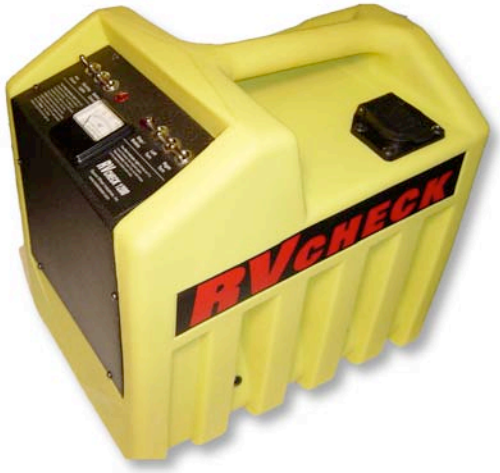
SquareWheel INDUSTRIES
2001 County Street
Laureldale, PA 19605
Phone 610.921.8561 ▪ Fax 610.921.8571
www.trailertester.com



RVCHECK
User's Guide

Equipment Register

Purchased from:
Date of purchase:
Serial Number:

Thank You…

For buying an ***RVcheck*** Using your ***RVcheck*** is so easy it's almost intuitive. Still, we encourage you to look through this User's Guide; it contains valuable tips and information about using your ***RVcheck*** Equally as important, you'll find a good deal of information about selecting and charging the battery, or installing a power supply so you don't even need a battery. It's all right here, and more, in this User's Guide.

Of course, if you still have questions, feel free to call or fax us, or see us on the web @ www.trailertester.com.

Thanks again,

Square Wheel Industries Inc.

www.trailertester.com
Phone 610-921-8561• Fax 610-921-8571

Contents

USING YOUR *RVcheck*
Instructions for basic light testing

Light testing with the *RVcheck* is a straightforward operation. The six on/off switches on the ***RVcheck*** panel control the three lighting functions plus the auxiliary, break-away battery charging, and electric brake circuit.

To get an accurate test of the trailer's lighting system you'll need to make two trips around the trailer.

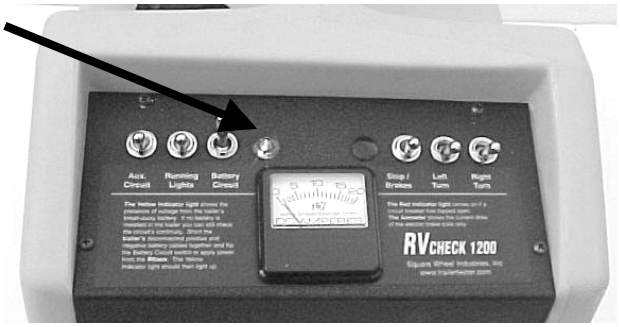
1. **Test the running lights and one turn signal** on your first walk around.

2. **Next, leave the running lights on** and test the other turn signal on your final walk around.

WAIT!!
<u>Do not endeavor to test all the lighting functions at once</u>. You will not be able to determine that the turn signals are correctly wired- that left is left and right is right (a potential disaster out on the highway)

3. **If both turn signals are working properly,** the stop lights must also work, because they use the turn signal's wiring and bulbs; the stop light function is created in the towing vehicle. Nonetheless, by flipping on the electric brake circuit switch, (even if the trailer doesn't have electric brakes), your ***RVcheck*** will produce a stoplight function.

4. **If a charged Break-Away Battery is installed in the trailer,** the Battery Charging Circuit is tested automatically. The Battery Charging Circuit is good if the yellow indicator light lights up any time your ***RVcheck*** is plugged into the trailer. If the yellow indicator light fails to light up, the circuit might be open, or the battery might be dead. To isolate the problem, disconnect both cables from the trailer's break-away battery and test the circuit as if no battery is installed in the trailer.



