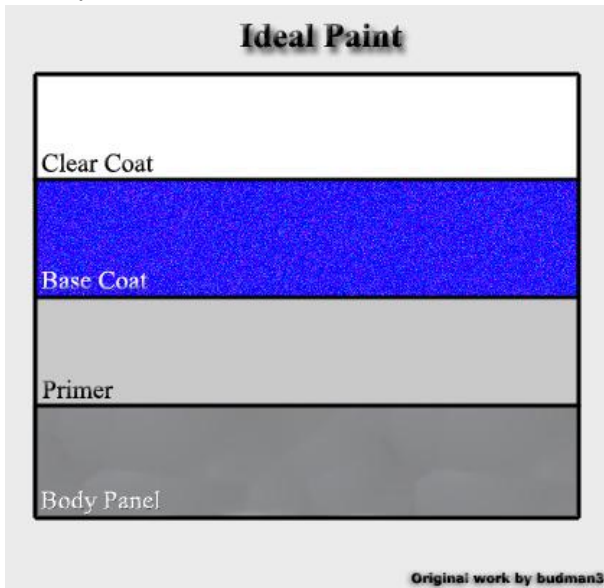
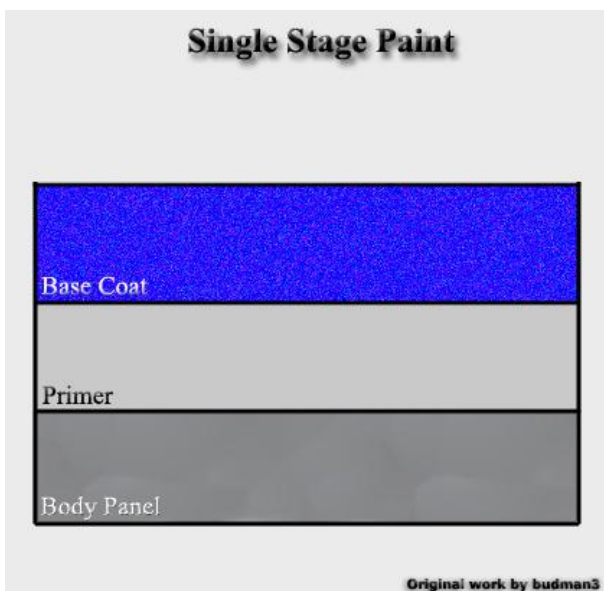


Ideal paint situation:

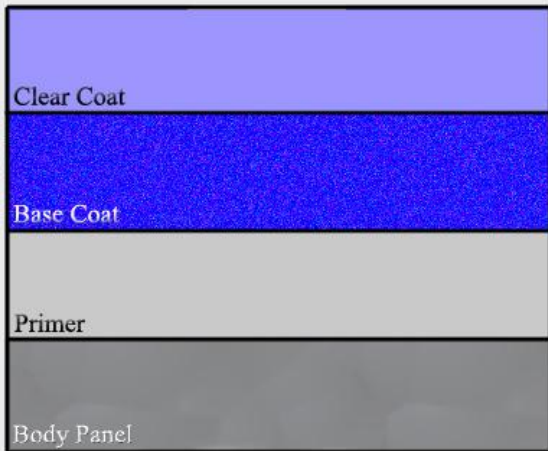


In an ideal world, automotive paint will have adequate thickness and be perfectly flat. However we don't live in an ideal world. Most of the pictures coming are based off of this ideal paint situation, only to make my life easier. The paint on every car is different so take that into consideration when you are detailing. The above picture is a clear coated vehicle – it has a base color coat as well as a top clear coat. Almost all vehicles sold today are clear coated. Some higher end vehicles and older vehicles are single stage paint, essentially just a base coat:



When polish a vehicle with single stage paint, you will notice paint transfer on your pads. Be sure to keep your pads clean and free of excess paint build up – this will hinder the polish's performance. If you have paint transfer on your pad but believe your vehicle is clear coated, you may actually have a tinted clear coat. Typical clear coat is paint with no pigments in it. Tinted clear coat is just that – clear paint tinted with the base color:

