

Hi Tom, a professional detailer posted the message below on a Miata Facebook page. It might be a helpful read for our members or maybe a permanent doc. To post on the website.

Ok guys, i'll start off with some numbers. As we all know, layers of paint are always very thin. So thin in fact that for automotive paint they're measured in what's known as "mil's". For this, I'll use industry standard measurements, since this will be quite similar to what our Miatas have on them anyway (considering its still factory paint). So, what is a mil? Easily put, it is one thousandth of an inch, or .001". On average, most primers are laid to a 1-1.5mil thickness. Sanded down in order to prep the surface and give the paint something to stick to. Then the color for the car is added, and is also sprayed to 1-1.5mil thickness. Then after that, clear coat is added. Clear coats are sprayed to 1.5-2mil thickness. The best reference i can think to give you is; 1 (one) sheet of copy paper (not notebook paper, but the heavier stuff you use strictly for a copier) measures out to 3.5mil's in thickness. So, a cars paint covering is no thicker than one sheet of copy paper.

\*Please note, solid colors (red, white, black, etc) on NA and NB1 Miatas are painted in what's known as 'single stage' paint. This is where the color and clear coat are mixed together and sprayed onto the car at the same time. Metallic colors (Silverstone, Merlot, Mahogany, Twilight Blue, etc) are sprayed in base/clear. This is where the base coat (color) is laid on, and then clear coat laid on top of that. Not to worry for us solid color, single stage Miatas, single stage standard thickness is 3.5-4 mils.

-----Preparation-----

First and foremost let me say that clean paint starts with clean application. This means, whatever it is you use to physically hand wash your car, you must make sure it is completely free of any dust/dirt particles that have been picked up from the last time you washed your car. Even if it seems it is clean, I can assure you it is not. The best thing to use for cleaning out your sponge/mitt/towel is dish washing soap. Dish Soaps contain mass quantities of harsh detergents that are always highly concentrated. These will aid in the cleansing of any contaminants that remain in your washing tool.

When it's bath time for your car, you always want to make sure you wash it in the shade, and the exterior is cool to the touch. If you wash it while in the sun, or still hot from being in the sun, you're working against yourself, because of the heat radiating off the surface of the car will incredibly speed up the drying time of the soapy water that is being used. If this happens, it will leave behind water spots (water that was flash dried onto the surface, rather than spread thin and evaporated) and will show on your cars paint as a weird out-of-shape white spot that is stuck to the paints surface. Once your car is cool and ready to be cleaned, I'm a firm believer in flooding the paint surface. This is where, instead of using high amounts of pressure to blast water onto the car, you take off the nozzle or spray head that may be on the end of the hose, and let the water just gush out onto and across the paint. Unless you've been baja'ing with your Miata, generally speaking, flooding the paint will be more than enough to prep the surface. It is believed that high pressure, when coming into contact with any loose surface contaminants, will speed said loose contaminants across the paint, causing light scratching while doing so. This can be argued extensively, you are the best judge of what's on your car and can decide which method you prefer. I understand the struggle of living in an apartment or the like and not having access to a hose and are forced to wash your car at the local DIY car wash station.

Those who can wash by hand, I would highly recommend a 2 bucket method. This is where one bucket gets nothing but clean water and the other bucket is used for your soapy water. After initially rinsing the car off, you'll want to wash your car in "sections". Such as starting at the top, wash one side of the top and half of the back glass or windshield (whichever direction you prefer lol) once suds'd up good and you feel the surface is cleaned, dunk your washing tool into the CLEAN WATER ONLY bucket and massage all of the spent soap out. What you're doing here is letting any dirt or debris you picked up off the paint be rinsed off and settle to the bottom of this bucket. Once you've squeezed out all of the old soap, dunk your washing tool into the soapy water and get it engorged and ready to do another section. Personally how I do it is, starting at the top, one half of the windshield, dunk, one half of the hood, dunk, front bumper cover, dunk. Other half of hood, dunk. Etc...essentially working in a spiraling downward motion.

-----Soaps-----

The old rule of thumb is to wash your car with dish soap, or the cheapest possible soap you can find at your local auto parts store. STOP IT! Dish soaps primarily contain harsh detergents, as well as strong degreaser

additives. This would be about the equivalency of washing yourself with acid and steel wool. IT HURTS! Not only do the strong detergents and degreasers eat away at any protective coating that you may have put on the car, but it also eats away at the paint/clear coat, it can and will cause the paint to prematurely oxidize.