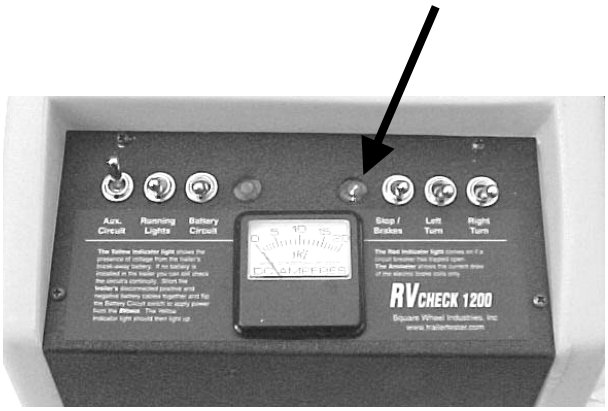
If no battery is installed in the trailer the charging circuit can still be checked. Short the Break-Away Battery's positive and negative leads together and flip on the ***RVcheck*** Battery Circuit Switch. The yellow indicator light should then light up.

WARNING!!
You must disconnect both cables from the trailer's break away battery BEFORE shorting them together. If you fail to disconnect the trailer's break-away battery before shorting the leads together, even a small charge remaining in the battery can result in major sparking and possible property damage and personal injury.

5. To test Electric Brakes, flip the Electric Brake Circuit switch on. The electric brakes should come on full force, and the stoplights will come on. The ammeter displays the total amperage being drawn by the brake coils only; it will not show the current being drawn by the stoplights or any other circuit. Make sure the amperage being drawn by the brakes is sufficient to indicate that **all** of the brake coils are functioning.

When you have finished your light checking task, remember to charge the battery so your ***RVcheck*** will be ready the next time you need it.

The Short Circuit Warning Lamp (SCWL) monitors the status of your ***RVcheck*** circuit breakers and lights up if either one trips open. If this happens, you'll want to identify the shorted circuit. Turn off all circuit switches and wait a few seconds until you hear a click, which will be the circuit breaker resetting. Flip the circuit switches on one at a time. The SCWL will again light when the offending circuit has been turned on.



Note if you're powering your *RVcheck* with the IOTA DLS-30 power supply: In order to protect itself from damage, the DLS-30 essentially shuts down in the face of a short circuit. Without power, your ***RVcheck*** short circuit indicator can not work. Here's how to find a short if this happens:
1. If circuit "A" is completely dead, it may be shorted or it may be open. Turn on circuit "B". If circuit "B" lights up, the DLS-30 is putting out power; it sees no short, so circuit "A" must be open.
2. If neither circuit will light up, perhaps it's because the DLS-30 sees a short in circuit "A" and is not putting out power. Turn circuit "A" off. If "B" comes on now, there was a short in "A".
Your *RVcheck* 20 amp main circuit breaker has ample capacity to fully light most any trailer, but if the trailer has a multitude of extra lights or extra axles with electric brakes, it may be possible to overload it. Usually, SCWL will respond to a short circuit immediately, while an overload situation can take up to a minute to light the SCWL.

Auxiliary ground lead
Normally you do not need to use the auxiliary ground lead, but if no trailer lights operate, or they operate dimly, or at inappropriate times (such as all the marker lights blinking when only a turn signal should be on), try grounding the trailer with the auxiliary ground lead. If this clears the problem, a ground circuit defect is indicated.

SELECTING THE POWER SOURCE
Some options for powering your ***RVcheck***

How do you intend to use your *RVcheck*? Do you need complete portability so you can use your tester anywhere? If so, you don't want to be tethered to a line cord. Maybe you're going to use your tester in one place, as at the end of a trailer assembly operation. In that case you won't want to be bothered with battery charging. The chart below shows three testing situations and suggests ways to power your ***RVcheck.***

