

Cluster refurb for W123

Why you might want to do this: dim or burned out lights; yellow, faded needles; fogged or cloudy plastic lens

Tools needed: 10mm and 13 mm open end wrenches, #1 and #2 philips screwdrivers, flashlight

Materials/chemicals/supplies: Model Master Fluorescent Red paint , Model Master Clear Blue paint (or your choice really – these are what I used), electrical contact cleaner, Stabilant 22 contact enhancer (optional due to price, but I had some on hand) , Q-tips, micro-fiber cloth, paint brush, paper towels or aluminum foil, shiny foil duct sealing tape - optional (not standard 'duct' tape)

Keywords: needles, paint needles, faded needles, instrument cluster, light prism, dash lights, LED, light tunnel, instrument lights, speedo, speedometer

- 1) Remove the cluster from the dash. You need the wrenches to disconnect the oil pressure line. Be careful loosening/tightening the line. You REALLY do want to use two wrenches so you don't bust the gauge. Specific steps for removing the cluster should be documented elsewhere and are also item 54-250 in the W123 Factory Service Manual (FSM). It uses hooks on either side, or you can push it out from below. I prefer the push from below. Wear goggles to avoid dirt and lint if you're going under the dash.
- 2) DO NOT REMOVE THE CLEAR PLASTIC LENS. Disassemble the cluster. There's no need and you'll never get it glued back together correctly. This is pretty self explanatory, but the FSM has 3 sections (54-251 thru 54-258) on it. There are 9 smallish Philips screws. I used the #1 size screwdriver, but you could get by with a #2 or maybe a nutdriver. You do not need to remove the rheostat from the cluster, but you do need to remove the screw. Do not just tug on the speedo to remove it. The trip meter reset button and a section of wire across the top will cause things to bind up a bit. You need to cant or twist it a bit to get everything clear. The reset lever is the U-shaped thing in the pic and you can just see the wires in the top of the pic.



- 3) Put a cloth or a cover over the exposed instrument cluster to keep dust/dirt/blowing leaves out of the cluster until you're done. Wash your hands thoroughly to minimize the chance of a greasy thumbprint on your gauges. In the pics you can see I did not have great shop hygiene. A front came through with high winds and blew stuff everywhere. I did keep the dust out, but I should have planned ahead.
- 4) I cleaned the needles with a Q-tip and water. Alcohol or some solvent may work, but I didn't want to risk softening the plastic or bubbling the existing paint. I only wanted to remove any loose film or dust.
- 5) Put some foil or a double layer of paper between the needle and the face of the gauge. I found the screws to be a convenient size that they would create a good friction fit when slid under the speedo needle to keep it from resting on the post. I put three coats of Fluorescent Red paint on each needle. I'd call it "bright orange" but it was a pretty good match for the unfaded sections of my needles. Use thin coats, the paint covers well and it's not a drastic color change.



- 6) While the speedo was out, I gently cleaned the tenths wheel on the trip meter. Mine was so dirty you could barely read the numbers. If you gently partially depress the reset lever you can rotate the wheel so you can clean each number. I rotated to increase the numbers so I wasn't working against the gears, but I'm not sure that matters. Again, I used a Q-tip and water since I didn't want to affect the numbers. The wheel is now a yellowish white with clearly legible numbers instead of a dirty dark gray.
- 7) While the gauges are out, you should take the opportunity to inspect the circuit traces and the electrical connectors. I haven't had a problem, but I've heard of people with cracked traces or bad fittings. You can see that there's a 'hot spot' where the casing caused some friction against the traces just beneath cannon-plug connector and above the high beam light. You can see the grime on the bulbs, too.



- 8) I also wanted to improve the lights, so I cleaned the contact surface of the light socket while it was removed. I added a small drop of Stabilant contact enhancer onto the contact points for the bulbs. This is pricey stuff, but I had some on hand. I wanted to maximize the voltage at the bulbs. I also cleaned the bulb itself. You'll be surprised at how much film is on the bulb.
- 9) I thoroughly cleaned both ends of the light prisms. You can see that light is supposed to travel down the plexiglass, then curve around and radiate back onto the gauges. I used the q-tip and wiped both ends down. More dusty film came off, not huge amounts but this all adds up.
- 10) In an effort to get more light into the prism, I used small sections of the shiny silver tape in the housing. The pieces are about 1 cm square and you can see the reflectivity in the pic below. The tape is the silver square near the top in the white housing. I think the tape itself may be conductive, so I made sure that it did not extend to the edges. I'm not sure how much this will help since most of the light should hit the prism at 90 degrees to be collected into the prism, but it can't hurt. I did not put tape on the top since this appears to be some sort of flap, maybe to let heat out.



- 11) If you look at the cluster with no gauges in it, you'll be surprised at the film inside. I used a clean micro-fiber cloth to polish as much as I could reach. I used a paint stir stick to try to get into the corners, but I don't think that matters too much. When it's open and out of the dash I can see that the corners are still dirty, when it's assembled at the normal angle, you can't see the film. I would not recommend a paper towel because it can scratch the plastic. The micro-fiber worked great.
- 12) Make sure everything is clean and free of dust, and then reassemble. The trickiest part was working around the wires and the reset lever. The multi-function gauge goes first, then the speedo, then the tach/clock. Make sure the rheostat knob is properly aligned.
- 13) I also wanted to do something with my high-beam indicator. Mine is so washed out as to be darn near clear and it's obnoxiously bright, so I pulled it out from the side and added a few thin coats of blue paint. The logos are silkscreened onto the front, so I put the color on the back. Be careful wiping dust or anything off these strips since the logo is almost powder-like and will smear. Be very careful reinserting so you don't crack the film strip on reinstallation.
- 14) Rheostat rebuild is a separate task with great documentation on the peachparts site. I needed to do this when I discovered I only had dash and console lights with the rheostat set to a middle position. Dim was better than none, but I needed to clean and rebuild the rheostat a while ago. This restored my console lights, too.
- 15) Other techniques or options I read about were cleaning the white markings with bleach, but mine weren't that bad and I'm reluctant to put that harsh a chemical on the cluster. One other cool option is to install an external temp display from later models in the dead space under the speedo (see top pic). It seems to be a plug-and-play install if you can find the parts at a junkyard.