Workbook

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BMW
Body & Paint Technical Training

Advanced-Level Detailing

BMW of North America, LLC
Body & Paint Technical Training
SB006a

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Course Code: **SB006a Advanced-Level Detailing**

Disclaimer

This training manual is not intended to be a complete and all inclusive source for repair and maintenance data. It is only a part of a training information system designed to assure that uniform procedures and information are presented to all participants in the BMW Body & Paint Training Center.

The technician must always refer and adhere to the following official BMW AG service publications available in the Integrated Service Technical Application (ISTA):

1 Service Information

2. Repair Manuals

3. Technical Reference Information

4. Specifications

The information contained in the training course materials is solely intended for participants in this training course conducted by BMW Body & Paint Training Center.

For changes/additions to the technical data, please refer to the current information issued via the Integrated Service Technical Application (ISTA) and Service Information Bulletins.

Course Objectives

At the completion of this training course, the Technician will:

- Identify and utilize proper personal and shop safety equipment.
- Understand factory and refinish paint technology.
- Identify and perform repairs to various paint surface problems.
- Use an electronic gage to measure paint coating thickness.
- Select proper materials and perform wet sanding to correct paint surface defects.
- Use a rotary buffer/polisher and buffing/polishing products to repair paint surface conditions.
- Refer to BMW quality standards and technical information to ensure approved products, and processes are being used.

Introduction

Since 1917 when Bavarian Motor Werks first began production of aircraft engines, BMW has made a reputation for their uncompromising performance. Representing a heritage of constant progress, never ending development and unparalleled accomplishment, the stylized blue and white propeller logo still sends spirits soaring.

In today's automotive industry, materials, manufacturing processes, and paint technologies are advancing at a rapid pace. To keep up with these changes in technology, technicians need to ensure that they are up-to-date on the latest innovations being used within the industry.

This BMW Advanced-Level Detail Training Guide has been divided into easy to follow sections. Each section was developed to enhance the knowledge and skills of the technician in seven key areas of the detail process. Additionally, this training course will keep detail technicians on the cutting-edge of new vehicle technologies.

Safety- Review of recommended safety gear and equipment technicians need to protect themselves from the dangers of working in a detail facility.

Paint Technology- Understanding current paint technologies, stages of paint application, materials, and their functions. Understand the differences in current paint systems versus the systems of years ago. Familiarize yourself with clear coats, and how to enhance protection of the paint system while repairing minor surface issues.

Paint Surface Conditions- Discuss what affects the paint surface after the vehicle leaves the factory. Learn to identify paint surface issues, severity, and corrective repair options. Identify and correct problems such as; chemical etching, industrial fallout, water spotting, tree sap, bird droppings, ultra-violet damage, swirl marks, and lack of proper care.

Wet Sanding- How to remove minor surface defects by wet sanding. Proper diagnosis, measuring, sanding techniques, and buffing/polishing of clear coats. Measuring paint with an electronic gage to determine thickness prior to and after sanding.

Advanced High-Speed Buffing/Polishing- Everything a technician needs to know about proper high-speed buffing/polishing techniques. Understand the difference between rotary and orbital buffing/polishing. Practice the safe use of a rotary buffer/polisher, proper techniques, choice of buffing/polishing pads, and how to avoid the dangers of high-speed buffing/polishing.

Frozen (Matt) Paint Finish Care- Understand important care and maintenance processes, by using BMW approved care products to maintain and protect matt paint surfaces.

Paint Quality Standards and Reference Information- Use BMW reference information, products, and processes that are engineered, tested, and approved to provide the ultimate protection in surface care and quality.

Section 1: Safety

Personal Safety

Always work safely in the workshop. Be aware of the hazards that are around you and protect yourself with Personal Protective Equipment (PPE). To ensure your health and safety, be sure to include safety considerations as part of your working process.

Personal Protective Equipment (PPE) may include, but are not limited to:

- Safety glasses, goggles, and face shield
- Safety shoes
- Hearing protection
- Dust mask
- Respirators
- Chemical resistant gloves

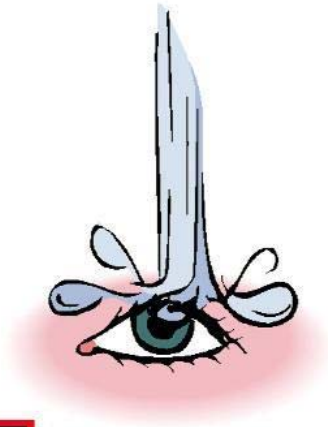
Workshop Safety

Before beginning any repairs, review your workspace to ensure that it is free of hazards, and that it is safe to start your work. The work area should be cleaned on a regular daily basis, and more often if necessary.

Be sure to review the locations of:

- Fire extinguishers
- First-aid kit
- Eye wash station
- Emergency exits

Additionally, an emergency plan should be developed and understood by all technicians, so that everyone knows what to do should an accident occur.



Section 2: Paint Technology

Before you become an expert at buffing/polishing paint, you must understand the science behind the paint. If you know what the paint is made of and how it will react to certain things you will be a much better detailer. Understanding how to identify what can and cannot be done to repair the paint surface, how to measure paint thickness, and provide a long lasting repair are all essential elements for effective paint correction and detailing.

Factory Paint

Paint is basically made up of three things; Pigment (this is the color), resins or binders, and solvents. BMW paint systems are typically water-borne basecoat. BMW clear coat can be urethane, or powder technology.

The basecoat, which gives the car its color is applied over the factory primer. When the basecoat dries it has no gloss. The clear coat is sprayed over the base coat to give the vehicle its gloss, durability, and ultra-violet (UV) protection.

Remember, clear coat provides the essential protection to the entire paint system. Therefore understanding its role, and being able to correct any problems on the surface become important so as to not jeopardize its function.

Now that you have a basic understanding of factory paint, you may think that vehicles painted at body shops use the same paint technology and process. This is not the case, therefore using the same buffing/polishing process for factory paint may differ slightly from buffing/polishing refinish paint. The differences in chemical properties will dictate how and what you use to correctly buff/polish the surface of a vehicle.

Refinish Paint

To better understand refinish paint technology one must take an historical look at previous generation refinish paints. Years ago refinish paints were either a single-stage (non-clear coated) lacquer or enamel base product.

Lacquer paints required more labor to buff and polish to bring out the gloss, plus required many more application coats when painting. Single-stage enamel paint dried glossy however would oxidize therefore requiring polishing and waxing occasionally.

Both systems required a high amount of solvent or thinner for application. These are the solvents/thinners that are now regulated in some areas and non-existent in others because of the high-level of Volatile Organic Compounds (VOCs) emitted into the air during the spray application process. Because neither coating was catalyzed/

crosslinked with an activator to accelerate curing and dry time, there was very little protective qualities built within the system, therefore environmental damage, and coating break-down were common.

Basecoat and Clear Coat

Refinish paints today contain less VOCs, are somewhat friendly to the environment, and are more effective to apply. Most of todays vehicles are painted with a base-coat/clear coat process, meaning the color coat or base is applied first, then after it dries a clear coat is applied for protection of the base coat, and to achieve a glossy surface.

The clear coat also provides protection against ultra-violet damage, minor scratches, and some environmental contaminants. With current paints you will need less aggressive polishing products to correct paint surface issues. Because the majority of your work is to the surface you will need a basic understanding of the various formulations of clear coats.

Clear coats are a urethane base product (a form of plastic). When plastic gets heated it softens to a certain degree. The current trend is to provide a much harder clear that resists abrasions and scratches. Because of this, buffing/polishing characteristics and processes change as well. As professional detailers, we need to have a firm understanding of all clear coats that we deal with and the different buffing/polishing characteristics of each one.

Regardless of which clear coat you are dealing with, none are bullet-proof and will exhibit some scratching and marring. With proper care and maintenance this can be minimized.

Basecoat without clear coat

Basecoat with clear coat

While clear coat provides a level of protection to the underlying paint coatings, it also needs a level of protection. This protection is wax or sealant that protects against the everyday environmental problems that the paint surface is exposed to; acid rain, industrial fallout, water spotting, tree sap, bird droppings, etc.

Considering the factory paint drying process and introduction of additives (hardeners) into the paint system, factory applied paint is cured by the time the vehicle arrives at the dealership. On the other hand, refinish paint may take more time before total curing is accomplished because of the variables in climate, type of clears (air or bake dry), and additives.

