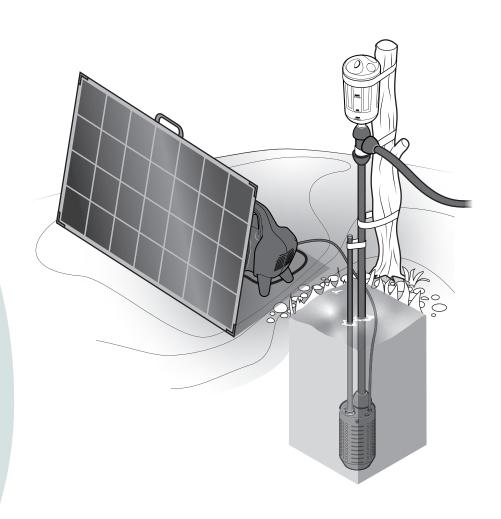


# Solar-powered water pump

### **Mobile Pro MKII**



# Service manual

Doc number: 002 English language (original) Revision: PA3

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### 1 How to read this manual

The manual describes a general installation. For the system to work properly it needs to fullfil different requirements.

In order to better understand the requirements the Spowdi figure helps the reader:



Spowdi figure is happy when installation is correct.



Spowdi figure is sad when installation is NOT correct.

In the illustrations are different types of arrows:



Step by step.





Move according to arrow.

## 2 Optimization

#### 2.1 How to optimize water flow for more than 5m head.

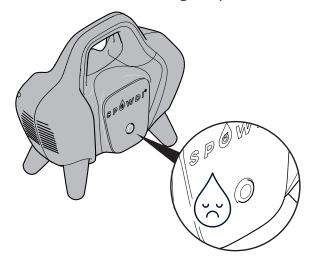
For more than 5m head, adjust the air regulator screw on the pump body. See chapter 3.2.3.1 (Pg. 7, in this manual).

## 3 Troubleshooting

#### 3.1 MKII system problems

#### 3.1.1 Power button does not light up

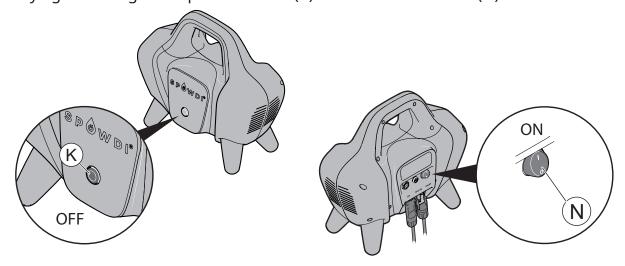
**Problem:** After connecting to solar panel with sufficient sunlight and main switch is turn on, Power button does not light up.



#### Check:

- 1 Make sure solar panel cable is connected to the PMB.
- 2 Make sure solar panel surface is not cover by any obstacles, even a thin grass on the surface will affect performance of solar panel.

3 If power button still not light up. Let solar panel charge PMB for at least 1hour then try again. Charge with power button (K) OFF and Main switch (N) ON.



4 If after charging and under strong sunlight (>750W/m2), power button still does not light up, consult your local service center.

#### 3.1.2 PMB stop once or repeated times

**Problem:** PMB run for a short while and stop

#### **Check:**

- 1 Make sure solar panel is not covered by any obstacles and facing towards sun.
- 2 This may due to battery pack power is completely flat. Charge for 1hour and try again. Charge with power button (K) OFF and Main switch (N) ON.
- 3 If after charging and under strong sunlight (>750W/m2), power button still does not light up, consult your local service center.

