



**Park House**

Healthcare

# PRELUDE

**Mattress Overlay System**



**Service Manual**

## **Part 1: Product Introduction**

### **General Function & Component Details**

#### **1. About the Prelude 3000/3500:**

The Prelude 3000/3500 is an overlay system which is suitable for those who are at medium risk of developing pressure ulcers. The Prelude offers a comfortable support, whose cells gently inflate and deflate in accordance with established alternating principles. It is cost effective for both the prevention and treatment of pressure ulcers.

The Prelude power unit operates a 9.5-minute alternating cycle, and is both energy efficient and quiet in operation.

#### **2. Technical Descriptions:**

The Prelude 3000/3500 comprises of a pressure regulated pump and an air flotation mattress system with 18 alternating cells.

The Prelude pump is made from a fire retardant ABS material and meets the UL, CSA, BS5724 (IEC 601/1) safety standards.

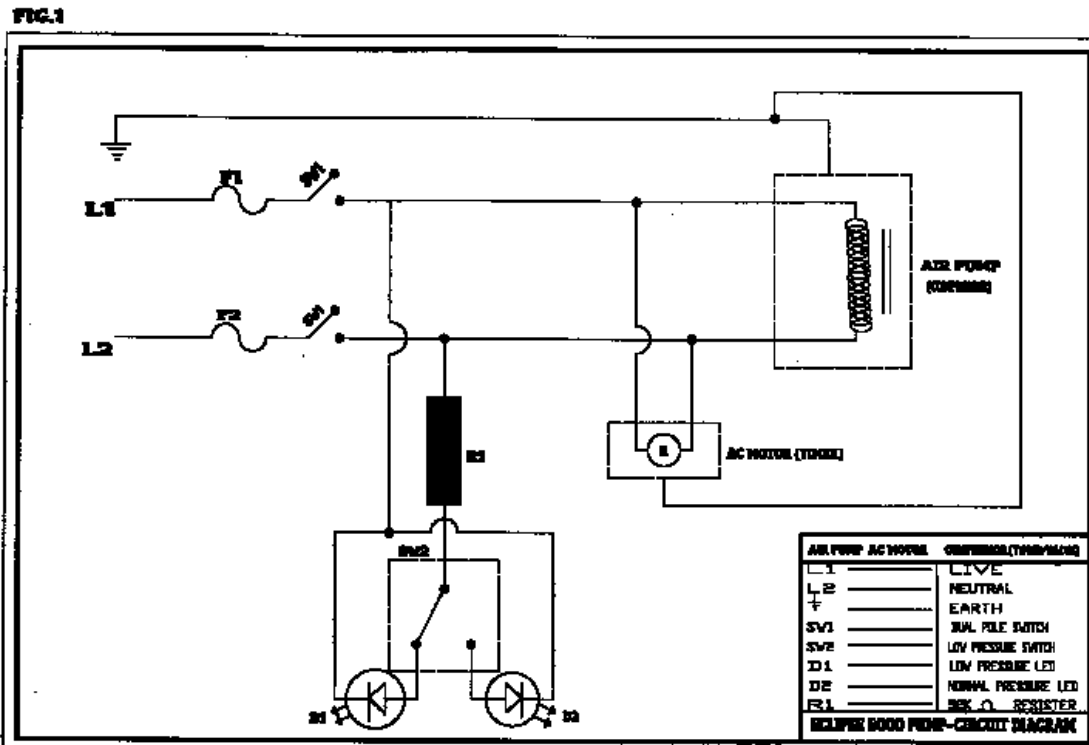
It features: -

1. Low pressure indicator light.
2. Normal Pressure indicator light.
3. On/Off switch indicator light
4. Adjustable comfort control.

