Staying Chill

Everything you need to know about AC maintenance and repair

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Temperatures and humidity levels are rising quickly, and that means you’ll be hearing from RVers who are starting to discover that their unit’s air conditioner isn’t up to the job. This edition of *RV Technician* aims to help everyone stay cool by focusing on the device that makes summer livable.

First up is an overview on inspecting, cleaning, and repairing air conditioners. This article comes with a handy service checklist that can be used to help increase your shop’s AC service.

Next is an article about the federal rules that regulate AC repair, including mandatory technician certification, use of proper recovery/recycling equipment, and a section about AC repair facts and fiction.

Hail and severe storms can do a number on rooftop air conditioners, but many of them can be fixed—it’s not always necessary to replace the entire unit. Find out more in “Storm Repair Tips for Air Conditioners.”

You’ll be able to diagnose ACs faster using the simple homemade tester that’s featured in the last air conditioner story. This easy-to-make device will save you time and steps in the heat—very cool!

Finally, learn the proper way to clean a slide topper and how to safely adjust the tension in “Keeping Slide Toppers in Top Shape.”

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Let’s All Stay Cool

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Servicing rooftop air conditioners is one way to increase average dollars per RO. Rooftop units need to be maintained properly, just like a home air conditioning system. The major difference is that homes generally have a split system, while RV rooftop air conditioners are self-contained like window units.

Manufacturers of rooftop air conditioners warn against breaking into the system to evacuate and recharge. If the system needs recharging, it’s time for a new unit. Dispose of defective units following local and federal EPA regulations. This article will deal with servicing functioning air conditioners.

Like a good salesperson, a good service advisor should sell air conditioning service. Service advisors do their customers a favor by making them aware of the need for periodic maintenance. After all, what customer wants to be in the middle of Florida in July when the air conditioner conks out? Some ideas to help promote this service:

- Place a sign at the service desk about the importance of rooftop air conditioner maintenance.
- Add the item to your menu.
- Include it in your service sales brochure.
- Display props such as clean and dirty filters; a copy of the check sheet to show the complexity and details of a proper procedure; and before-and-after pictures of intake and return air separation, evaporator, and return air grill.
- Give customers copies of the completed checklist at pickup and tell them the documentation can help increase their RV’s resale value.

This must be a team effort between service advisor, techs, and parts department. The parts department needs to have in stock the gaskets, air filters and retainers, and shrouds that might be needed. Refer to the tool and supply lists on the next page for additional materials.
**Supply List**

- Coil cleaner ………………………………To clean nicotine, grease, etc. from fins; read directions—can damage surfaces
- Commercial grade cleaner
- Plastic sheet and tape……………………To protect RV’s interior and controls
- Rags………………………………………..For cleaning
- Oil ………………………………………….Used on some models to oil the fan motor
- Rectorseal or equivalent ……………….To separate intake and exhaust
- Expandable foam ……………………….To separate intake and exhaust
- Foil tape………………………………….To separate intake and exhaust; used on evaporator compartment
- Parts return bags ……………………..For returning old parts to customer
- Sealant……………………………………..Used around evaporator lines
- Oil can w/ light-weight oil

**Tool List**

- Large square polyethylene bucket
- Compressed air
- Air wand
- Vacuum cleaner
- Fin comb
- Two calibrated thermometers
- Humidistat and wall thermometer
- Common hand tools
- Ladder
- Utility brush assortment (chip brushes)
Now use the accompanying checklist to perform the service according to the following instructions. The instructions may vary slightly based on your shop culture and the actual type of air conditioner. These instructions essentially follow the checklist, which is designed to help the tech perform the job quickly and efficiently.

**Identification.** Information on the model and location of the air conditioner unit should be collected and documented any time service is performed on an RV. For this type service it may not be necessary to write down model and serial number.

Enter the RV and perform these preliminary steps:

- **Remove interior plenum/grill and inspect.** The first step in any job is to inspect the work area for damage or anything improper. These could represent up-sell opportunities for the service advisor. The interior plenum needs to be removed to access the controls and filters and to work on the ducting.

- **Cover/protect interior of RV.** Cleanliness should be a top priority.

- **Hang or install interior catch bucket.** Hang it under the air conditioner to catch fin cleaner and falling debris. Some fin cleaners have a high acid content and can cause damage.

- **Cover or protect PC boards/control.** Remove or cover the control box to protect it from fin cleaner and falling debris. I once had to pay for a replacement control board because I forgot to do this.

- **On the roof, inspect and remove the exterior shroud.** This may be an up-sell for the service advisor. Be careful not to damage the shroud while removing it, and store the mounting fasteners properly. Take care not to lose or damage any removed items that will be reinstalled.

- **Fin guard installed/new-style shroud.** This is another possible up-sell for the service advisor, since most shrouds without fin guards are old enough to need replacing.

- **Inspect, straighten, and clean condenser fins.** A quick visual inspection should determine if the condenser needs more than cleaning. Many experts advise replacing the air conditioner when 70 percent of the fins are damaged. If there’s major fin damage, the service advisor will need to contact the customer and either sell him a new air conditioner or increase the fee for the service.

  Use compressed air and the air wand to carefully clean fins. Be careful when using coil cleaner: I have seen it drop down the side of an RV and cause damage. Use a fin comb to straighten the fins. Inspect both sides of the condenser and comb out as necessary.

- **Access the evaporator fins:** This requires removing the cover over the evaporator fins so they are totally exposed.

- **Inspect, straighten, and clean the evaporator fins.** Clean and straighten the evaporator fins as described in the condenser cleaning section. Take care to keep the controls and inside of the RV as clean as possible.

(continued on next page)
Clean evaporator fin compartment. Use a vacuum cleaner and utility brushes to clean as much of the evaporator compartment as can be reached from the top.

Check condensate drains for clear/open. When condensation doesn't drain, it can build up and run into the RV interior or ceiling.

Check that evaporator lines are sealed into compartment. The factory-installed sealant where the refrigerant lines come into the evaporator compartment sometimes shrinks, allowing outside air into the evaporator compartment. When this happens, the evaporator can freeze up or cause more condensation. It may be necessary to add more sealant or adjust the factory sealant.

Replace evaporator cover and seal thoroughly. Check all joints so no outside air can get into the evaporator compartment. Use foil tape and sealant to completely seal the evaporator compartment. Little gaps can let outside air into the compartment or cool air out. Spend a couple of extra minutes checking this thoroughly and repair as needed to increase the efficiency.

Inspect base pan for cracks and damage. This happens infrequently, but check to make sure.

Oil the fan motor at oil ports. Occasionally the oil ports on the fan motor will be clearly visible. Put some lightweight oil in them.

Reinstall exterior shroud and fin cover. Give everything on the roof a final inspection and install the shroud.

Inside the RV:

Remove interior coverings, protectants, and catch bucket. Take care to keep everything clean.

Torque mounting bolts. The gasket should be at about half of the original one-inch thickness. (This means the gasket should be torqued to about ½ inch.) Some air conditioners have a tab built onto the base pan to indicate how tight to torque the mounting bolts. There may be an opportunity to sell a gasket and installation if you feel a new one is needed.

