



## Single-Point Watering Kit User's Guide



# Contents

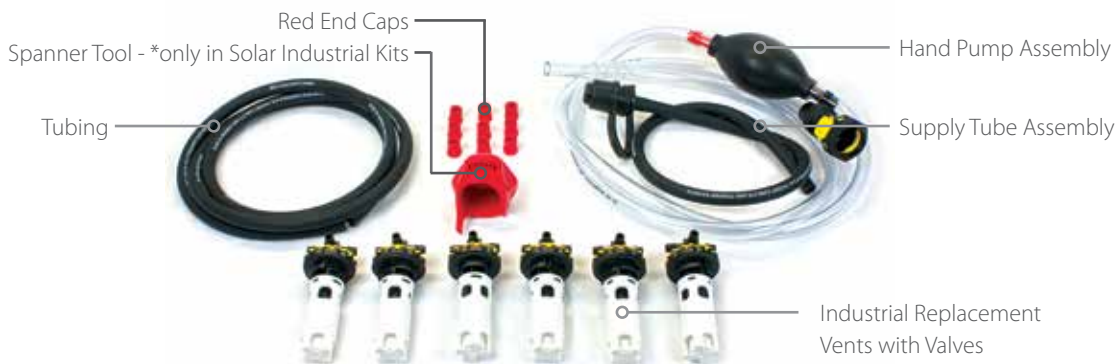
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## Single-Point Watering Kit (SPWK) User's Guide Installation, Operation & Maintenance Manual

Thank you for choosing Trojan Battery products. This manual provides detailed instructions for safely installing, operating and maintaining the Single-Point Watering Kit. Thoroughly review this document before installing or using the Single-Point Watering Kit.

### Kit Contents

Single-Point Watering Kit



#### Solar Premium (including L16RE-2V) and Signature\* SPWK Contents

The Single-Point Watering Kit for the Solar Premium and Signature line contains similar contents to those shown above with the exception of the Replacement Vents with Valves which will be yellow in color, and shorter in length, as shown in the image to the left. **In addition, the Solar Premium and Signature Kits, do not include the Spanner Tool.**

\*Signature pertains to the Signature line and the Solar Signature line.

# 01 Kit Contents

The Single-Point Watering Kit comes in three configurations: 12V, 24V and 48V. The kits are designed for single string installations with Trojan Solar Industrial, Solar Premium, Solar Signature and Signature Line flooded batteries. For installations with multiple strings in parallel, simply order multiple kits at the required system voltage.

There are a total of nine different kits that are available for purchase. Three kits are designed for the Trojan Solar Industrial Line, three kits are designed for the Trojan Premium / Signature line and three kits are designed for the Trojan Solar Premium model SPRE 02 1255. The Industrial Line watering kit and the Premium and Signature Line watering kits use different sized vent caps.

**Vent caps for the Solar Industrial line will not work with the Premium and Signature line batteries and vice versa.**

SOLAR INDUSTRIAL LINE  
SOLAR PREMIUM/SIGNATURE

SOLAR INDUSTRIAL LINE SINGLE POINT WATERING KITS					
IND - 12V KIT CONTENTS		IND - 24V KIT CONTENTS		IND - 48V KIT CONTENTS	
DESCRIPTION	QTY	DESCRIPTION	QTY	DESCRIPTION	QTY
Solar Industrial Vent with Valves - White	6	Solar Industrial Vent with Valves - White	12	Solar Industrial Vent with Valves - White	24
Supply Tube Assembly	1	Supply Tube Assembly	1	Supply Tube Assembly	1
Tubing (6 ft.)	1	Tubing (12 ft.)	1	Tubing (24 ft.)	1
Red End Cap, 9-Pack	1	Red End Cap, 9-Pack	2	Red End Cap, 9-Pack	4
Spanner Tool	1	Spanner Tool	1	Spanner Tool	1
Installation Instructions	1	Installation Instructions	1	Installation Instructions	1
Hand Pump Assembly	1	Hand Pump Assembly	1	Hand Pump Assembly	1

