

Spring 2010

# PopUp TIMES

FOR TODAY'S SMALL RV ENTHUSIAST

## Life Renewed

See the results of  
a remodeled 1991  
Coleman Roanoke

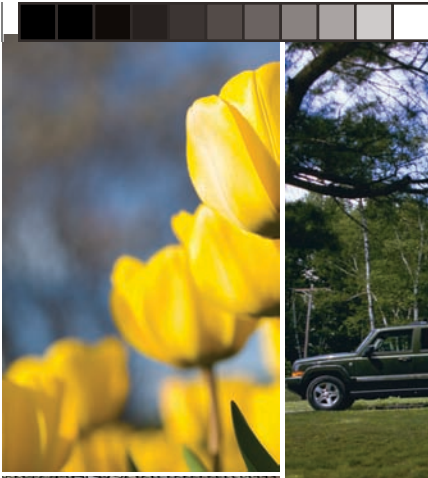
## Camper's Log

Take a look at  
Leonard Harrison  
State Park

## Ruined to Restored

We show you  
how to refurbish  
rusted cast iron

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Follow along as our Campground Gourmet uses an electrolytic refurbishing technique to transform a collection of badly rusted pie irons once considered a lost cause into an almost new looking set ready for years of service.

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**Cover photo:**  
by Greg Farrell

As the world around us comes back to life, and our campers itch to get out of their winter storage; we begin the process of renewing our traveling homes with repairs, maintenance and modifications: once again the cycle begins anew.

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# RUINED RESTORED

## TO

### Electrolytic Refurbishing of Rusted Cast Iron

*By C.R. Lovald*

**C**arage sales, thrift stores, flea markets, and past generations of your own family can all be treasure troves of great, lovingly maintained, cast iron cookware. But what if the pieces you find are in less than pristine condition?

Bringing an old, rusty, useless piece of cast iron back to life is a rewarding experience. Don't pass up pieces in need of TLC, when removing the rust and gunk is so easy.

Burned-on carbon can be removed by firing the piece in a very hot campfire, heating to cleaning temperature in a gas grill, or by running it through the self-clean cycle in your home oven. Any of those methods will burn off old seasoning or burned-on food and strip the piece to the bare metal. The same process may or may not remove rust, so if your piece is rusty, you may need to resort to more drastic measures.

My favorite form of rust reduction is electrolysis. I don't know who first thought it was a great idea to hook up car battery cables to a couple pieces of metal, then toss the whole works into a vat of water and flip the "on" switch, but it's a lucky thing they did. Electrolysis saves a lot of energy and elbow grease. And it's just plain fun to watch the rebirth of what might have appeared to be a hopeless case, as the rust slowly disappears from the iron.

Reducing surface rust through electrolysis requires surpris-

ingly simple items. First, foremost, and most expensive, you will need a car battery charger. A 12-volt model works best, and it must be of the type that will charge a dead battery, not the type that requires some power remaining in the battery. Since cast iron does not give off any electricity for the latter type of battery charger to detect, it cannot work for our rust removal project.

Secondly, you will need a non-metal container large enough to hold your rusty item, or some portion of it. If your item is large, you may need to work with it in two sessions. For example, a cast iron griddle may need to be placed in the vat one end at a time if you do not have a deep enough vat to submerge it completely. Since the rust removal is self-limiting, it will not cause any damage if there are overlapping areas when the second half of the item is submerged. It just takes a bit longer to remove all the rust doing it in two batches.

Next, you will need an anode. This can be any metal item that will rust. The second requirement for the anode is that you don't care about it, because it's going to be destroyed. If the anode will surround the item to be restored, that's a bonus, but I've never been lucky enough to find something workable and have still been successful using an anode that does not surround the item to be renewed. If you do have something surrounding your cast iron, make sure it will not touch the cast iron in any way, or it will be ruined along with your anode.



Sad and forlorn, these neglected, rusty clamshell cookers are in desperate need of some TLC. These were considered so worthless the whole lot sold for just \$1.



Formerly headed for the scrap heap, this restored cast iron collection now has new life. After the missing handles are replaced, this once-ruined cookware will again be ready for years of service making camp meals and memories.

You will need washing soda, not to be confused with baking soda. Baking soda will also work, but washing soda works better. Washing soda can be slightly difficult to come by, as not all stores carry it. Check for it in your grocery store in the same aisle with laundry detergents.

If your anode will not rest on the bottom of the vat, you will need some way to suspend the battery clamp, with anode attached, above the water line. A tin can used as an anode is lightweight enough to be easily suspended along one side of the vat, so I use a chip clip to hold the wire connecting the clamp to the battery charger. If your anode is heavier, you may need to get creative. Remember, it's imperative the clamp on the anode never touches the water.

Of course, you'll need your rusty cast iron cookware.

The last item you need is plain tap water.

Got all your stuff assembled? Great, we're ready to go!

Begin by filling your vat with tap water to a depth that will allow you to submerge your cast iron, if possible. Then mix in about one tablespoon of washing soda per gallon of water. It's not fussy, so just throw some in. Extra won't hurt anything.

Leave the battery charger unplugged for the time being, until you get everything all set up.

Now place the BLACK clamp from the battery charger on your

rusty cast iron. Make sure it gets a good bite! If it doesn't, you may need to remove a little rust with sandpaper or steel wool so you can get good contact between the cast iron and the battery charger's clamp. Good contact is essential for the battery charger to do its job.

