



Report Card:

2001 BMW 525i Motorsport Edition (Black)



DISCLAIMER: Use of Adobe Photoshop.

All photographs are **UNALTERED** except for the addition of a frame & watermark and an automatic contrast adjustment.

Registration plates have been masked in accordance with our client confidentiality policy.



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1.0 Enrolment:

Recently, we were engaged to undertake a 'Major Paint Correction Detail' on a 2001 BMW 525i M-Sport. The owner had recently acquired the vehicle and was disappointed with the paint finish and overall appearance of his new ride.



The remit was to focus primarily on the painted surfaces, with the owner quite happy to take care of the vehicle's interior himself. Additionally, we were requested to remove the wheels and ensure that they were thoroughly cleaned.



On delivery, the owner's concerns became immediately apparent, with harsh swirl marks clearly ruining the paint's reflectivity and clarity – especially on the bonnet.



Other panels had also been subjected to abrasive cleaning.



And the boot lid was another area that the owner was particularly disappointed with.



In addition, there was unfortunate 'kerb' damage to each of the vehicle's rims. While we do not provide 'wheel repair' services, we would endeavor to make these as presentable as possible.



2.0 Remedial Tutelage:

Before approaching the vehicle's painted panels, it's important to attend to some prerequisite tasks. Generally, we tackle particularly dirty areas, such as the vehicle's engine bay, wheels, arches and sills/shuts ahead of a traditional 'wash' process to ensure that the vehicle is cleaned in the safest possible manner. This also ensures that we don't end up rinsing dirt onto areas that have already been cleaned.

Engine Bay

The German powerplant was in pretty good shape:



With only a light dusting of dirt scattered throughout the engine bay:



As a precaution, the exposed electrical connections were covered...



...and the engine was rinsed clean at low pressure with a mild cleanser.



Wheels & Arches

As previously mentioned, this was to be a 'Wheels Off' detail.



Meguiars Super Degreaser was applied to the wheel arches and they were scrubbed clean with a stiff bristled brush.



The rear wheels came off looking reasonably grubby. The cleansing process for these was to scrub the tyre walls with “Meguiars Super Degreaser”, and to clean the wheel rim with “Menzerna 7.5 Wheel Gel”. Once clean, the rims are treated with a “Tar & Glue Remover” to clear all residue from old ‘wheel weights’ and stubborn tar spots.



The rims are then treated to a coat of “Poorboy’s Wheel Sealant”, leaving them looking fantastic.



The front rims were showing significantly greater etching and staining, possibly due to a more aggressive brake pad being employed...



...a thorough scrubbing with the Menzerna Wheel Gel still left this behind:



Stepping up the 'aggressiveness' of the cleaning process, we turned to "Meguiar's Wheel Brightener", with the following results.



And, of course, finished off with a coat of "Poorboy's Wheel Sealant"!



Foam Bath

Prior to any polishing, or paint correction of any kind, it is imperative that the paint surface is impeccably clean. To achieve this in the most 'gentle' way possible, the vehicle is first covered in a thick blanket of foam. This is achieved with "Meguiar's Hyperwash", applied to the vehicle via an "Autobrite UK Foam Lance".



And left to dwell for 5 minutes before being rinsed off.



Hand Wash

With as much dirt as possible removed from the vehicle without direct contact, it was time to complete the wash process with a hand wash via a Lambswool Mitt and Meguiars Shampoo Plus.



A lambswool (or microfibre) mitt should always be used for ‘contact’ washing of a vehicle’s painted surfaces. Particles of grit and dirt on the paint are the **primary** cause of swirls on modern vehicles with ‘clear coat’ paint. Regular sponges cause the grit to be trapped against the surface of the paint and dragged across it. (Even worse still are the brushes at self-service or automatic carwashes.) The plush mitt however will draw the dirt away from the paint surface, deep into the fibers of the wool, thus preventing it from inflicting further damage.

Also notice the separate buckets for ‘wash’ and ‘rinse’ action. This is the safest and most effective way to clean a vehicle’s paint. The Mitt is soaked in the 60° C Shampoo Plus solution which has a “*Low-Suds / High-Lubricity*” formula and then worked over the vehicle. After each panel, the Mitt is cleaned off in the ‘rinse’ bucket, dislodging any dirt picked up off the car, before being re-soaked in the shampoo.





Would you consider wiping your car with anything soaked in the left bucket?



Clay Treatment

The final step in ensuring a perfectly clean paint surface is the removal of bonded contaminants with a detailing clay bar. This can include tar spots, tree sap or industrial fallout, all of which contribute to making the paint surface rough to the touch and dull to look at. In this instance, a Meguiars 'Mild Professional Detailing Clay' bar was used with Meguiars Last Touch (diluted 1:1) as lubrication.



Very little contamination was removed from the vehicle, with the following picture being representative of the amount of bonded material on each panel.

Even small amounts of contamination can dramatically reduce the effectiveness of any subsequent polishing. If not removed, the material will be drawn into the polishing pad, and potentially instill scratches to the paint surface throughout the machining process - so it is well worth taking the time to ensure that the paint is perfectly clean and smooth prior to any form of correction.





The vehicle was then given a final rinse with the pressure washer and then dried off with a “Sonus Der Wonder Microfibre Drying Towel”.