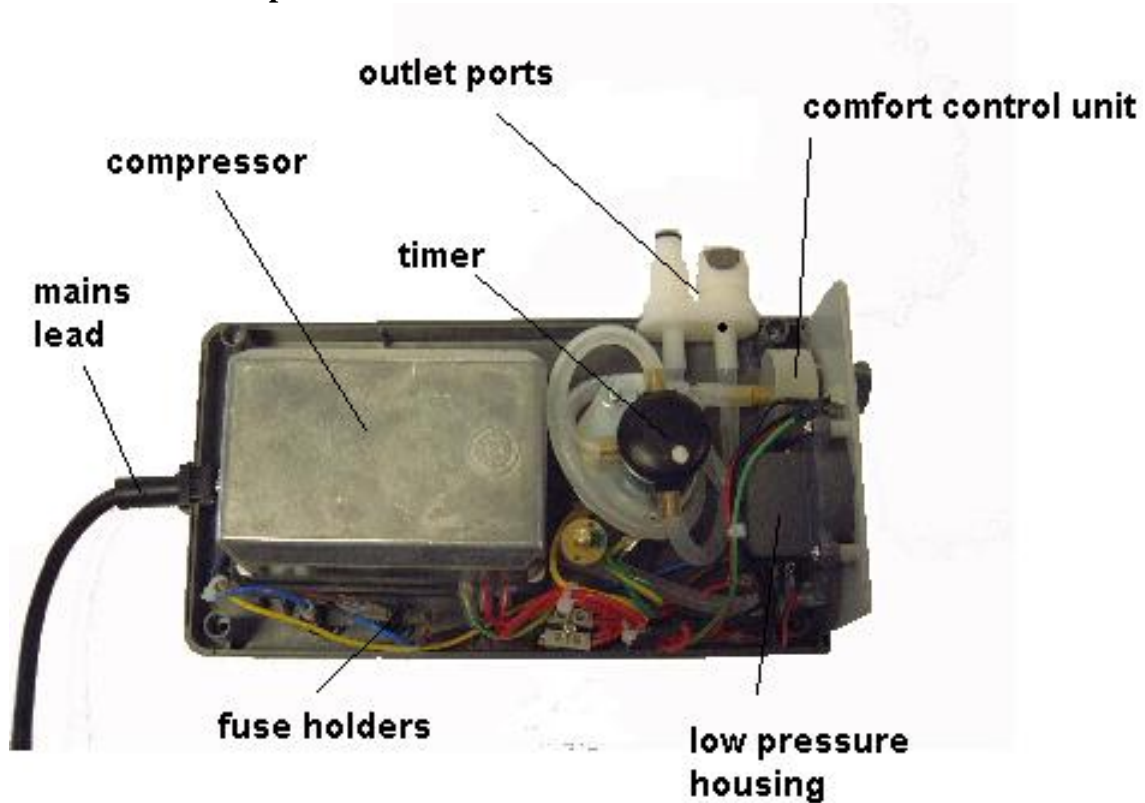
#### **3. Comfort Control:**

Different ranges adjustable to patients comfort while maintaining low tissue interface pressure. Internal setting for the pump ranges from 30 – 80 mm Hg +/- 10%.

FIG 1 Circuit Diagram.



**FIG 2 Main Components**



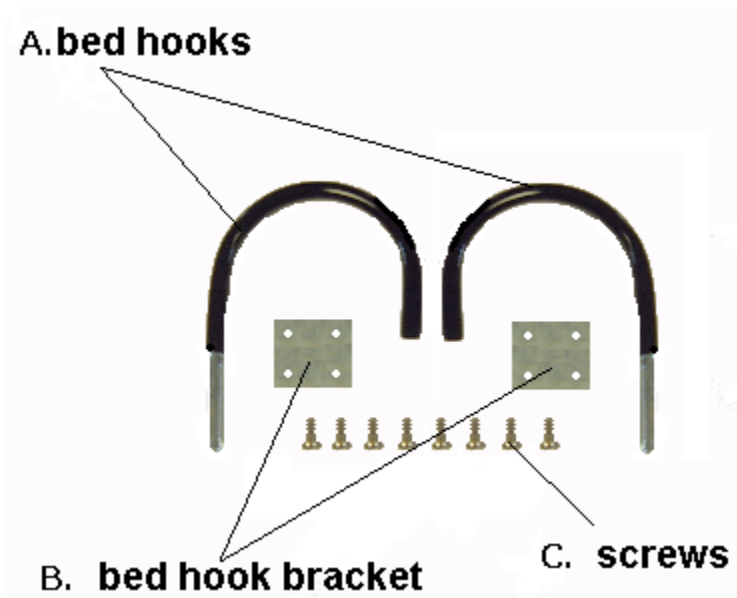
**A. Removing Cover:**

1. Isolate from mains.
2. Place pump face down (bed hooks facing up).
3. Remove black rubber feet (if fitted) and unscrew four fixing screws.
4. Turn pump back over and remove cover.

