



How to Polish a Vintage Airstream

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Airstream shells are made of aluminum. Aluminum reacts with oxygen in the air to form aluminum oxide, or oxidation. But unlike steel when it oxidizes to form iron oxide, aluminum doesn't rust. The chemical reaction between aluminum and oxygen doesn't eat away at the aluminum, it actually builds on it . . . and darkens it.

That's the chemical part of the story, but not the part that has brought you to the point of polishing. More likely, this is an emotional decision. Once you've seen a freshly polished Airstream, it's hard to look at Airstreams or aluminum the same way again. The mirror finish on that vintage streamline shape is nothing short of stunning. The rivets and seams are accented against the mirror panels, and you feel the urge to run right home and polish your own trailer. It isn't about the chemical reaction, it's about the emotional one.

This article provides a basic description of how to polish a vintage Airstream. But first, it's important to know that polishing isn't for everyone. And it isn't the same for every trailer.

Can My Trailer Be Polished?

All Airstreams can be polished to a very nice shine. However, not every trailer can achieve the eye-popping mirror of a vintage Airstream. As a general rule, the softer the aluminum alloy (higher aluminum content), the better the shine.

Airstreams built up to 1982 used a .032" thick aircraft-grade aluminum alloy with a very thin layer of pure aluminum electrochemically bonded to both sides. This special type of aluminum sheet is called **alclad** aluminum. The aluminum alloy underneath the cladding (2024-T3) is strong and is what gives



the trailer skin its strength. The pure aluminum cladding is soft and is what shines up so well when polished.

While some travel trailer manufacturers used alclad only until the early 1960s, Airstream used alclad panels into the 1980s. Starting in the middle of the 1982 production run, Airstream changed the type of aluminum they used on trailers to .040" non-alclad 3004-H18 aluminum. This alloy is much softer than the 2024-T3, so it needed to be thicker. However, because it is softer, it can still be polished to a very nice shine. However, without the pure aluminum cladding, it won't achieve quite the same mirror as an older trailer.

Another important change to Airstream exteriors was the application of a lacquer coating over the aluminum starting in the 1960s. The coating—called **plasticoat**—was added because the aluminum skins were oxidizing so quickly that customers were complaining. Airstream had been applying glass wax to slow down the oxidation, but it didn't last more than 6 or 7 months.

Starting as early as 1958,

Airstream dealers started offering an early version of plasticoat on a handful of trailers as a way to stop the oxidation. In 1961 it became an official option you could have applied to your trailer for an extra charge. In 1964 it became standard on all Airstream trailers.

The formula has changed several times over the years, some versions lasting longer than others. But eventually they all fail and start to flake off as the aluminum expands and contracts with the heat of the day, and the UV rays dry out the coating, making it brittle. Usually the failure starts on top, like a sunburn. It takes many many years for the sides to peel.

A previous owner of your trailer may have struggled with this problem and either had the trailer re-plasticoated, had the plasticoat stripped off completely and polished (or tried to polish) the trailer, or simply let time take its toll and watched as most or all the plasticoat disappeared.

No matter how old your trailer is, if your trailer has any plasticoat on it, the coating must be entirely removed from

areas you intend to polish. Directions for determining whether or not your trailer still has a plasticcoat and removing it are detailed later in this article.

Is Polishing For Me?

Polishing is labor-intensive. The time it takes depends on the size of the trailer, the amount of oxidation, the efficiency of your technique, and the number of breaks you need. At a minimum, expect to spend at least three full weekends on this project. Add a weekend to your timeline if you have to remove a plasticcoat. It is not uncommon for the project to take twice that much time.

The good news is that once a trailer is polished to a mirror shine, the second time takes far, far less time. That's an important thing to know since you may very well be repolishing every year to keep the shine.

Once the aluminum surface is polished, future polishing will be easier and the shine will last longer because the aluminum surface becomes smoother and is further "healed" with every polishing.

To understand the smoothing and healing process, it is important to understand that aircraft-grade aluminum polishes—like Nuvite Nushine II—do not remove oxidation with a chemical process, but rather by an abrasive process. Aircraft-grade polishes are specifically designed to be used in steps, somewhat like sandpaper. Each successive step is a finer polish. The coarser polishes are used on highly oxidized or slightly corroded surfaces. The finest polishes are used only after nearly all oxidation has been removed.

The skin of your Airstream is covered with small and microscopic scratches, pits and other imperfections. By smoothing the surface during polishing, the surface area is reduced, providing less opportunity for oxygen to bond with the aluminum to form the aluminum oxide.