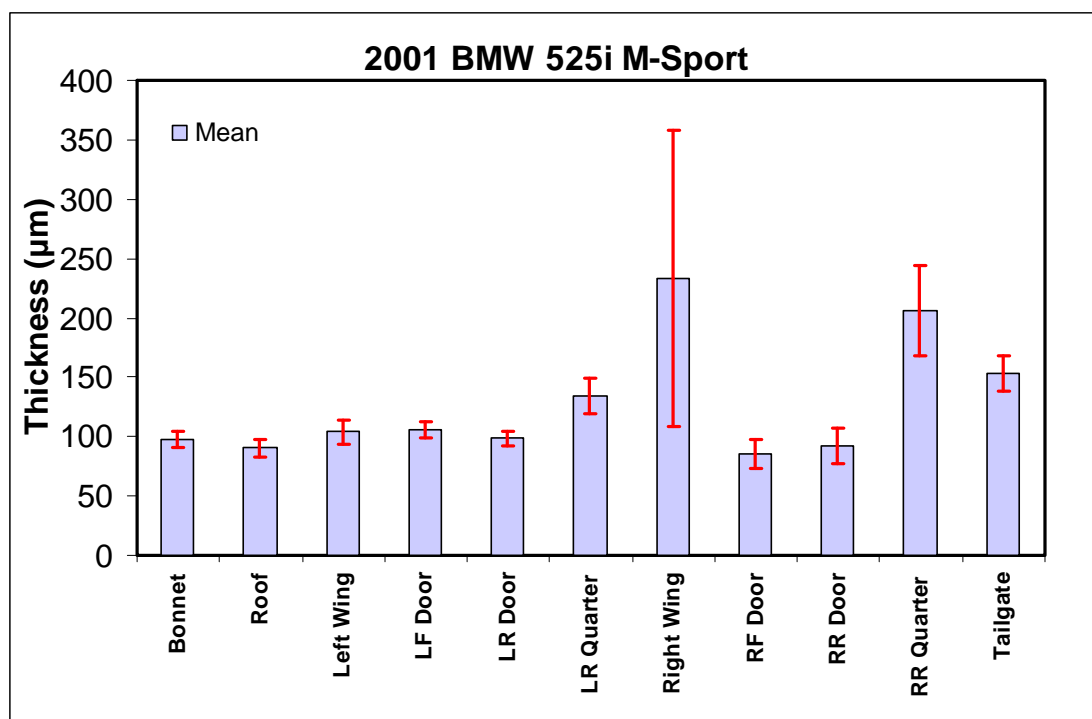


3.0 Initial Assessment:

From the outset, it was evident that significant paint correction would be required for this vehicle, with swirl marks and random deeper scratches present on many of the painted surfaces. As the correction process essentially involves ‘removing’ a microscopic layer of the top coat of the paint, a thorough examination of each panel is necessary, paying particular attention to the thickness of the paint present.

The “PosiTest DFT Combo” gauge from DeFelsko is an invaluable tool for this purpose. It will quickly and accurately (to the nearest micron (μm) which is 1/1000th of a millimeter) measure the thickness of a coating on any ferrous (eg. steel) or non-ferrous (eg. aluminium) surface.

Having knowledge of the relative thickness of the paint is a fundamentally important factor when undertaking any form of paint correction. Both in terms of understanding the amount of ‘working material’ that you have to begin with, and throughout the correction process to gauge the effect that different polishes have on the vehicle’s paint and ensure that only ‘safe’ amounts of the top layer of clear coat are removed.



Each panel was carefully assessed to highlight any localised ‘thick’ or ‘thin’ areas that might represent previous touch-up work, or aggressive cutting in a localised area.

This vehicle had healthy paint readings across the board – with evidence of touch-up work having performed on the right front & right rear corners.

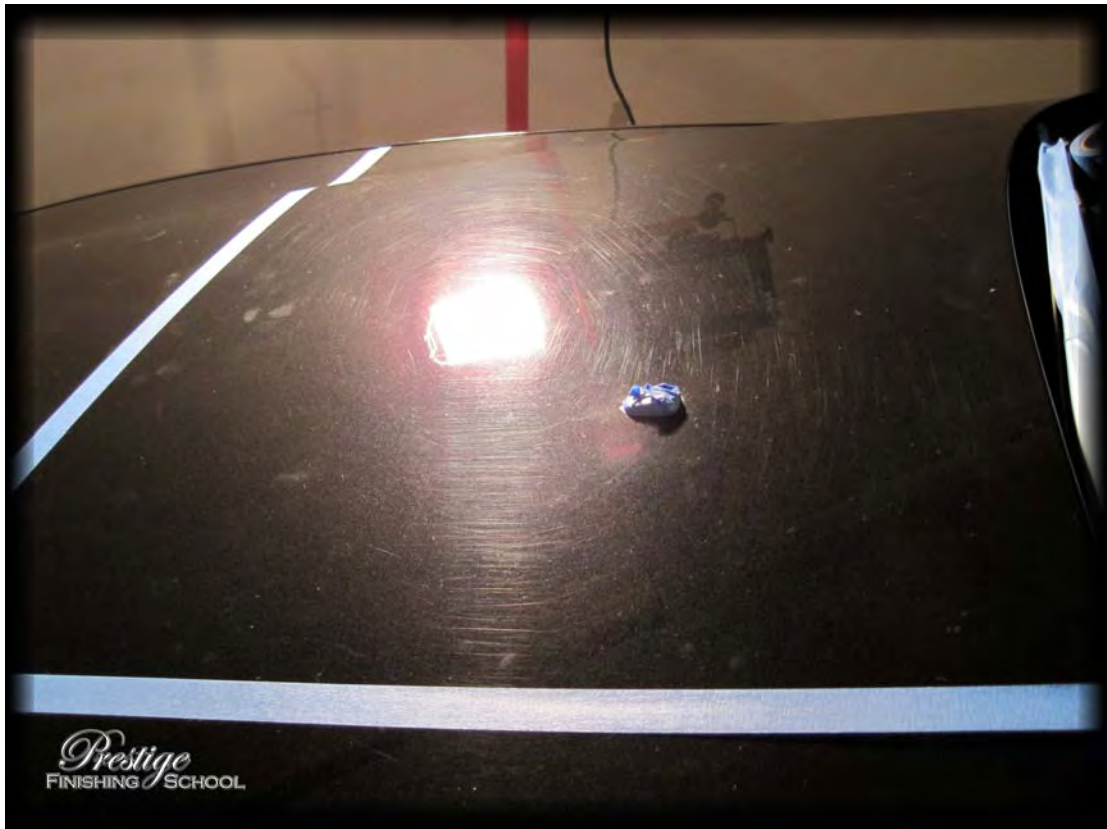


4.0 Course of Correction

This section details the paint correction process for each panel.

Bonnet

To begin, we need to establish the correct polishing compound, pad and technique combination required to achieve the desired level of correction for this vehicle's paint. It is important in all cases to approach this exercise from the 'least aggressive' option, and step up the cutting level, machine speed, and pad type as required. This ensures that the paint defects are corrected with the smallest possible amount of paint being removed from the vehicle.