**NOTE:** Fig 2 shows all internal components.

Refitting as above but in reverse

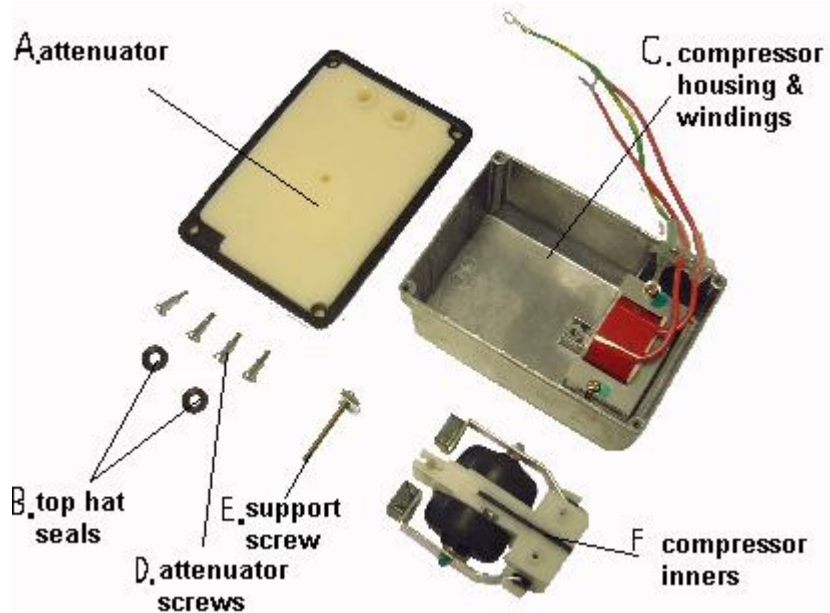
**FIG 3 Bed Hook Assembly**



**B. Bed hooks Renewal**

1. Place the pump face down (bed hooks facing up)
2. Remove the four screws on each hook holder.
3. Lift off hook holders and remove hooks.
4. Refitting as above but in reverse.....see Fig 3

**FIG 4 Compressor Breakdown**



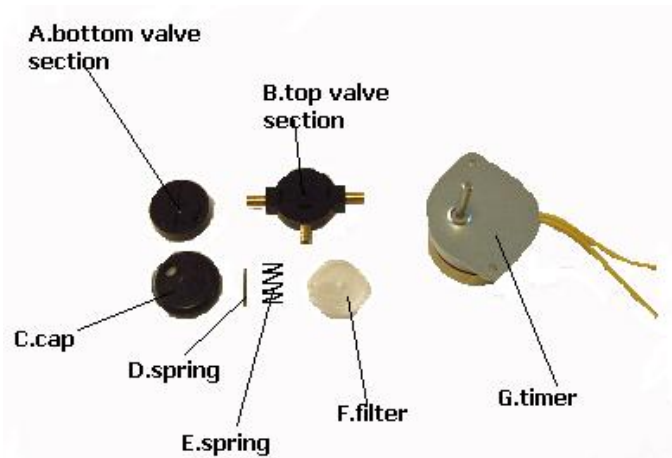
**C. Compressor Removal and Refit**

1. Remove cover as in section A.
2. Disconnect the live and neutral wires on the connector block situated at the side of the compressor see Fig 2.
3. Disconnect the earth wire. This is mounted on the fixing plate of the Air Valve Assembly.
4. Gently remove the Air Feed Pipe at the head of the compressor.
5. The compressor can now be removed from the pump.
6. Refitting as above but in reverse.

**D. Compressor Breakdown**

1. Once the compressor is removed, turn over so faced down. See Fig 4
2. Remove the 4 attenuator screws and gently remove the attenuator.
3. The attenuator/internal housing seals can then be removed from the compressor bellow/internal housing.
4. Then remove the internal housing mounting screw. Now the compressor Bellow/Internal housing can gently be lifted out.
5. Refitting as above but in reverse.