#### 3.2 Operation Problems

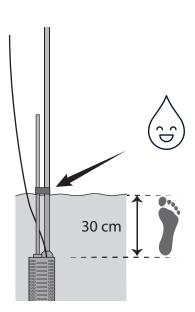
#### 3.2.1 Reduced water flow

**Problem:** Water volume flowing out the water extraction tube is significantly reduced.

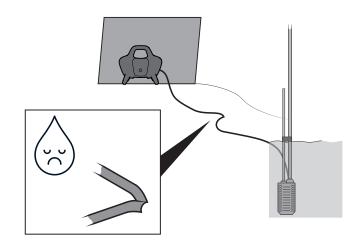
#### **Check:**

1 Make sure pump unit is 30cm below water surface..





- 3 Make sure there are no air and water leakage from all connectors.
- Check for Air: Air outlet from back of PMB, Ø8mm air hose connector, Ø16mm air tube connector.
- Check for Water: Ø25mm water tube connector. If needed, the Ø25mm water tube connector need to be uninstalled and installed again to make sure all tightness are done properly. Check step by step installation of the Ø25mm water tube connector referring in the MKII system installation manual chapter 7.3.2 (Pg. 13).



#### 3.2.2 Water splashing out of air tube

**Problem:** Water splashing out from the Ø16mm air tube

#### Check:

- 1 Membrane might be broken. See chapter 4 (Pg. 10, in this manual) for membrane change instructions.
- 2 After membrane replacement is done, test system according to chapter 8 "How to test system" (Pg. 14) in MKII system installation manual.

## 3.2.3 Wrong water level in pressure vessel after connecting to the drip line for one growing area.

**Problem:** Water level in the pressure vessel (C) is not at the OK mark.

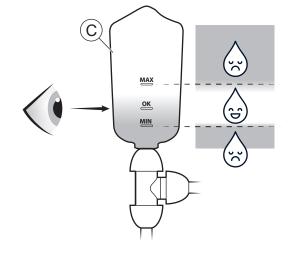
**Check:** Acceptable range is between MIN and MAX mark. If water level is below MIN or above MAX follow instruction below.

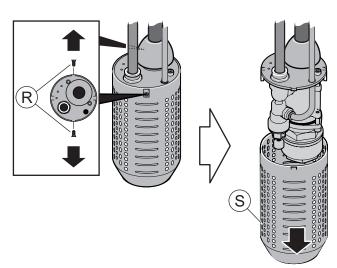
#### 3.2.3.1 Adjust air regulator screw

- 1 Turn OFF the PMB power button and then main switch to stop the system.
- 2 Carefully, lift pump unit out of water.
- 3 Remove two flat head screws (R) from side of filter can.

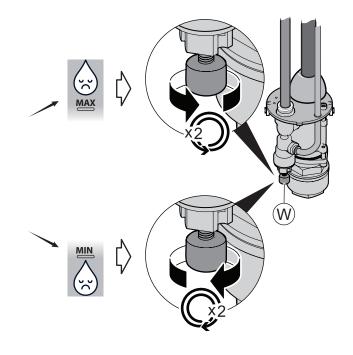
Flat head screws are small so please make sure you keep it safe.

4 Pull filter can (S) down and remove it.

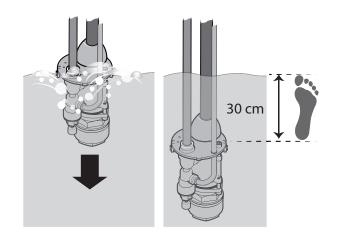




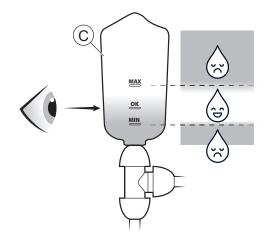
- 5 Adjust air regulator screw (W):
  - Screw air regulator screw two turns counter-clockwise if water level in pressure vessel is too high.
  - Screw air regulator screw two turns clockwise if water level in pressure vessel is too low.



6 Always make sure pump unit is 30cm below water surface.



- 7 Turn ON the PMB main switch and then power button to start the system.
- 8 Make sure your eye level is in line with the water level in pressure vessel (C).