Carefully lower the cast iron, with the battery charger cable attached, into the water. Yup, it's perfectly okay to submerge that battery cable!

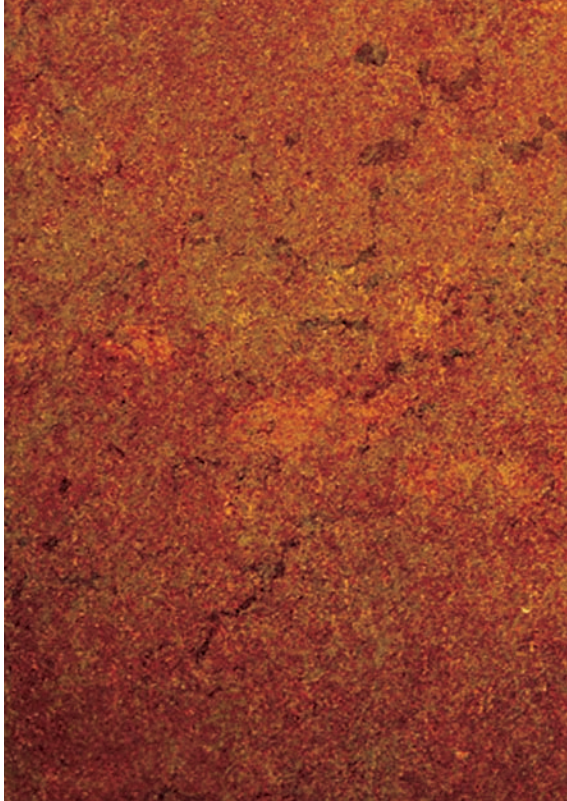
Next, the anode. Attach the red clamp from your battery charger to the anode, again making sure there is solid contact. The rule is reversed on this one: Never let the red clamp touch the water! Use your chip clip or other device to suspend the clamp, and the portion of the anode it touches, out of the water, while most of the anode is submerged.

Never reverse the black and red clamps! If you do, the anode will end up nice and clean, while your treasured cast iron will become a mass of rust. Remember, **RED IS DEAD**, because this process will effectively kill anything that red clamp is touching.

Double-check to make sure the anode is not touching your cast iron piece even a little bit, and that the red battery clamp is above the water line.

Time for the fun part!

Plug the battery charger in and turn it on. Almost immediately,



It's easy to perform magic using just a few items.



These tin cans were identical until one was used as an anode.



Ready to go! Notice the red clamp is suspended with the clip so it always remains above the waterline.



It gets ugly, but the solution is harmless.

you should see bubbles starting to rise from the rusty cast iron. If you don't, check to make sure the battery clamps are both solidly connected to their respective pieces of metal.

The rising bubbles are hydrogen, so be cautious! Don't smoke around it or expose it to open flames or sparks. Use with adequate ventilation, such as out in your garage. Don't be afraid of using this process; just take the usual common sense precautions. Naturally, keep kids and pets away from your set-up, too.

Should you need to adjust something in the vat, it's best to unplug the battery charger, lest you find yourself the recipient of a 12-volt tickle.

All righty! Now that we have all that precaution stuff covered, back to our marinating cast iron. Wait a few hours and check the progress. Feel free to pull it up out of the mix every now and then to see how it's doing. You can't overcook it, so leave it in the mixture as long as you like. Naturally, the more rust you have



A good scrubbing with steel wool and hot soapy water gets the cast iron ready for seasoning.

to remove, the longer it's likely to take. Don't be shy, you can even take it to the sink and rinse it off to see if it's down to the bare metal yet. If the iron cleans up down to the bare metal, then you're done with the electrolysis bath.

Unplug the battery charger, then wash up your iron with a wire brush or steel wool, followed by soap and hot water. Coat it immediately with a good, food-safe oil. I



The right side of this piece has had a very light coat of Camp Chef's Cast Iron Conditioner applied.

prefer to use a product called Cast Iron Conditioner, made by Camp Chef. A very light coating of the conditioner or other fats such as Crisco or vegetable oil will also work. Then bake your iron at about 400 degrees Fahrenheit for one hour. If it's summer and I can open all the windows, I use my kitchen oven and disconnect the smoke detector. A gas grill will also work if you prefer to do this smoky task outside. Turn off the heat, and allow

whatever appliance you use to cool without opening the lid. Your cast iron will be fully refurbished at that point, and you can either begin using it or apply additional coats of seasoning as desired.

Back to that vat of gunk, which by now probably looks pretty darn gross. Your anode may be looking pretty sad, too. Trust me, it all looks worse than it really is. I generally give the black battery charger clamp a good rinse and dry it off, then just put the charger away. The anode goes in the recycling box. You have a couple of options for the solution left in the vat. Believe it or not, you can save it for future rust-removal projects. It's not toxic even though it looks like it should be. You can continue using it for rust reduction until you really can't stand to look at it anymore. Or you can just dump it on the ground or down a drain. Again, it's not toxic, it's just iron-enriched water with a small amount of non-sudsing laundry soap in it. Personally, I prefer to dump the solution unless I have another project to do right away. It's so simple and inexpensive to mix up a new batch, it doesn't seem worth saving it.

There you have it, the easy way to refurbish rusted cast iron. There's something very satisfying about taking an ugly, orange piece of junk and turning it into a beautiful, deep-black, well cared for piece of cookware anyone would be proud to own. So the next time you run across an icky but interesting piece of cast iron, go ahead and give electrolytic rust reduction a try! 🚐





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