Example	Powering Suggestions
Service Truck (exclusively)	Battery alone. Tester has no charger inside to add to carry weight, and is completely portable. Can be used in any weather. Your ***RVcheck*** battery can be charged from your service truck's electrical system while you drive. Important: Read "Connecting Your Charger" on page 11 before you do this.
Multi-use- Service Truck & Shop Floor	Battery plus a 6-amp charger. Unit can be fully portable or run on120 volts when it's available. When running on120 volts, the tester's duty cycle is about 50%, which is plenty for most applications. Because the charger is installed, the unit is not weatherproof, but the charger can be easily removed if you must work in wet environments.
Trailer Assembly Operation	30 Amp Power Supply mounted in remote location and connected to tester via 12 volt power cable. Since the tethering cable carries only 12 volts, this system offers safety advantages should the cable become cut or damaged. The tester can be used in any weather so long as the charger is mounted in a dry location. **Or** 30-Amp Power Supply mounted inside tester. Can be used anywhere a 120 volt source is available. 100% duty cycle, no battery requirement. Not weatherproof.

POWER SUPPLIES AND BATTERY CHARGERS

Some ideas about powering your *RVcheck*

For your convenience, Square Wheel Industries offers the 6 Amp **Deltran *Battery Tender*** and the 30 amp **IOTA DLS-30** power supply. There are other chargers and power supplies on the market that are similar and provide equally satisfactory service.

⌦ **The Deltran unit is small and light** and can be installed right inside your tester's carrier **along with** a battery for a versatile 120 volt plug-in or battery-powered stand-alone tester.

⌦ **The IOTA power supply is larger** and more expensive, but does not require a battery. It requires access to 120 volts, and is capable of a100% duty cycle. This charger protects itself by shutting down instantly if it sees short circuit (it turns back on instantly when the short circuit is removed). Therefore, your ***RVcheck*** Short Circuit Warning Light feature can not work when using this charger. See page 1 for an alternate procedure for finding short circuits if you're using the IOTA DLS-30 instead of a battery.

⌦ **Either of these units** can be mounted right inside your ***RVcheck*** carrier, but neither is weatherproof.

Power Source	Advantages	Disadvantages
OPTION 1 Battery Alone	1. Complete portability- can be used anywhere 2. Least expensive power option initially 3. Can be used in any weather	1. Battery must be charged regularly 2. Might prove to be most expensive in the long run 3. Can be cumbersome if you're using a big battery
OPTION 2 Deltran 6-Amp Battery Tender installed along with a BCI size (group) U1 battery**.**	1. Complete portability when needed. You're not tethered to a line cord. 2. Convenient plug-in-and-forget-it charging. Can be plugged in on a 24-7 basis without over charging.	1. When plugged in, duty cycle for tester is typically about 50% (ample for most applications) 2. Not weatherproof unless you remove the Battery Tender
OPTION 3 IOTA 30 Amp Power Supply alone	1. No battery to buy or maintain 2. Always ready to work 3. Duty cycle is 100% 4. Lightest carry weight 5. Least expensive in the long run.	1. Must have 120 volt supply available 2. Not weatherproof 3. Most expensive initially

If you've chosen a powering option that requires a battery, your next step is to select the type of battery. The next section offers some suggestions for selecting the right battery for your application.

SELECTING THE BATTERY
Picking the best battery for your application

Your *RVcheck* is not fussy about the battery you install. You have the ability to select the battery with those specific attributes that are most important to **your** intended usage.

☑ **Type—** Unless you have special battery needs, we suggest you install an ***inexpensive*** 12 volt automotive battery. Don't bother with a long warranty or a high CCA rating; they are meaningless in this application. Deep-cycle and gel-cell batteries are best when your battery must go for long periods without charging, but they're heavy and expensive. Avoid these unless you really need the capacity they offer.

☑ **Physical Size—** The maximum recommended battery size is the BCI group 24 (except group 24 Marine; the terminals are too high). Group 24 batteries are 10"long x 7"wide x 9"High (over terminals). If you're installing the optional ***BATTERY TENDER*** charger/maintainer, the group "U1" size battery is recommended. It is small and leaves ample room for the charger inside the carrier.

