40075	4″	Ø102	0.75	3.1
BF4010	4″	Ø102	1	4.7
BF4015	4″	Ø102	1.5	8.1
BF4020	4″	Ø102	2	11.5
BF4030	4″	Ø102	3	18.4
BF4060	4″	Ø102	6	38.6
BF6005	6″	Ø153	0.5	4.3
BF6010	6″	Ø153	1	11.2
BF6020	6″	Ø153	2	27.5
BF6030	6"	Ø153	3	43.5
BF8005	8″	Ø219	0.5	12.0
BF8010	8″	Ø219	1	28.2
BF8015	8″	Ø219	1.5	45.2
Dam / Sump	pump			23.5

Remote mounted Controller options only:

Quick exhaust valves can sometimes be fitted with the benefit of allowing the pump to be filled quicker. **Useful conversions:**

1 Litre = 0.22 Gallons

1 Gallon = 4.546 Litres

<u>Note</u>: The displaced volumes shown above are a good guide. However, factors such as total depth, submergence, operating pressure etc. can vary the pumps' discharge capacity. If accurate pumped volumes are important to you, it is a good idea to measure the discharge of your pump(s) over a number of cycles to determine the displacement in relation to your specific application.

7.7 Automatic operation

- Supply the system with compressed air.
- Write down the recorded number of cycles shown on the counter.
- Turn the air inlet tap to the "ON" position.
- Water should start pumping.



High pressure water

- Never point high pressure water at yourself or others.
- Before releasing any fitting, make sure it is not under pressure.
- Hoses should be rated to at least 2x operating pressure.
 - Safety glasses should be worn at all times.

7.8 Resistor packs

The microprocessor-based controller is normally supplied with a black resistor pack and is designed to cater for a wide variety of water types. If you have very fresh water you may require a green one or very saline water may require a red one. If problems are experienced, consult your Airwell agent. The extra plug packs can be purchased separately.

Saline water	Yellow	
	Orange	
	Red	
	Violet	
	Black	
	Green	
Fresh water	Blue	

7.9 Manual (dual timer) connection

If your controller is not supplied with an integrated dual timer, you can convert it with the DTC001 kit.

Unplug the resistor pack from the microprocessor control circuit.

Plug the dual timer 4-pin plug to the microprocessor control circuit.



7.10 Using the dual timer to set a specific flow rate

A Dual Timer Controller can be used to manually set a specific flow rate.

By dividing the required daily flow rate by the displaced volume, the number of cycles required on a daily basis to attain that flow is determined. Dividing 86,400 (the number of seconds in a day) by the number of required cycles gives the number of seconds required per cycle.

Example:

Required flow: 2000 Lit per hour Pump: Ø4" x 2m

2000 x 24 = 48,000 Lit per day 48,000 / 13.9 = 3,453 cycles per day 86,400 / 3453 = 25 sec per cycle

By setting the Dual Timer Controller to a 25 second cycle (say 8 secs fill, 17 secs empty) the flow will be maintained at around 2,000 litres per hour. It should be noted however if the refill time (due to insufficient water) is greater than 8 secs then air will be discharged on the empty part of the cycle, due to the pump being only partly full. In these cases, adjustment to the fill and empty times will be necessary.

7.11 Using the dual timer for bore sampling (DTC002)

- Turn the controller's air inlet tap to the "OFF" position.
- Submerge the pump in the bore according to the pump's specific directions.
- If not solar powered system, connect the 12VDC car plug to a proper power socket.
- Write down the recorded number of cycles shown on the counter.
- Rotate the empty time potentiometer so it will indicate ≈1sec.
- Rotate the fill time potentiometer so it will indicate ≈10sec.
- Turn the controller's air inlet tap to the "ON" position.

The adjustment of the two timers is learnt from trial and error, as it will change from bore to bore.

Essentially the fill timer needs to be set long enough for the pump to have had time to completely fill with water from the bore, and not too long as to waste time. No harm is done by being set too long.

The discharge time needs to be set long enough to push all the water from the pump, but not so long as to blow compressed air right through the system and out the water delivery pipe.

As the water level falls lower in the bore, the filling time will take a little longer.