**FIG 5 Air Valve Assembly**



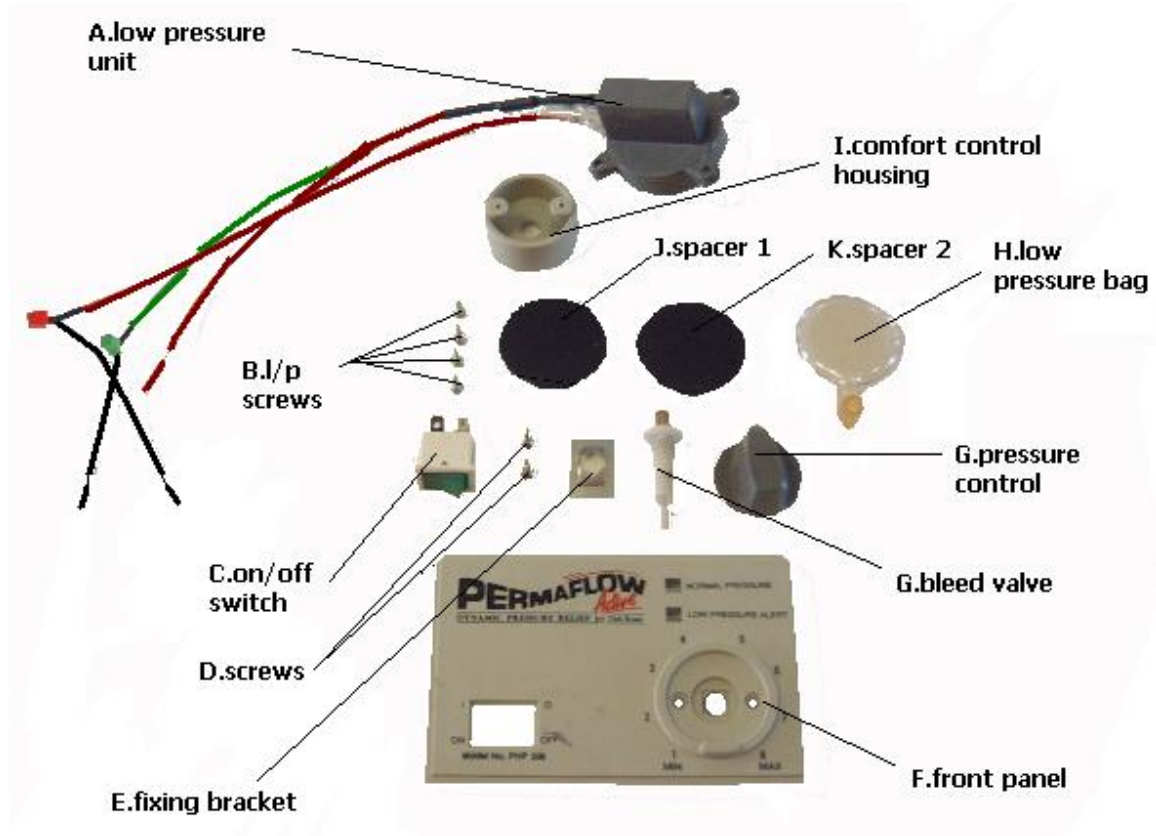
**E. Air Valve Assembly**

1. See Fig 5.
2. Gently pull off the three air pipes
3. Remove filter cap and remove filter.
4. Remove fixture pin.
5. Slide off rotary calve (upper) .
6. Slide off rotary valve (lower) .
7. Now you can remove the spring and underneath the fixing plate, the 240V AC 50 HZ timer can be found
8. Refitting as above but in reverse.

**F. Timer**

1. Remove air valve assembly as in above section (E)
2. Remove the 2 fixing screws
3. Disconnect the live and neutral wires on the connector block situated at the side of the compressor, see Fig 2
4. The timer can now be removed from the pump casing
5. Refitting as above but in reverse

**FIG 6 Front Panel Inc Low Pressure Unit**



**G. Low Pressure System**

1. See Fig 6
2. Remove the four housing mounting screws, which are on all four corners of the housing.
3. Disconnect the air pipe on the low pressure bag.
4. The unit can now be removed with the micro switch wires still connected, enough for any work to be done.
5. Refitting as above but in reverse.

**Modification**

1. On occasions a small modification can be made to the low-pressure system on this pump. If the low-pressure micro switch does not seem to be sensitive enough the unit can be stripped down as in the above section, thus removing the front spacer. Refitting the unit, the pump will now run with a more sensitive low pressure system.