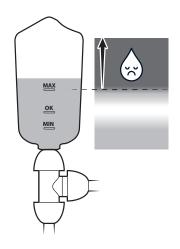


9 Repeat measurements and adjustments until water level is within acceptable range.

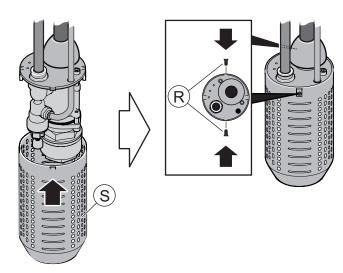


#### Note!

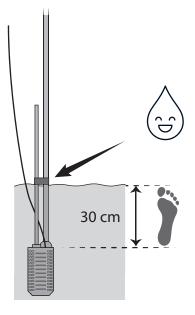
- 1. If no water is flowing, refer to chapter 8 'how to test system' in MK II system installation manual.
- 2. Water level in pressure vessel must never be above MAX level.



- 10 Put filter can (S) back on pump unit.
- 11 Fasten two flat head screws (R).



12 Sink pump unit back in water 30cm below water surface.

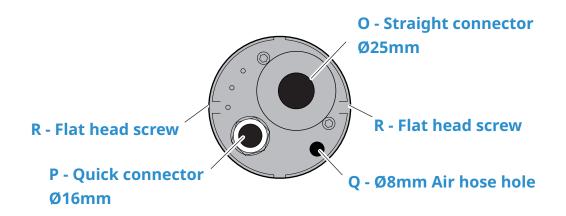


13 Check installation referring to Chapter 10 'Final check' (Pg. 17) in the MKII system installation manual before operating the system.

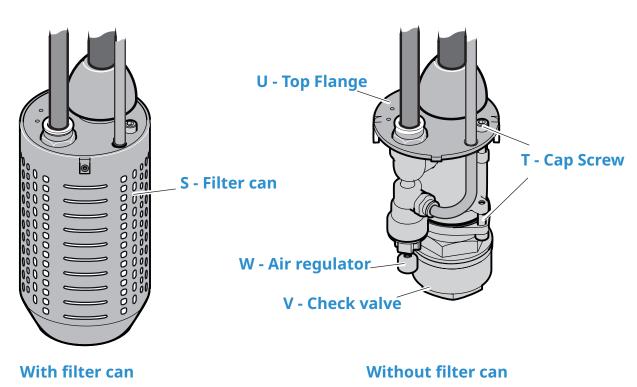
# 4 Membrane change

Pump unit overview

### **Top view**



#### **Side view**



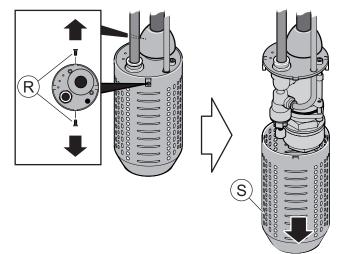
- 1 Stop the PMB system by turning off power button then main switch.
- 2 Lift pump unit out of water carefully.
- 3 Quickly check surface condition of pump unit and filter can.
- 4 Remove two flat head screws (R) on side of filter can using spowdi tool provided.

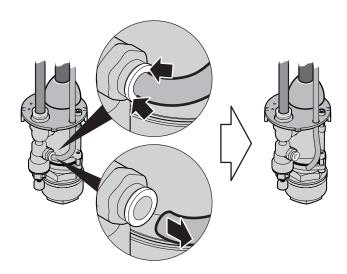
Flat head screws are small so make sure you keep it safe.

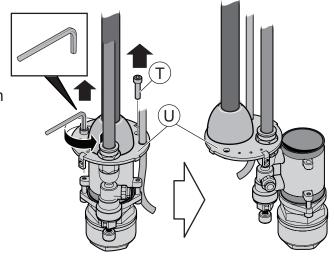
- 5 Pull down filter can (S) and place it gently aside with the screws.
- 6 Recommend to keep Ø16mm air tube attached to pump unit.
- 7 Disconnect Ø8mm air hose from pump unit by press in ring on the connector and pull tube on pump unit.

Make sure tube stay through Ø8mm hole on top flange so it is easier for you to install it back later.

- 8 Remove two cap screws (T) on the top flange (U) using the spowdi tool provided. Keep the cap screws safe.
- 9 Gently lift the top flange with the Ø8mm air hose stay on the top flange and according to picture right side, turn top flange for easy handling of the membrane.

