Anyone who has spent countless hours trying to track down electrical problems in the field knows there must be a better way. Pinpointing the exact source of an electrical problem does not have to be an impossible or frustrating task. The key to efficient troubleshooting is a relatively inexpensive piece of equipment - a volt-ohm meter (VOM) or multi-meter. A volt-ohm meter measures AC volts, DC volts and resistance and can be used to troubleshoot controllers, transformers, solenoids and field wiring as well as verify AC and DC voltage levels.

DC voltage (VDC) is direct current, such as from a battery with polarized positive and negative charges. AC voltage (VAC), or alternating current, is the type of charge used in households and in most irrigation solenoids.

Resistance measures how difficult it is for current to flow through the electrical system. This is the most useful VOM feature for irrigation applications.

Selecting and Using Your Volt-Ohm Meter

Volt-ohm meters come in two styles: analog and digital. The analog meter uses a needle while the digital multi-meter (DMM) uses a digital display.

Experts usually recommend using a digital multi-meter with few “bells and whistles.” You can troubleshoot 99% of a system’s wiring problems with a meter that simply reads resistance (ohms) and AC voltage.

Knowing how to operate a VOM saves considerable time on any job site. In fact, with a VOM, you can inspect the condition of the solenoid and field wiring without leaving the controller.

The “Volts AC” voltmeter setting on the VOM is used to check the output of the controller, while the “Ohms” ohmmeter setting is used to check field wiring and solenoids. Controller output power must be ON on when measuring voltage using the voltmeter and OFF when taking resistance readings using the ohmmeter.

Controllers - Set the volt-ohm meter to the appropriate VAC scale, based on the voltage you expect to measure. If this is unknown, start with the dial on the highest setting. Activate and touch the meter leads to the circuit you want to measure.

Field Wiring and Solenoids - To prevent damage to the meter, make sure the circuit is OFF before measuring resistance. Disconnect the common wire from the controller, set the VOM scale and connect one meter lead to the common wire and touch the other to each station terminal, recording the resistance.

Typically, a solenoid is good if resistance is between 20 and 60 ohms. Readings below 20 ohm indicate a short and above 60 ohm indicates an open. In either case, check the solenoid separately, after disconnecting it from the field wires, to determine if the problem is in the wiring or wire connectors or in the solenoid itself. When two valves operate together

continued on next page
Convenience Coupled with Reliability: Rain Bird’s Quick Coupling Valves

Rain Bird’s durable, red brass, Quick Coupling Valves provide convenient access to your irrigation system for above ground usage. The valves are ideal for areas that need to be irrigated frequently, but not continuously, explained Harold McKinney, product manager. They are also often specified where field wiring for valves is not convenient.

Accessories and Options
Quick Coupler Valves come in one-piece and two-piece designs 3⁄4”, 1” and 11⁄2” in size. There are various options and accessories available, including locking features and purple, non-potable, covers. Some Quick Coupling Valves have a standard key design, making them easily interchangeable with valves already on site. A unique key is used with ACME thread quick couplers to prevent unauthorized access to effluent water.

Rain Bird now offers swing pipe and riser assemblies for easy installation and a low-cost, residential quick coupler RQC for gardening or washing your car. A new stabilizer feature will be available soon, and combined with the swivel ell, prevent an attached hose from tangling.

Putting a Stop to Leaks
Because Quick Coupler Valves rely on simple, mechanical operation, troubleshooting is straightforward. Moving parts, o-rings and gaskets within the valve sometimes become damaged or worn over time. If a valve begin to leak, this is most often the cause.

First, identify if the valve is a one-piece or two-piece model. One-piece models have a U-shaped gasket to seal around the key. Gaskets can be removed and replaced using a hooked wire. On the two-piece valve, a flanged-shaped, leather packing washer prevents leaks where the bodies join. Do not use a pipe wrench for disassembly or assembly because it can deform the parts. Instead, choose a strap-type wrench.

On both valves, a rubber seat seals the water supply when the valve is not in use. Before removing this for repair, push down the valve case to flush any debris that could be causing leaks. If this doesn't work, remove and disassemble the valve from the underside.

Valve keys wear after years of use or damage from improper handling. Dents or scratches in this area also wear on the seal. File off burrs or indentations on the machined surface of the key (the area above the stainless steel pin) and polish with a fine emery cloth to ensure longer life.

For more on quick coupler options, reliability and maintenance, see the Rain Bird Turf Products catalog.
Millions of dollars in manufacturing research. Thousands of hours in product refinements. These are just a few of the investments Rain Bird has made during the last 50 years to ensure that all of the parts we provide are just as strong as our whole products.