Separate and seal intake/return air. This is a crucial step. The intake and return air often don’t get separated when air conditioners are installed, creating major inefficiency. Inspect this very carefully and use expandable foam, foil tape, and rector seal to separate them. With ducted models, make sure the cold air is going into the ducts, not the ceiling. Seal the ducting off as necessary to insure the air is directed properly. Inspect the base pan and inside plate for holes that may allow cold air to go into the ceiling or mix with the return. Wire holes in this area can also allow cold air to escape. Inspect direct discharge models and correct fluttering ducts. This step may take a few minutes.

Replace or clean intake filter(s). It's a judgment call whether to replace or clean the filters. I've seen new filters included in the price of an air conditioner service.
If you clean them, do that job first so they’ll be dry when you’re ready to reinstall them.

**Clean interior ceiling and plenum.** Assemble and install interior plenum, grill, and controls. Put the interior pieces of the air conditioner back where they belong. The controls portion refers to direct discharge models.

**Clean work area and do a final visual inspection.**

Next comes taking temperature/amperage readings.

**Ambient temperature and relative humidity:** Attach the humidistat and thermometer to the wall in the shop for easy access and visibility.

**Cool: intake/return Delta:** With the fan speed on high, use two calibrated thermometers to determine the air temperature going into the return and coming out of the air conditioner at the closest outlet. Delta is the difference between the two. After 20 to 30 minutes, there should be about a 20-degree difference. High humidity and high ambient temperatures can cause the Delta to be less than 20 degrees. When the ambient temperature gets below 75 degrees, the compressor won’t work as efficiently.

**Heat: intake/return Delta:** Turn the heat pump on and take readings in the same way as described in the COOL section. The heat pump won’t operate below 40 to 45 degrees ambient temperature.

**Amp draws:** Using an amp meter, record the amp draws when the air conditioner is in the high cool and high heat modes. Be sure to turn off all other electrical draws in the RV if taking the amp draw at the main power cord. Determine the proper amp draw for the air conditioner you’re testing. This should be between 8 and 14 amps. The voltage in your supply should be nominally 115 volts. Low voltage will increase the amps.

**Technician notes:** Make notes of anything of concern or interest.

This is a very thorough rooftop air conditioner service, with a suggested flat rate of two to two-and-a-half hours, based on the culture of the shop.

On the following page is the checklist I use when performing this air conditioner service.

Feel free to contact me if you have questions or ideas. My email address is rvrepairs@aol.com.

Gary Motley is owner of Motley RV Repair in Oklahoma City. He is a master certified RV technician and a member of the RV Technician advisory board. He can be contacted at rvrepairs@aol.com.
A/C Service Checklist

Customer __________________________ Coach __________________________ Date ______
A/C brand __________________________ Model __________________________ Serial __________________________
Ducted ______ Direct discharge ________ Location in RV __________________________

* Remove interior plenum/grill and inspect
* Cover and protect interior of RV as needed
* Hang or install interior catch bucket
* Cover and protect PC boards/control
* Inspect and remove exterior shroud
* Fin guard installed/new-style shroud
* Inspect, straighten, clean condenser fins (advise if major)
* Access evaporator fins
* Inspect/straighten/clean evaporator fins (as needed)
* Clean evaporator fin compartment as needed
* Check condensate drains for clear/open
* Check that evaporator lines are sealed into compartment
* Replace evaporator cover and seal thoroughly
* Inspect base pan for cracks/damage
* Oil fan motor at oil ports as needed
* Reinstall exterior shroud and fin cover
* Remove interior coverings/protectants/catch bucket
* Torque mounting bolts to ½ original thickness (use crush tabs)
* Separate/seal the intake/return air
* Replace/clean intake filter(s) qty ______ price _____ ea _____
* Clean interior ceiling and plenum as needed
* Assemble and install interior plenum/grill/controls
* Clean work area and do final visual inspection

Temperature/amperage readings

Readings are taken on HIGH after approximately 20 minutes.

Ambient temperature _______ F Relative humidity _______%

A/C air temps

Cool    Intake ______ F Return ______ °F Delta ______ F Amp draw ______ Amps
Heat    Intake ______ °F Return ______ °F Delta ______ °F Amp draw ______ Amps

NOTE: Acceptable temperature differential in A/C mode is 16 to 20 degrees; ambient temp and relative humidity affect differential.

Technician notes: ___________________________________________________________

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Summer’s here, and with it comes another season of air conditioning repairs. The Mobile Air Conditioning Society Worldwide (MACS) reminds service professionals about the facts and fiction of air conditioning service.

Manufacturers are producing AC systems that last longer and need less service. Changes include improved hoses, better sealing materials, and stronger connections. The goal is to provide the consumer with reliable air conditioning on demand.

You can separate mobile AC service facts from fiction below:

- United States federal law requires anyone who opens the refrigerant pressure circuit “for compensation” to be certified under Section 609 of the Clean Air Act. A shop can face serious fines for allowing uncertified employees to do this work. Technicians must have their certification available for inspection during the work.

- The same law prohibits venting any refrigerant to the atmosphere. All refrigerant needs recovering. After recycling, it’s reusable in a vehicle. If not recycled in the shop, the refrigerant has to go to a reclaiming facility.

- Before beginning repairs, always use a refrigerant identifier to protect your shop, staff, and equipment. You cannot mix refrigerants, and not all are the same. Each refrigerant must be recovered with a specific machine into properly labeled tanks. Some gases may also be flammable, presenting another hazard to technicians.

- You do not need to clean refrigerant in the system in the name of “maintenance.” When the system is recovered, the refrigerant will be cleaned by normal use of refrigerant recovery and recycling equipment.

- An operating system does not need additional oil or conditioners. In fact, additional oil may reduce cooling performance, and the use of incorrect lubricants may cause expensive damage. Always check the under hood label -- most systems require a specific lubricant. A “universal” lubricant may not meet all of the manufacturer’s specific requirements.

- HFC-134a system lubricants are generally polyalkylene glycol (PAG) based, and vehicle makers do not approve the use of other lubricants. However, polyol ester (POE) lubricants are required for some electric compressors used in hybrid vehicles, and using PAG lubricants in those systems can result in mechanical problems and electrical hazards.

- Identify refrigerant leaks and then replace the leaking parts with quality components. Adding refrigerant to a leaking system does not make economic sense for
the customer and contributes to atmospheric pollution.

Read and heed the label. Adding too much refrigerant to a vehicle’s AC system can reduce cooling performance. Many modern systems use smaller refrigerant charges than before, and the only way to assure maximum cooling performance is to maintain the correct charge. “Top-off” service is not the way to go.

Vehicle manufacturers install and recommend the correct products for their vehicles, and some systems contain industry-approved trace dyes to aid in finding leaks. Manufacturers do not install other chemicals, system conditioners, or products intended to stop leaks.

SAE International has developed many industry standards for products and chemicals. Always look for a label statement that the product you are purchasing meets SAE standards.