Paint Layers

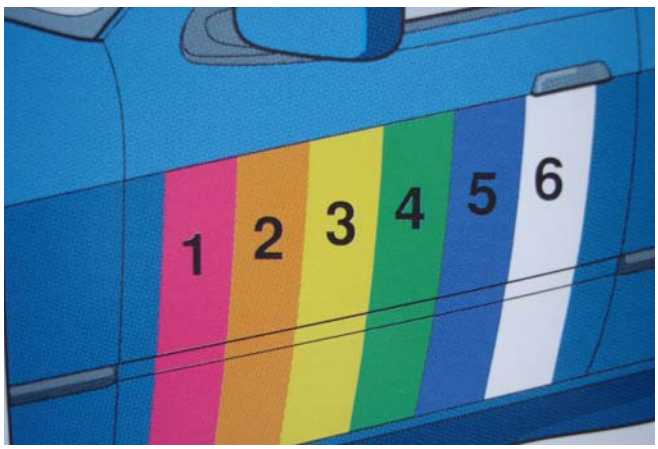
Starting with the top layer, and as mentioned previously, clear coat provides protection to the underlying layers. Below the clearcoat is the basecoat or color coat.

Below the basecoat, a primer/surfacer is applied for chip resistance and durability, and below the primer surfacer is an anti-corrosion electro-deposition primer typically called E-coat.

In addition to these coatings all steel panels receive a layer of zinc to further protect the metal from corrosion. Each layer is important in providing protection, and durability of the subsequent coating. As indicated, clear coat is the outermost layer which you will have the most experience with, so understanding how to keep it in peak performance and maintained properly is important.

Paint Layers

1. Steel/Aluminum
2. Zinc phosphate layer
3. Electro-deposition (ED) coat
4. Filler primer/surfacer
5. Basecoat (color coat)
6. Clear coat



Section 3: Paint Surface Conditions

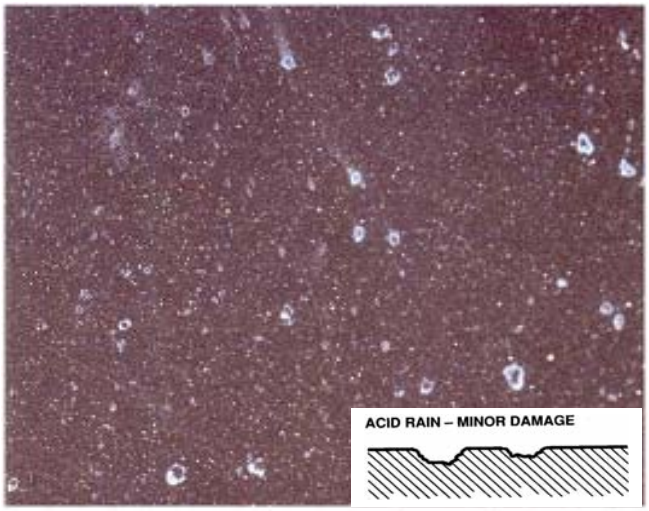
What happens after the vehicle leaves the factory? What are the causes of paint surface concerns? How can they be corrected or can they just be improved? These are the questions that you not only have to answer but also have a solution for in order to satisfy your customer. Being able to develop a solution through careful evaluation is important to a professional detailer.

Environmental Damage

First, lets take a look at environmental damage; acid rain, industrial fallout, water spotting, bird droppings, bug damage, rail dust, etc. All are conditions you will have to deal with at some point.

Cars are exposed to harmful conditions each day. Atmospheric conditions and pollutants will play a huge role in the cosmetic condition of a vehicles paint.

Air-borne pollutants can form and be deposited onto the paint surface. These pollutants combined with moisture make sulphuric and nitric acid. This attaches itself to the clear coat, and etches itself into the clear coat resulting in damage.



Acid rain

Multiple conditions
(water spots, bird droppings, bugs)

Tree sap and bird droppings are also very acidic and can etch and stain clear coat beyond repair.

Another issue is ultra-violet rays (UV) which are also damaging to the paint surface. We are aware of the health risks associated with sun exposure. UV rays have been found to be a leading cause of some paint delamination problems. UV rays can penetrate the clear coat causing a reaction and separation of the clear coat from the base coat, and also the other underlying coatings (primer and e-coat). This is a concern where no electronic measuring is performed prior to sanding and buffing/polishing.

Improper Paint Surface Care

Hazing, scratches, oxidation and anything that mars or degrades the surface will affect the overall gloss and clarity of the clear coat. This happens gradually therefore customers do not notice it right away. Generally, if these problems are not too deep they can be corrected by some degree of buffing/polishing. Even old-der paint can be brought back to life if the problem is not too severe.

Proper surface care begins before the customer takes delivery and thereafter on a scheduled basis. A simple waxing will help maintain protection of the paint surface.

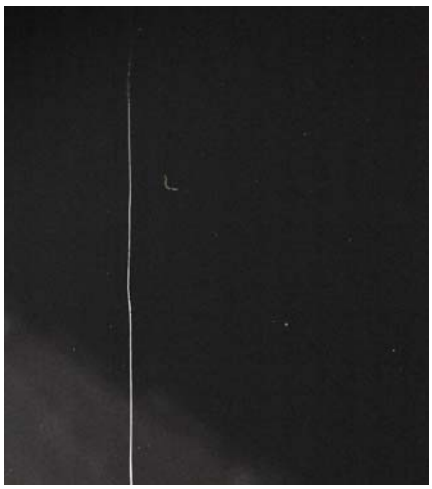
Paint Application Conditions

During the paint application process there are many variables that influence the overall quality of the paint finish. Issues such as overspray, dirt inclusions, dry spray, fisheyes, orange peel, runs and sags, blotchiness are all application type conditions. Some can be repaired by fine sanding and polishing, however some may require complete sanding and refinishing by the paint department. As you gain more experience and knowledge you will understand the boundaries of what can and cannot be repaired by sanding and buffing/polishing.

Orange peel condition

Scratches and Swirl Marks

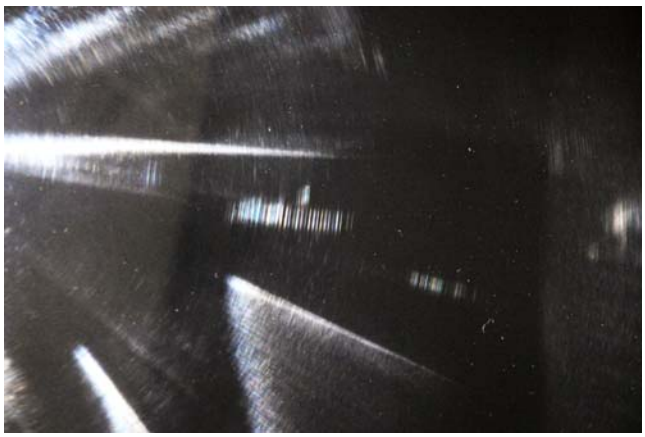
Scratches are difficult to judge whether they can be totally removed or not. Remember, clear coat is very thin and if a scratch penetrates too deep you will not be able to remove it completely by buffing/polishing. Generally, a partially removed scratch may look better than a scratch touched up with paint. While some scratches may react well to buffing/polishing, others may require a more aggressive means such as sanding and buffing/polishing, or in extreme cases repainting.



Swirls are a problem usually made by improper use of a rotary buffer/polisher, and/or buffing/polishing product. While correction is typically when we deal with swirls, we need to focus on prevention first and foremost. Swirls look like a ribbon-type haze that makes the paint look like it is dancing as you move around the vehicle. This drastically affects the visual appearance.

Some detailers view swirls as a major catastrophe, while others view them as a minor obstacle. Because of swirls some detailers do not ever use a rotary buffer/polisher. With proper use, rotary buffer/polishers can speed up the time it takes to repair certain surface conditions and produce high-quality results. Whenever using a high-speed rotary buffer-polisher there is a possibility of making swirls.

When heavy compounding or performing an aggressive scratch repair you will most likely leave a “compounding swirl”. This type of swirl is deep into the surface.
These are generally easy to see and will take multiple steps to remove.



A “polish swirl” is not as deep, and may have been put in by a light wool or foam pad. This is a more common swirl, more difficult to see, however will require fewer steps to correct than a compound swirl. As a professional detailer you will need to ensure you are doing everything correctly to produce a truly perfect swirl-free finish.

The following list will make you aware of what causes swirls and how to avoid them:

1) **Buffing/Polishing pad-** an aggressive pad (wool or foam) can create swirls.

2) **Buffing/Polishing compound/polish-** even if it’s labeled as a “swirl mark remover”, it can still create swirls on the paint surface. Understand your products and their capabilities.