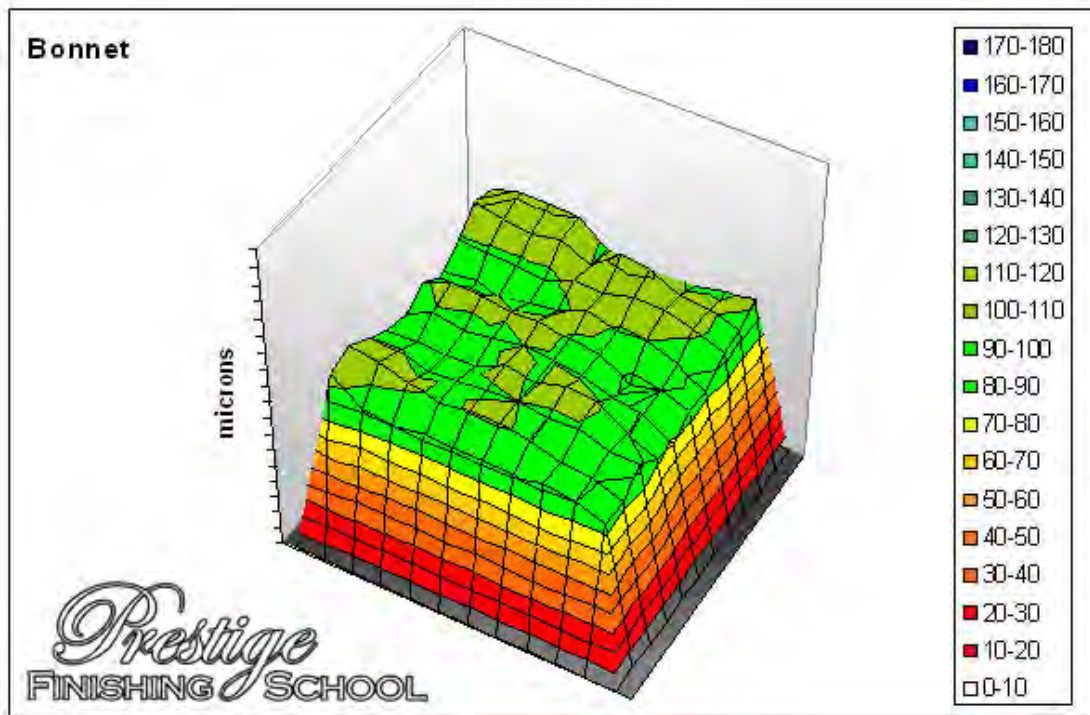


This was the condition of our 'test' area prior to starting. Paint thickness (as illustrated in the following diagram) was consistent across the panel, and averaged a fraction under 100 μm in total thickness.

BMW paint has a reputation for being "rock hard" and this specimen turned out to be no exception! We quickly graduated from finishing polishes to Menzerna 106FA on a 3M polishing pad which has a bit more 'cut', but this wasn't touching the defects. Eventually we settled on Menzerna "Power Finish" PO85 RD 3.02 on a 3M compounding pad.

PO 85 RD 3.02 was initially developed for removing more severe paint defects and 2000 grit sanding marks from the cerami-coat finish of modern Mercedes paints. It is now being widely used on regular clearcoat finishes and is particularly effective on the harder clear coat finishes found on VAG and BMW paints.





This is the level of correction after a single pass of the RD3.02. Much improved, but some deeper scratches are still evident in the paint.



When employing aggressive polishing compounds, it is vitally important to keep a close eye on the amount of paint being removed. Amazingly, this combination was only just starting to touch the paint!

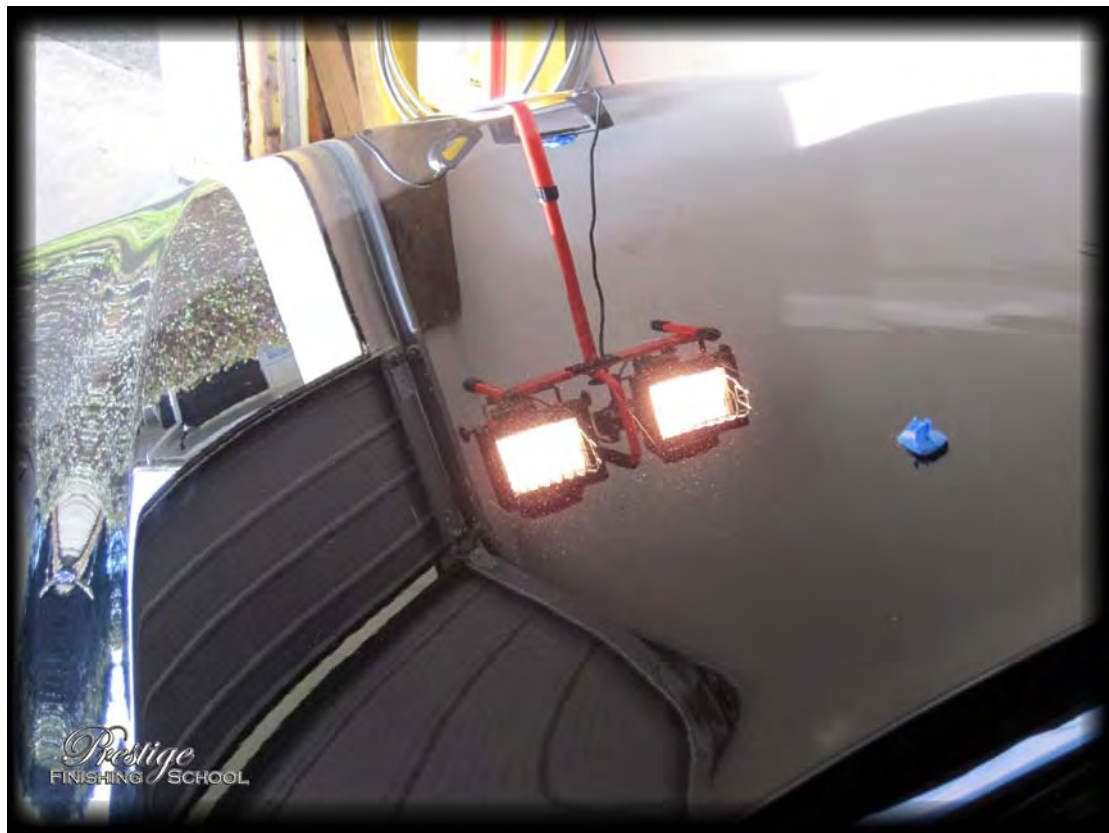


Reassured, we settled on a course of two 'hits' of the compound, followed by a refining stage with Menzerna 85RD which gives a difference that looks like this:



