

**RAIN  BIRD®**



## **TI-WS6 Wire Sorter**

### **TROUBLESHOOTING GUIDE**

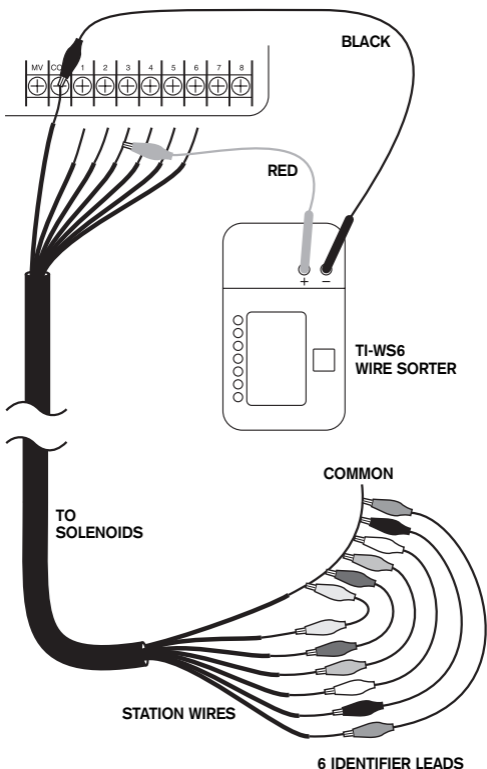
## WARNING

Before using the TI-WS6 all wiring that will be sorted must be de-energized and disconnected. The leads can be tested with a multimeter (TI-DM200, TI-DM-400, or TI-DSA50) as detailed on page 6 of this document.

## USING THE TI-WS6 WIRE SORTER

- Step 1** Attach a colored Identifier lead to each of the wires to be sorted. Be sure to note the color of the identifier lead that you have attached to each station wire.
- Step 2** Attach the other end of the Identifier leads to common ground (ground wire, grounded outlet box etc.)
- Step 3** Go to location where the wires are to be identified (Controller).
- Step 4** Connect the metal probe tip to the “+” input terminal at the top of the unit or connect the red test lead to the “+” input terminal on the front of the unit.
- Step 5** Connect the black test lead to the “-” input terminal on the front of the unit.
- Step 6** Connect the other end of the black test lead to common ground. this black lead will remain in place during the sorting process.
- Step 7** Press and hold down the square button.
- Step 8** Touch probe tip or red test lead to each wire to be identified. The LED indication will light for the correct colored wire.

**Note:** If the LED for the “Wire A Blue” lights up when a different color identifier lead is being used, check for possible short circuit or faulty common connection.



One end of the lead clips to each station wire to be tested, the other clips to the common ground

## Troubleshooting Guide for Zone Irrigation Systems

This Troubleshooting Guide will assist you in the location of fault in an irrigation control system related to power supply or valve control wires. There are corresponding instructions on how to use the test tool to accomplish steps that require their use.

- Step 1** Make sure the master water supply is turned on. Keep in mind the water supply may be controlled by either a manual or electric master valve.
- Step 2** Make sure any shut-off devices, such as a rain sensor, are disabled or disconnected.
- Step 3** Turn the controller on and sequence the clock through the different stations. If nothing is working, skip to Step 6. If some of the stations are working, proceed to Step 4. If all of the stations are working, then you don't have any troubleshooting to do at the controller.
- Step 4** Make a list of all of the stations that are not functioning properly. Measure the output voltage for each station using a Multi-Meter (Rain Bird Model TI-DM200, TI-DM400 or TI-DSA500) and the instructions provided. See Page 9 of this guide. If the power is in range at every station (24-28 VAC), proceed to Step 5. If the power is correct when you test some stations, but not others, you may need to have your controller repaired. Take your controller to an authorized distributor.
- Step 5** Turn the controller off to test the resistance at each station. Use the following table to diagnose the problem that each station may have.

<b>0-5 ohms</b>	Fully Shorted Solenoid
<b>8-20 ohms</b>	Shorted Solenoid or Multiple Valves

<b>20-60 ohms</b>	Normal
<b>&gt; 60 ohms</b>	Bad Connection, Splices, Nicked Wires, Open Solenoid or Broken Wire

- Step 5** (Continued from previous page)  
Use the instructions provided to test any valves (or solenoids or wires) on the stations with faulty resistance measurements (Page 10 of this guide). A Rain Bird Tone and Probe Kit (Model TI-TPK) or a Rain Bird Wire Sorter (Model TI-WS6) can be helpful in locating broken wires and diagnosing your system. The "snap-around" feature of Rain Bird's Model TI-DSA500 Multi-Meter allows you to check the current of field wiring without disconnecting it.
- Step 6** Turn the controller off and remove the cover. Check the fuse using a Multi-Meter (Rain Bird Model TI-DM200) and the instructions provided (Page 7 of this guide). If the fuse is good, proceed to Step 7. If the fuse is bad, replace it and start again at Step 3.
- Step 7** Check the 120 V power being supplied to the controller according to the instructions provided (Page 5 of this guide). If the 120 V power is in range (105-129 VAC), proceed to Step 8. If the power is out of range, have an electrician troubleshoot the wiring to the controller. Once the 120 V power has been restored, start again at Step 3.
- Step 8** Check the output of the transformer supplying power to your controller according to the instructions provided with your Multi-Meter (Page 6 of this guide). If the transformer's power output is in range (24-28 VAC), you may need to have your controller repaired. If the transformer's output is out of range, you may have a bad transformer.

## Voltage Check of Each Valve

### SETTINGS AND CONNECTIONS

Rain Bird Model TI-DM200 Multimeter

SET METER TO	<b>200V (AC)</b>	
PROBE CONNECTIONS	<b>BLACK COM</b>	<b>RED V</b>

Rain Bird Model TI-DM400 Multimeter

SET METER TO	<b>V<sub>AC</sub></b>	
PROBE CONNECTIONS	<b>BLACK COM</b>	<b>RED V<math>\Omega</math></b>

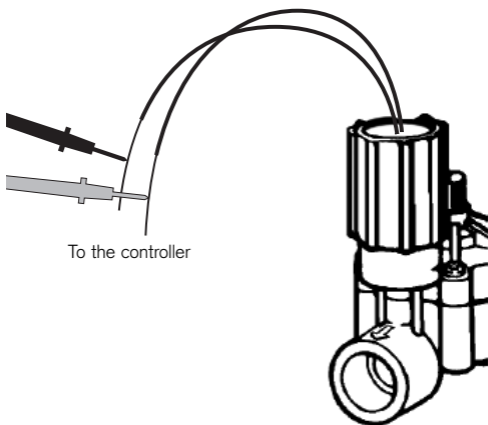
Rain Bird Model TI-DSA500 Snap-Around Multimeter

SET METER TO	<b>600 V<sub>AC</sub></b>	
PROBE CONNECTIONS	<b>BLACK COM</b>	<b>RED V<math>\Omega</math></b>

## Voltage Check of Each Valve (continued)

- 1) At the controller, turn on the station of the valve to be tested.
- 2) Touch each probe to an exposed part of each of the two splice wires leading in to the solenoid. If it is easier, disconnect the solenoid and just check the voltage drop across the two wires coming from the controller.
- 3) Check the reading on your multimeter.

**Acceptable range:** 24-28V (AC)





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**FOR TECHNICAL SUPPORT**

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