PERFORMANCE BOAT CANDY

The Performance Boat Candy Advantage

A Professional Guide to Restoring and Protecting Your Gelcoat

By Tim Weinzirl, Founder of Performance Boat Candy

Get That New Boat Feeling Again!

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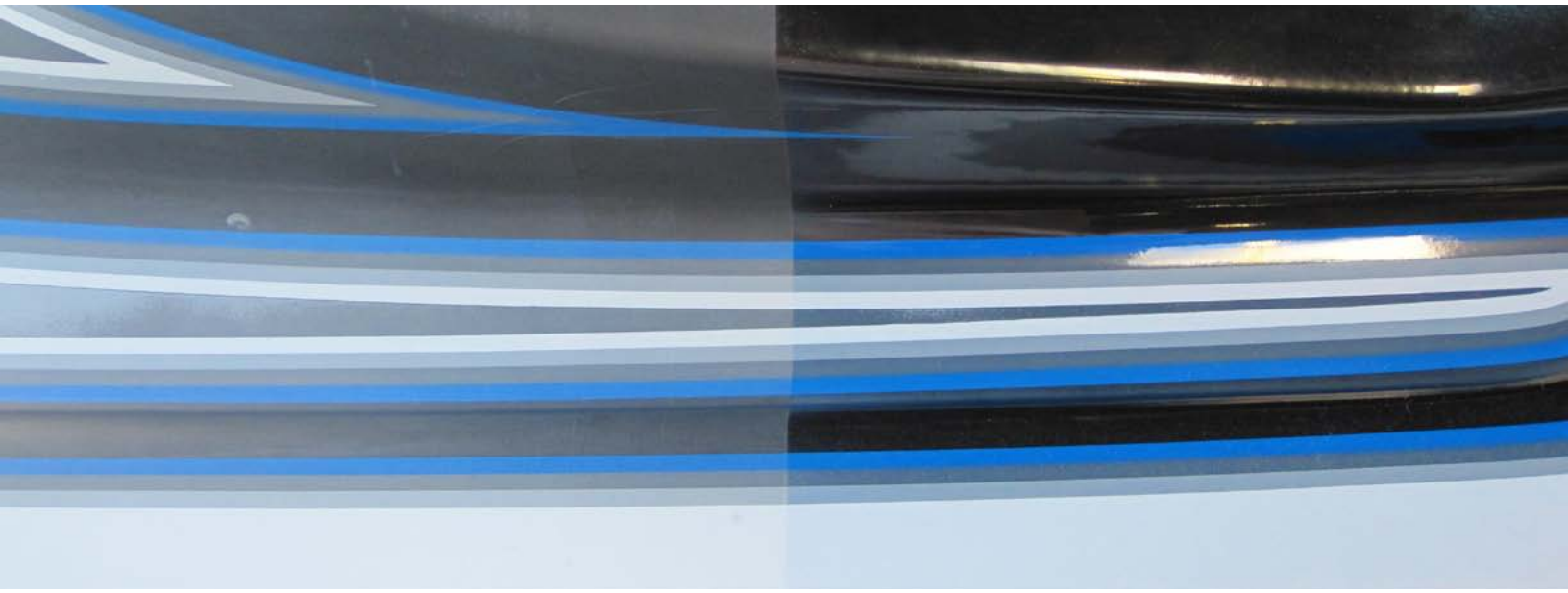
Introduction to the PBC Advantage

Over the years I've seen thousands of boats in every size, color, and condition imaginable, and to most boaters (myself included) there's nothing better than seeing a brand new boat gleaming with deep, rich colors that catch your eye and draw you in for a closer look.

Fast forward a few years and that eye-popping boat might not be as dazzling as it once was. Over time, that same fiberglass gelcoat finish becomes dull, faded, and less vibrant. Why does this happen? The primary reason is oxidation. Even though gelcoat, the outermost layer of the hull, feels smooth to the touch, it's actually a semi-porous mix of polyester resins and various pigments that are constantly under attack from the sun's damaging ultraviolet rays, extreme heat and cold, salt, dirt, and airborne fallout. With all of these environmental factors, oxidation will occur if the gelcoat finish isn't protected with a chemical bonding protectant (either carnauba or polymer-based wax) that slows or halts the oxidation process. As if this isn't bad enough, hot and cold temperature fluctuations force your hull to expand and contract over time, further compromising the finish of your boat by creating an even more porous surface.

When new, gelcoat has a smooth and flat surface that reflects light like a mirror. But as the sun beats down, the ultraviolet rays begin eroding the gelcoat molecules until they break-off, creating microscopic peaks and valleys. This rougher surface now refracts light at various undefined angles, losing that mirror-effect and making your boat look dull, faded, and cloudy.