3) **Backing plate-** a hard, stiff backing plate will make your buffing/polishing pad more aggressive. Some backing plates do not “give” or contour around curved body panels. Combine this with a slightly aggressive pad and polish, and you have a great chance of creating swirls.

4) **Speed-** high speeds will not get the job done faster, it will certainly increase the chance of creating swirls or burning the paint.

5) **Pressure-** excess pressure will make your buffing/polishing pads and products more aggressive. This will also increase heating of the paint surface which increases the chance of swirls.

6) **Heat-** aggressive pads, products, pressure, and speed will all generate a vast amount of heat which may soften or even burn the paint finish.

7) **Edge buffing/polishing-** by turning the pad on its edge you will do a number of things (all bad). Pressure will be increased, product on that section of the pad will be lean or non-existent, the hard edge of the pad will remove paint. Using this technique will create swirls and most likely damage paint.

8) **Dry buffing/polishing-** not using adequate amounts of compound or polishing products. Over buffing/polishing where there is no longer sufficient product.

9) **Clear coats-** there are many types of clear coats used today; urethanes, powder, scratch resistant, ceramic clears, plus factory and refinish clear coats. You will need to know how each reacts before attempting to buff/polish.

10) **Dirty buffing/polishing pads-** pads that have not been cleaned or washed will become more abrasive as well as pads that are left sitting around uncovered in a dusty environment. Even the smallest amount of dust or dirt will lead to swirls marks.

11) **Dirty vehicle-** dirt and dust will accumulate on the surface of a vehicle that has been sitting around awhile. Also, vehicles being detailed outdoors will become dusty fairly quick. Painted surfaces need to be wiped prior to buffing/polishing to prevent dust and dirt from becoming trapped between the buffing/polishing pad and paint. This dirty condition will certainly lead to swirls.

12) **Non-dedicated buffing/polishing pad-** there are a variety of pads used for compounding or polishing. If a pad is used for a particular process then it should not be used for any other unless the pad is cleaned (washed) thoroughly, and has no residue left on it. Labeling the pad on the back will always let you know what it was used for.

13) **Laundry detergent-** many shops use a granular detergent to wash pads and towels. Unfortunately, if not all the granules get dissolved in the wash they may become embedded in the pad. These small granules are abrasive and now create swirls.

Now that we know what causes swirls, lets take a look at correction methods. Many times while trying to correct other problems, we create swirl marks. Whenever we buff/polish we need to ensure that when the problem is corrected that we still have some compound product on the surface, then lighten up on the buffing/polishing machine pressure and lower the speed. This will actually help remove any swirls before you switch over to finer polishing products with a less aggressive foam pad.

Additionally, never assume that going from a more aggressive compound to a softer pad and light swirl remover product will guarantee swirl removal.

Often you will need an intermediate step before moving to the final step. You will also need to ensure the products you are using are not "filler" type products. Make sure you are not temporarily "hiding" the swirls and scratches. If they do come back after a few car washes you are guaranteed a very unhappy customer, or one that never returns to your shop.

A question that detailers often ask is, can an orbital buffer/polisher be used to remove swirl marks? Generally, if you have "compound" swirls, you will need a high-speed rotary buffer/polisher to make corrections. An orbital buffer/polisher will work if the swirls are very light "polish swirls".

Orbital buffer/polishers will aid in removing light scratches and swirls and are less aggresive compared to rotary machines.

Again, select the correct products, buffing/polishing machines, pads, and always begin with the least aggressive method.

After you have gained more experience, you will select the best process for the job at hand.

Section 4: Wet Sanding

Understanding how to safely sand clear coat to eliminate or significantly lighten a problem without the need for costly refinishing is essential. Being able to measure paint thickness and determine how much clear coat is being sanded off is an important step as well.

Paint Thickness

When sanding, we are removing material from the top (clear coat). To understand how much clear coat can be safely removed we will need to use an electronic paint thickness gage.

Since a paint thickness gage only reads "total film thickness", we still need to know how much clear coat can be safely removed without causing loss of protection.

Paint thickness is measured in microns. A micron equals 1/1000 of a millimeter and there are typically 105-120 microns of factory applied paint coatings with about 35-45 microns being clear coat. We can safely remove about 12.5 microns of clear coat without the possibility of long-term paint damage.

Wet sanding may seem to be an aggressive method of correction, however it will be performed using very fine or finesse-type sanding paper, then followed with machine buffing/polishing. As more microns of clear coat are removed, the risk of sanding through the clear coat and long-term damage will be more likely.

If sanding were to be done without measuring, there would be no telling how much material will be removed.

This would result in far too much clear coat being removed from the panel or possibly removing the entire clear coat and resulting in the panel needing to be totally refinished.

Electronic Paint Thickness Gage

Using an electronic paint thickness gage before beginning the sanding process, and knowing when to stop is extremely important. Using a paint thickness gage will allow you to monitor how much material (clear coat) is being removed at all times.

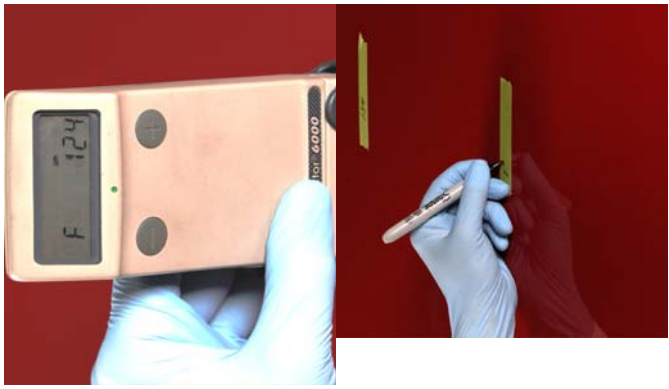
Electronic thickness gage and tools

The rule of thumb is, measure first, sand, measure, then buff/polish.

When inspecting the paint finish you will determine if a panel needs sanding or can be repaired by only compounding and polishing. If imperfections and blemishes will not come out, then using a thickness gage to measure, then follow with sanding would be the next method to lighten or remove the blemish.

Once the gage is calibrated to measure in microns it needs to be used correctly to gain an accurate reading. The thickness gage needs to be held as flat as possible on the panel for an accurate reading. The probe should be placed directly over what you are measuring and wanting to correct.

Do not rock the probe back and forth as it will give you an inaccurate reading.



The clear coat will not be uniform across the entire panel as far as the numbers read. Remember that a micron is so small that the reading will change even if the gage is moved slightly.

Once the measurement is obtained in the area you are working, write the numbers on a piece of tape near the area. Now make sure that you do not exceed the maximum (12.5 microns) removal of clear coat by sanding and buffing/polishing to fix the problem.

Sanding Techniques and Materials

Automotive sandpaper is far different than sandpaper used to sand wood. However, just as in sanding wood, the user will start with a more aggressive grade of paper and get finer until the job is sanded smooth to a very fine scratch. In the case of sanding clear coat, you will need to finish with a grade of paper fine enough to buff/polish out the sand scratches.

For faster paint correction and a more even cut, it's better to use the "wet" method to repair an imperfection. Wet sanding will use water to flush debris or clear coat from the paper, act as a lubricant, and allow the paper to last longer and be more effective.

What grades of sanding paper should be "stocked"? A detail department should have sandpaper ranging from 1000 grit to 3000 grit, with 2000 and 2500 in between. Anything more aggressive than 1000 grit will remove too much clear coat. It will also leave very deep sand scratch marks that will be extremely difficult to buff/polish out.

Anything finer than 2000 grit will not cut very well and may not correct the imperfection at all. Sand scratches, if not correctly removed can look just as bad as the original scratch itself.

Experience will allow you to always choose the correct paper, but if in doubt always choose the LEAST aggressive method to start.

When wet sanding, hold the paper with use of a backing pad. There are very specific backing pads made for sandpaper which help create a uniform surface. It's extremely important to NEVER use your bare hand or fingers because sanding will not be uniform and there is a possibility of sanding through an area, plus creating an uneven surface.

ALWAYS use a backing pad to wrap the sandpaper around to ensure a uniform surface throughout. Keep the backing pad flat at all times.

Do not sand with the edge of the pad and do not place too much pressure in one spot as this will cause the paper to cut un-evenly. Keep even pressure on the pad.

Sanding with backing pad

Lift the front edge of the pad and raise it off the surface so that only the very top portion of the sandpaper is in contact with the paint surface. This ensures that you will not oversand the area, creating more or unnecessary buffing/polishing after the sanding is completed.