SOLAR PREMIUM & SIGNATURE LINE SINGLE POINT WATERING KITS					
SOLAR PREM/SIG - 12V KIT CONTENTS		SOLAR PREM/SIG - 24V KIT CONTENTS		SOLAR PREM/SIG - 48V KIT CONTENTS	
DESCRIPTION	QTY	DESCRIPTION	QTY	DESCRIPTION	QTY
Solar Prem/Sig Vents with Valves - Yellow	6	Solar Prem/Sig Vents with Valves - Yellow	12	Solar Prem/Sig Vents with Valves - Yellow	24
Tubing (3 ft.)	1	Tubing (3 ft.)	1	Tubing (7 ft.)	1
Supply Tube Assembly	1	Supply Tube Assembly	1	Supply Tube Assembly	1
Red End Cap, 9-Pack	1	Red End Cap, 9-Pack	2	Red End Cap, 9-Pack	4
Installation Instructions	1	Installation Instructions	1	Installation Instructions	1
Hand Pump Assembly	1	Hand Pump Assembly	1	Hand Pump Assembly	1

SPRE 02 1255

SPRE 02 1255* SINGLE POINT WATERING KITS					
SPRE 02 1255 - 12V KIT CONTENTS		SPRE 02 1255 - 24V KIT CONTENTS		SPRE 02 1255 - 48V KIT CONTENTS	
DESCRIPTION	QTY	DESCRIPTION	QTY	DESCRIPTION	QTY
Prem/Sig Vents with Valves - Yellow	18	Prem/Sig Vents with Valves - Yellow	36	Prem/Sig Vents with Valves - Yellow	72
Tubing (6 ft.)	1	Tubing (12 ft.)	1	Tubing (24 ft.)	1
Supply Tube Assembly	1	Supply Tube Assembly	2	Supply Tube Assembly	3
Red End Cap, 9-Pack	3	Red End Cap, 9-Pack	5	Red End Cap, 9-Pack	9
Installation Instructions	1	Installation Instructions	1	Installation Instructions	1
Hand Pump Assembly	1	Hand Pump Assembly	1	Hand Pump Assembly	1

The Single-Point Watering Kits shown are compatible with all Trojan Industrial, Premium, and Signature Line flooded batteries except models 24TMX, 27TMX, 27TMH and 30XHS. \*Transitioned to SPRE 02 1255 from L16RE-2V.

## 02 Safety Instructions and Warnings

Please read and comply with all of the following safety instructions and warnings prior to installing, operating and maintaining the Single-Point Watering Kit. Failure to comply with these instructions may result in serious personal injury, death and/or property damage.

## 03 General Information and Precautions



### General Safety Warnings

- ▶ Follow the procedures exactly as stated in these instructions, and heed all **DANGER** and **WARNING** statements, as well as those on battery, watering system and battery charger.
- ▶ Only trained technicians should service or repair the Single-Point Watering Kit. The instructions in this manual must be followed when installing, operating and maintaining the kit.
- ▶ **DO NOT** wear loose clothing when servicing any battery, watering system or battery charger.
- ▶ If wires are removed or replaced, make sure wiring and wire harnesses are properly routed and secured.
- ▶ Wear a full face shield and rubber gloves when working on or near batteries.



### Danger! – Explosive Gases

- ▶ Batteries can generate explosive gases. **DO NOT** smoke in the vicinity of any batteries.
- ▶ Keep sparks and flames away from the batteries and service area.
- ▶ Ventilate when charging batteries in an enclosed space.
- ▶ Wear a full face shield and rubber gloves when working on or near batteries.



### Danger! – Poison/Acid

- ▶ Lead acid batteries contain acid which is a poison and can cause severe burns.
- ▶ **DO NOT** transport, store, handle, or operate batteries except in an upright position.
- ▶ Wear a full face shield and rubber gloves when working on or near batteries.
- ▶ In the event of an acid spill, avoid contact with skin, eyes, or clothing.
- ▶ If acid comes in contact with skin, eyes, or clothes, follow these steps:
  1. External: Flush with water. Call a physician immediately.
  2. Internal: Drink large quantities of milk or water. Follow with milk of magnesia or vegetable oil. Call a physician immediately.
  3. Eyes: Flush with water for 15 minutes. Call a physician immediately.