In addition, oxidation left on and *in* a polished surface increases the breeding of more oxidation, causing the polish job to dull more quickly. The cleaner the surface of oxidation, the longer the polish job lasts.

So, is polishing for you? This article helps you assess the work

involved. Your ability and willingness to do the work must be weighed against the value to you. It is undeniable that the pride of ownership and resale value of a trailer are substantially increased. But since oxidation doesn't harm a trailer's skin, perhaps you will decide you can live with the unshined look.

How to Polish an Airstream

The following polishing procedures were developed from our own product field testing, polish manufacturer lab and field testing, and feedback we've gathered from our customers who have experimented with various polishing techniques and products over more than six years.

Polishing techniques continue to evolve. Although we can confidently recommend the following procedures, they are not the only way to get satisfactory results. You are encouraged to experiment if you have the time.

Tools, Equipment and Supplies

In practice, a polish's aggressiveness depends on the polishing pads or fabric and the tool being used. Therefore, you'll need two different power tools to complete all the polishing steps. To do it all, you'll need both a variable speed rotary polisher AND a Cyclo dual-head orbital polisher. There are a number of brands of rotary polishers. Look for a heavy duty 7" variable speed model capable of operating at ~1500 rpm. The DeWalt 849 is highly recommended. Do not use an orbital car polisher; it isn't aggressive enough.

Along with two power tools, you'll need the following pads and other items:

- 7" twisted-wool polishing pads (3+)
- 7" velcro backplate to hold pads
- A "spur" polishing pad cleaner
- Cyclo foam backing pads
- Cyclo cotton terry bonnets OR several yards of heavy cotton fabric (95% cotton flannel or 100% cotton t-shirt fabrics work well)
- Scaffolding or ladders for safe work on side and top of trailer
- Ladder padding to protect trailer
- Diaper cloth or other soft cotton rags
- Mineral spirits
- Appropriate grades of Nuvite polishes

Step 1: Remove parts that might be damaged during polishing

Lenses on porch, tail or marker lights should be removed. Any other plastic or painted parts that might be damaged during polishing should be protected by taping off or removing them. Remove the red WBCCI numbers and VAC decals and buy new ones to replace them.

Glass windows are safe, but plastic vent covers may become discolored or damaged. Door and window gaskets are safe from polishing, but should be protected during plasticcoat removal (if applicable).

Step 2: Clean the trailer

Oils and waxes can interfere with effective polishing. Use a soft wool car wash glove and warm soapy water (dishwashing liquid is fine in this case) to thoroughly wash your trailer. If you see any bird droppings, tar or pine sap anywhere on the trailer, take mineral spirits or more aggressive solvents and remove those deposits. With a rigid plastic or wooden tool, pick any dried loose caulk out of the seams.

When you are finished cleaning and prepping, be absolutely satisfied that the surface is clean. Any dirt, sand or grit left on the trailer when you start polishing will cause severely damaging scratches in the trailer skin. Note: do not use any cleaning product containing ammonia. Ammonia reacts with aluminum.

Step 3: Remove plasticcoat

All remnants of a plasticcoat must be removed before a trailer can be polished.

If you aren't sure whether your trailer has a plasticcoat, there are several ways to find out. First, take a look at your trailer from a distance. Does it look like it has a sunburn up top? Are there distinct splotches of darker oxidized aluminum and then the rest of the trailer is looking fairly good? If so, you have a plasticcoat and the top has failed. This is natural since the top of the trailer gets a lot more UV and heat than the rest of the shell.

One way to check conclusively to see which areas have a plasticcoat and which do not is to get a clean white cotton cloth and a tube of white (not gel)

toothpaste. Pick a few inconspicuous areas of the trailer to polish with the toothpaste, the rag and your finger. Do just a small one inch patch. Are you getting black aluminum oxide on the rag? Or is it just dirt? If you have plasticcoat in that area, you won't get any oxide because the plasticcoat is protecting the aluminum from your polishing efforts.

If you need to remove the plasticcoat, you will need to use either paint stripper or lacquer stripper. This is a process much like stripping a finish from wooden furniture **except** you should never use any abrasives on your trailer (other than the polish, itself). That means: no steel wool, no green plastic scrub pads, and of course, no sandpaper.

We recommend using an environmentally safe stripper designed for removing paint from metal. Napier Environmental's RemovAll 220 is a popular choice and works extremely well. It's safe to work with and can be hosed off when finished without killing the grass or harming the groundwater. Usually one or two gallons is enough to do the job, but test a small area first.