Adding a sealer to a leaking refrigerant system may not be the answer. Some aftermarket chemicals have caused damage to components and service equipment. Adding any other chemicals into a customer’s AC system may become a costly mistake.

Vehicle manufacturers, parts suppliers, and service equipment makers have tightened their warranty policies regarding use of non-approved substances in their products. Chemical additives and other products may cost your shop and your customer a lot of money.

As the AC system ages, some loss of refrigerant is unavoidable and reduces cabin cooling. A quality service shop will have the knowledge and equipment to find the leak quickly and perform the correct repair.

While some consumers still want the low-cost option of constantly adding refrigerant, it’s up to the professionals to convince them that the bandage approach doesn’t cure the real problem and may cost more if the compressor ultimately fails.

As a professional service facility, you must provide the customer with cost effective repairs that return the system to reliability and preserve the environment.

More changes are coming in the next few years. You can learn more at http://www.macsw.org.
I get a lot of calls at this time of year from customers wanting to know if their hail or storm-damaged air conditioner can be repaired. Many retail customers—including insurers—are concerned that air conditioners too often are replaced instead of repaired. I have some suggestions to address that concern and make a shop look like a real value to a customer.

In most cases, a storm-damaged unit can be repaired. I know that the initial reaction is to simply replace it, since there’s profit in selling a new AC. But there’s also profit in repair, and repairing things is what a shop is supposed to do. The profit margin can be just as good and even better for repairing as opposed to replacing.

On the roof, look for obvious external damage such as smashed shrouds (plastic covers) or condensers. Shrouds are easy to replace and available from air conditioner manufacturers and even some aftermarket suppliers. If a mounting bolt or screw breaks, drill it out and replace it. It’s a good idea to apply a little penetrating oil on fasteners whenever you can before trying to remove them.

After removing the shroud, inspect the workings for nests—mud daubers, birds, and even some rodents can get in and build nests that prevent the fan from turning. Sometimes they even use wiring or insulation from the unit to build their nests.

Remove any debris and check that the fan motor moves freely. Late model units no longer have ports for oil or lubrication, so any resistance from bearings may require a motor replacement. Check the wiring next, making sure connections are good and that it hasn’t been chewed on or separated. Take a look at the capacitors for leakage or severe deterioration.

Condensers are a hot topic (no pun intended). Hail wreaks havoc on them, smashing the fins. But smashed fins don’t mean the end of an air conditioner. Several tool suppliers offer a fin straightening tool to repair the damage. I’m sure some old timers have just pulled a comb out of their pocket and used it for the same thing. Does the repair look perfect? Not always, but then, I’ve seen a lot of brand-new AC units with damaged condenser fins right out of the factory-packaged box. Occasionally the fins get a little damage during installation, but they can be straightened.

Fix damaged air conditioners and maintain them for your customers and you’ll be demonstrating real value that will keep them coming back.

RVDA Service Consultant Tony Yerman is an Ohio-based master certified technician, repair specialist, and the author of the RV Damage Repair Estimator. He can be contacted at tyerman@rvda.org.
Troubleshoot Air Conditioners Faster
With A Tester You Can Make In 10 Minutes

By Steve Savage

During the hot summer months, I hate to do more thinking and moving than absolutely necessary. That means I want a fast, accurate way to troubleshoot coolers.

The thing I dislike most about servicing air conditioners, besides the heat, is the awkwardness of accessing the receptacle on the control box to check for power to the rooftop components. To use the light bulb method prescribed by Dometic for its units, most techs drop the control box, making it easier to reach. You can do the same thing on RV Products’ air conditioners, or else work overhead with your meter.

Of course, even in travel trailers you still have to walk back and forth between the thermostat and the control box, or have someone operate the thermostat while you do the checking at the box. I work alone and got tired of the walk from stat to control box, so several years ago I put together $40 worth of parts to make two circuit testers.

I have shared this device with other technicians and at training seminars. It takes about 10 minutes to make. You’ll need to make one circuit tester for Dometic air conditioners and one for RV Products (RVP), because they use different pigtails. The receptacles feeding power to rooftop units have stayed the same for years, so these testers can be used on units spanning a wide range of models. They’ll work on any air conditioning unit that connects a pigtail from the rooftop unit to a receptacle in a control box mounted inside the RV, including units with manual controls.

To make my circuit tester, you’ll need:

1. The pigtail off a rooftop unit scheduled for the recycler
2. Four light socket adapters (Lowes part #71105)
3. Four 40-watt rough service light bulbs

Begin by cutting the pigtail off inside the junction “J” box of the rooftop unit, leaving it as long as possible. Next, tie one lead from each socket adapter to one colored lead on the pigtail. Now, tie the remaining leads from all the sockets to the white lead on the pigtail. When wired correctly, each bulb is fed by a different color lead from the pigtail, and shares a common neutral (see photo one below).

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(continued on next page)
The green pigtail lead can be left free, as it is not necessary to test circuit function. Finally, insert a light bulb in each socket. That’s your new tester.

**First up: AC and DC voltages**
The first step in troubleshooting any appliance is to check both AC and DC voltages. If DC voltage is off, control systems do crazy things, and if AC voltage is low, you may inadvertently spend time troubleshooting the air conditioning unit when the problem is the campground power supply or the generator. With campgrounds so full this summer, more than half the air conditioner problems I’ve checked were due to inadequate low voltage and had nothing to do with the air conditioner itself. Getting detailed information from the customer is helpful before tackling any problem.

Now drop the filter cover and disconnect the plug connecting the rooftop unit to the control box and plug in the tester you have just assembled. Select “fan” on the thermostat and set the fan switch to “low” speed. One light bulb should come on. Switch the fan speed to “high” and the light bulb that was lit will go out and a different light bulb will come on. Move the selector from “fan on” to “auto” and the bulb should go out. So far so good—in less than 60 seconds, you’ve established that the thermostat and control box are working to supply power to the fan motor in the rooftop unit.

Next, leave the fan switch on “auto” and cycle the selector switch on the thermostat to “cool.” Set the temperature down so the thermostat is calling for cooling. You should see two bulbs light up (see photo two, top of next column).

One bulb indicates power to the compressor and the other indicates power to the fan motor. To clarify: You’re essentially completing the same steps you routinely do with the light socket adapter on Dometic units or with your meter on an RVP unit. Don’t forget—some systems have a built-in three-minute delay. That means no lights will appear for three minutes after selecting “cool” and “auto” on the thermostat.

Sometimes the control system isn’t working. When that happens, a bulb won’t light, meaning the rooftop unit isn’t getting power for whatever function you selected on the thermostat (see photo three, next page). In that case, the problem isn’t on the roof, it’s with the controls inside the RV. It could be as simple as DC or AC power, but using your circuit tester, you have already eliminated a climb in the heat.

*(continued on next page)*
With no lights showing on your tester, your next move is to the thermostat. With analog thermostats, it's possible to use a jumper to activate the control box, while bypassing the thermostat. If your tester lights when you use a jumper, you know the thermostat is at fault and must be replaced.