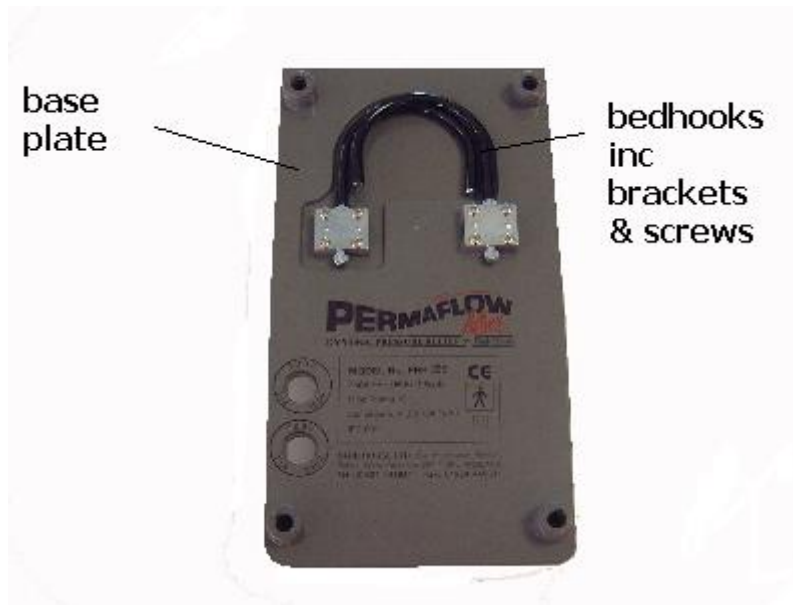
## H. Mains, on/off switch

1. Remove pump cover as in section A
2. Firmly push the on/off switch out of the front panel
3. Disconnect the neutral and live wires on the switch
4. Refitting new switch as above but in reverse

## I. Pressure Regulator/Comfort Control

1. Remove Pump cover as in section A
2. Pull off the comfort control knob
3. Disconnect the air pipe at the rear of the unit
4. Remove the 2 small screws fixing the unit to the front panel
5. The unit can now be removed
6. Refitting as above but in reverse

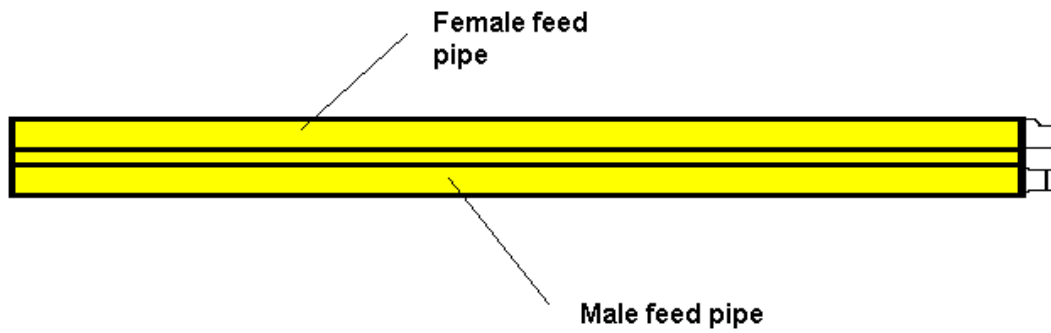
**FIG 7 Base Plate**



## Trouble Shooting.....Pump

SYMPTOM	CAUSE	RECOMMENDED COURSE OF ACTION
1. Pump Dead	A. Fuse in plug	A. Replace Fuse
	B. Loose terminals in plug	B Tighten Screws
	C. Live/Neutral fuse on pump	C.Replace Fuses
	D. Loose wire/connector inside pump	D. Reconnect
2. Pump functioning but no air output or very low	A. Split pipe inside pump	A. Replace
	B. Internal pipe off in pump	B. Reconnect
	C. Low pressure bag burst	C. Replace
	D. Cracked Attenuator	D. Replace and internal housing
	E. Faulty internal housing`	E. Replace and attenuator
3. Pump noisy and vibrates	A. Casing loose	A. Retighten
	B. Loose internal components	B. Refix
	C. Faulty diaphragm	C. Replace internal housing and attenuator
4. Pump works OK but on/off light not on	A. Neon in switch blown	A. Replace switch
5. Pump not alternating	A. Pipe off inside pump	A. Reconnect
	B. Timer wires not connected	B. Reconnect
	C. Timer sticking	C. Replace
6. Low pressure/normal pressure lights not changing	A. Sticking on normal pressure	A. See modification on low pressure system
	B. Sticking on low pressure	B. See Symptom number 2