Before applying the stripper, on a warm day park your trailer in the shade. Brush the stripper on to one or two panels of your trailer. Follow the directions on the container, requiring it to sit for a period of time while it dissolves the plasticcoat. If you need to work it around to loosen the plasticcoat before hosing off, use the tips of a large house painting brush. They are soft and won't scratch. You can also use a plastic putty knife, spatula or scraper. You may have to reapply the stripper if some coating remains. When your entire trailer has been stripped, clean the trailer well according to the instructions in Step 2.

Step 4: Oxidation Removal

If your trailer is significantly oxidized (as all trailers are if they have not been polished in several years), begin here. For this step, you will be using Nuvite Grade F7 polish and your 7" rotary polisher with a new or clean wool compounding pad.

Place one finger across the top surface of the polish, just wetting your finger with polish (do not dip out a quantity of polish) and put a wet

"fingerprint" of about half a finger length every 3" or so over an area to be polished approximately 3 to 4 square feet. Work fairly quickly so that the polish does not dry out.

Place the wool compounding pad onto the "fingerprinted" area, and smear the polish around a little before turning on the polisher. Tilt the pad up slightly so that the pad is not laying flat as it spins, but rather so that only one side of the pad is touching the surface. The polisher should run slowly—ideally 1000 to 1500 rpm. As it spins, move the polisher over the surface at a speed of about a foot every one to two seconds. Light but firm pressure is all that is needed. (If it were a horizontal surface, you would want to use about the weight of the buffer or very slightly more.)

Lightly scratched areas may require working back and forth, then up and down, then diagonally over the scratched area several times to blend the scratches. Do not stop moving the pad and "bear down" on one area to blend the scratch. It can cause the surface to get too hot and scorch.

As you work back and forth, black residue will form over the buffing area. Continue moving the buffer back and forth, up and down, across the surface. After about 30 to 45 seconds, the black residue will begin to lighten and disappear if you have the correct amount of polish.

Continue moving over the area until the black residue is gone and the clean aluminum surface shows. Black residue may remain around the edges of your buffed area, but that will be cleared as you move to the next adjoining area to be buffed. If further work is needed to clear the cloudiness, or if scratches remain prominent, repeat the above process.

Repeat the above steps on the next adjoining area, and so on, until the entire panel, and then the whole trailer, is complete.

As you go along, the wool compounding pad will mat up. The oxide and polish will make it look shiny. When this happens, fluff the pile of the pad by "spurring" it with a buffing spur. Spurring loosens the matted fibers and lets you use the pad longer before changing to a clean pad.

At the end of the oxidation removal step, you will be left with bright aluminum and very little oxidation, but there will be very noticeable swirl marks from the pad and the relatively coarse polish being used. They will be removed in the next step.

Step 5: Polishing

After Step 4, or if your trailer has been polished within the past three or four years, you may be able to start with this step.

Using Nuvite Grade C polish and your 7" polisher with clean or new compounding pads, repeat the process described in Step 4 over the entire trailer.

After polishing the entire trailer, use a clean cotton terry towel, diaper cloth or similar fabric to hand wipe the entire trailer to remove any surface polish. Look for accumulations of residue around rivet heads and along panel lines. Mineral spirits may be used to dissolve and remove difficult deposits.

At the end of this polishing step, all visible oxidation will be gone and your trailer will be beautifully polished. You may decide that you don't want to continue to Step 6. Certainly, that is an option, but keep in mind that the more smooth the finish, the longer your polish job will last.

Alternative Steps 4 and 5:

Although somewhat more difficult, some people use a 1/2" drill with a side handle instead of the 7" rotary polisher. A backing plate adapter is available for drills.

Step 6: The Mirror Finish

For this step you will be switching to the Cyclo dual-head orbital polisher. You will be using Nuvite S polish.

There are two ways to use the Cyclo. One is to apply cotton terry bonnets to the Cyclo heads (over foam pads) and polish just like you would a car. This leaves mild swirl marks. They'll be much smaller and lighter than if you stopped with Step 5, but they will be noticeable in direct sunlight. The alternative method is more awkward, but completely eliminates the swirl

marks. With this method, you are using the Cyclo for its random, vibrating movement, and not for its spinning.

To eliminate the swirling, you will cover the heads with 95%+ sweatshirt fabric, soft 100% cotton flannel or heavy 100% cotton T-shirt fabric. Wrap a section of the fabric over the face of the foam polisher pads, being sure to leave motor vent openings unobstructed. The size of the fabric doesn't have to be exact, but a piece approximately 30" x 40" works well.