It is a good idea to start with the filling time set too long and the discharge time set too short.

With the system operating, lengthen out the discharge time, so that you are discharging the volume of water in the pump, but not blowing compressed air out. Then shorten up the fill time so that the system goes back to pressure soon after all the air has been exhausted.

7.12 Helpful tips

- Fill time is dependent on the water head above the pump filling point.
- Empty time is depending on air pressure and pump submersed depth.
- You can refer to the counter indication to calculate the volume pumped.
- In operation, if for any reason, you have to put the pump on the bottom of the borehole, put it down the hole while the pump is in pumping (pressure) mode and then raise off the bottom approximately 500mm. The small pumps will clog up easily if allowed to operate while sitting in mud.

8 MAINTENANCE



Compressed air

- Never point compressed air at yourself or others.
- Before releasing a fitting make sure it is not under pressure.
- Safety glasses should be worn at all times.
- Use hearing protection whenever allowing compressed air to escape.



High pressure water

- Never point high pressure water at yourself or others.
- Before releasing a fitting make sure it is not under pressure.
- Hoses should be rated to at least 2x operating pressure.
- Safety glasses should be worn at all times.

Note: Before disassembling any components, depressurise the system.

8.1 Regular checks

It is recommended that every 3 – 4 years you return your controller to Airwell or your nearest service centre for a full service.

Notes:	-	An in-factory service includes a complete change out of all internal diaphragms & seals, battery
		check, cleaning sandblasting and testing.
	-	Your refurbished controller is generally dispatched back to you within 48 hours of receipt.
	-	Loan controllers are available if required while your controller is serviced.

8.2 Purging the pump – Method A

If you are planning to raise the pump, it is suggested to empty the water from inside the pump and the riser.

Unplug the cable kit from the controller.

The pump will go to exhaust mode.

Plug the test plug to the controller.

The pump will go to pressure mode.

Wait until all the water is blown out of the discharge line.

Now the pump and the riser are purged.





8.3 Purging the pump – Method B

To expel the water from the pump, depress and twist to lock the button on the side of the solenoid valve.

This manually applies pressure to empty the pump and water riser pipe. It is important to remember to unlock this purge button when you have finished your job.

8.4 Depressurising the system

Isolate the air supply by turning the air inlet tap to the "OFF" position.

Unplug the pump control cable (or the test plug).

The pump will go to exhaust mode and the system becomes depressurised.







8.5 Removing the solenoid valve

It is very unlikely that the impulse solenoid valve will require servicing. If this happens, it is advised to return to Airwell Group for servicing. If the valve is further disassembled, it will need to be reset by an Airwell technician.

NOTE: The two painted screws on the top should not be loosened. The valve can be removed by undoing the two screws that are not painted. **NOTE: Do not attempt this in the field.**

- Exhaust the system as described above.
- Disconnect the leads from the battery terminals.
- Remove the screw (1) and lift DIN connector (2) from valve.

- Undo and remove the two mounting screws (1, 2). NOTE: <u>Not</u> the painted screws.

- Lift off the impulse pilot valve being careful not to lose the three O-rings that can be found under it.

After servicing, reassemble by following the reverse order.

- Place a film of grease on the base of the valve to hold the three O-rings in place as you lower the valve in position.
- Connect the leads, ensuring correct polarity to the battery terminals











8.6 Cleaning the air filter

- If the pump discharge volume flow slows down the air filter may be blocked.
- Exhaust the system as described above.
- Undo the filter retaining nut (1).
- Pull out the air filter (3).
- Clean the air filter by blowing out with air.
- Put the air filter back again in place.
- The O-ring (2) must be in good condition.
- Redo the filter retaining nut (1)
 (it will be difficult not to blow dirt back into the valve body with this filter removed).

8.7 Disassembling the universal valve

- Exhaust the system as described above.

- Disconnect the leads from the battery terminals.
- Remove if required the pilot solenoid valve as described above (not required in most cases).
- Remove pump airline.
- Undo and remove the two screws holding the valve to the controller.
- Lift the stainless-steel enclosure free of the valve.

- Undo and remove the two remaining screws.
- Be careful not to lose the spring.