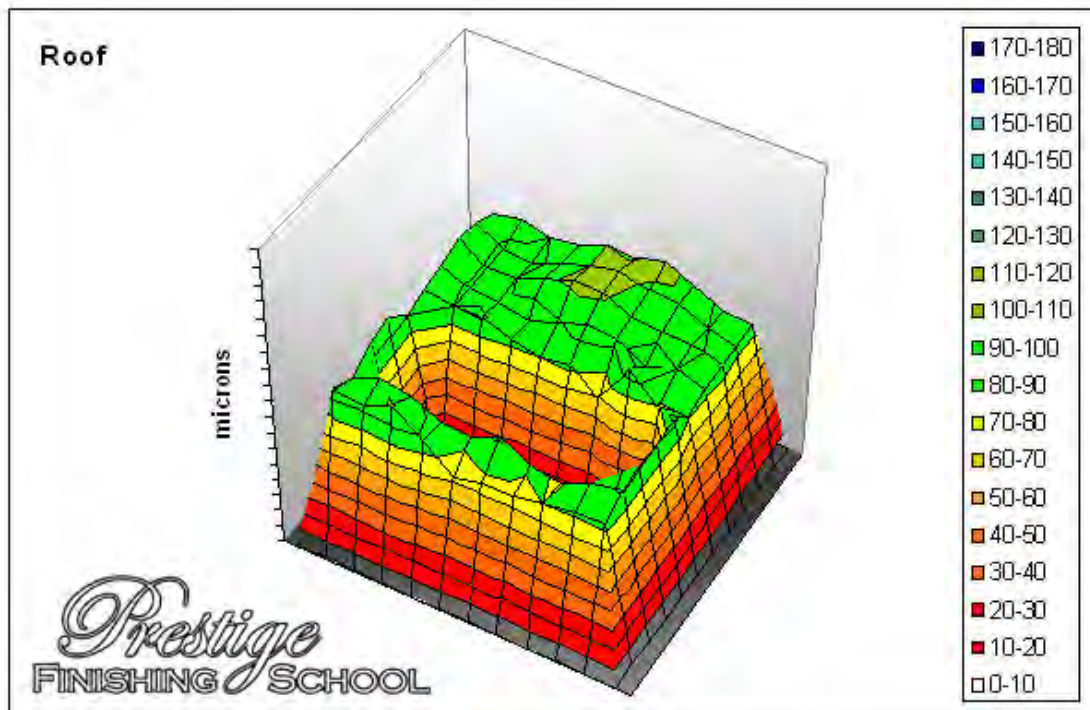
The process is then repeated in sections across the entire panel with the end result showing an enormous improvement in gloss, clarity and reflectivity.

(Please excuse the light smattering of polishing dust in this photo)



Roof

The roof was also showing significant marring with some reasonably deep scratches as well.



(The gap in the middle of the thickness graph is due to the glass sunroof)



This picture illustrates the 'haze' left by aggressive compounds. This is an example of the 'micro-marring' that requires a follow-up with a refining or finishing polish.



The end result is a 'crystal clear' finish, showing incredibly sharp detail.

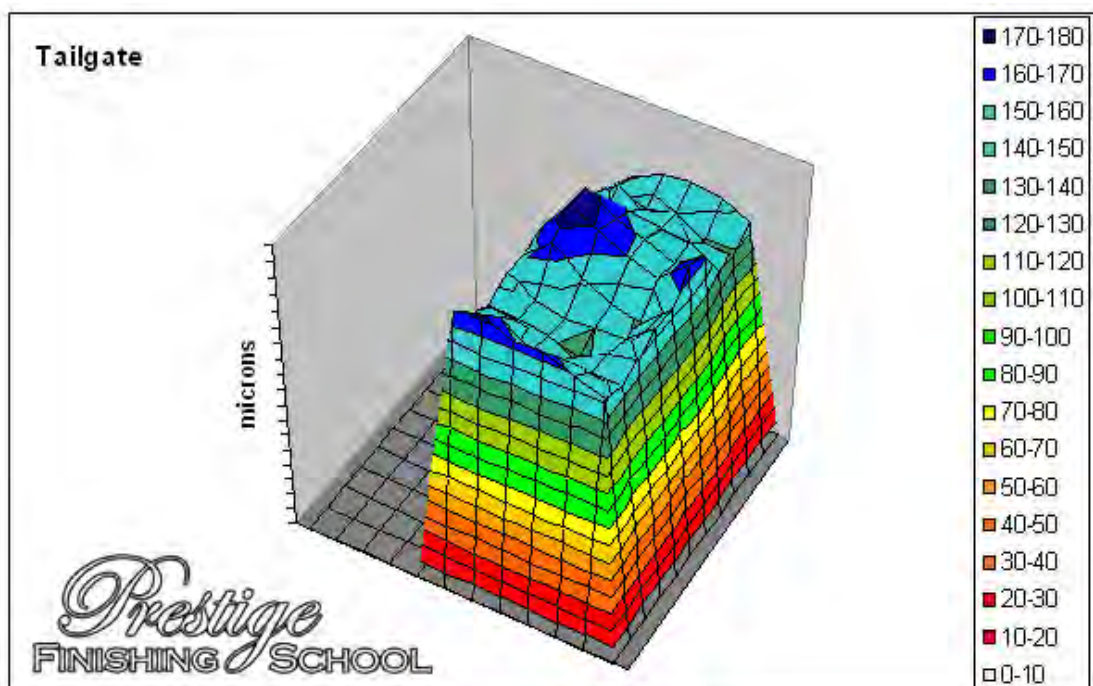


Boot

This panel was another area of particular concern for the owner. Understandably so!



Paint thickness here was a little on the 'high' side, possibly indicating a re-sprayed panel. As such, we started from scratch, working our way up the scale of polishes, just in case this paint was significantly 'softer' than the extremely hard factory finish.



It eventuated that this was factory paint after all, but it is always better to err on the side of caution. (At least, in our opinion.)



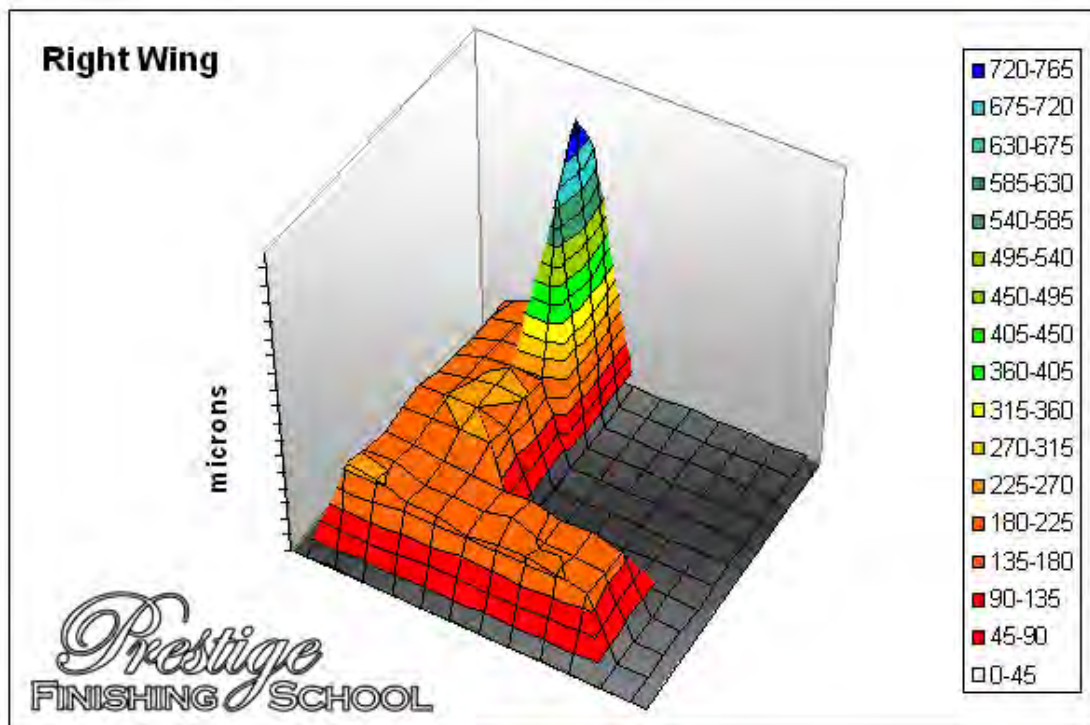
The above is another dramatic illustration of just how badly swirl marks can affect the overall appearance of a vehicle. (And the magnitude of the correction that can be achieved.)