### **Danger! – Risk of Electric Shock**

- The electricity stored in batteries can cause electric shock resulting in serious bodily injury or death, even at low voltages.
- Use insulated tools when working near batteries or electrical connections.
- Use extreme caution to avoid shorting of components or wiring.
- **DO NOT** wear metal jewelry such as rings, watches, chains, etc., when servicing the watering system, battery or battery charger.
- Ensure that the work area is dry when servicing the watering system, battery or battery charger.

## **O4 Before Installing your Single-Point Watering Kit**

Remove the vent caps supplied with your Trojan batteries and inspect the fill wells.



### **Danger! – Poison/Acid**

The battery contains acid, and may release explosive gases. Wear eye protection at all times. **DO NOT** smoke or have sparks or open flames near batteries. In the event of an acid spill, avoid contact with skin, eyes and clothing.

### **Check Electrolyte Level:**

If electrolyte level is below the plates, manually add enough distilled water to cover the plates. Charge batteries to 100% full charge before using the Single-Point Watering Kit.



**Warning! – DO NOT** overfill the cell. Adding too much distilled water to the cell will cause the battery to overflow acid during the charging process causing corrosion and potential injury.

If electrolyte level is inside of the fill well, the cell is overfilled. **DO NOT** install the watering system at this time. Wait for the electrolyte levels to go down normally (through battery usage). After levels are normal, charge batteries to 100% full charge and continue with installation.



### **TECHNICAL SUPPORT**

800-423-6569 Ext. 3045 or +1-562-236-3045

## 05 Single-Point Watering Kit Installation

### Step 1: Clean Battery & Remove Vent Caps

Wipe down battery top and remove any loose debris. Remove the vent caps supplied with your Trojan batteries.

### Step 2: Install Vent Caps with Valves

Insert replacement vent caps with valves supplied as part of your Single-Point Watering Kit by inserting and turning valve in a clockwise direction.

Spanner Tool



**Solar Industrial Line vent caps require the use of the Spanner Tool to completely tighten vent caps. The Spanner Tool is included in the Single-Point Water Kit for Solar Industrial batteries.**

**Solar Premium and Signature line vent caps should be tightened by hand using the wings on each of the vent caps.**

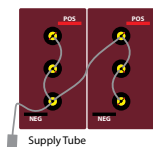
Ensure the vent caps are completely sealed to avoid electrolyte spillage.



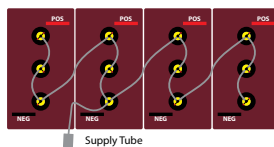
**Warning!** Press in the Single-Point Watering Kit vents with your hands only - **DO NOT** use a hammer.

### Step 3: Determine Tube Routing

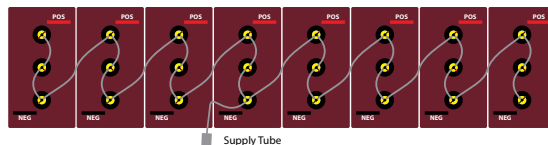
Choose the proper tube routing for your battery bank. In general, we recommend that the tubing follow the electrical path. Typical layouts of 12V, 24V, and 48V system configuration using 6V batteries are shown below.



12V example with  
2 - SIND 06 1225 batteries



24V example with  
4 - SIND 06 1225 batteries



48V example with 8 - SIND 06 1225 batteries

#### Step 4: Cut and Install Tubing Segments

Cut tubing to size as needed and connect all the vents together by pushing one end of a tube segment onto one of the three barbs on each vent. Tubing should be pushed up fully to the stop. Repeat until all valves are connected.

#### Step 5: Measure, Cut and Connect the Black Supply Tube Assembly With Male Adapter and Dust Cover

Attach the black Supply Tube Assembly with Male Adapter and Dust Cover to one of the three barbs on a vent that is near the middle of the battery bank so that water can be distributed to all batteries evenly. Ensure that the location will allow the water supply to be connected without kinking the tubing. Once the location is identified, cut to the desired length and attach.