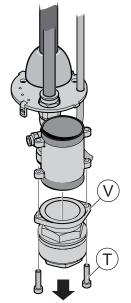






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10 Remove two cap screws (T) on check valve (V) using the spowdi tool provided, remove check valve from pump body and keep it aside with cap screws..

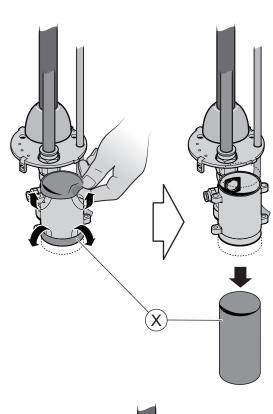


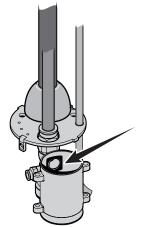
11 Flip up membrane (W) around pump body housing in both ends.

#### Note!

Check how membrane is aligned with pump body before you remove it so that it will be easier for you to install a new membrane later.

- 12 Remove broken membrane (X) inside the pump body.
- 13 Check condition of rubber gasket inside surface of pump body. If it is missing or heavily damaged, consult your local service centre.





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14 If gasket condition is good, insert a new membrane.

There is one extra membrane in each packing box.

#### Note!

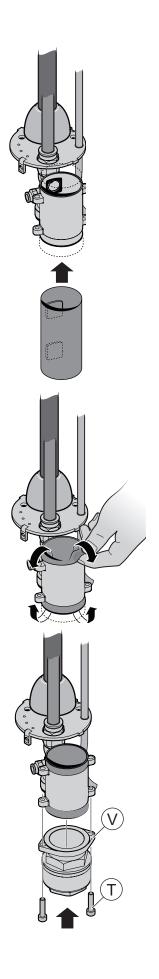
You have to align membrane (X) area with extra thickness in cavity region of the pump body.

15 Flip membrane over pump body housing and make sure the edges are smoothly over the pump body.

#### Note!

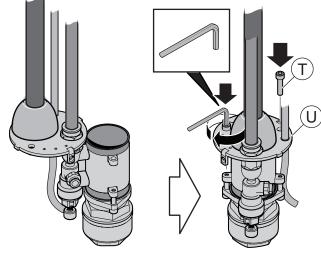
Top and bottom flip must be of equal length covering the pump body outer surface.

16 Install check valve back to pump body and fasten two cap screws (T) using spowdi tool.

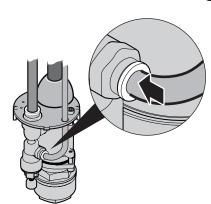


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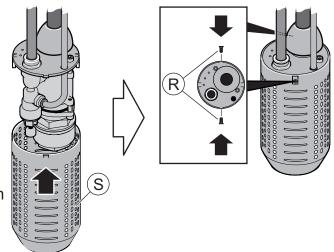
17 Turn back top flange (U) and install onto pump body with two cap screws (T) using spowdi tool.



18 Connect Ø8mm air hose back to pump body connector.



- 19 It is recommended to check water flow first and make sure pumping is smooth. If there are any problems, check MKII system installation manual.
- 20 If pumping is OK, install filter can (S) back on pump body with flat head screws (R).
- 21 Membrane change is completed.
- 22 Put back pump unit into water and make sure it is 30cm below water surface and that Ø16mm air tube is above water (at lease 1 meter away from water surface and tie it with Ø25mm water tube).



23 See MKII system installation manual, chapter 8 to chapter 10, to make sure your set up is correct before operating system.

### 5 Maintenance

#### 5.1 Daily Maintenance

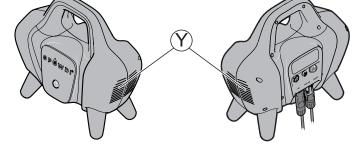
While pump unit is submerged into water.