We'll save the picture of the finished panel for the final showing!



Right Front Wing

This panel had certainly been re-sprayed. Note carefully the 'scale' of the surface measurements in the diagram below and you'll see that it is roughly double that of the other panels so far. Of greater concern is the marked variance in the paint thickness across the panel.



We proceeded with caution... The panel finished perfectly.

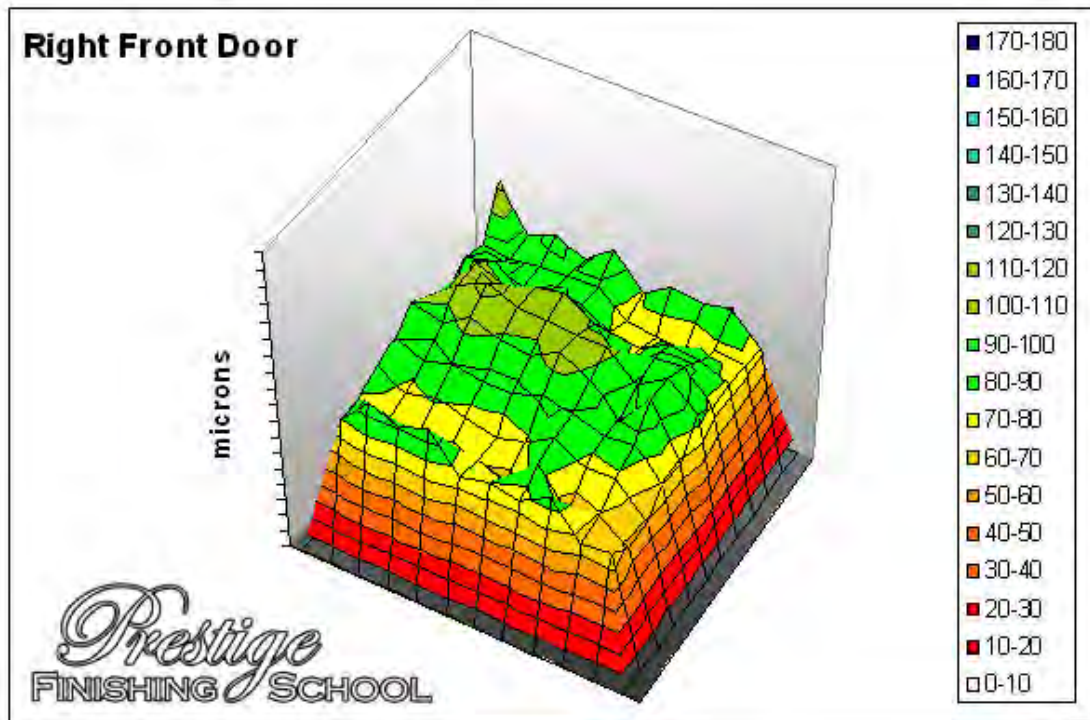


Prestige
FINISHING SCHOOL



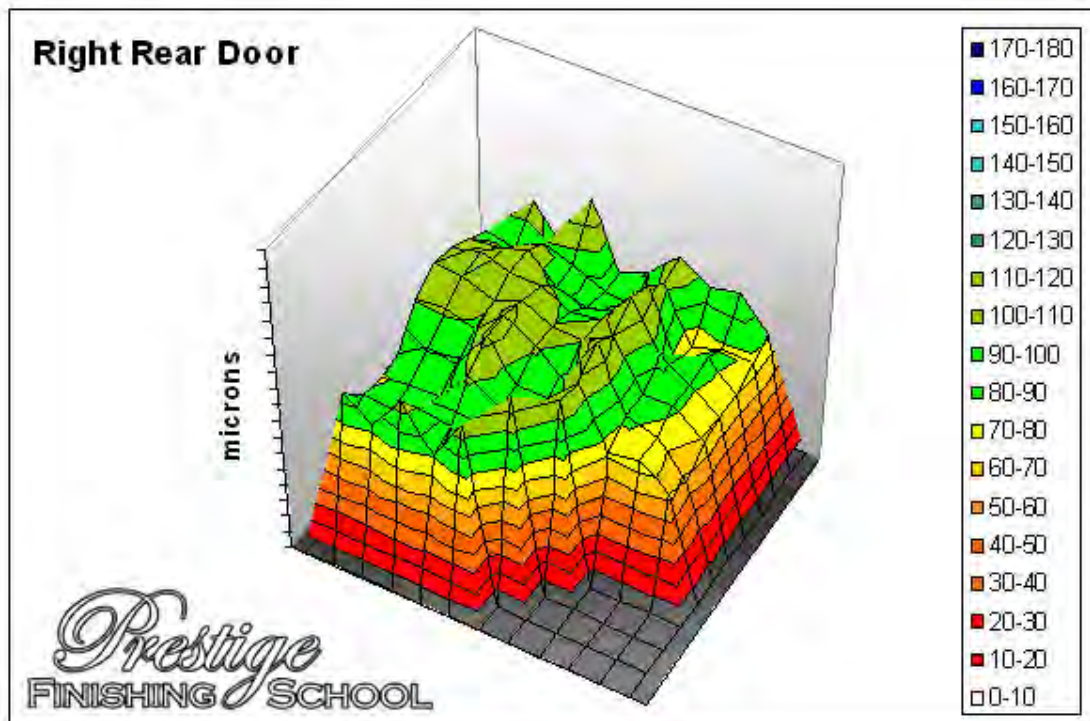
Right Front Door

The only small area of concern with the driver's door was a 'touched-up' spot on the panel's crease. Otherwise, minor swirl marks were the order of the day.