Once you master holding the pad and paper you can begin the sanding process. When sanding for a scratch repair, the proper direction is very important. Never sand anything in a circular motion. Sanding in circles will not allow you to know if the entire area has been covered. It also creates circular scratches in the panel which are more difficult to remove as they will be round in nature, similar to swirl marks.

Always sand in a linear direction with a slight overlap so as to not create a "valley" effect in the clear coat which can show up later as waviness in the panel because too much material is being removed in the same location.

Always sand "across" a scratch at a 45 degree angle. By doing so we will "knock down" the edge of the scratch more effectively.

By quickly knocking down these edges we will be far more effective at lightening the area and removing less material in the long run.

For example, if a 1200 grit paper is chosen to begin a scratch repair, sand at a 45 degree angle (lower right to upper left). You can finish with 2000 grit paper in a straight up and down motion. This method of different sanding motions helps not creating a valley in the clear and always alerts you if the previous grade sand scratches have not been eliminated. Finishing with 2000 grit sand scratches and finer will prepare the panel for buffing/polishing.

Keep in mind the clear coat thickness/thinness. Determine when it's time to stop sanding and move on with each grade of paper. Since we can only remove 12.5 microns of clear coat, we have to realize that we cannot remove the entire amount with one grade of sandpaper. Remember, if you will be using multiple grades of paper to complete the job such as 1200, 1500 and 2000 paper, plus buffing/polishing, there will be some limits to the amount of material removed with each operation. Once again, the paint thickness gage will greatly help determine how much material has been removed.

When discussing repairs with the customer, always present the scenario in terms of percentages and to what percent you will be able to repair the area.

Sanding Entire Panels

There are some customers that may ask you to remove the factory or refinish paint texture (orange peel effect) to produce a smoother glass-like surface. This can only be done by sanding entire panels or an entire car.

We will look at the difference between sanding with a machine versus sanding by hand to accomplish this.

Extreme care needs to be taken when sanding an entire vehicle with a factory finish. By doing so, the entire vehicle surface will be sanded thereby possibly removing the protective UV layer from the clear coat. You will have to explain that this is not a manufacturer recommended procedure, and that certain warranties may be affected. If the customer insists, you should draw up a waiver indicating you discussed the ramifications.

If the vehicle has been refinished previously and there is considerably more clear coat than what the factory would apply, the process for sanding entire panels will vary slightly.

If sanding by hand, you will want to cover a larger area with your sanding pad so it will be held flatter on the surface as if you were erasing a chalk board. Even pressure should be applied over the entire area.

Care should be taken to not sand over a body line or near the edge of a panel. The time it will take to hand sand an entire panel, and more so an entire vehicle, will be considerable. In such cases there are air driven or electric dual action (DA) sanders to accomplish this faster.

A machine will make the sanding process much faster however care will need to be taken such as applying less pressure and constantly measuring the area being sanded with your paint thickness gage. Also a dry sanding method may be used however the paper may not cut as quickly if there is no water to flush the sandpaper.

You will notice that after sanding an area that the "orange peel" will be flatter and have far less of a hill and valley effect.
Generally, to minimize paint texture (orange peel), aggression is not necessary and removal of no more than 5-10 microns may be needed. Sanding entire vehicles to produce a show car like finish will however require considerable time and the customer will need to be charged accordingly.

However for small scratches and blemishes that can be repaired by sanding and buffing/polishing there is a huge potential for added profits within the detail department. This will also hold true for pre-owned and certified cars. Anytime wet sanding and buffing/polishing can keep these vehicles out of the body shop will save money that previously would have had the panels refinished because of scratches.

It's always a win-win situation if things are explained correctly to the customer. For a few small scratches to be wet sanded along with the vehicle being detailed, you can expect to add more dollars to the job while saving the customer even more.

A skilled detailer can greatly improve an imperfection via wet sanding for far less cost than having to repaint the panel. Even though the imperfection may not result in a 100% repair, it may be improved by about 70-90% of its damaged condition.

Section 5: Advanced High-Speed Buffing/Polishing

High-speed buff/polishing is essential in making the paint surface look its absolute best. For ultimate paint correction a high-speed rotary buffer/polisher will have to be used. The rotary motion produces more heat and more friction which is why more paint correction occurs.

It is also why it is more dangerous to use and risk of paint damage higher. High-speed buffer/polishers have more torque and are harder to maneuver around obstacles. The rotary buffer/polisher can spin at very high revolutions per minute (RPM), which can be dangerous to both user and the vehicle. Proper handling and user safety must be employed whenever using a rotary buffer/polisher.

Loose clothing, jewelry, and even the electrical cord can be caught or tangled within the buffer/polisher spindle so caution must be taken whenever operating high-speed equipment.

Material Selection

Diagnosing the paint surface condition, then deciding which buffing/polishing pad, products, and number of steps are required to perform the job adequately are essential in producing effective results. With the vast choice of pads available, it may seem confusing when choosing a pad.

The detailer must know what's expected to complete the job efficiently. Is absolute perfection required or is a simple wax job the goal? If you need to create perfection, and the vehicle has a number of imperfections, it's reasonable to say that you will not be able to achieve this with a soft foam pad as a first step.

You may need to start with a foam compounding pad or a more aggressive wool pad. The choice of product will also determine how deep you will ultimately cut into the paint surface. A compound combined with a wool pad will cut deeper and remove more imperfections than if you simply polish the vehicle with a foam pad and a polishing product.

Although the same buffer/polisher may be used with the same speed in both cases, the more aggressive products will cut deeper.

However, be prepared for more buffing/polishing steps to remove swirl marks and bring back clarity and gloss.

Removing imperfections takes a considerable amount of time and should be calculated accordingly.

Correct Use of the Rotary Buffer/Polisher

Avoid typical mistakes that many detailers make. Always keep the pad as flat to the surface as possible with a slight tilt for control. Always "catch" the product (compound or polish) from right to left as you slightly raise the leading edge of the pad over the product.

Use adequate pressure to get the compound or polish to fully accomplish the job. Many detailers do not use enough pressure when while others use too much. Proper pressure is needed to achieve the perfect finish. Many detailers exert very little pressure when they buff/polish. They may demonstrate good technique as far as holding the buffer/polisher correctly and moving it along well, but because they use too little pressure while buffing/polishing, the results are less than perfect.

Move the buffer/polisher using even overlapping passes to correct the paint surface. Buff/polish fast enough to get the job done in a reasonable time, but slow enough to actually correct the problem.

Most detailers have heard, seen, or experienced the negatives while using a rotary buffer/polisher. They are deathly afraid of burning the paint or creating deep swirl marks.

Because of this, they will use insufficient pressure or may compensate by using extremely aggressive buffing/polishing pads and products. You may think that this will even everything out and still create a perfect finish, however this only creates more dusting, a mess, the possibility of deeper swirl marks and cloudiness of the paint. We don't want to be too light on the buffer/polisher, nor do we want to be too heavy on it either.

Here are a few tips that will help while you are buffing/polishing:

- Don't move around the panel too quickly. Some detailers try to be lightning fast. This just amounts to a faster way of hand polishing or compounding. By being too fast, you are just smearing the product and not using enough pressure. Nothing is being accomplished.

- Feel the heat you are creating. A certain amount of heat needs to be generated while buffing/polishing for paint correction and gloss. If you stop buffing/polishing and immediately feel the paint, it should be fairly warm but not so hot where it almost burns your hand. If the panel is too cool, you are not using enough pressure. If it's red hot, you are using too much pressure!

- Listen to the buffer/polisher while working. The buffer/polisher has a certain sound when free-wheeling. The pitch or sound of the motor changes as you exert pressure. However, if you really lean on the buffer/polisher, it will struggle to keep up speed and it will groan and whine if too much pressure is being used.

  You want to hear it change pitch from the free-wheeling sound, but you don't want it to groan or whine.

- Look at the "crush" of the pad.
  When using a foam pad, you will be able to see how much you are crushing the pad into the backing plate. If there is no change in the thickness of the pad while you are buffing/polishing, you are not using enough pressure. If you turn the pad into a pan-cake, and can actually feel the backing plate as you are buffing/polishing, you are using too much pressure. You generally want to crush the pad about halfway down to create enough pressure to properly buff/polish the paint surface.

- If the pad has too much "grip" on the panel, that could be a sign of too much pressure. You need to be able to slide the buffer/polisher back and forth easily without the pad gripping the paint excessively.

- The last item is to constantly check the results! If you are having to redo steps time after time, and nothing is really happening, chances are you are not using enough pressure.