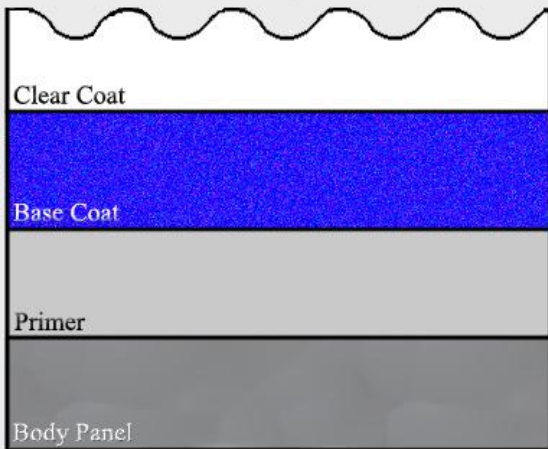
Tinted Clear Coat



Original work by budman3

Orange Peel:

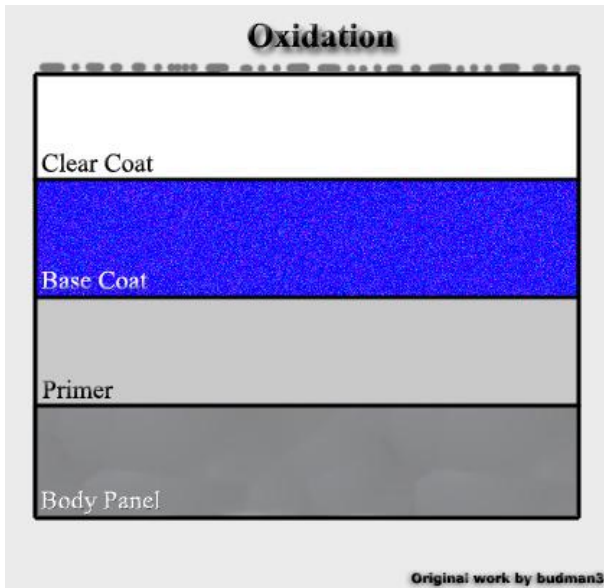
Orange Peel



Original work by budman3

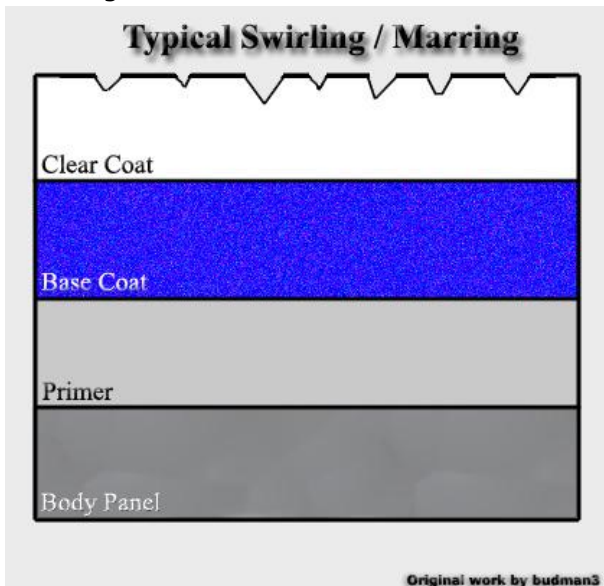
Orange peel is essentially a paint defect occurring in the paint booth. Improper air or thinner mixtures causes the paint to resemble an orange peel. Some people do not like orange peel and wet sand the paint to an even level. This, however, is not a good idea to do on a factory paint job. As you see in the picture, in order to remove the orange peel, you'll have to remove a significant portion of the clear coat, which could lead to premature paint failure in the future.

Oxidation:



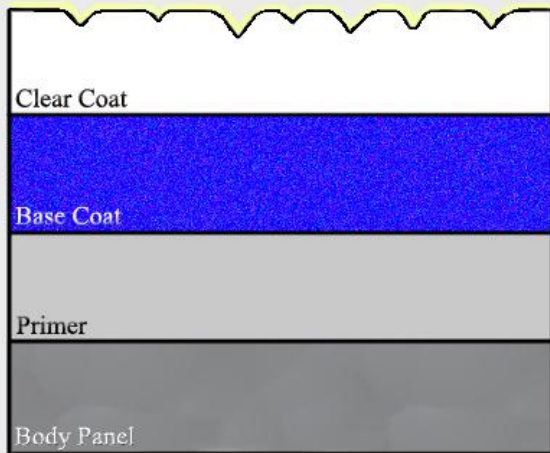
To me oxidation is basically dead paint on the top layer of the car. Oxidized paint looks cloudy, chalky, lacks depth and is hazy. Many try to remove oxidation using an abrasive polish however that is not the best way to remove it. A paint cleaner and a polishing pad will cut through oxidation and leave the paint clean and ready for polishing.