Right Rear Door



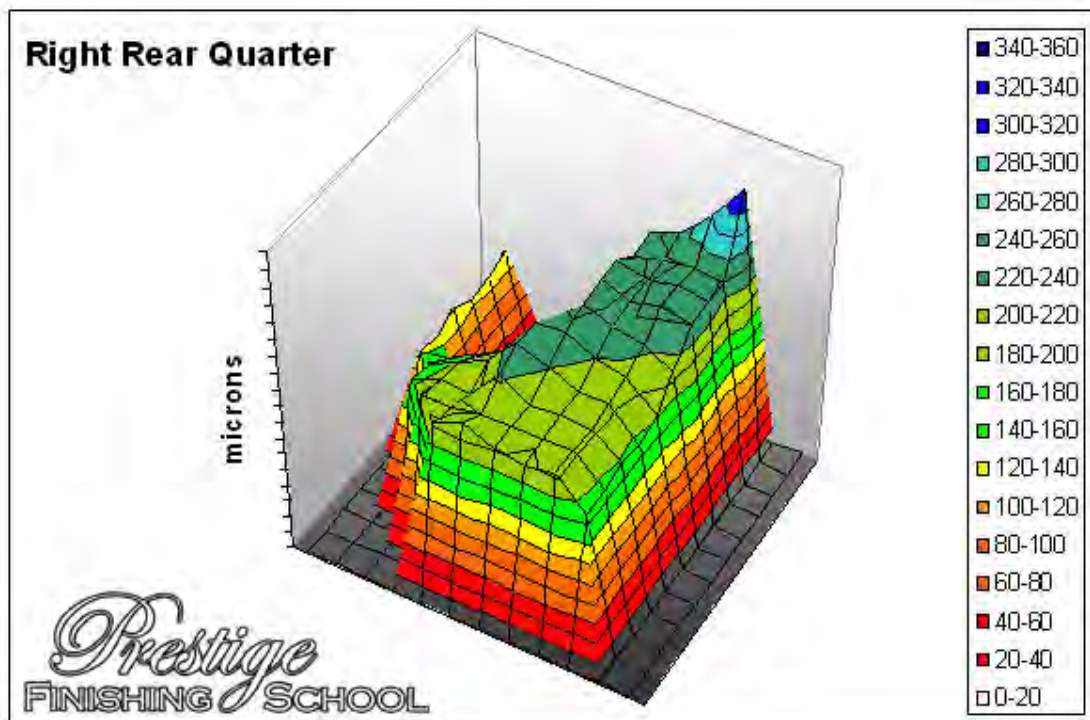


50:50 comparison photos such as the above are the most 'honest' way to demonstrate the improvement in a vehicle's appearance. While they lack the aesthetic appeal of a 'finished vehicle' shot, they reveal the difference under controlled and (most importantly) consistent lighting. Creative use of light in photography can be used to mask many failings, but showing treated and untreated sections in the same photo removes all possible doubt. For this reason, we try to include as many of these pictures as time permits.



Right Rear Quarter

This section had also received some attention in a spray booth. The paint finish was again roughly double, but it seemed to be a quality job, with the new paint blended nicely on the "C Pillar". Close up shots here show how the 'sparkle' of the pearl in the paint is diminished by paint defects.

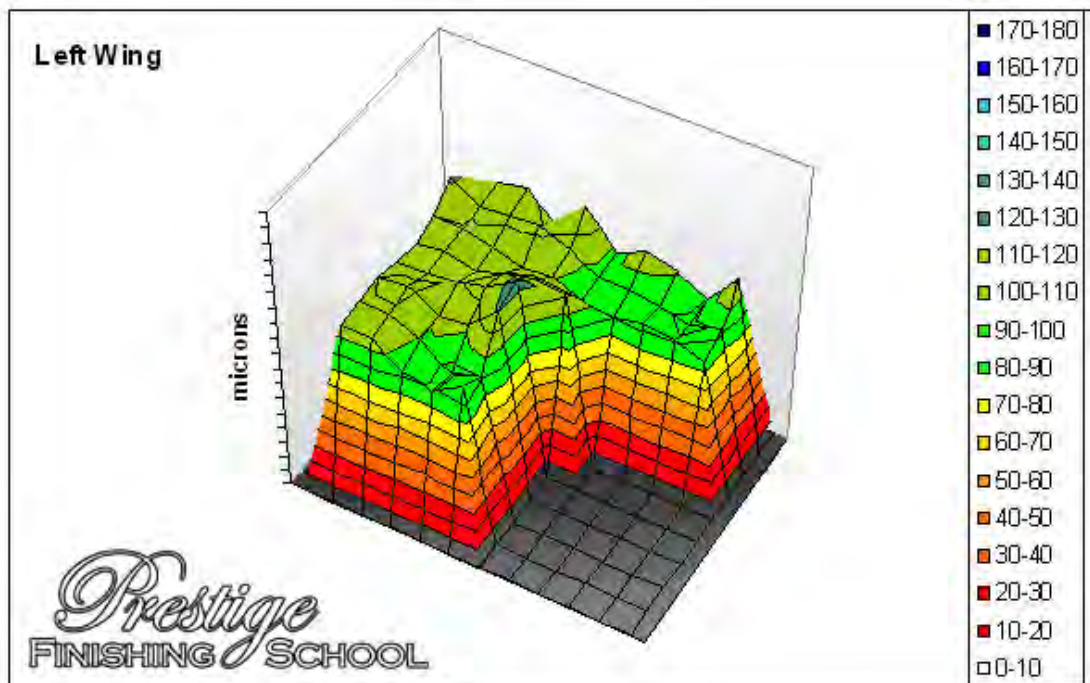


And a post-correction shot. The metallic flake in the paint really comes alive.