  On the flip side, if all it takes is a couple of passes to correct the finish, but you are left with excessive hazing, cloudiness, and deep swirl marks, you are probably using too much pressure. You want to be able to correct the paint finish in just a few passes, while at the same time also create a nice gloss with limited swirls and hazing. Believe it or not, you can actually start the swirl mark removal process, get a super gloss, and possibly eliminate an entire buffing/polishing step simply by pressure regulation!

If you are compounding or performing any buffing/polishing step that would be considered paint correction, try this:

Use as many passes as you need to correct the finish. When you know you have corrected the problem, go over the same area again with very light pressure. With just the lightening of the pressure on the buffer/polisher, you will start to clean up any hazing, cloudiness, and swirl marks that have been put into the panel by your initial, higher pressure passes. This preliminary clean up can be accomplished without changing the buffing/polishing pad or product! This WILL work and it WILL save time in the overall buffing/polishing process.

How to avoid messes. Always start with a clean, dry, buffing/polishing pad. Always start the buffer/polisher very slowly (less than 1,000 rpm). Work the product into the paint before turning up the speed of the buffer/polisher. This will greatly reduce the chances of splattering the product.

Applying the product on the panel is also a key issue. Some detailers like to "dot" or "dab" the product on the panel. This is fine, as long as it's done in a consistent pattern on the panel.

You don't want product randomly or haphazardly applied, as this will lead you to "run into" the dots of product with the buffing/polishing pad, causing the edge of the pad to hit the product and send it flying or splattering all over.

The preferred method of applying the product on the panel is to layout thin horizontal lines of product and space them far enough apart so the buffer/polisher will not inadvertently run over the line causing splatter. This will resemble the yard markers on a football field.

The reason is two-fold:

1) By laying out lines of product, it will not start to dry and evaporate, thus keeping the product wet enough to have enough flow and do its job correctly.

2) The additional lines, like the yard markers on a football field, save time as you won't have to constantly pick up the bottle of product and continually apply it on the surface. You can keep buffing/polishing the entire time and develop a flow and pattern to the buffing/polishing process.

To "catch" the product correctly and not splatter it, a few things have to happen simultaneously. First, you always want to "catch" the lines of product back into the buffing/polishing pad. Since the buffer polisher spins clockwise, the correct way is to move the buffer/polisher from right to left and let the product spin back into the center of the pad.

Lift up the edge of the buffer/polisher very slightly so that the left side of the pad is angled up a bit. This allows the product to slide under and into the pad. Turn the buffer/polisher on by triggering it and feathering the speed very slowly.

Once the product has been "caught," and the line of product has disappeared, flatten out the pad and buff/polish the panel.

Increase speed gradually and increase the pressure of the pad to the panel you are buffing/polishing. If you have laid out the product in "dot" form, simply place the buffing/polishing pad directly over the dab of product and start the buffer/polisher slowly, work the product into the panel, and slowly increase speed and pressure.

This method will usually work perfectly when the buffing/polishing pad is fresh and clean. As it starts to get a little wet and saturated with product, it becomes more difficult to control splatter. Frequently clean the pad (spur-wool pads), (toothbrush-foam pads) and remove excess product. At this point apply less product on the panel because the buffing/polishing pad is a bit wet with the product you have been using.

Be careful to keep the product from finding the very edge of the buffing/polishing pad. Once you have product on the edge of the pad, the centrifugal force of the spinning pad will fling the product out of the pad and all over the car. Also, do not be afraid to get a brand new pad! At some point the pad will get too wet and cleaning will not be as effective.

Have clean dry pads ready at all times during the day. There is no rule that says you have to use one pad per car, or worse, one pad all day long.

Maneuvering the buffer/polisher around obstacles takes time and experience. Some detailers can handle a high-speed buffer/polisher on large flat surfaces but have trouble in tighter areas. Skillfully positioning and maneuvering the machine around door handles, gas doors, along seams, and the bottom of the vehicle to make sure everything is buffed/polished to perfection are signs of a true professional.

Here are some tips that will help:

Always keep the obstacle in full view. It may help to use a smaller diameter buffing/polishing pad to accomplish this. For example, when buffing/polishing around a door handle, keep the top edge of the pad in view and buff/polish the bottom area around the door handle. Then move the buffer/polisher to the left and bring the right side of the buffing/polishing pad around clockwise while still keeping the entire door handle in view.

Continue to move the buffing/polishing pad up and around so that now the bottom of the pad has come around and over the top part of the door handle. Finally complete the clockwise motion and bring the left edge of the pad around so that the left side of the pad is closest to the right side of the door handle.

By doing so, you are able to buff/polish very close to the handle and all around the edges, but not losing sight of the handle, buffing/polishing over it and possibly burning the paint. Do the same around seams and gaps. Do not buff/polish over seams, such as where the door meets the fender. Buffing/Polishing along a seam will prevent excess product from being stuffed into the cracks and crevices. Do not buff/polish over things that are sensitive and always use masking tape in critical areas.

Some trim items and moldings actually can be buffed/polished and given a nice finish that is longer lasting and less messy than dressing.
However this should wait until you have reached your final polishing step with a very fine product and a very soft pad. With low speed and light pressure some items may be lightly buffed/polished.

The texture of the trim piece will alert you as to whether it can be buffed/polished. For example, if it never had a factory gloss to begin with, such as some moldings, wheel well outer trim, or some bumper trim, leave them alone and never attempt to buff/polish them. On some models belt moldings and trim around the mirrors may take a light buffing/polishing. It's better to do this with the orbital buffer/polisher as it will be safer with less chance of burning or destroying the molding. Giving a molding or a trim piece some gloss by buffing/polishing is far better than trying to dress it.

Waxing with High Speed Buffer/Polisher

Many detailers apply wax by hand. Generally it's a waste of time and material. Applying wax with a rotary buffer/polisher will be more uniform, and will save time. While using an orbital machine is preferred, it's simply another light buffing/polishing operation to wax the vehicle with a rotary machine using a soft foam pad at a very low speed. Once you gain the experience of machine waxing you will never hand wax again.

Orbital Buffers/Polishers

In some cases, an orbital buffer/polisher can be a great choice because it spins both in a rotary and orbital motion. This action means that it never stays in the same place, making the chance of burning or damaging the paint surface unlikely. Therefore, an orbital can be the best choice for making minor paint surface corrections, and applying waxes and glazes in a very short time. This is a better choice than applying products by hand. Most orbital machines have adjustable speeds and a variety of pads can be used. Electric orbital machines work best and are most effective.

Section 6: Frozen (Matt) Paint Finish Care

Frozen (Matt) paint finishes are gaining in popularity with our customers. With this trend in surface finish technology comes new ways to care for and maintain the paint finish.

Buffing/polishing with a machine or the incorrect product can create glossy spots and uneven surfacesand is therefore not recommended. Nothing abrasive is recommended on Frozen Paint Finishes. Traditional compounds, polishes, sealants, and spray detailers are not recommended.

Keeping the paint surface free of any contaminates is key in maintaining a Frozen finish. Conventional car washes are not recommended, however the preferred method is to hand-wash and maintain the finish by using the BMW approved products listed below:
For additional information, detailed instructions and application tips, see the Matt Paint Care Brochure.

Excelda Item	BMW Item	Part Description
118894	83122293944	BMW MattePnt SpecialClnr 500mL
118895	83122293942	BMW MattePnt SpclShampoo 500mL
118896	83122293948	BMW MattePntSpcl ExprsWx 500mL
118897	83122293949	BMW MattePntSpcl NanoWax 200mL
119588	83122353747	BMW Matte Pnt Application Set

Paint Finish Quality Standards

The paint finish serves as a protective layer. It protects the substrate from mechanical, chemical and environmental damage. It also provides the desired high gloss which is important to the customer.

During production the vehicles are painted in a “clean-room” environment to minimize dirt inclusions in the finish. Although the environment is considered ultra-clean, dirt inclusions are still unavoidable. Every vehicle undergoes vehicle de-nib (fine sanding) and polish procedure to remove dirt inclusions at the factory to ensure the highest level of quality paint finish and appearance.

The same holds true to the refinish procedure in the collision repair shop. Dirt inclusions are to be removed by de-nibbing (fine sanding) and a polishing procedure. After de-nibbing a 3-step polishing procedure must be followed. Additional detailed information is contained in this section.

The denibbing and polishing procedure is not included in the flat rate units for refinishing.

De-nibbing and polishing is an additional procedure which requires additional labor and material.

