

# How To: Restore plastic headlamp lenses

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*Photos by the author.*

Daily driving a 1988 Volvo 244DL is more fun than it should be. Five speeds, air conditioning, lumbar support, and an engine that will run forever. Like many cars of the era, however, the Volvo has large plastic lens covers on the headlights which have long ago given up their protective factory clear coat and, as a result, have suffered from oxidation and UV damage that adds up to

a cloudy, yellowish fogging effect that not only looks weathered but reduces headlamp performance.

Just before I purchased the car, two years ago, these headlamps were restored using a store-bought “headlamp restoration” kit. These kits typically include abrasives and plastic polish and some kind of UV-protectant sealant which has a limited lifespan. The lenses initially looked great but over time reverted back to this sort of jaundiced occlusion.

In doing a bit of research I learned the following:

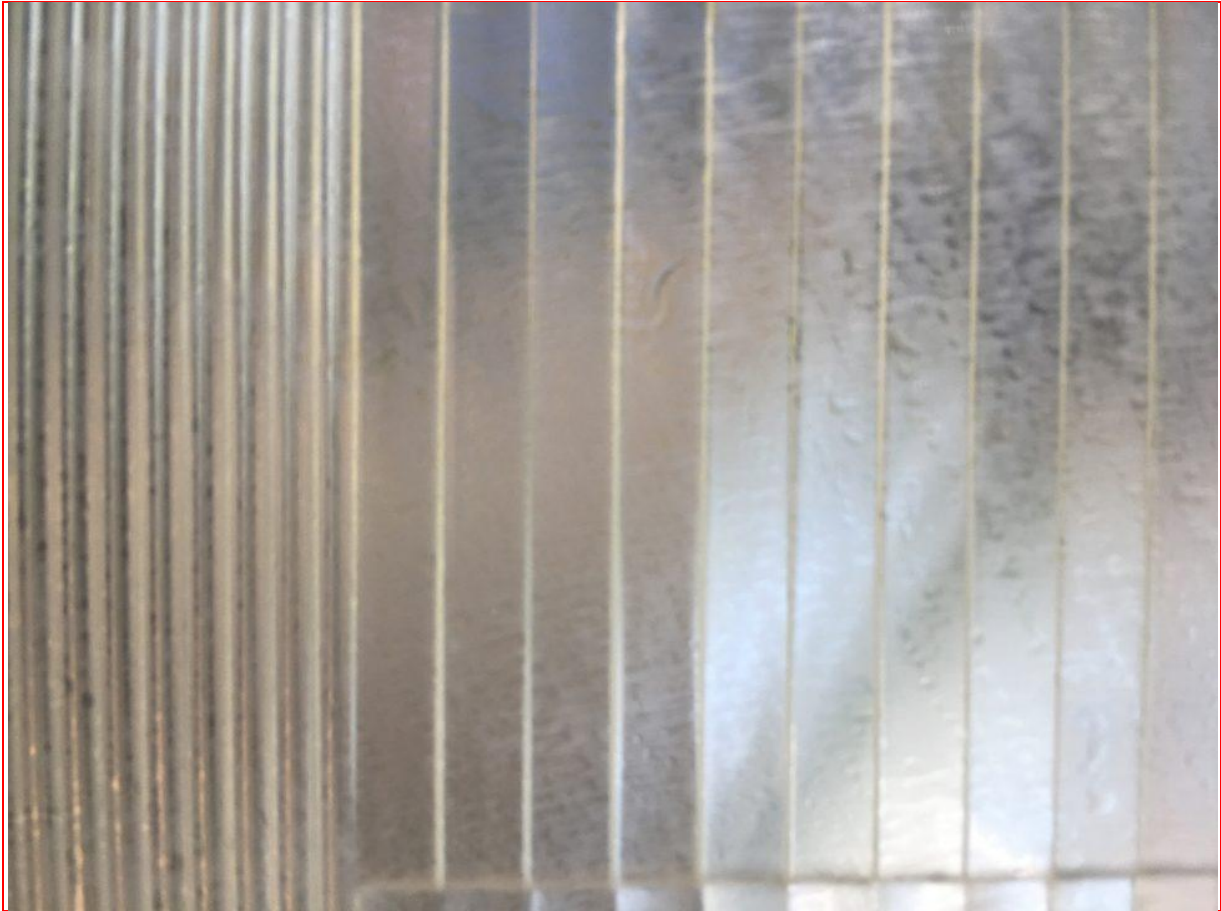
- Most plastic lenses respond well to polishing once their clear coat has failed.
- Very few sealants last longer than a couple of months before UV damage resumes.
- Frequently waxing the lenses will extend the lifespan of any sealant or clear coat.
- The best way to maintain headlamps for longer intervals is through application of UV Resistant clear coat.
- Many have found that common SPAR urethane clear coat, cut with mineral spirits, is an effective long-term DIY solution.