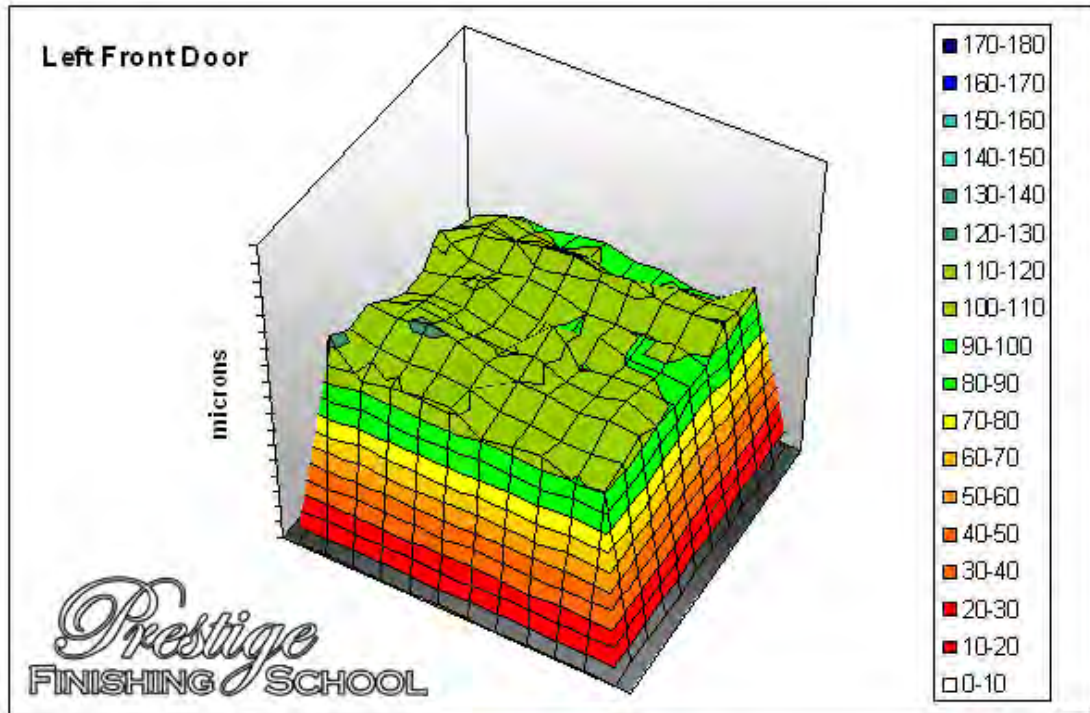


Left Front Wing

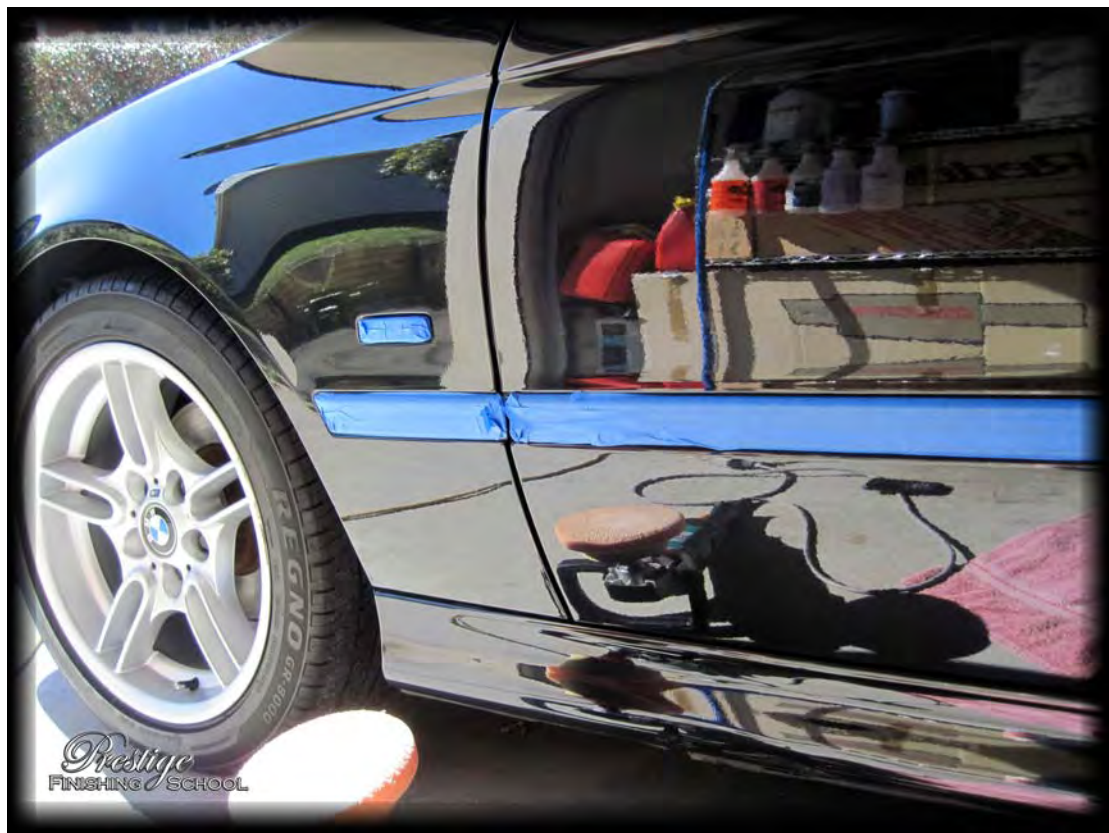
The passenger's side of the vehicle was consistent, hard, uniform factory paint.



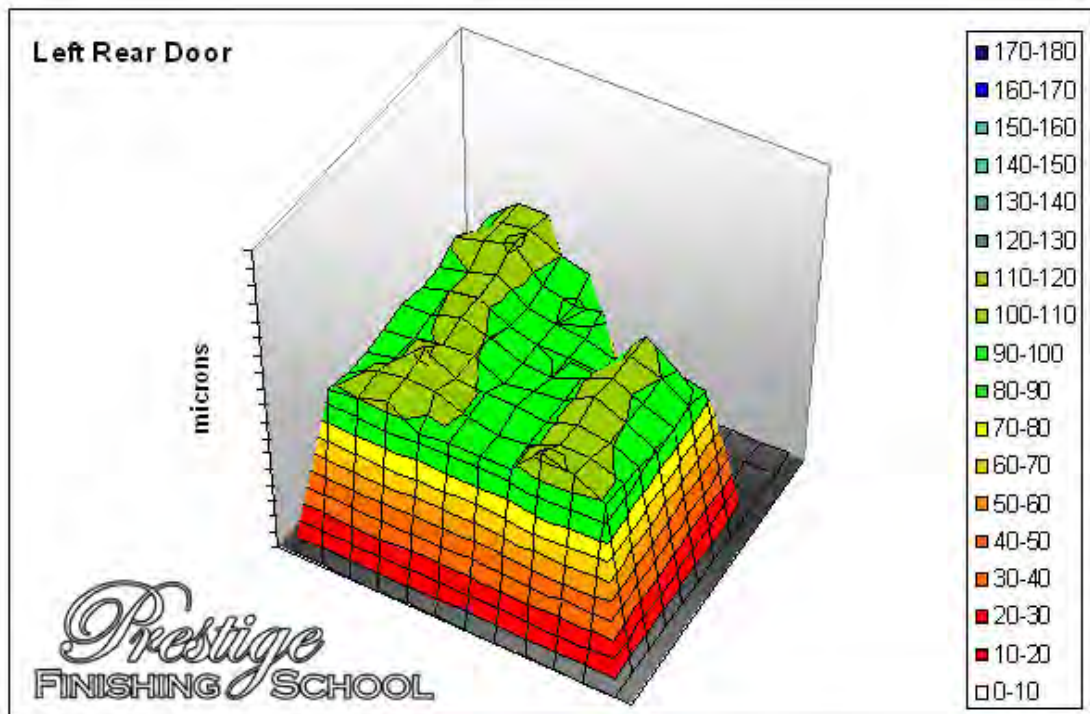
Left Front Door



A few hours on these panels revealed a perfect finish.