If you use a jumper, bypass the thermostat, and still have no lights, then you know the problem isn’t the thermostat, since your jumper removes it from the equation. You would then inspect connections from the thermostat to the control box and finally the control box itself. The steps for troubleshooting air conditioners from Dometic and RVP are covered more completely in their service manuals, and dedicated tech support is available over the phone.

Here are a few additional thoughts. If you’re really obsessive, it’s possible to use different colored bulbs in your tester to designate fan speeds and the compressor motor, although I have never felt it necessary. If you check your service manual, you can tell by the color on the pigtail leads which bulb checks what on the roof. What you quickly discover, however, is that as long as bulbs switch with changes at the thermostat and you have two lit bulbs in cool mode, you are good to go.

Finally, remember that hearing a click relay doesn’t mean anything. Power to the rooftop unit has to be verified before climbing the ladder. Otherwise, you may just be wasting your time, and darn it, it’s too hot for that!

Steve Savage is a Master Certified RV technician, the owner/operator of Mobility RV Service in Bristol, TN, and a member of the RV Technician Advisory Group. His articles appear frequently in consumer and industry magazines.
Summer is a good time to take a look at slide toppers and window awnings and make sure they're in good working order and functioning as intended. Slide toppers are designed to keep debris off the top of the slide room. This starts with a fabric that is well-maintained. Since slide toppers are exposed to the elements whenever slide rooms are extended, it’s important to clean the fabric on a frequent basis. I recommend once a month, depending on use.

**Fabric cleaning tips for both side toppers and window awnings:**

For vinyl fabrics, mix ¼ cup of dish soap and ¼ cup of bleach with five gallons of fresh water. Flush the fabric with this mixture to ensure that the fabric is completely wet. Then roll the fabric up and let sit for five minutes.

Spray the fabric off using a garden hose—**not** a high-pressure washer! This process may need to be repeated, depending on how dirty the fabric is. To remove spots, simply use soap and water.

*Note*: Do not use household cleaners, mildew removers, or hard bristle brushes! Also, if the slide room is going to be retracted after cleaning, make sure the fabric is completely dry after cleaning!

For acrylic fabrics, simply spray the fabric off with water. Use K2R spot remover on spots.

### Checking the anti-billow bracket for slide toppers

To check for proper installation, it is necessary to retract the slide room. The billow bracket, shown in figure 17, can be installed on either end of the slide topper. With the slide room closed, rotate the slide topper towards the coach wall. The billow bracket should come in contact with the bumper attached to the side of the coach. If not, it may be necessary to adjust the bumper.

### Checking for proper tension on slide toppers

Next, inspect to make sure the torsions are in good working order. Inspect the left side, rotate counter clockwise. The torsion will have quite a bit of resistance and should take effort to rotate the tube. If the tube

(continued on next page)
rotates easily or the fabric is not very tight, it may be necessary to add tension to the torsion. Inspect the right side by rotating clockwise.

**WARNING**

*Use extreme care. Springs under tension are dangerous. If not controlled, they will unwind quickly. Keep hands and clothing clear of the end brackets as personal injury may result.*

To add torsion, first remove the two TEK screws located on the awning rail:

Next, you must pin the torsions to safely remove tension. Use a 7/64" x 2-3/4" cotter pin:

The slide topper is now safe to remove from the side of the coach. It will be necessary to slide one leg off at a time. This requires two people and two ladders.

Two people are required to unwind the torsion. Have one person hold the tube tightly and the other grasp the hex bar and rotate in order to remove the cotter pin. With the cotter pin removed, carefully unwind the tension:

With the tension completely off, rewind the left hand torsion clockwise and the right hand counterclockwise and place 13 turns of tension on both the left and right hand torsions:

Once both the right hand and left hand torsions are safely pinned, remove the pop rivet or screw that secures the hex bar to the torsion:

(continued on next page)
Reinstall the slide topper in reverse order and secure the slide topper torsion brackets to the hex bars. Use a pop rivet to secure.

Run the slide room in and out a few times to properly align the fabric. Once realigned, reinstall the tek screws.

It's important to properly maintain slide toppers and window awnings. With proper care and maintenance, these products will give the customer years of good service.

*Mark Wolschlager is a sales representative for Dometic Group.*
**Angled Power Cord Offers Easy Grip**

Conntek's RV Angled Power Cord makes grasping and unplugging cords safe and more comfortable and reliable. The highly visible yellow power cord features an easy-grip, right angle connector. With the handle and prongs positioned at a right angle to the cable, it helps keep users safe while protecting the cord from twisting damage.

An indicator light signals when a connection has been made. The threaded ring ensures a safe connection. The 30A/125V cord is 30'.

Conntek offers a variety of cords, adapters and connectors with enhanced convenience, visibility and safety. Its products can be used for marine, RV, industrial and home applications. Visit [http://www.conntek.com](http://www.conntek.com).

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**Keep Buckets in Place While Washing RVs**

Washing and cleaning RVs is easier without having to worry about sliding buckets. Shurhold's new Bucket Base is a sturdy ring designed to minimize bucket sliding and damage caused by the bucket scratching against the floor.

This non-skid, non-marking ring won't damage RV surfaces and helps prevent scratches on fiberglass and teak while keeping buckets in place. UV resistant and durable, Bucket Base fits most five-gallon pails.

**Twin USB/AC Charger Transforms an RV into a Charging Station**

When RVers are ready to get up and go, so should all their electronic devices. Hubbell's USB Charger Receptacle delivers both USB and regular electrical power in a single device, making it simple to keep smart phones, digital readers, tablet computers, MP3 players, mobile phones or GPS units ready for use. Besides its two 15-amp, 125V AC outlets for traditional use, the receptacle is fitted with twin USB ports. It's compatible with any USB 1.1, 2.0 or 3.0 electronic equipment. While most competitive units produce only two amps or less, Hubbell's USB Charger Receptacle provides a full three amps of USB power. That's enough to charge two tablets at the same time.

If the receptacle becomes overloaded, it cycles off briefly, then returns to normal function without manual resetting. A green LED light indicates USB power availability. The USB Charger Receptacle features the company's Style Line decorator finish and measures 2.62" H x 1.3" W. It installs in a standard electrical box deeper than 1.5" with internal AC/MC clamps.


**New Collection of BugsAway Clothing for Men and Women**

ExOfficio introduces an expanded collection of insect-repellent clothing for men and women, including jackets, shirts, pants, hats, and socks. The clothing features the EPA-registered Insect Shield Repellent treatment, which repels mosquitoes, ticks, ants, flies, chiggers and midges through 70 washes.

The CDC reports there are 300,000 cases a year of Lyme disease, making it the most commonly reported vector-borne illness in the United States.

The new BugsAway gear offers lightweight but durable and packable protection from bugs, allowing travelers to experience the world unhindered. Visit [http://www.exofficio.com](http://www.exofficio.com).
Microwave Recalls

Grand Design RV and Jayco Inc. are recalling certain units that were equipped with certain Frigidaire KG-series microwaves, models CFMV152CLB and CFMV154CLS, manufactured Jan. 27, 2013, through April 10, 2013 in the serial number range KG30607951 through KG31600670.