**FIG 8**



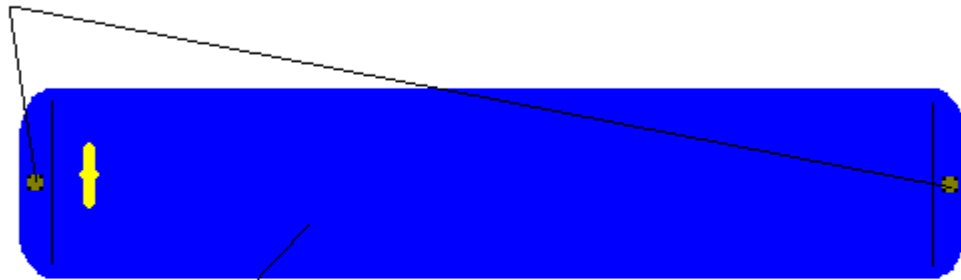
**A. Replacing Feed Tubes**

1. Unzip the mattress cover (if cover fitted)
2. Fold back cover
3. Pull off 2 feed tubes at base of mattress – see FIG 8
4. Replace with new feed tubes:- remember 1 tube is longer
5. Fold back cover and zip up.

**NOTE:** Always test after.

**FIG 9**

**press studs**

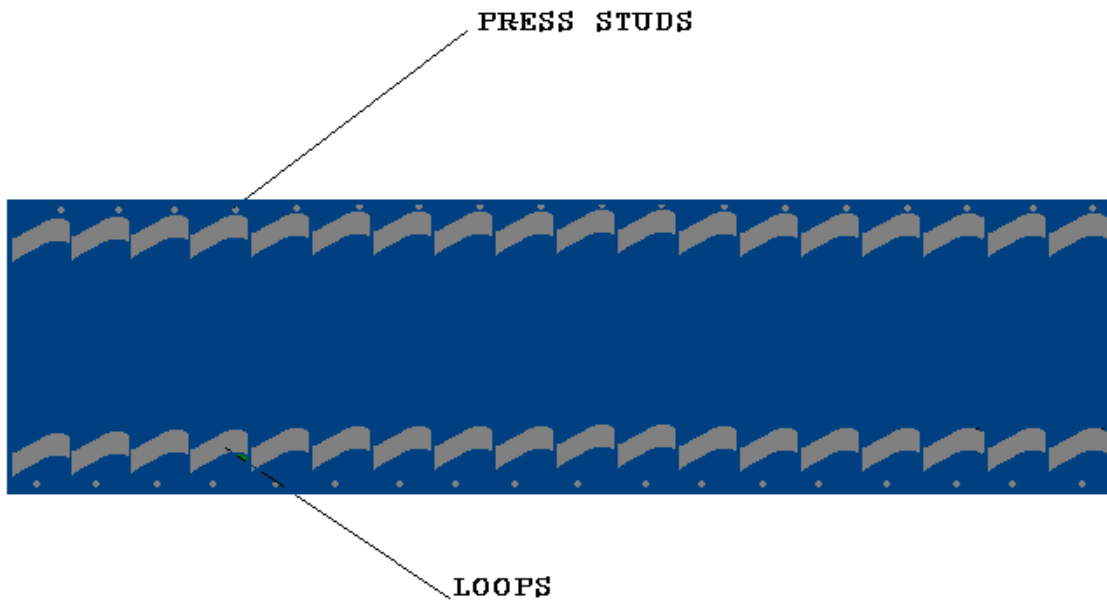


**cell**

**B. NOTE:** Always test after **Replacing Cells**

1. Unzip the mattress cover (if Fitted).
2. Fold back the cover.
3. Disconnect the cell from the base sheet via the two press-studs, one either end of cell – see FIG 8.
4. Disconnect feed connector on cell.
5. Slide out cell
6. Removal as above but in reverse.