ColorSystem Polishes (Green Label)

General:

With the progress made in the development of OEM paint systems (e.g. powder coatings and clears with improved scratch resistance), the use of appropriate processes to level irregularities in paint finishes is becoming increasingly important. A special polishing system was developed by Menzerna on behalf of BMW AG to help you remove surface defects and prevent scratches and faulty polishing (e.g., swirl marks).

Before you begin to level surface irregularities by sanding with fine paper (pre-sanding with P2000, finish-sanding with P3000-P4000), you have to remove all dust, dirt and other contamination from the paint finish. Prior to polishing, the surface to be treated must be wiped with HydroColor Cleaner. Between the individual polishing steps, that is each time a finer polishing product is to be used, the surfaces being treated must be cleaned with Universal Finish Spray in order to carry out quality inspection of the previous working step.

During the entire polishing process, a microfiber cloth should always be used for cleaning.

When choosing a method to be used to remove paint defects in paint finishes, you should always select the most gentle one possible. This means you should primarily use intensive polish. Fine sanding should be used only in cases where the intensive polish fails to bring the desired effect and where the defect to be removed is located deeper in the paint finish.

Products		Properties	Use
	Intensive Polish 51912153279	For removing sand scratches, starting with P2000 or finer. Suitable for all popular original paintwork and refinished surfaces, as well as for scratch-resistant paint systems. Especially suitable for well-cured substrates and removing slight weather damage, as well as polishing transitions from repair areas to original paintwork.	Place a small amount on the buffing pad (soft wool). Position the rotary polishing machine flush against the surface with a speed of 1500-2000 rpm. The gloss level increases in proportion as you expand the buffing movements and reduce the contact pressure. Repeat the process as long as sanding scratches are still visible on inspection.
	High Gloss Polish 51910153280	Micro-polish for a second polishing step for dark colors can be used to achieve a high quality surface. It is well-suited for removing slight weather damage and eliminating swirls and micro-scratches.	Use a rotary or random orbital drive polishing machine. Place a small amount on the polishing pad (foam) and apply pressure to polish the damaged area. Briefly rub with micro-fiber cloth to clean the surface of residual traces of paste.
	Universal Finish 51912153281	Universal Finish removes oils and residual gloss from polishes from the surface without leaving streaks. Perfect for cleaning surfaces immediately before polishing and for quality inspection between polishing steps. Also ideal for removing dried polishing splatter.	Spray on the surface and use micro-fiber cloths to wipe it off to reveal insufficiently levelled irregularities.

ColorSystem Tools and Supplementary Products (Green Label)

General:

The successful removal of irregularities in paint finishes not only depends on the use of suitable cleaners and polishes, but also requires specific tools and additional products. Therefore, it is very important that the individual components used are compatible with each other and can be combined to obtain the desired effects. The following supplementary products and tools are used with the polishing system developed for BMW:

Products	Properties	Use
Perfect-It III Polishing Backing Plate 127 mm with M14 thread for electric or 5/8" for pneumatic machines	The flexible sponge of the Perfect-It III Polishing Backing Plate ensures optimal contact pressure and also permits uniform polishing round vehicle contours where side-on application may be useful.	With rotary polishing machines. Polishing pads: lambskin pad, polishing sponges, high-gloss polishing pads.
Lambskin Pad 133 mm	Lambskin pads are the most abrasive variants of polishing pads. Can be used with all sanding pastes to increase the sanding performance by approximately 50%.	With rotary polishing machines.
Polishing sponge, orange, smooth 150 mm or 130 mm	Heavy abrasion polishing pad, but less aggressive than the lambskin pad. To be used with all intensive polishes.	With rotary polishing machines or alternatively with random orbital drive polishing machine.
Polishing Sponge, white, smooth 150 mm or 130 mm	Soft high gloss polishing sponge for applying high-gloss polish by machine.	With rotary polishing machines or alternatively with random orbital drive polishing machine to remove swirls.
Micro-fiber Polishing Cloth	Microfiber polishing cloth for swirl-free intermediate and final cleaning, during and after buffing operations. In combination with high-gloss finishing polish, particularly suitable for cleaning showroom cars. Reusable after washing without fabric softener or bleach.	Fold Polishing Cloth to a square and wipe the surfaces to be cleaned, exerting slight pressure.
HydroColor Cleaner Plus	Removes all wax and polish residues and thus makes it possible to check surfaces on which irregularities were removed by sanding and polishing.	Soak the microfiber Polishing Cloth with HydroColor Cleaner Plus and wipe the finish to be cleaned with it. Then wipe the cleaned surfaces with a dry microfiber cloth. Check whether all irregularities have been removed and if so, clean with a microfiber cloth.

Polishing System Meguiar's®

In line with the progress made in the development of OEM topcoat systems (e.g. powder clears), the use of appropriate procedures to level irregularities in paint finishes is becoming increasingly important. BMW AG therefore asked Meguiar's Inc. to completely revise its existing polishing system and adapt it especially to the removal of surface conditions and the prevention of scratching and faulty polishing (e.g., swirl marks). Most of the cleaners and polishing products of the new generation are water-based, which means that they do not contain any organic solvents and thus make a considerable contribution to the protection of human health and the environment. General:

Before you begin to level surface irregularities by sanding with fine (P 2500) paper, you have to remove all dust, dirt and other contamination from the paint finish. Prior to polishing, the surface to be treated must be wiped with HydroColor Cleaner. Between the individual polishing steps, that is each time a finer polishing product is to be used, the surfaces being treated must be cleaned with HydroColor Cleaner Plus to keep the surface roughness as low as possible. After the last polishing step, and before finishing with wax, the surfaces treated must be cleaned again with HydroColor Cleaner Plus to check whether all surface irregularities have been removed. When choosing the method to be used to remove defects in paint finishes, you should always select the least aggressive product possible.

Products	Properties	Use
Paint Polish Heavy-Cut M-85 Diamond Cut Compound 2.0 32 oz. (p/n M8532) 1 gal. (p/n M8501)	Heavily abrasive paint finish cleaner suitable to remove deeper surface defects and scratches as well as severe damage caused by normal or industrial pollution. Must be protected from frost.	Application by machine. Rotary polishing machine with damped backing plate and lambskin cap or W-7006 Polishing Pad 1700 - 2200 rpm
Medium-Cut Cleaner M-83 Dual Action Cleaner/ Polish 32 oz. (p/n M8332) 1 gal. (p/n M8301)	Combi-product for medium- and fine-cut cleaning as well as the second polishing step after cleaning with M-85. M-83 removes fine scratches and sanding marks. Must be protected from frost.	Application by machine. Rotary polishing machine with damped backing plate and W-8006 Polishing Pad 1700 - 2200 rpm
Fine Polish M-82 Swirl Free Polish 32 oz. (p/n M8222) 1 gal. (p/n M8201)	Deep gloss polish used to buff the paint finishes of new and used cars. Removes fine scratches and swirls and protects finishes from new ones when properly applied. Must be protected from frost.	Application by machine or by hand. Rotary polishing machine with damped backing plate and W-8006 Polishing Pad 1700 - 2200 rpm or orbital machine and W-8006 Polishing Pad to remove swirls.
Deep Gloss Cleaner M-34Final Inspection 16 oz. (p/n M3416) 1 gal. (p/n M3401)	Liquid deep gloss cleaning spray for new and used cars. Particularly suitable for the swirl-free removal of fresh paint finish contamination such as dust or fingerprints from showroom cars and of buffing residue after polishing. Must not be used in paint application areas. Must be protected from frost.	Application by machine or by hand. Rotary polishing machine with damped backing plate and W-8006 Polishing Pad 1700 - 2200 rpm or Rotex machine and W-8006 Polishing Pad to remove swirls.
High Tech Yellow Wax (Paste 14 oz. p/n M2611) (Liquid 16 oz. p/n M2616) (Liquid 1 gal. p/n M2601) **Gold Class Wax** 16 oz. (p/n G7016)	High performance wax for paint finishes.	Easy to use because product can be applied either manually using a buffing cloth or with a random orbital polishing machine combined with a damped backing plate and a W-8006 Polishing Pad. Can be buffed by hand to deep gloss without much effort using a clean buffing cloth.
Quik Wax 16 oz. (p/n A1616)	Supplied in a spray bottle for quick waxing.	Easy to use because: product can be applied either manually using a buffing cloth or with a random orbital polishing machine combined with a damped backing plate and a W-8006 Polishing Pad. Can be buffed by hand to deep gloss without much effort using a clean buffing cloth.