In the affected vehicles, the microwave may start on its own and begin heating while unattended. If there are contents inside, a fire could result.

Grand Design is recalling certain MY2014 Solitude 369RL and Solitude 305RE fifth wheel travel trailers manufactured Feb. 21, 2013, through July 24, 2013. Grand Design will notify owners, and dealers will repair the membrane/keypad component free of charge. Owners may contact Grand Design at 1(574)825-8000.

Jayco is recalling certain model year 2013-2014 Seneca, Pinnacle, and Eagle Premier, and 2014 Precept motorhomes and fifth wheels manufactured January 14, 2013, through August 26, 2013,

Jayco will notify owners, and authorized Electrolux service technicians will replace the membrane/keypad component, free of charge. Owners may contact Jayco Customer Service by calling 1(800)283-8267.

Gas Line Recalls

Open Range RV Company and Highland Ridge RV are recalling certain units because the flexible gas line for the kitchen slide out section is too short.

When the kitchen area is expanded, the gas line may be pulled excessively, resulting in a gas leak and increasing the risk of a fire.

Open Range is recalling certain 2014 Open Range LF319 fifth wheel recreational trailers manufactured Oct. 23, 2013, through March 10, 2014. The company will notify owners, and dealers will replace the existing gas line with a longer line free of charge. Owners may contact Open Range at 1(260)768-7771.

Highland Ridge is recalling certain 2014 Open Range LF319 fifth wheel recreational trailers manufactured October 23, 2013, through March 10, 2014. Highland Ridge will notify owners, and dealers will replace the existing gas line with a longer line free of charge. Owners may contact Highland Ridge at 1(260)768-7771.

(continued on next page)
Frame Spring Hanger Recalls

Keystone RV Company and Crossroads RV are recalling certain units that may have been built with frame spring hangers that are brittle and susceptible to fracturing.

A spring hanger that fractures may result in a loss of control of the trailer, increasing the risk of a crash.

Keystone is recalling certain model year 2014 Summerland, Springdale, Bullet, and Cougar recreational travel trailers and fifth wheels. The company will notify owners, and dealers will replace the spring hanger as necessary. Owners may contact Keystone at 1(866)425-4369.

Crossroads RV is recalling certain model year 2015 Sunset Trail, Zinger, and Reserve recreational trailers manufactured Feb. 20, 2014, through Feb. 28, 2014. The company will inspect and replace the frame spring hangers as necessary. Owners may contact Crossroads at 1(855)226-7496.

Triple E Hazard Light Recall

Triple E Recreational Vehicles is recalling certain model year 2012-2014 Free Spirit FS22, and FS22SS recreational vehicles, and 2014 Free Spirit FS22TE recreational vehicles. In the affected vehicles, the 7-pole trailer plug socket of the RV is wired such that towed vehicles or trailers will not illuminate their hazard lights if the RV’s ignition is turned off.

If the recreational vehicle is towing a vehicle or trailer, the RV’s rear hazard lights may not be visible to other drivers and if the RV’s ignition is off, the hazard lights will not illuminate on the towed vehicle or trailer, reducing its visibility and increasing the risk of a crash.

The company will inspect and correct the trailer plug wiring. Owners may contact Triple E RV at 1(877)992-9906.

Winnebago Brake Fluid Leakage

Winnebago Industries Inc. is recalling certain 2014-2015 Travato, 2014 Trend and Itasca Viva! motorhomes manufactured Nov. 13, 2013, through April 3, 2014 on Ram ProMaster chassis. During the manufacturing of the chassis, a tool may have damaged one of the brake hoses, which may result in a leakage of brake fluid from the brake hose.

Brake fluid leakage would result in a reduction of brake performance, lengthening the distance needed to stop the vehicle and increasing the risk of a crash.

Chrysler Ram has notified owners, and dealers will inspect and replace the brake hoses as necessary. Owners may contact Winnebago at 1(800)537-1885 or Chrysler at 1(800)853-1403.
The Mike Molino RV Learning Center proudly recognizes these

**CONTRIBUTORS**

*Active donors are those who have contributed to the RV Learning Center since 07/01/12.*

<table>
<thead>
<tr>
<th>Contributed</th>
<th>Total Lifetime Pledge</th>
<th>Last Contribution</th>
<th>Received From</th>
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<tr>
<td>07/01/12 - 06/10/14*</td>
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**MAJOR GIFTS** active donors* with cumulative donation or pledge of $25,000 or more

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<th>Company</th>
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<tr>
<td>Newman Corporation</td>
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<td>10/31/13</td>
<td>Pan Pacific RV Centers, Inc.</td>
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<tr>
<td>RVDA of Canada</td>
<td>$25,000</td>
<td>12/18/13</td>
<td>McClain's RV Superstore</td>
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<td>Bank of America Merrill Lynch</td>
<td>$5,000</td>
<td>04/29/13</td>
<td>RVAC</td>
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<td>Protective</td>
<td>$50,199</td>
<td>11/22/13</td>
<td>Bill Thomas Camper Sales, Inc.</td>
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<tr>
<td>Tom Stinnett Derby City RV</td>
<td>$1,000</td>
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<td>Bill Thomas Camper Sales, Inc.</td>
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<tr>
<td>PleasureLand RV Center, Inc.</td>
<td>$4,000</td>
<td>11/15/13</td>
<td>Paul Evert's RV Country, Inc.</td>
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<tr>
<td>Horsey Family Memorial Fund</td>
<td>$1,000</td>
<td>07/01/13</td>
<td>Tiffin Motor Homes, Inc.</td>
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<tr>
<td>Bill &amp; Kristen Fenech</td>
<td>$7,500</td>
<td>07/09/13</td>
<td>Reines RV Center, Inc.</td>
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<td>Campers Inn of Kingston</td>
<td>$23,578</td>
<td>10/08/13</td>
<td>Avalon RV Center, Inc.</td>
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<td>Ron &amp; Lisa Fenech</td>
<td>$5,000</td>
<td>08/27/13</td>
<td>Holiday World of Houston</td>
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<tr>
<td>Byerly RV Center</td>
<td>$5,000</td>
<td>01/10/14</td>
<td>Bill Plemmons RV World</td>
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<td>Fogdall Family Fund</td>
<td>$6,000</td>
<td>03/05/14</td>
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**CHAMPIONS** active donors* with a cumulative donation or pledge between $2,500 and $24,999