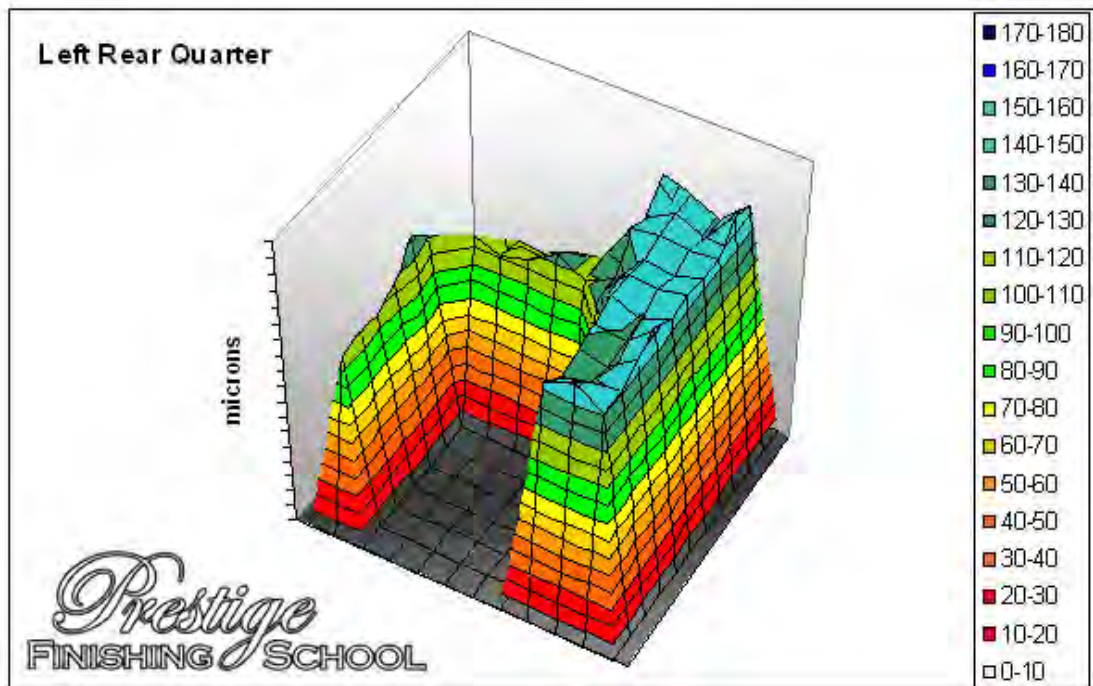


Left Rear Door





Left Rear Quarter



Bumpers

As they are formed from ABS plastic, the front and rear bumpers do not register thickness measurements on the PosiTest gauge. In addition to working 'blind', the plastic panels are much less efficient at dispersing heat generated by the friction of the polishing process than their metal (or alloy) counterparts. For these reasons (in addition to the intricate shapes, vents, etc.) a smaller 3" pad was used with a soft 2.5" backing plate attached to the rotary polisher.



5.0 Finishing

Unfortunately, we ran out of time to capture any photos of the finishing process. The final steps in preparing this vehicle were as follows:

- Paint work was protected with Meguiars NXT TechWax. Applied with a foam applicator and buffed off with a plush microfiber buffing cloth.
- Glass was cleaned with Meguiars Glass Cleaner Concentrate
- Arches and plastic trim pieces were dressed with Meguiars All Season Dressing.
- Tyres were dressed with Blackfire Long-Lasting Tyre Gel.

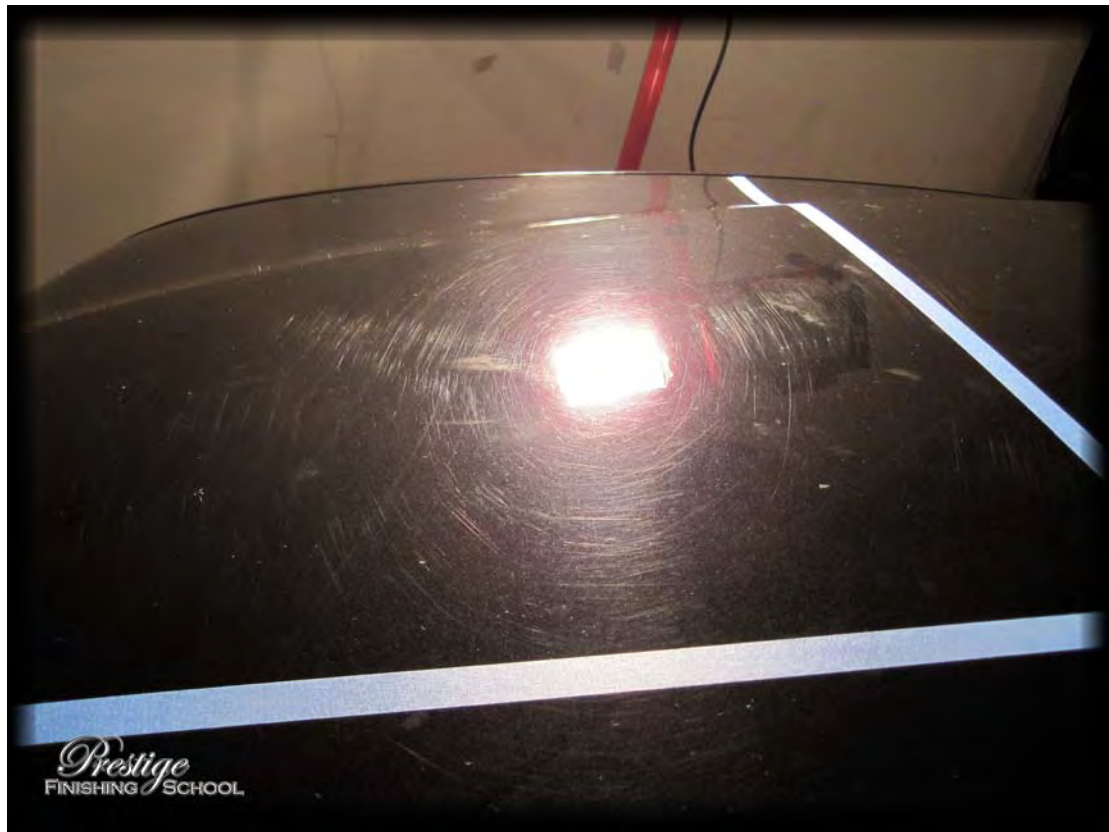


6.0 Final Showing

With all the details taken care of, it's time to show off... remember that boot lid?



...and of course, the bonnet.



Both panels now absolutely gleaming.





It often takes a second glance to properly appreciate this shot. Initially, you might be mistaken in thinking that the vehicle's shadow can be seen on the wall behind it... In fact, shadows are falling right-to-left. The perfection of the paint is actually causing a chameleon effect, with the wall being reflected so clearly on the painted surface that the rear quarter panel of the car becomes nearly invisible.



The combination of severe defects and typically hard BMW paint contributed to this detail running into nearly 24 hours work. The end result, as always, was deeply satisfying, and we are proud to present the most recent graduate from Prestige Finishing School!