Similar to the method in Steps 4 and 5, place one finger across the top surface of the jar of polish, and put a wet fingerprint about half a finger length every 6" or so over an area to be polished approximately 3 to 4 square feet. (Note that this is less polish than used in previous steps.)

Pull the fabric tight over the face of the polisher and hold it with your hand as you grip the polisher handholds. You'll be bunching it up and even twisting it as you work to grip it all with one hand. Some people use a ratcheting plastic cable clamp to help hold it. The fabric needs to allow the heads to spin and vibrate underneath the fabric without grabbing it.

Smear the face of the polisher around the area to be polished before turning on the polisher, then turn it on and move the polisher over the area at the rate of about one foot of travel every three seconds. Use only light pressure.

Move the polisher back and forth and up and down. Work the areas around raised rivets and panel lines more, if necessary. Black residue will appear as before.

After 30 to 45 seconds, the black residue will begin to disappear as you continue buffing over the area, and the bright, mirror shine will begin to

Alternative Step 6:

If you are struggling to work with the cotton cloth wrap on the Cyclo, you don't have to do it. If you don't mind mild swirl marks, simply use cotton terry pads on the Cyclo. It's much easier, and the minor swirl marks will fade with time.

appear.

Work back over rivets and panel lines to clean the residue from these areas as well as possible.

When the area is clean of surface polish, stop the polisher. Now adjust the placement of the fabric on the Cyclo so that a clean spot of the fabric is now over the heads. Do a final buff over the whole area, continuing the cleaning and brightening of the finish and picking up any light residue caught around rivets and panel lines.

Finally, finish with a clean microfiber, flannel or diaper cloth material by hand, lightly cleaning close in around rivet heads and with folded material to get back against the edges of the panel lines. Be careful not to drag any deposited polish onto the clean, clear, polished panel image.

Step 7: Sealant

Unless you intend to pay a professional to immediately plasticcoat your trailer, you'll need to prepare yourself for reoxidation in the months and years ahead. The better your polish job, the slower the reoxidation. But no matter how well you did, your trailer will reoxidize over time.

One way to slow the reoxidation is to apply a sealant like the kinds that are used after hand washing a car. In the old days, Airstream used glass wax. Glass wax is no longer available in the formulation from decades ago. Some people still use car wax, while others use a non-wax polymer sealant made for cars or boats.

The application of any sealant is controversial. Those who oppose it say it does little to retard the reoxidation and it slightly dulls the mirror shine. The makers of Nuvite recommend not applying it because they say any sealant needs to be removed before repolishing. They also say that Nuvite S imparts a "protective chemical barrier" to inhibit oxidation.

If you do apply a sealant, you can expect it to retard reoxidation for roughly an additional six months.

Maintenance

Between polishings, keep your Airstream clean. Immediately remove any road tar, bird droppings, insects or pine sap

using a vinegar-based glass cleaner or soap designed for washing cars. As previously stated, do not use any cleaner with ammonia as an ingredient.

For stubborn stuck-on messes, use mineral spirits or other solvents. Keep in mind that solvents and detergent can strip protective waxes and polymers from the skin of your trailer.

Re-Polishing

The rate of reoxidation varies somewhat depending on how healed the aluminum is, and environmental conditions like sunlight, pollution and humidity.

Normally, you will need to repolish once each year to keep your trailer looking great. Fortunately, the annual touch-up can go fairly quickly since it may be possible to do only Steps 2 and 6. In some cases, Step 5 may be necessary.

Frequently Asked Questions

Q. What brand polish is best?

A. We're not snobs about polish. We sell aircraft-grade Nuvite products because they have been used for years on Airstreams with excellent results. Nuvite is certified safe for use on alclad aluminum by Boeing. Other high quality polishes may work well too.

Q. When is the best time to reseal seams?

A. A good time to apply Vulkem or other sealant to seams between panels and around vents and windows is between Step 4 and Step 5. If you wait until you are finished polishing, you'll make a mess of your new mirror finish.

Q. Is it possible to polish through the cladding?

A. As long as you follow the procedures described, it is virtually impossible to wear through the cladding. Aircraft manufacturers and airline maintenance crews polish aircraft dozens and even hundreds of times without wearing through.

Q. Can I sit on top of my trailer when I polish?

A. Yes, you can even stand on it. The trick is to keep your weight on the ribs. The rivet lines follow the ribs on the roof.