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<td>Diversified Insurance Mgmt. Inc.</td>
<td>$6,600</td>
<td>02/21/14</td>
<td>American RV</td>
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<tr>
<td>Earl Stoltzfus</td>
<td>$10,000</td>
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<td>Circle K RV's, Inc.</td>
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<td>Dixie RV Superstore</td>
<td>$5,000</td>
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<td>Hayes RV Center</td>
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<td>Wilkins R.V., Inc.</td>
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<td>Burlington RV Superstore</td>
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<td>Greeneway, Inc. (Route 66 Dealer)</td>
<td>$5,250</td>
<td>06/11/13</td>
<td>Webster City RV, Inc.</td>
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<td>Rivers RV</td>
<td>$250</td>
<td>05/31/13</td>
<td>Madison RV Supercenter</td>
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<tr>
<td>Alpin Haus</td>
<td>$500</td>
<td>06/21/13</td>
<td>Minnesota RVDA</td>
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<td>Butch Thomas</td>
<td>$1,000</td>
<td>16/11/13</td>
<td>Camperland of Oklahoma, LLC</td>
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<td>Hartville RV Center, Inc.</td>
<td>$1,250</td>
<td>10/18/13</td>
<td>Best Value RV Sales and Service</td>
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<tr>
<td>MBA Insurance, Inc.</td>
<td>$1,000</td>
<td>05/17/13</td>
<td>Topper's Camping Center</td>
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<tr>
<td>Mike and Barb Molino</td>
<td>$775</td>
<td>01/14/13</td>
<td>Myers RV Center, Inc.</td>
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<tr>
<td>Affinity RV Service Sales &amp; Rentals</td>
<td>$2,000</td>
<td>07/01/13</td>
<td>A World of Training</td>
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<td>AIRXCEL - RV Group</td>
<td>$500</td>
<td>06/12/13</td>
<td>J. D. Sanders, Inc.</td>
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<tr>
<td>United States Warranty Corp.</td>
<td>$2,000</td>
<td>04/30/13</td>
<td>United RV Center</td>
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<tr>
<td>Little Dealer, Little Prices</td>
<td>$5,000</td>
<td>01/23/13</td>
<td>RV Outlet Mall</td>
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<td>Great Lakes RVA</td>
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<td>Alliance Coach, Inc.</td>
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<td>Hemlock Hill RV Sales, Inc.</td>
<td>$639</td>
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<td>Crestview RV Center</td>
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<td>Rich &amp; Sons Camper Sales</td>
<td>$4,000</td>
<td>11/14/13</td>
<td>Onsite Temp Housing</td>
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<td>Folsom Lake RV Center</td>
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<td>12/16/13</td>
<td>Phil Inggrassia</td>
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<td>Motley RV Repair</td>
<td>$1,000</td>
<td>09/13/13</td>
<td>RCD Sales Company, Ltd.</td>
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<tr>
<td>Curtis Trailers</td>
<td>$1,000</td>
<td>08/06/13</td>
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**LEADERS** active donors* with a cumulative donation or pledge between $1,000 and $2,499

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<th>Company</th>
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<td>The Trail Center</td>
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<td>Skyline RV &amp; Home Sales, Inc.</td>
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<td>Hilltop Trailer Sales, Inc.</td>
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<td>Dinosaur Electronics</td>
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<td>Noble RV, Inc.</td>
<td>$755</td>
<td>03/21/14</td>
<td>Out of Doors Mart, Inc.</td>
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<tr>
<td>Lindsey Reines</td>
<td>$1,500</td>
<td>12/20/13</td>
<td>Bill Mirrielees</td>
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**BENEFACTORS** active donors* with a cumulative donation or pledge between $500 and $999

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<td>Schaap's RV Traveland</td>
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<td>Steinbring Motorcoach</td>
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<td>Beckley's Camping Center</td>
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<td>Camp-Site RV</td>
<td>$250</td>
<td>01/13/14</td>
<td>Ocean Grove Supercenter</td>
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<td>Ronnie Hepp</td>
<td>$300</td>
<td>08/24/12</td>
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**SUPPORTERS** active donors* with a cumulative donation or pledge between $100 and $499

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<th>Company</th>
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<tr>
<td>Bell Camper Sales</td>
<td>$200</td>
<td>08/26/13</td>
<td>Tennessee RV Sales &amp; Service</td>
</tr>
<tr>
<td>Foley RV Center</td>
<td>$250</td>
<td>09/01/12</td>
<td>Happy Camping RV</td>
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<td>Mayflower RV, Inc.</td>
<td>$250</td>
<td>07/27/12</td>
<td>Mike Thompson's RV Super Stores</td>
</tr>
<tr>
<td>Modern Trailer Sales, Inc.</td>
<td>$250</td>
<td>06/04/14</td>
<td>John Peak</td>
</tr>
<tr>
<td>Karin Van Duysen</td>
<td>$250</td>
<td>10/24/12</td>
<td>Amy Pennington</td>
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<tr>
<td>South Haven RV Center</td>
<td>$250</td>
<td>05/12/14</td>
<td>Setzer's World of Camping, Inc.</td>
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**ENDOWMENTS**

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<th>Scholarship</th>
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<tbody>
<tr>
<td>Kindlund Family Scholarship</td>
<td>$270,000</td>
</tr>
</tbody>
</table>
It’s time to take the first step toward certification!

*The RV technician certification process is just a click away. Visit www.rvtechnician.com to learn more.*

**Step 1**

Technician Certification Candidate: The candidate test is a basic orientation to the RV service technician career. The training and test is available at no cost and is located at: http://www.rvst.org/Candidate/.

**Step 2**

Registered Technician: This test establishes that the technician is proficient in core knowledge areas such as propane, basic electrical, fire & life safety, weight knowledge, and other technical skills.

**Step 3**

Select a Career Path

Traditional Certification: This test is designed to evaluate both the general and specific knowledge in 12 different areas--propane, electrical, plumbing, brakes, suspension, towing, appliances, generators, hydraulics, interior, exterior, slide out systems and other technical skills.

Specialty Certifications: There are five certified specialist areas that make up the right path on the RV Service Technician Career Ladder: body, chassis, electrical systems, appliances, and plumbing. Each test focuses on the subject related to the specialty.
RV TECH CERT PREP COURSES

Every technician can have access to individual self-study training and certification preparation for all sections on the career ladder.

### Just getting started?

Take the FREE online Candidate test by clicking on **“How to Become Certified”** at www.rvtechnician.com

**REGENTERED TECHNICIAN**

**Course A. $89**

The Registered Technician Course prepares RV Service Technician Candidates to take the Registered RV Service Technician test. *

### Already a Registered Technician?

**Choose Your Path:**

**CERTIFIED TECHNICIAN PREP COURSE**

Course B. $249

Comprehensive Certification Preparation Course that represents the left side of the RV Service Technician Career Ladder. This course is preparation for testing as a Certified Technician. *

**CERTIFIED SPECIALIST PREP COURSE**

Course C. $69/specialty

Prepares a technician to be tested and certified* in five areas of specialty:

- C1. Appliances $69
- C2. Body $69 Coming Soon!
- C3. Chassis $69
- C4. Electrical Systems $69
- C5. Plumbing $69

**ALL COURSES USE AN INTERACTIVE MULTIMEDIA ONLINE FORMAT.** Combines text, graphics, and video with mentor support. All content is online. No extra materials needed. Courses align with core knowledge areas of certification tests.*

*Each fee offers access to the specific online preparation course and DOES NOT cover certification testing.