Polishing:



It is probable that every vehicle you detail will have swirl marks, spider webbing or marring. These defects are minor scratches in the clear coat and are visible because of light catches the sharp edges of the scratch.

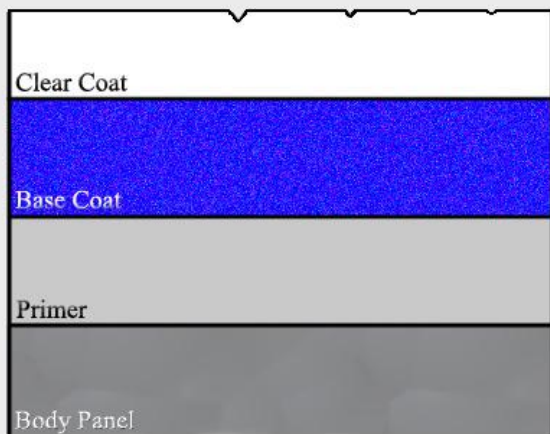
Carnauba Wax - After Orbital



Original work by budman3

Many people use an orbital polisher to remove this type of marring. After polishing the paint looks swirl free but the swirls may still be present in the paint. Depending on the polish and pad used, the swirls and marring may just get rounded over, so the light doesn't catch the sharp edges anymore.

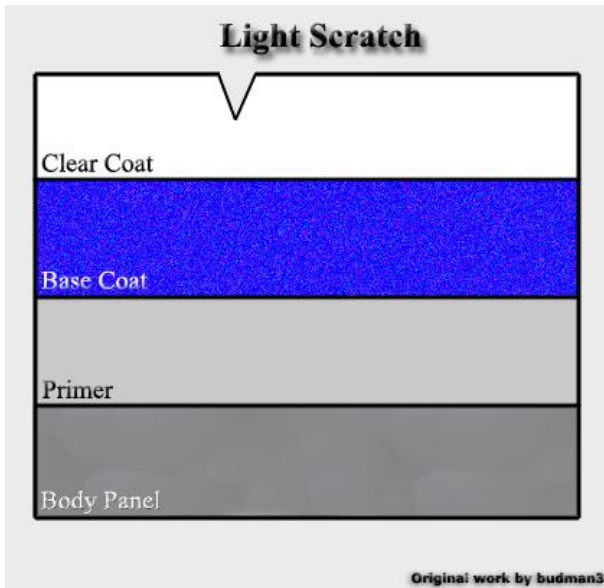
Polishing with Rotary



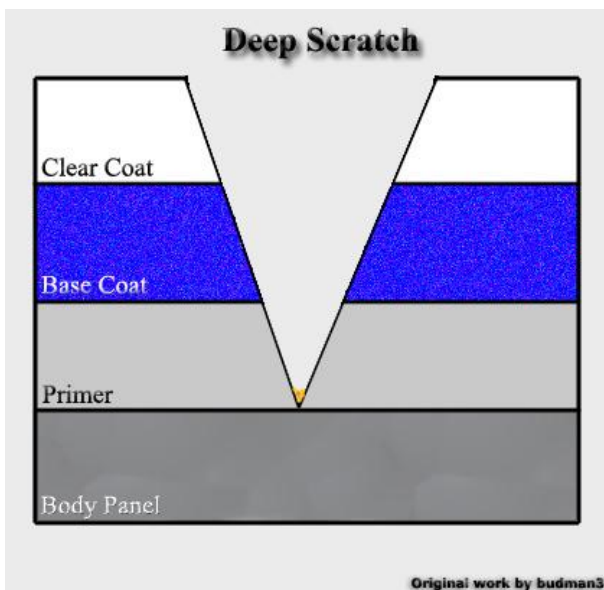
Original work by budman3

A circular polisher, aka rotary, actually removes part of the clear coat thus removing the swirls along with it. That is why excessive compounding with a rotary is not a good idea. However, I believe that a rotary also rounds off the scratches like an orbital but most of the time the swirls will be totally removed, especially when done by a professional.