What you want to be using is a conditioning soap, or wash n wax. It's quite self explanatory of what these do, but like I said previously, clean paint starts with clean application. Just because maybe a wash n wax soap doesn't suds as much as a cheaper soap does, does not mean it is working any less! Washing your car with a wash n wax soap does in fact leave behind a microscopic layer of wax, but that alone isn't necessarily enough protection for these types of cars that get driven every day, in most cases anyway. But using a better soap does have better benefits as well, not only do they NOT strip the paint of any protection, they leave behind wax, and a polymer film too. Using these types of soaps will actually aid your car in becoming less dirty so quickly.

#### -----Clay Bar-----

Chances are most of you (not making fun!) don't realize how dirty your cars paint really is. After you get done washing and drying your car thoroughly, you'll want to inspect the paint even closer. The best way to do this is to use a plastic bag! Yes, I'm serious. Go get a plastic sandwich bag, and slip it over your hand. The thin film of plastic over your fingers will actually intensify your sense of touch. This way you'll be able to feel any surface contaminants that you may not have seen or felt when washing the car. If you don't want to use a bag, lol, a rubber glove will work just the same. If your hand glides smoothly across the surface, then you have a nice clean paint surface to work with! If the bag seems to drag across the paint, or actually gets stuck, then you need to clay bar your paint before proceeding with any other products!

Clay barring is nothing more than the name, clay. But it isn't your typical modelling clay. It's a special formulated resin clay that has extreme elasticity that lets it stay durable to the rolling/kneading/prying that you'll be doing with the clay when using it on your car.

What a clay bar does is it's used in conjunction with a spray wax that comes in a kit you can buy. The spray wax is nothing more than a lubricant for the clay. The clay simply glides along the surface, catching any surface contaminants along the way. Most common surface problems are tree sap, microscopic metal particles, brake dust, and industrial fallout (aka acid rain). The only true, non-abrasive way to remove these contaminants are to use a clay bar.

Once a clay bar is used and you've gotten the surface as clean as you possibly can, now you're ready to start cleaning the paints surface. That is, if your paint isn't oxidized...

#### -----Oxidation-----

What is oxidation? Technically speaking, it is when the air molecules around the paint being to remove electrons from the paint resin. Simply put, it is when the paint has been neglected too long and the suns UV rays have penetrated the pigmentation of the paint. It essentially is being sun baked. The pigments begin to fade, the color starts to look matte, or flat in appearance, and if not dealt with, begins to disintegrating. This is when it shows up as chalky, and rough.

Instead of making another headline for this, i'll just continue it in with the oxidation chapter.

What most people will advise you to do is to go get a rubbing compound and use that on your paint in order to remove any oxidation or discoloring. Sure! If you hate your paint. I say that because most rubbing compounds have too strong of abrasive cutting techniques. While it will remove the old dry paint, it is the most caveman approach. What you actually want to do is use the least aggressive method to correct any imperfections in your paint.

Instead, i would suggest using a product that has whats known as "feeder oils" in it. What i personally use is Meguiars Show Car Glaze #7. This product is so rich in oils that if you were to put a drop on a piece of paper, within minutes you'd notice a wet looking ring around where the product is. This is the feeder oils seeping out via capillary action. These oils are rich in glossifiers, and the idea behind the feeder oils is to have the same capillary action work on your cars paint. Literally engorging the paint pigments back to life.

#### -----Paint Correction-----

This is going to explain how to properly take out any swirling or light to light-medium scratches.

For this, i'd like to start with some numbers. Remember in the beginning where i said about paint thickness? Well now since you're fixing and correcting the paint, you're cutting away at the surface of the paint.

When using the least aggressive method for correcting your paint, you're usually taking off about 2-3 microns of paint. Now remember, paint is measured in mil's. Microns are much more microscopic than a mil. There are approximately 25,500 microns in ONE mil. So removing 2-3 microns really isn't all that bad once put into perspective.

If you've been following me, and your paint is clean and saturated, the rest of the correction wont be that bad. Most swirl marks, scratches, paint trades, etc. can be fixed using simple products found at your local auto parts store or walmart. Most of you have probably noticed i'm a Meguiars junky. So what i'd recommend is finding whats known as M105 Mirror Glaze Ultra-Cut Compound. For the average consumer who will be using these products by hand, M105 is considered to be one step above in abrasiveness to Meguiars Ultimate Compound. While UC (Ultimate Compound) is amazing stuff, it doesnt have quite the strength to cut out swirling and scratching. Unless of course you make 2 or 3 passes over your car with it. But after hand applying compounds is quite tiresome, in fact, if you aren't breathing hard and having to switch arms after about the first ~5 sections of a panel on your car, you aren't working the product in hard enough. Not to be rude, but you're just wasting your time at that point.