**YES, I WANT TO REGISTER MY TECHNICIANS!** (Copy this form to register more than four.)

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>City/State/Zip</th>
<th>Phone</th>
<th>FAX</th>
</tr>
</thead>
</table>

Each technician MUST have a distinct email address that only they can access.

Indicate which COURSE a technician is choosing with A, B, or C. **If choosing C, indicate chosen specialties by number.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Course</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
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<tr>
<td>Name</td>
<td>Email</td>
<td>Course</td>
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Send progress reports and other notifications to the following supervisor:

TOTAL $______*

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Email</th>
</tr>
</thead>
</table>

**Method of Payment** All registrations must be pre-paid in U.S. funds. Fees subject to change without notice.

___ Check enclosed: Payable to the Mike Molino RV Learning Center  **Credit Card** ___ VISA ___ MC ___ AMEX ___ DISCOVER

Cardholder Name ____________________________ Billing Address ____________________________

Acct # ____________________________ Exp __________ Security Code ____________________________

Cardholder Signature ________________________________________________________________

Fax to (703) 359-0152 or mail to the Mike Molino RV Learning Center, 3930 University Dr., Fairfax, VA 22030. Call (703) 591-7130 to enroll by phone.
### RV Service Textbooks

#### SUMMARIES & ORDER FORM

**Published by RVIA, Available through The RV Learning Center**

These RV textbooks help technicians increase their knowledge and understanding of the various RV components and operating systems found in today’s RVs, and also prepares them for the new testing requirements of the RV Service Technician Career Ladder. The complete set consists of 14 volumes – written by RV service experts, and the Electricity Demystified text.

**SAVE 30% WHEN YOU ORDER A COMPLETE HARD COPY OR CD-ROM SET!**

See next page for details!

<table>
<thead>
<tr>
<th>Textbook Title</th>
<th>Price</th>
<th># books</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction to RV Service</strong> – Provides an introduction to the RV industry, the various types of RVs and their structural characteristics and systems, the basic tools utilized by RV technicians, and safety in the RV workplace. Summaries of industry codes and standards and RV technician job classifications are also included as well as basic information on using RV service manuals. Developing and demonstrating solid customer relations and record keeping skills are also addressed.</td>
<td>$19.95</td>
<td></td>
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</tr>
<tr>
<td><strong>Electricity Demystified</strong> – Written in a step-by-step format, this practical guide begins by covering direct current (DC), voltage, resistance, circuits, cells, and batteries. The book goes on to discuss alternating current (AC), power supplies, wire, and cable. Magnetism and electromagnetic effects are also addressed. Detailed examples and concise explanations make it easy to understand the material.</td>
<td>$14.95</td>
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<tr>
<td><strong>RV Electrical Systems</strong> – Provides instruction on performing AC and DC voltage systems inspections and tests; servicing AC and DC power sources; servicing wiring/distribution systems; and maintaining, repairing and inspecting AC and DC devices.</td>
<td>$49.95</td>
<td></td>
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</tr>
<tr>
<td><strong>RV Propane Systems</strong> – Provides instruction on inspecting and maintaining propane containers and fittings; inspecting and maintaining the piping system; performing propane system tests; purging and filling containers; transferring propane from container to container; and burning off propane in a container.</td>
<td>$49.95</td>
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<tr>
<td><strong>RV Generators</strong> – Covers the installation, maintenance and repair of RV generators, the generator section and control system. This includes inspecting, maintaining and repairing generator components and verifying battery voltage, fuel source and pressures, engine operation, output voltage and frequency, and governor operation.</td>
<td>$39.95</td>
<td></td>
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</tr>
<tr>
<td><strong>RV Ranges &amp; Cooktops</strong> – Provides instruction on the installation, repair and replacement of ranges and ovens. This includes verifying gas pressure; verifying grate clips installation; checking lines and fittings; repairing and replacing components; verifying range burners are not affected by operation of force air furnace or other appliances; and performing function test.</td>
<td>$39.95</td>
<td></td>
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</tr>
<tr>
<td><strong>RV Water Heaters</strong> – Covers the installation, repair and replacement of RV water heaters — Pilot, DSI (direct spark ignition) and Electric. Topics addressed include inspecting ignition systems, verifying gas pressure; troubleshooting the sequence of operation, repair and replacement of various components; draining and flushing the water heater and inspecting fittings for calcium deposits; checking fittings on the tank; inspecting and replacing the water tank; and checking lines and valves for motor aide.</td>
<td>$39.95</td>
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</tr>
<tr>
<td><strong>RV Plumbing Systems</strong> – Provides instruction on performing fresh water systems tests; inspecting and repairing fresh water storage tanks, distribution systems, and fixtures and devices; performing waste water systems tests; and inspecting, repairing and replacing waste holding tanks and drainage piping systems.</td>
<td>$39.95</td>
<td></td>
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</tr>
<tr>
<td><strong>RV Heating Appliances</strong> – Covers installation, repair and replacement of RV heating systems, including gravity, pilot and DSI (direct spark ignition furnaces). Topics examined include verifying pressure and electrical voltage; inspecting and cleaning burner, pilot, exhaust tube and air intake; troubleshooting the sequence of operation; repairing and replacing various furnace components; inspecting and correcting ducting and return air.</td>
<td>$39.95</td>
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<tr>
<td>RV Refrigerators – Provides instruction on the installation, repair and replacement of absorption refrigerators (manual and automatic selection). This includes verifying proper venting, AC and DC power sources, propane gas pressure, and leveling; diagnosing and replacing electric and gas components; diagnosing and replacing the cooling unit; diagnosing, repairing and replacing the internal ice maker components; and performing function tests.</td>
<td>$39.95</td>
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<tr>
<td>RV Air Conditioning – Covers the installation, repair and replacement of air conditioning and heat pump units, including verifying air flow, assessing the integrity of the electrical system, and evaluating the integrity of refrigerant systems.</td>
<td>$39.95</td>
<td></td>
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</tr>
<tr>
<td>RV Pre-Delivery Inspection – Introduces and explains the many important steps in inspecting the RV before delivering to the customer, including checking propane systems, pre-testing all appliances and accessories, testing and inspecting the AC and DC electrical system; checking safety items, lighting, window roof molding seals, and wiper blades; checking and lubing doors; visually inspecting chassis; checking lug nuts and tire pressure; testing water supply and drainage systems; and conducting a test drive.</td>
<td>$39.95</td>
<td></td>
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</tr>
<tr>
<td>RV Preventive Maintenance – Examines what services to perform for preventative maintenance, including checking propane systems; servicing and adjusting appliances; testing G.F.C.Is; winterizing and de-winterizing coach; checking safety items; checking and lubricating doors; checking exterior lights; checking window roof molding seals; changing oil and filter on power plants; checking wiper blades; visually inspecting fluid levels; servicing batteries; inspecting belts and hoses; changing chassis oil and filter and lubricating chassis; changing transmission oil, filter and gasket; visually inspecting chassis; checking lug nuts and tire pressure; flushing and refilling cooling system; and performing a test drive.</td>
<td>$39.95</td>
<td></td>
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<td>RV Brakes, Suspension &amp; Towing – Covers the basics of brakes and brake controllers used in RV towable systems. References RV suspension systems as well as wheels and tires. Fully describes types of RV towing systems, hitches, wiring, and accessories. Includes information on troubleshooting, repair and replacement of stabilizer jacks and mechanical landing gear jacks. Textbook also covers vehicle weights, weight safety, weight labels, legal regulations, codes and standards.</td>
<td>$39.95</td>
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<td>RV Hydraulics – Covers the basic principles and laws of hydraulics, hydraulic terminology, special tools and equipment and basic hydraulic circuits. The book introduces the technician to hydraulic system components and their functions. Includes information on performing hydraulic system maintenance, safety, and troubleshooting procedures.</td>
<td>$39.95</td>
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TOTAL COST OF TEXTBOOKS IF PURCHASED INDIVIDUALLY $574.25