Scratches:

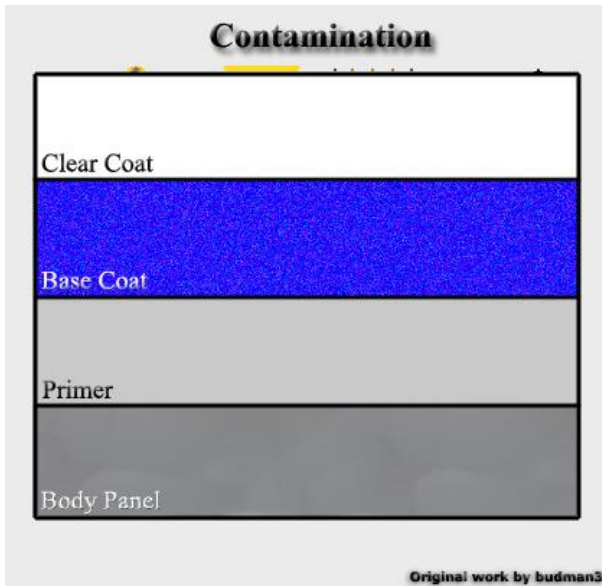


A light scratch pictured above can be removed. As long as you can not feel it with your fingernail, you should be able to remove it. The scratch may have a white tint to it but if you can't feel it, it is probably still in the clear coat. A polisher should be able to remove it. Also, a compound and a terry cloth towel is a really good way to remove isolated scratches as well.



On the flip side, a deep scratch like this one is not easily repairable. This scratch is down to the metal, and if not taken care of, rust will begin to form. You can use touch up paint to fill in the scratch and the sand off the excess to maintain a level surface. If the scratch is deep and long, the only realistic thing to do is have that panel repainted.

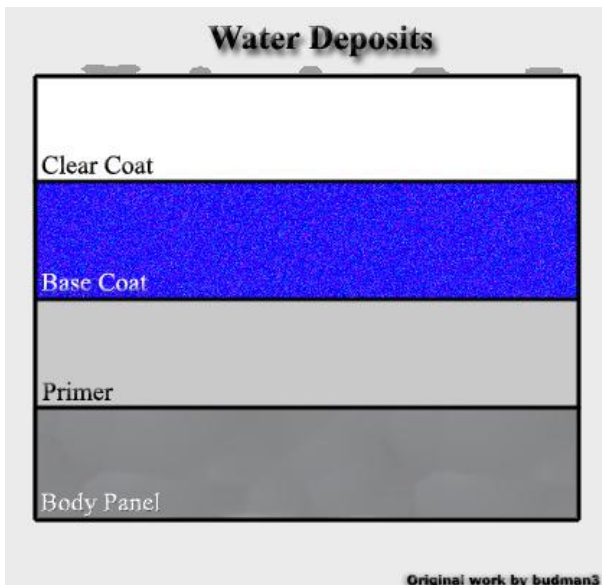
Contamination:



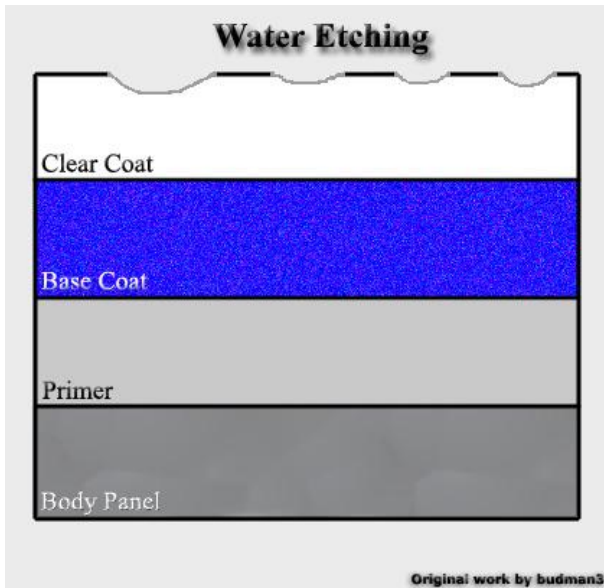
The above paint surface has a ton of contamination on it. Some is visible to the naked eye, however some is not. Take a plastic baggie, stick your hand in it and rub your hand on your clean paint. If it feels rough, you need to clay. Claying removes contamination such as industrial fallout, rail dust, and embedded debris. This contamination sits on top of the paint surface and a clay bar, when properly lubed, shears off the top of the contamination, leaving a clean and level surface. In the above picture working left to right, you see some rail dust that has begun to rust, tree sap, embedded dirt, and industrial fallout.

Water spots:

There are two types of water spots – mineral deposits and water etching.