Polishing System Meguiar's® (continued)

Tools and supplementary products

General:

The successful removal of irregularities in paint finishes not only depends on the use of suitable cleaners and polishes, but also requires specific tools and additional products. Therefore, it is very important that the individual components used are compatible with each other and can be combined to obtain the desired effects. The following supplementary products and tools are used with the polishing system developed for BMW:

Products	Properties	Use
Backing Plate damped, velcro-type W-65 8" W-64 6.5"	The integrated damping foam layer reduces to a minimum polishing marks left by pads pressed on too hard unintentionally. Furthermore, it levels slight tilting during the buffing process.	With rotary polishing machines, lambskin polishing pads and foam pads.
Lambskin Polishing Pad Cut 'n Shine Wool Cutting Pad (190 mm) W-4000 8"	Genuine lambskin. The Lambskin Polishing Pad should be used with the Heavy- or the Medium-Cut Cleaner in jobs that require heavy abrasion.	With rotary polishing machines and damped backing plate.
Polishing Pad, red Soft Buff (200 mm) W-7000 8" **Meguiar´s® Foam Cutting Pad** (160 mm) W-7006 6.5"	Heavy abrasion foam polishing pad, but less aggressive than the lambskin pad. To be used with Heavy-Cut or Medium-Cut Cleaner.	With rotary polishing machines and damped backing plate or Rotex (orbital) machine and W-300 or W-8006 Polishing Pad to remove swirls.
Polishing Pad, yellow W-8000 8" **Soft Buff Foam Polishing Meguiar´s®** (160 mm) W-8006 6.5"	Low abrasion foam polishing pad to be used with Medium-Cut Cleaner and Fine Polish.	With rotary polishing machine and damped backing plate or with Rotex (orbital) polishing machine to remove swirls.
Soft Buff Foam Finishing Pad W-9000 8" W-9006 6.5"	Fine foam polishing pad for use with swirl free polish.	With rotary polishing machine or with Rotex (orbital) polishing machine.
Microfiber Towel X2010 (single pack) X2020 (3-pack)	Microfiber polishing cloth for swirl-free intermediate and final cleaning, during and after buffing operations. In combination with Meguiar's M-34, particularly suitable for cleaning showroom cars. Reusable after washing (at 60°C/140°F, without fabric softener or bleach.)	Fold Polishing Cloth to a square and wipe the surfaces to be cleaned, exerting slight pressure. When using cloth with M-34: From a distance of approx. 50 cm, spray a mist coat of microscopic droplets onto the paint finish to be cleaned. Using the Polishing Cloth and exerting slight pressure, wipe the surface dry to the desired swirl-free deep gloss, turning the cloth over several times.
HydroColor Cleaner Plus	Removes all wax and polish residues and thus makes it possible to check surfaces on which irregularities were removed by sanding and polishing.	Soak the microfiber Polishing Cloth with HydroColor Cleaner and wipe the finish to be cleaned with it. Then wipe the cleaned surfaces with a dry microfiber cloth. Check whether all irregularities have been removed and if so, clean with M-34 and a microfiber cloth.
HydroColor Thinner	Deionized water for intermediate cleaning during sanding and polishing operations. *Must be protected from frost.	Soak the microfiber Polishing Cloth with HydroColor Thinner and wipe the finish to be cleaned with it. Then wipe the cleaned surfaces with a dry microfiber cloth.

Polishing System Meguiar's® (continued)

How to remove polishing swirls

Remarks:

Unsuitable polishing procedures and products, or working steps not carried out properly, can leave three-dimensional irregularities (also called swirls), especially on fresh paintwork. Such irregularities become visible when viewed from certain angles of light incidence (viewing angle of approx. 25°).

Defects of this type can be removed at low cost from original, as well as repaired finishes by using Meguiar's® polishing system combined with Rotex or random orbital polishing machines.

Conditions/Prerequisites:

Polishing jobs must be carried out at an ambient temperature between about 18°C/65°F and 25°C/77°F, away from direct sunlight and on well-cured, cooled-down paint finishes only.

The surfaces to be polished must be free from dust, dirt particles or other contamination. All plastic parts and car components adjacent to the surfaces to be polished must be covered with masking tape to prevent damage. Furthermore, all surfaces that need not be polished, for example the windows, should be masked, so that they will not have to be cleaned later.

Procedure:

Clean the surfaces to be treated and apply a small amount of Meguiar's® Medium Cut Cleaner M-83 Dual Action Cleaner/Polish to the cleaned area and the polishing pad of the Rotex or random orbital polishing machine. Do not apply too much product at once but rather use small amounts repeatedly, as required.

Polish an area that is larger than the defective surface (area with swirls), using a W-8006 Polishing Pad and a Rotex or random orbital polishing machine. Be sure to press the machine down and move it slowly as if describing the figure of an eight over the surface being treated. Then wipe off any excess cleaner by hand with a Microfiber Polishing Cloth, exerting slight pressure.

Always use a separate polishing pad for each polishing product. Be sure not to wipe the more aggressive Medium Cut Cleaner into the Fine Swirl Free Polish. Using a fresh W-8006 Polishing Pad and Meguiar's® Swirl Free Polish/buff the area being treated with a Rotex or random orbital polishing machine reaching beyond the edges of the work area.

Final cleaning and inspection:

To remove all residues that may have been left from the polishing operations, wipe all polished areas with a microfiber polishing cloth and HydroColor Cleaner. Inspect the cleaned surfaces in direct sunlight, if possible, or under suitable light sources.

If the surfaces need to be reworked after the inspection process, repeat the above steps as required.

Sealing the paint finish:

After successful final cleaning and quality inspection, you can apply Meguiar's® High Tech Yellow Wax, Gold glaze wax using a microfiber polishing cloth, to enhance the resistance of the paint finish (product contains silicones – s do not use it in paint application areas.). After a short waiting time of approx. 5 minutes, wipe off any excess wax with a clean microfiber polishing cloth to obtain a deep gloss paint finish. A still deeper gloss can be achieved through final treatment with Meguiar's® Deep Gloss Cleaner.

Polishing System 3M

Polishing of OE Clears

Polishing of 2K Clears (defects)

Polishing of 2K Clears, Blend-in repair

Notes:

- It is best to polish the next day.
- Same day, after proper bake and IR short-wave (100%) for 15 min and cool down for 60 min.

Working Process: Polishing of 2K Clear	
Cleaning:	Pre-clean surface with ColorSystem cleaners.
Removing a defect : P3000,	For OEM Clear and ColorSystem Clears. Remove defect with P1500 and re-sand area with DA or P4000.
3M Products	
Stage 1: Compound with Finesse It II™ (PN 05928) with yellow wool pad (PN 05713). Utilizing a rotary style polishing machine with variable speed, 900-1800 rpm. Clean surface and wipe residue and lint with a detailing cloth (PN 06016). Check for scratches, if visible, repeat stage 1.	
Stage 2: Polish with Foam pad polishing glaze™ (PN 05996) with black foam pad (PN 05725). Utilizing a rotary style polishing machine with variable speed, 900-1800 rpm. Clean surface and wipe residue and lint with a detailing cloth (PN 06016). Check for scratches, if visible, repeat stage 2.	
Stage 3: Polish with Foam pad polishing glaze™ (PN 05996) with black foam pad (PN 05729). Utilizing a dual action polishing machine, 1200-1800 rpm. Clean surface and wipe residue and lint with a detailing cloth (PN 06016).	
or	
Apply Perfect-It 3000 Ultrafin SE (3M) and blue foam pad for a perfect swirl-free result.	

Retail Operator / General Manager	Sales - New Car	Sales - Pre-Owned	Business Manager (F&I)	Service	Parts & Accessories	Administration

Date:	06/14/2013	Source:	Aftersales Business Development and Marketing	Replaces:	-
Bulletin #:	B-10-0613-1002	Name:	Liz Pfeiffer	Supersedes :	-
		Title:	Automotive Chemical Sales Manager		
		Phone #:	(201) 571- 5194		

BMW Aftersales Business Development & Marketing
2013 BMW Original Care Product Line Launch

BMW of North America, LLC is pleased to announce as of June 15, 2013, the addition of the 2013 BMW Original Care product line to the BMW Group Automotive Chemicals portfolio. These products are now available for ordering through the Virtual Warehouse/ Excelda.

We know BMW owners take great pride in their vehicles, so let's help them take care of those vehicles by bringing awareness to the wide range of BMW Original Care Products. The BMW Original Care Line of products are designed to maximize your BMW's esthetic beauty while not running the risk of damaging it. In other words, these products are engineered, tested and approved specifically for your BMW.