Enter the **Performance Boat Candy Advantage**. The PBC Advantage is a complete and easy-to-use system of technology-driven boat care products and professional detailing techniques I created for any boat owner wanting to keep or restore their boat finish and make it look like the day it left the showroom floor.



Check out the difference in this before and after section of a heavily oxidized boat after using the Performance Boat Candy Advantage. The left side is unrestored while the right side shows an amazing depth of shine.

In the following pages, I'm going to share with you some of the knowledge and expertise I've learned through many years of researching, developing, and testing my own boat care products, along with techniques and tips widely used by only the most experienced professional detailers. The photos we use throughout the guide are actual photos of boats without the aid of any "camera magic". In fact, the 1978 Bahner above has been used at trade shows to demonstrate the effectiveness of our system.

I guarantee my system will ensure a professional result that will make anyone that sees your boat envious of its appearance...so be prepared for fellow boaters to ask you how to make their boat look as good as yours.

Let's get started!

The 3 Levels of Gelcoat Oxidation

There are typically 3 levels of oxidation classified as either heavy, moderate, or light, shown in the photos below. Knowing the condition of your hull will help you properly select the right combination of products and tools needed to get a great result.

Heavy Oxidation

Heavy oxidation usually exists on boats that are older and have been exposed to long periods of sunlight. These hulls typically look extremely dull, chalky, and usually have no reflective shine. In most cases, wiping the surface will result in a white chalk-like residue transferred to your hand or towel. The left photo below shows my family owned 1978 Bahner that was left for dead many years ago. You can see we were able to restore the hull to like-new condition in a before/after view. Note: If the hull has tiny pinholes or looks porous, it's best to have it inspected by a marine professional—in these extreme cases the hull might require a gelcoat expert to repair the damage.

Moderate Oxidation

Moderate oxidation can exist on boats that are older and sometimes even newer boats that are only a few years old. I've seen many newer boats that have dark colors on the deck that were left unprotected without a quality wax and became oxidized in a short time. Check out the pic below that one of our customers sent us of a newer model wakeboard boat with moderate oxidation—not good, especially when you're spending big coin to own one of these bad boys! This could have easily been avoided by applying a high-quality coat of wax twice per year along with a detail spray wax with UV protectants after each boat use.

As you can see from the photos, moderately oxidized hulls typically look somewhat dull, faded, and usually have lost a lot of their reflective shine. Below are before and after photos of a moderately oxidized hull with the restored section on the left side.

Light Oxidation

Light oxidation can occur on new or old boats and is usually exhibited by traces of a light haze or cloudy appearance along the surface. This is most noticeable in areas that have dark colors where the showroom shine begins to dull and become muted. This condition requires the least amount of time to correct and can usually be easily restored. Don't hesitate to get this corrected before it gets worse! Below is a pic of a boat with light oxidation—you can see the oxidation starting to appear in the lower half. Notice the contrast between the restored upper-half, which has a deep and rich quality, compared to the hazy lower half.

Polishers, Pads, and Accessories

Polishers

Once you have assessed the hull, it's time to choose the right tools for the job. This begins with the selection of a professional-style power polisher. There are generally two types of professional polishers; Rotary/high-speed, or dual-action/random-orbit. Generally speaking, the rotary/high-speed polisher is used for severe and moderate oxidation because it produces more cutting action and can accept wool or foam style pads, whereas the dual-action/random-orbit polisher is used for moderate or light oxidation because it produces less cutting action and is generally used with foam pads only.

Note: I recommend using brand name high-quality polishers such as those shown below—bargain polishers perform inadequately and yield undesirable results. High quality polishers range anywhere from $100 to $250 and will have a variable speed selector.

Using a quality name brand polisher is highly recommended.

Rotary/high-speed polishers are generally the choice of professional marine detailers because of their versatility and control, but can be more difficult to use than a dual-action polisher and take a bit longer to master. However, for heavy or moderate oxidation, there is no better choice in a polisher. The polisher speed is measured in revolutions per minute (RPM). Below are the pros and cons of using this style polisher:

Pros

-Superior cutting action
-Less work time
-Higher level of control
-Accepts any style pad (wool or foam)
-Versatile (Light or heavy-duty applications)

Cons

-Takes time to master
-Higher cost
-Heavy
-Hard to maneuver in tight spots
-Tendency to create swirl marks

Photo of a Rotary/high-speed polisher. This style polisher is the choice of marine professionals.