When using any correction products, if you're doing it by hand, it is essential that you use the absolute softest, preferably thickest nap microfiber towel or applicator pad you can buy. I say this because remember, you're cutting away paint. And this paint is being drawn up into your applicator. The THINNER the nap, the less absorption is readily available. Once the fibers of the applicator become filled with the product and expelled paint, the applicators surface will become flattened and appear to be 'gummy'. Once this happens, you're not doing anything for the paints surface. What you're wanting is to keep the fibers of the applicator free and pliable. This is how the product abrades the surface, by using the tiny fibers that make up the microfiber. If you notice your applicator has become gummed up, you can simply (from most effective, to least effective) grab a brand new applicator, swap to the other clean side of your existing applicator, use a nylon brush to 'rough up' the nap, or go wash out the applicator and come back to the job later after the fibers of the applicator are thoroughly dried.

When using any liquid form correction product, you will want to do each panel (hood/fender/bumper) in sections. Remember how i explained "sections" in the "Preperation" chapter when washing. You do not want to get ahead of yourself and have the product flash dry on your panel before you get a chance to work it against the paint. I always stick with sectioning at 12"x12" for heavily damaged areas and up to 2'x2' for the minimal correction areas. If you happen to get ahead of yourself and the product dries out (looks gray/white and is dry and powdery to the touch) then you will need to find another clean microfiber and wipe the dried product off and rethink your section sizing. Going over the dried up product with your applicator that is wet with product will gum it up immediately. When you're completed with a section, let it sit for a minute or two until you know the product is completely dry, then take your other microfiber towel and wipe off all of the residue and have a look at the section you just worked on. If there is still swirling or scratches, hit it again with a new dollop of fresh product. But intensify your pressure against the applicator so that it cuts harder. Not to be confused with deeper. You always want to clean up each section after working on it so that you dont run over any dried product and run into gumming up issues. It is a very good practice to overlap each section too, a good rule of thumb is approximately 1/4 to a 1/3 of your applicator. That way you insure there is no missed spots.

Applying correction products should always be done in a circular, or semi circular motion. This is because when you're cutting the paint, you're cutting in an even, repititious manner with circles. Just doing straight back and forth motions will cut your paint uneven and may show up afterwards with holograms, or "trailing". The only way to get rid of this is....you guessed it - going over your car / section again, but in a circular pattern.

For the most part, M105 or Meguiars Ultimate Compound will probably be enough correction for what you're trying to fix. There are plentiful other brands out there, Meguiars isnt your only option!

-----Waxes & Sealants-----

There is no right or wrong when it comes to a wax or sealant for your car. Both are phenomenal ways of keeping your work protected, and letting it gleam in the sunlight so it can show itself off for others to admire. What there is though, is personal preference. I'll quote my man Mike Philips from Autogeek . net: "Find something you like, and use it often."

Differences: Carnuba waxes, what most people are probably familiar with. Carnuba is a 100% all natural product that is extracted from the Brazilian tree, "Tree of Life". It is extracted from the trees' leaves. Remember back in school how we learned that trees produce and release oxygen? Well that's also something to remember when using

carnuba waxes. Carnuba never hardens, it is breathable, or porous. With average conditions, carnuba waxes last about 6 weeks. Probably up to 2 months or longer if your car is a garage queen that only sees the road on Sundays. Carnubas will enhance your cars color and make it look rich and deep in color.

Sealants on the other hand, are completely 100% man-made. Nothing about them are natural in any aspect. Sealants are made up of synthetic polymers that are all connected together. Unlike carnubas, sealants, once applied to a surface, dry and bond to the surface and creates a extremely hard barrier. Paint sealants can, and will last up to 6 months at a time. Sealants sit on top of the surface and therefore offer a great reflectivity, making the cars color extremely vibrant.

So, really, it comes down to which ever you prefer. Carnubas are awesome, make the cars color look rich and deep, but only last a minimal amount of time. Sealants are awesome also, makes the cars color look vibrant and have awesome reflectivity, and last a very long time.

Now with waxing, instead of sectioning off your car, you can start practically anywhere you want, and keep applying the wax over and over until your car is completely covered. Most waxes usually have a flash time of around 15-20 minutes, so for a Miata, thats perfect timing to apply it to the whole car, take a quick breather, and then wipe off the residue.

Hopefully i've made sense of everything for you guys, if theres ANY questions whatsoever, do not hesitate to ask me, whether in a post in the Club, or even feel free to PM me! Im always glad to help!

Happy Polishing!