MAN_5500

- With the top removed the pressure diaphragm can be lifted out.
- Check for damage or excessive wear on the seating surface.
- Also watch out for the two small 'O' rings.











- Remove the four screws (1) in the bottom of the valve.
- The valve can be separated, exposing the exhaust diaphragm (2).
- Inspect the diaphragm for cracks and wear. Replace it if necessary.
- Use a blunt tool to pass through the air port in the top of the mid-section of the valve (4) to push out the inner section (3).

This will expose two O-rings.

The thick O-ring is employed as a check valve.

- It is very important that the groove, on which the O-ring seals into, is not scratched or damaged in the process of removing the O-ring. Use something plastic not steel to remove this O-Ring.
- If dirt has entered the valve in the air supply it will likely be trapped behind this check valve O-Ring.
- Inspect all seals for damage and replace if required.
- Contact your Airwell supplier for a replacement seal kit.

After servicing, reassemble by following the reverse order.

- Do not over tighten any of the fixing screws.
- If the O-rings are in good condition, excessive tension is not necessary.





9 TROUBLESHOOTING

Note: This is not a complete list and if after following the action below your problems persist, please contact the Airwell Service Department or your nearest authorised service centre.

9.1 Pump is not cycling

Discharge line test			
Possible fault	Action		
Discharge tank is full	Wait until tank level drops		
Discharge line taps are closed	Open taps		
Ball taps are blocked with debris	Clean ball taps		
Discharge line is blocked with debris	Clean discharge line		

Airline test	
Possible fault	Action
Air compressor is turned off	Turn on air compressor
Airline taps are closed	Turn on airline taps
Lack of air pressure to push the	Adjust the air regulator to the required pressure.
required head	See section "Adjusting air pressure".
	Allow sufficient time for the pressure to build up before testing again.

Controller test		
Possible fault	Action	
In – line fuse is blown	Replace with 2A fuse only	
Battery terminals are loose or dirty	Clean and tighten battery terminals	
Defective solar panel	Check with a multimeter as shown. The solar panel charging rate should be >250mA during a sunny date. If not, replace the solar panel.	Solar panel
Defective battery	Check the battery voltage with a multimeter. It should indicate ≥12VDC during a sunny day. If not, a new battery is required. Alternately, jump a 12VDC car battery to the controller. If the system starts to cycle correctly, a new battery is required. Battery expected life is 2-3 years for LSA ones or 10 years for Lithium ones.	Hultimeter + - Black - + 12V Battery
	Disconnect the signal cable from under the	S/S enclosure box.
Defective circuit	Plug the test plug. The LED on top of the cir green (pressure on). Hold for 10 seconds. Remove the test plug. The LED on top of the red (exhaust). Leave for 10 seconds. Repeat this procedure 4 times. If the LED does not change state, a new circ	cuit will start flashing e circuit will start flashing uit is required.
Defective solenoid valve	Each time you plug the controller test plug, heard from the solenoid valve. If not, a new solenoid valve is required.	an audible click should be

System remains on exhaust (filling) cycle (red LED flashing)		
Possible fault	Action	
	Complete a controller test as described above. If test is o.k. then	
	proceed to the following steps.	
Water level too low.	If possible, lower the pump deeper in the bore to see if it starts to	
	cycle.	
	Note: Extension cable kits can be supplied if there is capacity to lower	
	your pump further down the bore hole.	
	OR	
	Use a fire fighter or other means to pump some water down the bore	
	to see if pump starts cycling.	
Pump bottom screen is blocked or	Lift pump up approx. 300mm to see if pump starts cycling.	
buried in mud.	If still not working, remove pump and clean away possible mud or	
	debris with hose.	
Lack of conductivity due to changes in	Check probe plugs are connected correctly and pushed in completely.	
water conditions	A variety of conductivity resisters are available ranging from very fresh	
	to very saline water conditions.	

System remains on pressure (emptying) cycle (green LED flashing)		
Air is blowing through the pump and up the water discharge pipe		
Possible fault	Action	
	Complete a controller test as described above. If test is o.k. then	
	proceed to the following steps.	
Water penetration into the cable kit	Return cable kit for repair	
Contamination build up on the probe	Return pump vessel for repair	
in the pump	OR	
	Replacement parts can be supplied for you to undertake the repair.	
	Note: If you are replacing the probe, it is important that when	
	reassembling the probe must go inside the guide tube located inside	
	the pump body.	