**FIG 10**

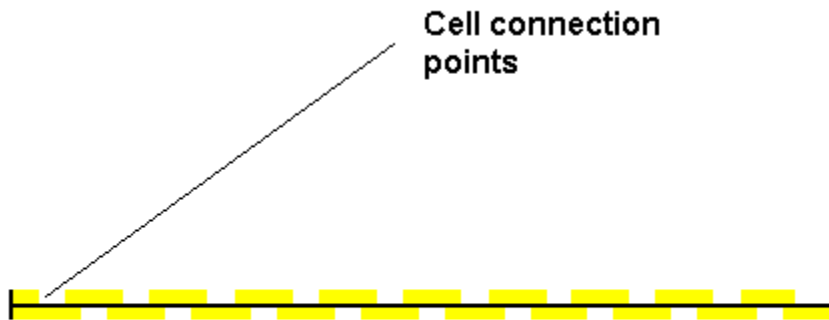


**C. Replacing Base Sheet**

1. As above, except all 18 Cells

**NOTE:** Always test after

**FIG 11**



Trouble Shooting.....Mattress

SYMPTOM	CAUSE	RECOMMENDED COURSE OF ACTION
1. Mattress totally flat.	A. CPR Open (if fitted)	A. Close CPR
	B. Feed Tubes off connecting to pump	B. Reconnect
	C. Feed Tubes off connecting to mattress	C. Reconnect
	D. Side rail pulled apart	D. Reconnect
2. Only one set of cells inflate	A. CPR Open (if fitted)	A. Close CPR
	B. 1 x Feed Pipe Off	B. Reconnect
	C. Part of side rail pulled apart or cell feed pipe off	C. Reconnect
3. Mattress soft and bottoms out	A. CPR Part Open	A. Close CPR
	B. Punctured Cells	B. Replace

## PRELUDE SPARE PARTS

<b>PHSP001</b>	Compressor unit (full)
<b>PHSP001A</b>	Compressor filter (attenuator)
<b>PHSP002</b>	Compressor attenuator inc seal, filter & feet
<b>PHSP002A</b>	Top hat seals
<b>PHSP002B</b>	Attenuator screws
<b>PHSP003</b>	Compressor inners (bellows & internal housing)
<b>PHSP004</b>	Compressor windings
<b>PHSP005</b>	Compressor housing
<b>PHSP006</b>	Timer unit inc rotating valve
<b>PHSP006A</b>	Timer
<b>PHSP006B</b>	Bottom valve section
<b>PHSP006C</b>	Top valve section
<b>PHSP006D</b>	Cap
<b>PHSP006E</b>	Filter
<b>PHSP006F</b>	Spring
<b>PHSP006G</b>	Pin
<b>PHSP007</b>	Top case
<b>PHSP008</b>	Bottom case inc bed hooks
<b>PHSP008A</b>	Fuse holder
<b>PHSP009</b>	Plug & 5metre lead
<b>PHSP010</b>	Mains on/off switch
<b>PHSP011</b>	Low pressure unit
<b>PHSP011A</b>	L/p mounting screws
<b>PHSP011B</b>	Spacers x 2
<b>PHSP011C</b>	Low pressure bag
<b>PHSP012</b>	Front panel assembly
<b>PHSP012A</b>	Pressure control Knob
<b>PHSP012B</b>	Bleed valve
<b>PHSP012C</b>	Fixing bracket

<b>PHSP012D</b>	Comfort control housing
<b>PHSP012E</b>	Screws
<b>PHSP012H</b>	Front panel only
<b>PHSP013</b>	Side panel inc connectors & tubes
<b>PHSP013A</b>	Threaded male connector
<b>PHSP013B</b>	Threaded female connector
<b>PHSP014</b>	Bed hooks inc plates & screws
<b>PHSP014A</b>	Bed hook (each)
<b>PHSP014B</b>	Bed hook plates
<b>PHSP014C</b>	Bed hook screws
<b>PHSP015B</b>	Side rail (complete) "Prelude"
<b>PHSP016B</b>	Cell (each) "Prelude"
<b>PHSP017B</b>	Base sheet "Prelude"
<b>PHSP018B</b>	Set of male & female connectors "Prelude"
<b>PHSP019B</b>	Feed pipes inc connectors "Prelude"



## **TECHNICAL DATA**

CYCLE TIME:	9.5 minutes
POWER SUPPLY:	220/240 vac 50 HZ
POWER INPUT:	7 Watts
NOISE LEVEL:	NC30
SAFETY APPROVAL:	BS5724 (IEC 601/1)
COMPRESSOR FLOW RATE:	> 4.5 Litre/minute
COMPRESSOR PRESSURE:	> 90 mmhg
COMFORT PRESSURE RANGE:	30 $\pm$ 10% TO 80 $\pm$ 10% mmhg
MAINS SUPPLY LEAD:	6A
MAINS SUPPLY FUSE:	3A
UNITS INLINE FUSES:	1A (timed)



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