I picked up some SPAR urethane, gathered together sandpaper grits ranging from 800 to 2500 and went to work.



*Starting Point – oxidized and yellowed lens*

I began with an 800 grit wet/dry paper I picked up at the local hardware store. After liberally wetting down the lens I worked with a bowl of water and made side-to-side sanding strokes, constantly re-wetting the paper. Using light pressure, I let the abrasive do the work and wet-sanded the lens for about 10 minutes until it looked like I had removed all yellowed plastic from the surface.



*Here's a close up of the lens after the 800 grit. It's consistently opaque with far less yellowing.*





*From there I moved to the 1000 grit paper, moving vertically so I could tell when I had replaced the 800 grit scratches with finer scratches.*



*Now we're getting somewhere. The lens appears even cloudier now. Moving on in grit to 1500.*



*Making progress – here is a close-up of the lens surface after the 1500 grit.*





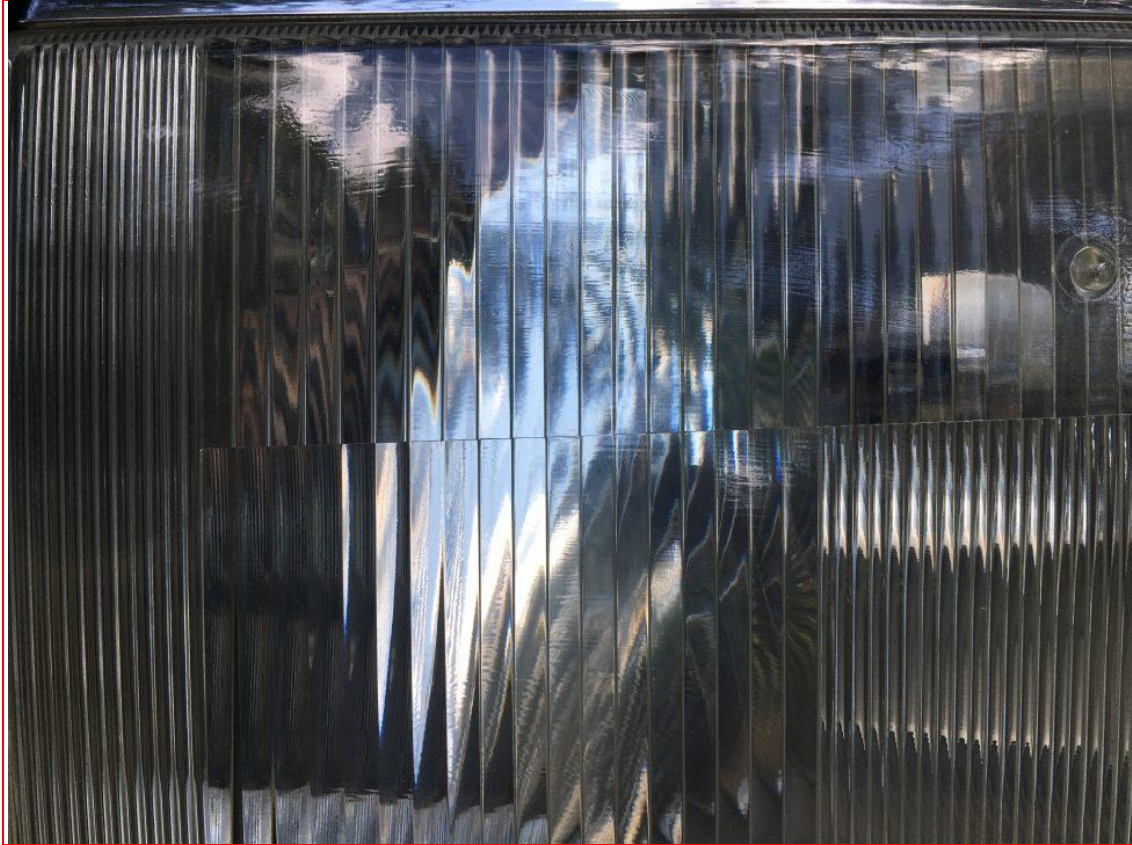
*Finally I move through 2000 grit and 2500 grit and reach a satisfying level of clarity.*

Most store-bought kits usually finish with plastic polishes to really clarify the lens. Because we're going to be applying a urethane clear coat I decided to stop here so the clear coat has something to adhere to. The urethane should fill the remaining scratches and further clarify the lens.