9.2 Pump is cycling

Small amount of water is delivered from each cycle		
Possible fault	Action	
Discharge line has leaks.	Check for leaks along the full length of the water pipe	
Grit prevents the top or bottom ball	Press and hold the purge button located on the side of	•
valve from sealing properly	the solenoid valve in the controller box for	~
	approximately 15 seconds and release. Repeat process	
	2-3 times to see if this will clear the jam.	🖒 🍸
	If this has not solved the problem, remove the pump	
	from the bore and check that the ball valves are clear	
	and sealing correctly.	_
Corrosion	Some water conditions may corrode 316 S/S. This is not a	fault with
	the product or materials used, but a site condition.	
	Remove pump and inspect for corrosion issues. A zinc and	ode can be
	attached to the pump to provide future protection.	

The pump is rapid cycling			
Possible fault	Action		
Moisture has penetrated into the	Remove cable kit from pump and controller.		
cable kit	Inspect for signs of water or moisture in plug ends.		
	If needed, replace cable kit.		

Air is escaping from post when on pressure (pumping) cycle				
Possible fault	Action			
Damaged or worn exhaust diaphragm	Return controller to factory for service			
	OR			
	A new seal kit can be supplied for you to fit within the universal valve.			

Air is escaping from the pilot air exhaust silencer located on the side of the universal valve			
Possible fault	Action		
Solenoid valve requires adjusting and	Return controller to factory for service		
resetting	OR		
	A re-conditioned solenoid valve can be supplied for you to fit.		
	Note: Under no circumstances attempt to adjust the solenoid valve.		
	This adjustment needs to be carried out at the Airwell factory or an		
	authorised service centre.		
Damaged or worn pressure or exhaust	Return controller to factory for service		
diaphragm.	OR		
	A new seal kit can be supplied for you to fit within the universal valve.		

10 CABLE KIT

Additional spare parts

Part No.	Description	Quantity
H241	3 Core Poly Gland Cable	
H043	Stainless Steel Rope	
H022	D Shackle	2
M020	Rope Grip Ferrule	1
H023A	Stainless Steel Thimble	2

Wiring colour code









11 BASIC CONTROLLER REMOTE CONNECTION PLUG

12 IMPULSE CONTROLLER



MAN_5500

13 TORQUE SETTINGS

	Strength grade					
	4.6	6.8	8.8	10.9	12.9	
Metric thread	Torque setting (Nm)					
M 3 x 0.5	0.51	1.01	1.35	1.90	2.27	
M 4 x 0.7	0.95	1.91	2.54	3.57	4.29	
M 5 x 0.8	2.28	4.56	6.09	8.56	10.3	
M 6 x 1	3.92	7.85	10.5	14.7	17.7	
M 8 x 1.25	9.48	18.9	25.3	35.5	42.7	
M10 x 1.5	19.1	38.1	50.9	71.5	86.8	
M12 x 1.75	32.6	65.1	86.9	122	146	
M14 x 2	51.9	104	139	195	234	
M16 x 2	79.9	160	213	299	359	
M18 x 2.5	110	220	293	413	495	
M20 x 2.5	156	312	416	585	702	
M22 x 2.5	211	422	563	792	950	
M24 x 3	270	539	719	1010	1213	
M27 x 3	398	795	1060	1490	1789	
M30 x 3.5	540	1080	1440	2025	2430	

Material	C,	/S	S/S	304	S/S	316	Bra	ass
Pipe thread	BSP	NPT	BSP	NPT	BSP	NPT	BSP	NPT
		Torque setting (Nm)						
1/8"	16	18	14	16	16	18	11	13
1/4"	34	50	31	45	34	50	24	35
3/8"	54	63	49	57	54	63	38	44
1/2"	73	160	66	144	73	160	51	112
3/4"	106	200	95	180	106	200	74	140
1"	152	340	137	306	152	340	106	238
1+1/4"	209	450	188	405	209	450	146	315
1+1/2"	286	560	257	504	286	560	200	392

Notes: - Always lubricate zinc plated and stainless-steel bolts. - To convert Nm to lb-ft, multiply by 0.7375.