#### 5.1.1 PMB and Solar Panel

- 1 Make sure PMB power button is turned off first, then turn off the main switch.
- 2 Disconnect solar panel cable from the PMB and clean surface of solar panel before next use.
- 3 Disconnect Ø8mm air tube from pump unit that is connected to the Ø8mm air tube connector attached to PMB, See MKII system installation manual, chapter 'PMB and pump unit' (Pg. 12, Note! 2).

4 Clean surface of PMB with a dry rag. If you use a wet rag, make sure it is not too wet that the water will stay on PMB.

5 Check ventilation hole (Y) on both side of PMB and make sure there is no particles stuck in ventilation holes. Clean holes carefully to make sure full ventilation of PMB.



6 Bring PMB and solar panel back with you and store properly.

#### 5.1.2 Pump Unit

- 1 After Ø8mm air tube from pump unit is disconnected from PMB, make sure Ø8mm air tube is properly stored and roll up tie up on a pole. Make sure holes are sealed/covered before next use.
- 2 Check if pole, pressure vessel and all tubes and hoses are properly arranged and make sure no damages are possible until next use.
- 3 Pump unit can be keeped in water if you are using it next day or on a regular basis.

#### 5.2 Maintenance schedule

#### 5.2.1 Every month

Check all tubes, hose and connectors condition for leakage.

#### 5.2.2 Every two months

Pull up pump unit and check if there are obstacles stuck around filtering can.

#### 5.2.3 Every six months

Send PMB to your local service center to check condition inside the PMB. If you open PMB yourself, you will void the 3years warranty given.

#### 5.2.4 Replacing broken membrane

When replacing membrane check also condition of pump unit, such as filter can, rubber gasket on inner surface of pump body, condition of the Ø8mm air tube connected to the pump body and conditions of all connectors.

### 6 Warranty card

Thank you for using Spowdi Water Distribution System. Spowdi Water Distribution System comes with a 24-month Warranty, which is valid from the date of purchase and will apply only if the warranty card has been filled in and sent to your local Spowdi dealer.

#### Note!

The warranty applies only if the system has been used as described in the user manual and in this document

Read the user manual carefully before installing and starting the system for the first time.

Please visit www.spowdi.com to download our user manual and general tips on how to get the most out of your Spowdi system, and also to register for updates, offerings, and the latest news.

#### Purchase and owner information

Product model number:							
Date of purchase (MM/DD/YY):							
Purchased from:							
Name:							
E-mail:							
Address:							
Place and date:	Signature:						
My signature above acknowledges that I have read, and accept this limited warranty agreement.							
Your local Spowdi dealer:							

Print the form and fill it out and submit it to:

Spowdi AB

Registration number: 559098-2954

Augustendalsvägen 7 (11 fl), 131 52 Nacka Strand, Sweden.

www.spowdi.com | info@spowdi.com

### 7 Service schedule

For the warranty to be valid the service schedule below needs to be followed. System service has to be carried out by a certified Spowdi service representative.

Your local Spowdi service representative:							

#### **Service intervals**

**500** 

The first service should be carried out after the first 500 hours of operation

1000

Service intervals after the first service are every 1000 hours of operation

#### **Service schedule**

SERVICE	DATE: (MM/DD/YY)	SIGNATURE	COMMENTS
500 h			
1500 h			
2500 h			
3500h			

### 8 Terms and conditions

#### §1. System components covered under warranty

• To claim warranty, you must make sure you follow the maintenance and service schedule.

#### §2. System components not covered under warranty

- The back-up battery inside the Power Management Box.
- The membrane inside the pump unit.

#### §3. Warranty terms

- Warranty is valid if the instructions in §1 are followed.
- Warranty is valid if the service schedule has been followed.
- Warranty is valid if the instructions in the user manual are followed.
- Warranty is valid if the warranty card has been filled out and sent to your Spowdi dealer.
- Warranty is valid with receipt of purchase.
- · Warranty is not valid if the PMB seal is broken.
- Warranty is not valid if any original system component is modified, replaced or changed, or if components unapproved by Spowdi are added to the system.
- Warranty is not valid if the system has been damaged due to negligence.

### Spowdi AB

Registration number: 559098-2954

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Strand, Sweden

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