No-Question Quality
Rain Bird quality begins with rigorous engineering standards. “We do all of our own manufacturing to ensure products are built to exacting specifications. There’s no way to match the quality in an after-market situation,” explained Alden Cleveland, Corporate Parts and Services Manager.

“There are similar parts out there, but we aren’t testing or sourcing them,” said Richard Macy, Technical Product Specialist. “We know what we’re building. All of the Rain Bird parts and whole goods are tested to an exacting standard.”

The pieces Rain Bird provides are not only identical to the original parts, they even come from the same production runs as the originals. When parts arrive in batches, some are set aside as service parts while the others are used to create new products.

“You have an irrigation product intended to provide years of continuous service and it is designed around all of the various parts. It simply makes sense to use replacement parts identical to the originals,” said Macy.

Customers Look for Genuine Parts
Research has shown that when it comes to rebuilding or repair, customers prefer genuine Rain Bird parts. According to a Rain Bird survey in 1998, more than 80% of respondents said they would use genuine Rain Bird parts if they were available.

“People trust the Rain Bird name and tolerances designed by our engineers. If the distributorship makes the part available, most customer will choose it,” said Cleveland.

According to the survey, customers’ number one concern is continuing the product quality. “Using parts that carry the Rain Bird name is the best way to ensure the quality customers want,” said Cleveland.

Now Easier to Obtain
Rain Bird has now made it easier to do business and obtain parts. Programs like the Electronic Data Interchange (EDI) program let you order parts electronically. An Inventory Management Program provides significant discounts when you add parts purchases to your whole goods purchases and shipping can be prepaid, lowering overall costs of parts.

“We have programs in place that make it easy to get what you need in a timely manner,” said Cleveland. Rain Bird’s Quick Parts Service (QPS) delivers overnight or by second-day air.

The Rain Bird web site and even a CD-ROM offer parts manuals with schematic drawings. A Master Parts Book, which will be updated in November, breaks down and identifies component parts to further assist in ordering. Customers can also use a 1-800 number to buy parts.

“We are trying to be more forward-thinking in marketing our parts, with innovations like a new point-of-purchase display highlighting Rain Bird’s top 10 most-requested turf parts, internet sales, and competitive pricing,” said Cleveland.

It’s Just Good Business
A study conducted last year showed that using genuine parts, in general, actually lowers the cost of doing business by lowering product returns and the costs associated with processing returns.

“For distributorships, stocking Rain Bird parts can translate immediately into bottom-line savings,” said Cleveland.

In fact, because service parts are generally high margin items, they can increase revenues at the same time as decreasing costs.

Most importantly, customer service is a valuable tool to make sure that people remain Rain Bird customers. Satisfied customers act as the best sales force - for the distributorship and Rain Bird.

“People expect a certain quality from Rain Bird,” said Macy. “We will have satisfied customers if the product performs as described in its original sale. We can almost guarantee this if it is rebuilt or repaired using genuine RB parts.”
Irrigating Into the Next Millennium

Rain Bird Products Ready for Y2K

With Year 2000 anxieties sweeping the country, Rain Bird products present one less concern for customers. “Customer do not need to worry. We will irrigate into the next millennium,” said Richard Macy, Technical Product Specialist.

Rain Bird actually began gathering information in preparation for Year 2000 about 10 years ago, according to Macy. Since 1996 the company has been following a comprehensive plan to deal with Year 2000-related problems.

“By addressing Year 2000-related issues early, Rain Bird laid the foundation to successfully serve its customers and do business with all vendors and suppliers into the next millennium,” said Macy.

Products Put to the Test

Whether it’s products, business systems, embedded technology or testing procedures Rain Bird is prepared.

Product testing has proven that all Rain Bird products are Year 2000-compliant. In fact, any Rain Bird product manufactured within five years of Year 2000 that is non-compliant will be replaced or repaired at no cost to the user, according to Macy.

Rain Bird has sorted products into four groups: those with microprocessors with date embedded features, those with microprocessors without date embedded features, mechanical products with no date/year functions, and central control software without date embedded features.

“Because irrigation controllers tend to be fairly simple, it’s somewhat easy to make them compliant to the year,” Macy explained.

For a complete list of controllers and testing procedures or for more information on Rain Bird’s Y2K readiness, visit the web site http://www.rainbird.com/rbturf/index.htm. Rain Bird is committed to address all Year 2000 compliance issues to ensure the uninterrupted function of Rain Bird products into the Year 2000 and beyond.

*Pursuant to the Year 2000 Readiness Information and Disclosure Act, 105 PL 271

Rain Bird Year 2000 Readiness Disclosure Statement*

“Rain Bird’s Year 2000 compliant systems will not cause any of the problems commonly referred to as “Year 2000 problems” and will, without interruption or manual intervention continue to operate consistently, predictably and accurately when used during any calendar year prior to, during or after the calendar year 2000.”