14 WARRANTY DETAILS

Airwell Group Pty Ltd - WARRANTY

Airwell Group Pty Ltd is committed to providing our customers with hardware whose manufacture, selection of materials and inbuilt quality exceeds our customers product expectations. The Airwell system is designed to provide long-term, sustainable service in a wide variety of applications.

Airwell Group Pty Ltd warranty terms and conditions are not intended to restrict your rights or guarantees afforded to you under the Australian Consumer Laws.

Provided the system has been installed in accordance with the instructions incorporated in the 'Installation and Operations' manual, and periodically maintained, the following warranty is applicable:

- 1. Equipment manufactured by Airwell Group Pty Ltd is warranted to be free from manufacturing and material defects for **5 years** from date of purchase from Airwell Group or one of its recognised distributors.
- 2. Should a problem arise, any defective parts are to be returned to the point of purchase at the expense of the owner, for examination.
- 3. Replacement parts will be issued under warranty, provided the equipment has not been;
 - i. repaired or altered by anyone other than an Airwell technician, or;
 - ii. the equipment was improperly installed, abused, misused, neglected or accidentally damaged.
- 4. All repaired or replaced items covered under warranty will be returned to the owner at the owner's expense.
- 5. Return of the faulty parts for analysis also enables us to continually improve the Airwell product. Please ensure that the returned items are suitably packaged. **Transit damage is not warrantable**.
- 6. All third-party equipment is supplied in good faith, however, Airwell does not provide warranty on any thirdparty goods supplied. If required, Airwell will assist our clients with warranty claims on third party goods with the original equipment manufacturer/s. The final decision and responsibility of the warranty claim is reserved by the original equipment manufacturer/s.

Damage due to corrosion:

Airwell Group uses new first grade 316L stainless steel as a standard minimum specification in the manufacture of down hole pumping equipment. (Wire rope 304).

Every effort is made to maximise corrosion tolerance on all down hole equipment, however due to the unpredictable corrosive nature of ground water, Airwell Group Pty Ltd will not provide a warranty on corrosion.

The exception where a warranty would apply would be if the corrosion is caused by a piece of substandard or incorrect grade material being included in a pump unit. (If more than one section of material in a pump has corroded it is assumable that it is a general corrosion problem and not a particular piece of material).

Damage due to exposure to chemicals and other hazardous materials:

Every effort is made to maximise tolerance on all down hole and surface equipment to damage from exposure to chemicals or other hazardous materials contained in the fluids being pumped. Airwell Group Pty Ltd will not provide warranty on damage to any equipment damaged due to exposure to chemicals or other hazardous materials.

It is the responsibility of the customer to advise Airwell Group staff if the pump and associated pumping equipment is to be installed in areas deemed 'Hazardous', whereby the environment is potentially explosive.

Airwell Group Pty Ltd shall not be liable for incidental or consequential damages, including any damage to equipment or the environment caused by the failure of the Airwell system.

Please return the warranty registration card either by fax or post to your point of purchase at your earliest convenience. Alternatively, you can email the warranty registration card to <u>sales@airwellgroup.com.au</u>

X

15 WARRAN	ITY REGIST	RATION (CARD
------------------	-------------------	----------	------

)	PLEASE POST OR FAX TO: AIRWELL GROUP PTY. LTD.					
•						
	30 Harris Road,					
	Walaga Western Australia 6090					
	Please note: Warranty is conditional upon correct installation and operation of the product as per the Installation and Operations Manual provided with the unit and the warranty disclosure contained within the Installation and Operations Manual.					
	Pump serial number: -					
	Controller serial number:					
	Company name: -					
	Address:					
	Phone number: - () Fax number: - ().					
	Contact name:					
	Equipment purchased from:					
	Commissioned by:/					
	ARE YOU HAPPY WITH THE PRODUCT?					
	We appreciate your comments regarding our products and service and welcome any suggestions that may help to improve them.					
	Was there any transport damage? Image Yes Image No					
	Were you happy with the guality and presentation of the equipment?					
	Comments:					