**Warning!** The Supply Tube Assembly With Male Adapter and Dust Cover must rest on the top of the battery bank. It cannot hang over the side or hang below the battery bank top.

#### Step 6: Slide the Dust Cover

Slide the Dust Cover over the Male Adapter end of the black Supply Tube Assembly.

**Tip:** If you slightly squeeze the Dust Cover when sliding it over the coupler it will create a vacuum allowing it to hold tightly.

#### Step 7: Install Red End Caps

Place a Red End Cap on each of the remaining unused barbs on each of the vents.

**Your Single-Point Watering Kit is now ready for use.**

## 06 Before Watering

**Important:** Water quality is important to maintain the life of your Trojan Battery and Single-Point Watering Kit. Flooded/wet batteries need to be watered periodically. The frequency depends upon battery usage and operating temperatures. Only use distilled water when watering your batteries. Check new batteries every few weeks to determine the watering frequency for your application. It is normal for batteries to need more watering as they age.

Fully charge the batteries prior to connecting the Hand Pump Assembly With Female Adapter and Filtered Intake in preparation for adding distilled water. Electrolyte levels drop during discharge and rise during charge. In addition, charging generates heat, fluid expansion and explosive gases.



**Warning!** Watering a battery before charge (or with a low charge level) can lead to boil-over resulting in potential bodily injury and potential damage to the watering system and the battery.

## **07 Watering Procedure with Single-Point Watering Kit**

### **Step 1: Filtered Intake**

Insert the Filtered Intake end of the clear Hand Pump Assembly into a supply of distilled water.

### **Step 2: Prime Bulb**

Prime the hand pump bulb by squeezing until filled with distilled water.

### **Step 3: Attach Hand Pump Assembly**

Once the hand pump bulb is primed, remove the Dust Cover from the Male Adapter end of the Black Supply Tube Assembly. Attach the Female Adapter quick connect fitting of the Clear Hand Pump Assembly to the Male Adapter coupler end of the Black Supply Tube Assembly.

### **Step 4: Fill Battery Bank with Distilled Water**

Squeeze the hand pump bulb with firm pressure to pump distilled water into the battery bank. **When the bulb becomes firm, all cells are full to the appropriate level.**

### **Step 5: Remove Hand Pump Assembly**

Remove the Female Adapter quick connect fitting of the Clear Hand Pump Assembly from the Male Adapter coupler end of the Black Supply Tube Assembly by depressing the yellow push button on the Female Adapter coupler. If the water supply is left connected after the filling process is finished it could lead to overfilling of the battery bank. Place Dust Cover back on the Male Adapter coupler end of the Black Supply Tube Assembly.



**Tip:** If you slightly squeeze the Dust Cover when sliding it over the Female Adapter coupler it will create a vacuum allowing it to hold tightly.

### **Step 6: Initial Inspection of Electrolyte Levels**

Trojan recommends visually checking the electrolyte level in each cell for accuracy after the system has been installed and operational for three months.

## **08 Maintenance**

Your Single-Point Watering Kit requires regular preventative maintenance on a quarterly basis. Inspect the condition of all tubing connections and couplers to make sure that all parts are in good working condition and are secure, leak-free and properly connected. The coupler must have an O-ring and dust cover installed properly.

For continued successful operation of your Single-Point Watering Kit, always use approved components.

**Important:** Use of an unapproved water supply or modification of an approved water supply can lead to system failure of your Single-Point Watering Kit. Only use distilled water.



**Warning!** Only fill batteries after they have been fully charged and require water. Watering a battery before charge or with a low charge level can lead to boil over resulting in potential bodily injury and damage to the watering system and battery bank.



**Warning!** If at any time during the filling process you have a valve failure, disconnect immediately as too much water can be added to the cell causing the battery to overflow acid leading to corrosion and potential injury.



**TECHNICAL SUPPORT**

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## NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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## **TROJAN BATTERY COMPANY**

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