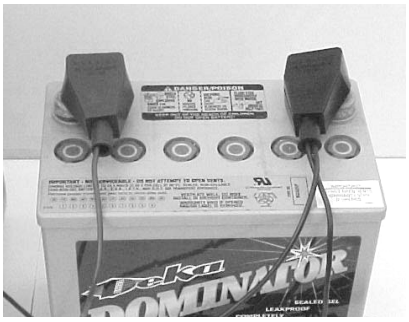
☑ **Reserve Capacity—** Reserve capacity is a measure of your battery's ability to release power over a period of time, and is the only value you need to consider.

This "rule of thumb" is useful when specifying reserve capacity:
When testing typical van trailers with standard incandescent lighting equipment, **the number of minutes of useful life per charge is roughly equal to *twice* the battery's reserve capacity.** For example, a battery with a reserve capacity of 45 will yield approximately 90 minutes of test time before charging is required. The new LED lighting equipment now being installed on trailers draws far less current. If you are checking a high percentage of LED equipment, expect considerably longer usage between charges.

☑ **Weight—**for easy hand carrying, a maximum battery weight of about 30 lbs is suggested.

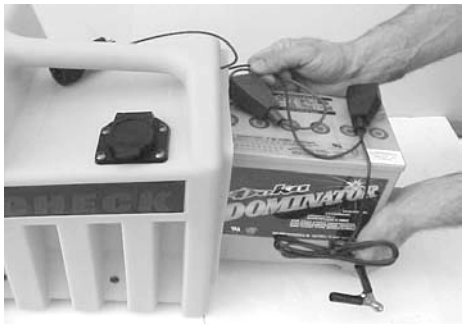
☑ **Terminals—**post, lug, or stud terminals are acceptable. Avoid side terminals; they might make battery installation difficult.

INSTALLING THE BATTERY
Instructions for installing your battery



1. Install a battery that is clean, charged, and in good condition. Position the battery lengthwise at the rear of the carrier so that the positive(+) terminal will enter the carrier first.

2. If needed, use the battery terminals provided to connect the leads. No part of the connection should extend out over the edge of the battery, and the battery leads should head toward each other. Observe correct polarity- red is positive (+), black is negative (-).



3. Cover the terminals with the insulating covers provided on the battery leads.

4. Slide the battery into the carrier and push it forward as far as it will go.

5. Some small batteries (group U1 for example) fit sideways inside the carrier, although very snugly. Often these batteries have a lug on each end of the battery case. To install or remove this type of battery from the carrier, you must first lift the battery slightly to allow these lugs to clear the ribs in the carrier's side. Other small batteries (group 22NF for example), are too big to fit sideways, so use spacers to center the battery and keep it from moving side-to-side.

Styrofoam blocks make the best spacers, but nail-free wooden blocks will also work satisfactorily.

We do not recommend using grease or sprays to control corrosion on the terminals because these usually become too messy.

CONNECTING YOUR CHARGER
Some tips and ideas about connecting your charger

WARNING! It is the user's responsibility to know and follow proper battery handling safety rules! Always follow the battery manufacturer's recommended handling and servicing procedures. Failure to do so can result in property damage, serious bodily injury or death.

If you have installed the Deltran *BATTERY TENDER,* charging the battery is simply a matter of plugging the charger in. You can leave the ***BATTERY TENDER*** plugged in on a 24-7 basis, it won't overcharge your battery, but it is **not weather proof**. If you must use your ***RVcheck*** outdoors during inclement weather, remove the charger before going outside.

You can also charge your ***RVcheck*** battery through the 7- Blade Socket. "Hard wire" a charger's output leads directly to an RV 7 Pole Plug. Wire the charger's positive lead to the auxiliary circuit pin (the center pin) of the plug and the negative lead to the ground blade (the one marked "white"). To charge the battery, simply plug your charger's new plug into your ***RVcheck*** socket and turn ON the AUX circuit switch. Charging current will flow thru the unit and charge your battery through your ***RVcheck*** circuitry.

This simple charging station provides the plug-in convenience of a built-in charger, but without a 120-volt charger on board, your ***RVcheck*** will still be weatherproof.