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For more information call (703) 591-7130 or visit  
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The RV Damage Repair Estimator

Written and published by RV repair expert Tony Yerman, *The RV Damage Repair Estimator* offers dealers a centralized source for average time and cost of making RV repairs and purchasing RV parts. A growing source of service department revenue comes from insurance company reimbursements for collision, storm, and vandalism repair. Now in its fourth edition, *The RV Damage Repair Estimator* helps RV service departments prepare consistent, data-supported claim estimates for insurance companies and RV owners.

*The RV Damage Repair Estimator* is available in print as a 300+ page manual.

Service departments around the country rely on *The RV Damage Repair Estimator*. Order yours today by completing and submitting this order form, visiting www.rvlearningcenter.com, or calling the dealer services hotline. The RVDA member price for the printed manual is $199, or $239.95 for non-members. Note: Prices are subject to change without notice.

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**The RV Damage Repair Estimator**

**Part 1: Contact Name:**

Company:

Company Address:

City/State/Zip:

Phone: Email:

**Part 2: PAYMENT METHOD**

*The RV Damage Repair Estimator, 4th Issue* $199

- ⚫ Send Invoice (RVDA members only)
- ⚫ Check Enclosed $239.95

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RVDA members said they wanted a convention location on the Las Vegas Strip and later dates so they could bring more employees. Well, we heard you! The 2014 RV Dealers International Convention/Expo will be in the center of the action – Bally’s on the Las Vegas Strip – and take place a full month later than previous years.

Between our new, central location and more convenient dates, this is the year to participate in the premier annual networking event for RV dealers.

And flexible registration rates combined with early bird discounts make it possible for more of your staff to share in this learning opportunity.

Education is the passport to better-managed, more productive dealerships, and this year’s convention offers something for everyone. Vendor Training +Plus sessions will give you and your staff valuable face time with vendors and business partners and are included in your full registration. They’re also available at a special low rate for employees who can only spend a day or two away from the dealership.

The Young RV Executives program, with events specifically focused on the needs of younger executives and new managers, returns for a second year.

Make the 2014 RV Dealers International Convention/Expo your destination for:

- A rich learning experience bringing together approximately 60 educational sessions on subjects driving your dealership today
- A new education track dedicated to social media and Internet-based marketing
- Business opportunities in the expo, where dealers can meet more than 100 manufacturers, vendors, and suppliers
- Mike Molino RV Learning Center’s shorter, streamlined workshops for dealers/GMs, service writers/advisors, marketing and sales staff, parts and service managers, and rental operators
- Partners in Progress dealer/manufacturer meetings, now spread out from Monday through Thursday so dealers can attend more workshops
- Social events and networking opportunities

SAVE 30%
EARLY BIRD FULL REGISTRATION RATE
$599 for first dealership registrant
$499 per each additional registrant

If you’ve registered for the convention and want to bring employees to attend just the Vendor Training +Plus program, you can register them for that program for $195 per person. The Vendor Training +Plus badge will also give the holder access to the expo and the opening reception on Tuesday, Nov. 11.

RVDA dealer members only – expires 6/30/14

For more info visit www.rvda.org/convention and register today!
DEALER REGISTRATION FORM

1. Registration Information. Please copy this form if adding registrants.

Company Name_____________________________________________________________
Phone_________________________Fax__________________________________________
Address_______________________________________________________________
City____________________________State/Prov______Zip/PC_____________________
Email______________________________________________________________

2. Registration Fees:

| First Registrant locks in today's lowest rate for all future dealership personnel! |
|--------------------------------------------------|-----------------|---------|-----------|
| Early Bird by 6/30 | Advanced by 8/29 | Late | Amount |
| First Registrant – includes Vendor Training +Plus, a $195 value! | $599 | $659 | $879 | $ |
| Registrant Name__________________________________________Email__________________________________________ |
| Badge First Name_________________________________________Please check here if you require special accommodations. □ |
| Second Registrant – includes Vendor Training +Plus, a $195 value! | $499 | $599 | $879 | $ |
| Registrant Name__________________________________________Email__________________________________________ |
| Badge First Name_________________________________________Please check here if you require special accommodations. □ |
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| Registrant Name__________________________________________Email__________________________________________ |
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| Fourth Registrant – includes Vendor Training +Plus, a $195 value! | $499 | $599 | $879 | $ |
| Registrant Name__________________________________________Email__________________________________________ |
| Badge First Name_________________________________________Please check here if you require special accommodations. □ |

I would like to add a contribution to the Mike Molino RV Learning Center to promote education for our industry.* $ 

VENDOR TRAINING +PLUS ONLY Dealership must have one full convention registrant to bring additional employees JUST for Vendor Training +Plus. The cost is $195 per person and includes Vendor Training +Plus training on Monday, Nov. 10 and Tuesday, Nov. 11, and Tuesday's reception in the Expo. Photocopy this form to add more registrants for Vendor Training +Plus.

Name________________________________Badges First Name____________Email______________________________ $ 

Third Registrant

Name________________________________Badges First Name____________Email______________________________ $ 

Fourth Registrant

Name________________________________Badges First Name____________Email______________________________ $ 

3. Payment Information:

☐ Full Amount or ☐ Easy Pay (credit card only; 3 equal installments will be charged to your credit card, first on date received, then at 30 and 60 days). If neither box is checked you will be charged the full amount in one payment.

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MAIL OR FAX A COPY OF THIS FORM TO: RVDA of America, 3930 University Drive, Fairfax, VA 22030-2515 • (703) 591-7130 • Fax: (703) 359-0152 • www.rvda.org
RVDA of Canada, 204-6411 Buswell St, Richmond, BC V6Y 2G5 • (604) 718-6325 • Fax: (604) 204-0154 • www.rvda.ca

CANCELLATION / REFUND POLICY: All cancellations must be in writing and received by August 31, 2014, to qualify for a refund. A $30 administrative fee will be deducted from each refund request received by July 31, 2014. A $100 administrative fee will be deducted from each refund request received between August 1, 2014 and August 31, 2014. No refunds will be made after August 31, 2014. *The Mike Molino RV Learning Center is a tax-exempt organization as described in section 501(c)(3) of the Internal Revenue Code. Contributions may be tax deductible as charitable donations.
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