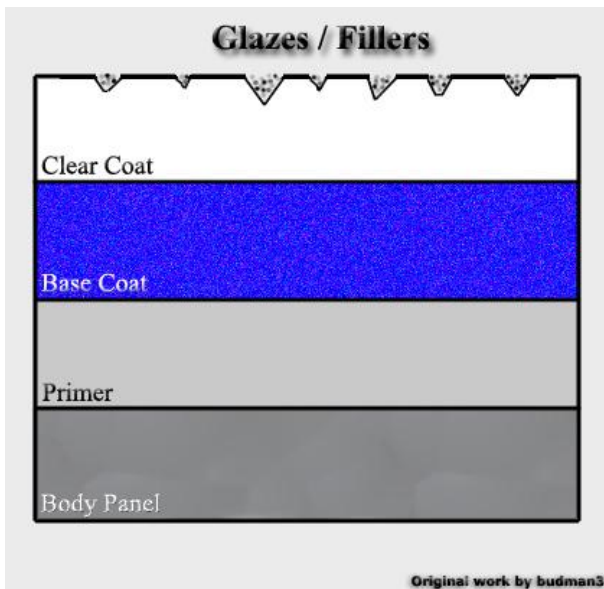
Water / mineral deposits are simply left over minerals found in water. Water left on the surface evaporates and leaves behind these minerals. These minerals sit on top of the top coat and will get harder to remove the longer it sits on the paint. If you are having a difficult time remove water marks, soak a microfiber towel in vinegar and lay the towel over the spots. The vinegar will likely loosen up the minerals for easy removal.



Water etching is a more serious problem. I'm not 100% sure what causes water etching but acid rain could be one of them. This is when water and its minerals actually etches the clear coat. This is the same concept with bird bombs. These are nasty! There is a good chance that only wet sanding and compounding will remove all of these marks. This is why it is always good to dry / remove bird bombs ASAP!

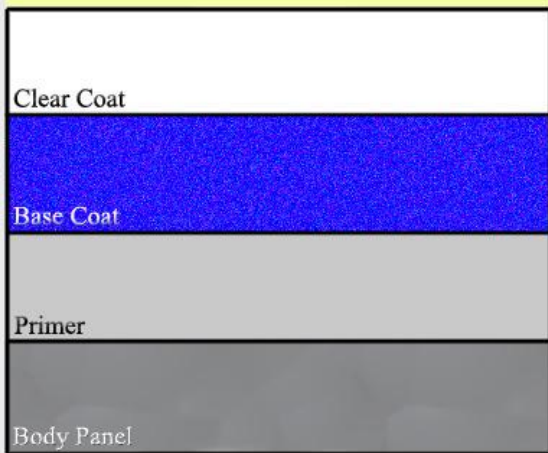
LSP:

Now that the paint is free of defects it is time to seal and protect the paint.



Glazes usually contain oils and fillers that fill in swirls making the surface look defect free. These are used to either enhance the finish or hide marring. Glazes are also used by people who do not want to over polish – keeping a safe amount of clear on the vehicle.

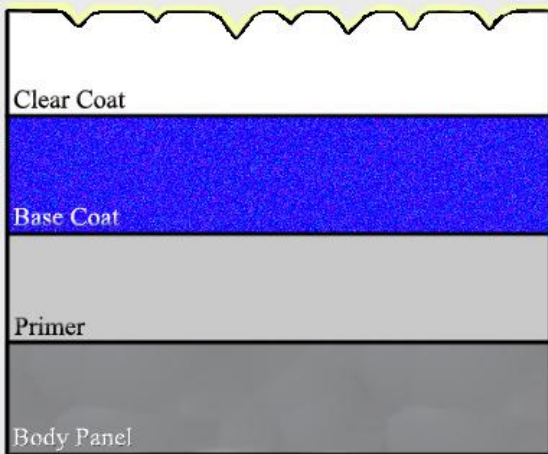
Carnauba Wax



Original work by budman3

A nice LSP is a carnauba wax. A carnauba wax actually sits on top of the paint protecting it from the elements.

Carnauba Wax - After Orbital



Original work by budman3

Carnauba waxes may also have "filling ability." The layer of carnauba will settle in the valley of the swirl and the swirls will disappear yet they may still be present. This is the same concept as orbital polishing; the sharp edges of the swirls aren't visible anymore.

Polymer Sealant

Clear Coat

Base Coat

Primer

Body Panel

Original work by budman3

A polymer sealant molecularly bonds to paint, making it very durable. However, the layer is thinner than carnauba so sealants generally don't protect as well as carnauba when it comes to contamination and such.