Product Line:

Product	Image	Part No.	Order Size	Dealer Net Price	MSRP Per Bottle
Car Wash Shampoo		83 19 2 339 675	1 Order/ 1 Case/ 12 Bottles	$4.53 Per bottle $54.36 Per Case	$6.97
Treesap Remover		83 19 2 339 674	1 Order/ 1 Case/ 12 Bottles	$6.55 Per Bottle $78.60 Per Case	$12.13
Soft Top Cleaner		83 19 2 339 672	1 Order/ 1 Case/ 12 Bottles	$6.11 Per Bottle $73.32 Per Case	$9.40
Express Wax		83 19 2 339 677	1 Order/ 1 Case/ 12 Bottles	$12.33 Per Bottle $147.96 Per Case	$20.55
Glass Cleaner		83 19 2 339 681	1 Order/ 1 Case/ 12 Bottles	$3.42 Per Bottle $41.04 Per Case	$5.70
Insect Remover		83 19 2 339 684	1 Order/ 1 Case/ 12 Bottles	$6.83 Per Bottle $81.96 Per Case	$10.51
Wheel Cleaner Gel		83 19 2 339 678	1 Order/ 1 Case/ 12 Bottles	$5.52 Per Bottle $ 66.24 Per Case	$8.49

Soft Top Repellant		83 19 2 339 673	1 Order/ 1 Case/ 12 Bottles	$19.34 Per Bottle $ 232.08 Per Case	$31.19
Interior Cleaner		83 19 2 339 679	1 Order/ 1 Case/ 12 Bottles	$2.84 Per Bottle $34.08 Per Case	$5.08
Tire Shine		83 19 2 339 686	1 Order/ 1 Case/ 12 Bottles	$10.54 Per Bottle $126.48 Per Case	$17.00
Vinyl Care		83 19 2 339 682	1 Order/ 1 Case/ 12 Bottles	$4.69 Per Bottle $56.28 Per Case	$7.81
Tar Remover		83 19 2 339 685	1 Order/ 1 Case/ 12 Bottles	$5.21 Per Bottle $ 62.52 Per Case	$9.65
Leather Care Kit		83 19 2 339 687	1 Order/ 1 Case/ 12 Units	$11.97 Per Units $143.64 Per Case	$20.64
Car Care Display Stand		83 19 2 327 447	1 Order = 1 Stand	$ 293.44 Per Stand	-
Car Care Counter Display Stand		83 19 2 327 448	1 Order = 1 Stand	$ 112.86 Per Stand	-

Note:
Pricing is subject to change.
Products available for purchase while supplies last.

Product Related Questions:
Automotive Chemicals Manager – Liz Pfeiffer - Elizabeth.Pfeiffer@BMWNA.com or your local Automotive Chemical Representative

Retail Operator / General Manager	Sales – New Car	Sales - Pre-Owned	Business Manager (F&I)	Service	Parts & Accessories	Administration

Date:	12/03/2013	Source:	Vehicle Processes	Replaces:	B-10-1113-9903
Bulletin #:	B-10-1113-9904	Name:	Elizabeth Pfeiffer	Supersedes	-
		Title:	Automotive Chemical Sales Manager		
		Phone #:	(201) 571-5194		

BMW Aftersales Business Development & Marketing Original BMW Care Products for Matte Paint

BMW of North America, LLC is pleased to announce the launch of All New Original BMW Care Products for Matte Paint. These car care products are specifically formatted and approved to be used on BMW Matte Finish Cars. Please find in the attachment the Instruction Manual of each Matte Paint Care Product.

Parts Information:

Description	Part Number	Pack Size / Rounds	Dealer Net	MSRP
Matte Paint Special Shampoo	83 12 2 293 942	1 Bottle	$38.45	$58.26
Matte Paint Special Cleaner	83 12 2 293 944	1 Bottle	$57.72	$87.45
Matte Paint Special Express Wax	83 12 2 293 948	1 Bottle	$48.10	$72.88
Matte Paint Special Nano Wax	83 12 2 293 949	1 Bottle	$125.23	$189.74
Matte Paint Application Set	83 12 2 353 747	1 Set	$ 36.35	$55.08

****Important: These Matte Paint Care Products will not be sold in case quantities. If an order is placed for one bottle or one Application Set, the dealer will receive "one" product. Therefore, if a dealer would like to purchase two of each product, they would need to order two bottles of each. (1 order = 1 part)**

Note: Pricing is subject to change.
Please refer to the BMW Group Automotive Chemicals catalog for the full range of product offerings.

Contacts:
Automotive Chemicals Sales Manager – Elizabeth Pfeiffer (201) 571-5194
Elizabeth.Pfeiffer@bmwna.com

Automotive Chemical Representative Team:
Southern Region-John Hack- (470) 222-1490- John.Hack@BMWNAext.com
Eastern Region- Joshua Weinbaum-(203)727-4682- Joshua.Weinbaum@BMWNAext.com
Eastern Region- David Brooks-(781)223-7582- David.Brooks@BMWNAext.com
Central Region- Mike Taisch-(312)720-5745 - Mike.Taisch@BMWNAext.com
Western Region- Frank Lam-(323) 246-0445- Frank.Lam@BMWNAext.com

Instruction Manual:

Matte Paint Special Shampoo

BMW Part number: 83 12 2 293 942

1. Dissolve 3 capfuls of the product in a bucket containing 338 ounces of warm water and use a sponge to clean.

2. Upon completing the vehcile wash dry accordingly using a BMW Approved Chamois

Do not use in the blazing sun or on heated surfaces. Protect from frost.

Matte Paint Special Cleaner

BMW Part number: 83 12 2 293 944

1.Spray on a thin layer of the product and apply with slight pressure.

For smaller stains spray the product directly onto the cloth.

2. Use a dry microfiber cloth to spread out

3. Subsequently wipe over the treated surfaces with a clean, damp microfiber cloth and rub dry with a clean, dry microfiber cloth.

Do not use in the blazing sun or on heated surfaces. Protect from frost.

Matte Paint Special Express Wax

BMW Part number: 83 12 2 293 948

1. Spray the product onto the clean and dry surface. Spread out carefully and immediatly using a soft, dry microfibre cloth – Do not allow the product to become dry to the touch! Rub dry carefully using a clean and dry microfibre cloth.

Do not use in the blazing sun or on heated surfaces. Protect from frost.

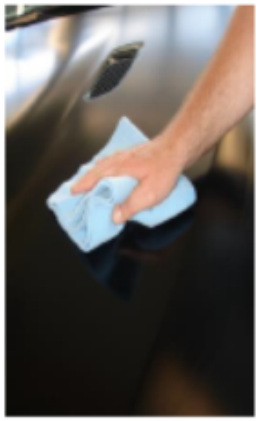
Matte Paint Special Nano Wax

BMW Part number: 83 12 2 293 949

1. Use the applicator sponge and choose the right side of the sponge!

2. Apply an even thin layer of the product to the clean, dry surface in circular movements. Leave for about 3 minutes. Do not allow the product to become dry to the touch!

3. Use a clean, dry microfibre cloth. Apply slight pressure and polish.



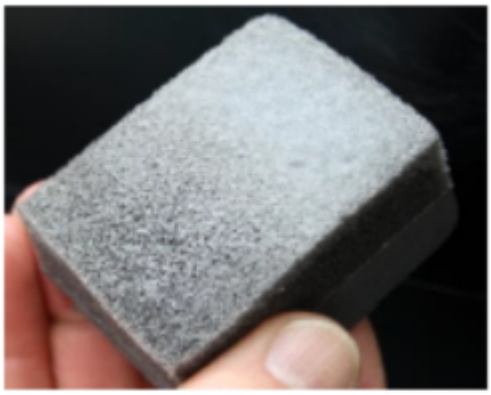
Do not touch the treated surface for at least 20 minutes!

Do not use in the blazing sun or on heated surfaces. Protect from frost. Use the applicator sponge only once.

Matte Paint Application Set

BMW Part number: 83 12 2 353 747

1. The sponge is intended for single use only, since residual material such as dried-in nano wax cannot be removed from the sponge. Reusing the sponge could cause damage to the surface (micro-scratches, etc.).



2. The grey applicator sponge is made from 2 different materials: a solid smooth, and a soft, openpored side for applying the BMW matte paint special nano wax in circular movements.

3. Attention for the care of matte paint: Please use microfibre cloths that are not hemmed at the edge. Hemmed cloths may cause damage to the surface.