If you're charging your *RVcheck* battery from your service truck's electrical system, charge it through the 7-way cable. You may find your ***RVcheck*** 20 Amp circuit breaker trips each time you start the truck's engine, because your ***RVcheck*** battery is trying to start the truck when the key is turned. This is considered normal and not a problem.

For safety, run a separate 10 gage wire from your truck's positive battery terminal and install a 30 amp SAE Type 1 automatic resetting circuit breaker in that line. Hook the breaker up so its ACC terminal connects to your truck battery's positive (+) terminal, and its BAT terminal connects to the positive (+) terminal of your ***RVcheck*** battery.

If you're using a large battery you can, of course, simply slide the battery out of the carrier to connect your charger.

Regardless of which charging method you use, make sure the battery is well ventilated at all times. Always keep your tester's open end away from walls or other obstructions that would prevent air from circulating into the carrier and around the battery.

CHARGING THE BATTERY

General information about charging your battery

WARNING!

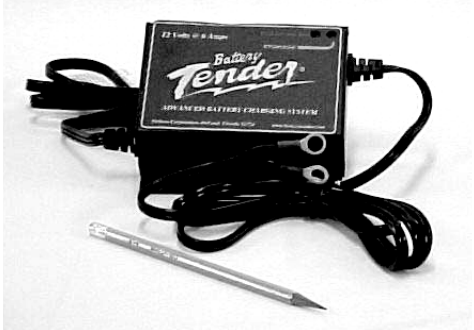
It is the user's responsibility to know and follow proper battery handling safety rules! Always follow the battery manufacturer's recommended handling and servicing procedures. Failure to do so can result in property damage and/or serious bodily injury or death.

Nothing will destroy a good battery faster than overcharging. As a rule when charging most batteries, voltage should be limited to about 14 volts at no more than 12 amps for maximum battery life. Check your charger output to make sure it can limit itself to these levels.

On the other hand, storing a partially discharged battery will shorten its life. Charge the battery as soon as practical after use.

We suggest a 6 to 10 amp charger, preferably with a "storage" or "float" mode be dedicated to charging your tester's battery.

Deltran's 6 Amp *BATTERY TENDER* charger/maintainer is just such a charger and is our primary recommendation. The ***BATTERY TENDER*** is rated at 6 amps, and its microprocessor controlled float mode will never allow your battery to be overcharged, even if left plugged in on a 24-7 basis. The microprocessor protects the charger from damage due to overload, short circuits, or reversed polarity. The ***BATTERY TENDER*** is small enough and light enough (only 21 ounces) to be mounted in your ***RVcheck*** carrier along with your battery. We suggest you use the BCI size (group) U1 battery with this charger, but it is possible to use a bigger battery if your application requires it. (Our part number 01960)



Square Wheel Industries Five-Year Warranty
What could *Possibly* go wrong?

Warranty Policy: Each *RVcheck* Trailer Lighting System Tester is warranted by Square Wheel Industries Inc. to be free from defects in materials and workmanship for a period of five years from the date of purchase by the original customer. The warranty will not apply where the unit has been abused, misused, subject to accident, or if the defect is caused by alterations made to the unit without approval from the manufacturer.

This warranty covers 100% of parts and labor. Square Wheel Industries will, at its option, repair or replace any unit or part thereof which, in its opinion, has failed under the terms of this warranty. Replacement units may be a different model than the unit being returned for service providing the replacement unit is functionally equal to or better than the unit that was returned. Replacement units may be either new or reconditioned. Replacement of parts or the complete unit does not extend the original warranty period. The customer shall return the unit to Square Wheel Industries "freight prepaid". Square Wheel Industries Inc. will pay for shipping the repaired unit back to the customer.

Service and spare parts
If you must return your ***RVcheck*** for service…

It is very important that you include a note explaining what's wrong. Often, jostling in transit temporarily "fixes" a problem. Without a note, we might not know what to fix when your ***RVcheck*** gets here. If possible, include the name and phone number of someone with firsthand knowledge of the problem.

For service or further information call or fax:

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