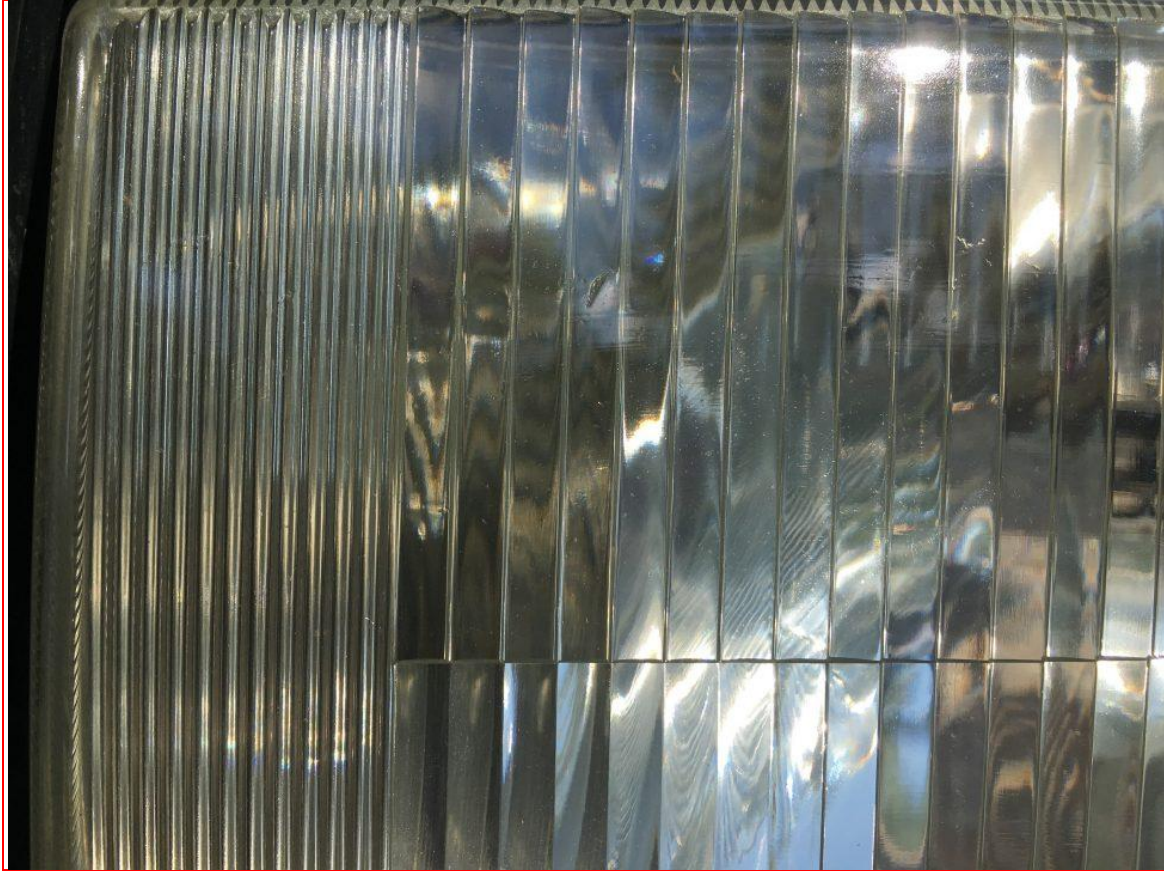
Before application I flushed the lens with water from the hose to remove surface contaminants and then wiped it down with a shop rag soaked with isopropyl alcohol for final surface prep.

Next I mixed 1/4 cup of the Helmsman SPAR Gloss polyurethane 50/50 with mineral spirits in an old glass pickle jar. Application was very straightforward – I dipped the corner of a clean shop rag in my urethane mix and then carefully wiped it on to the lens starting from the top and moving side to side. The mixture is very forgiving, flows easily, and streaks seemed to self-repair as the mixture settled.





*Here is a photo of the lens immediately after application of the urethane – slightly streaky – the surface remains workable for a minute or so as long as you apply it in shade.*



*After a few minutes it settles into a nice and uniform, glossy barrier.*

I've done a few cosmetic projects on this car. This one is the most transformative. You can see the before and after clearly in the lead photo of this article. Total time was about two hours, including drying time. The question now is how long the work will hold up. This car is parked outside in central Texas so that makes for a serious test environment. Over the next year I'll keep the lenses waxed and see how well this urethane clear coat method holds up. Look for a followup (and remind me in the comments) addition to this post with longterm results.





**Materials used:**

3M Automotive grade sand paper. Grits: 800, 1000, 1500, 2000, 2500 (\$12, combo pack)

Helmsman SPAR Gloss Urethane (1 qt. \$16)

Isopropyl alcohol, shop rags, tap water