Dual-action/random-orbit polishers are lightweight, easy to use, and are excellent for polishing and applying wax. The polisher speed is measured in oscillations per minute (OPM). These polishers oscillate and rotate generally eliminating the chance of burning or marring the hull, even on painted surfaces. They do leave something to be desired when used for heavy oxidation because of the longer work time required as compared to a rotary polisher, and they generally don't accept wool pads, which provide better cutting action than foam (more on pads later). Below are the pros and cons of using this style polisher:

Pros

-Easy to master
-Lightweight
-Highly maneuverable
-Great for gelcoat or paint
-Lower cost than rotary polishers

Cons

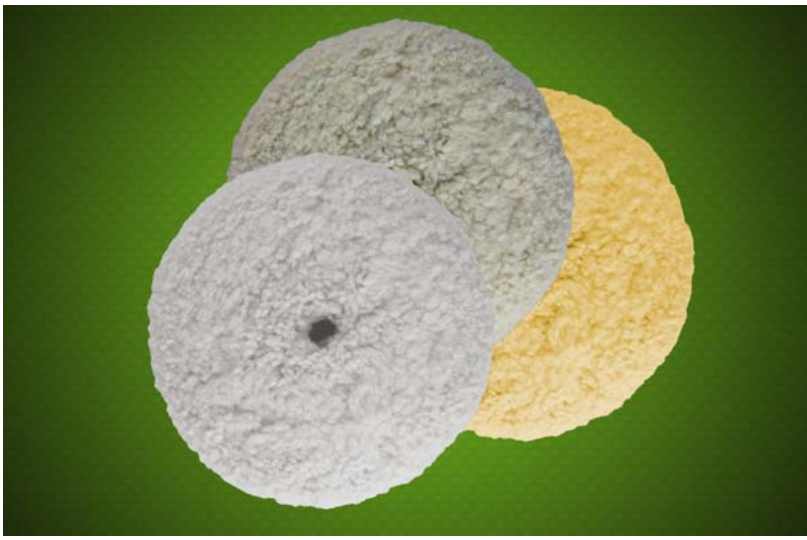
-Less cutting action
-For use with foam pads only
-Longer work time required for severe jobs

Photo of a Dual-action/random-orbit polisher. A great all-around tool that's extremely effective and easy to use.

Pads

The two types of pads generally used for compounding or polishing are either foam or wool pads. Generally speaking, foam pads produce less friction and therefore less cutting action than wool due mainly to the material makeup. The tradeoff when using wool pads vs. foam is that wool provides better cutting action for tough jobs but is harder to get an even finish without leaving swirl marks when used by novices.
Pro Tip: I like to use wool pads for heavy and moderate oxidation and foam pads for polishing and waxing—again keeping in mind that you only have the choice of wool or foam pads when using rotary polishers, since wool pads aren't typically recommended for use with dual-action polishers.

Example of a foam pad



Example of a wool pad

Key points on pad selection

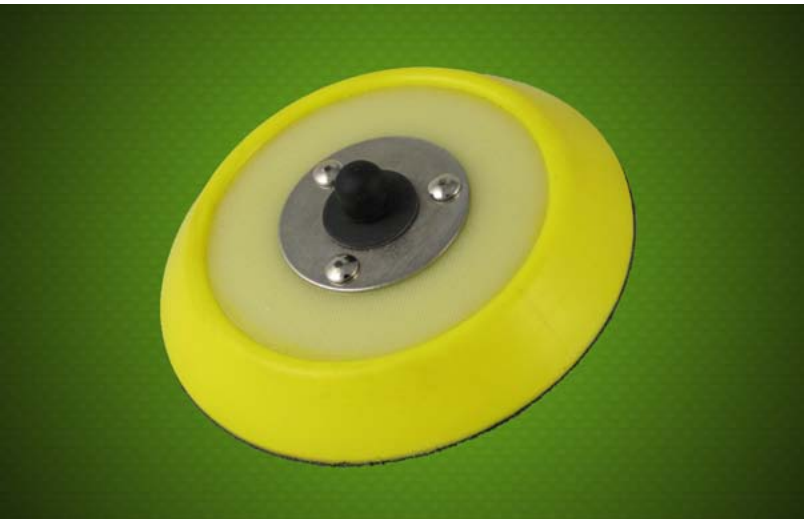
- Wool and foam pads generally have different levels cutting action: Heavy, medium, or light. Use the pad that matches your surface condition. For example, if you have heavy oxidation, choose a heavy pad, whereas if you have moderate oxidation, use a medium pad, and so on.
- Larger diameter pads generate more heat, which increases the cutting action of your polish or compound, while smaller diameter pads generate less heat and therefore less cutting action.
- Faster rotational speed of the polisher pad increases cutting action, while slower rotational speed reduces the cutting action.

- Increasing hand pressure on the polisher also increases the cutting action, however this increases the chances of marring and swirling.
- Wool pads typically cut better than foam pads but reduce the likelihood of a uniform and swirl-free finish for inexperienced users.
- **Pro Tip:** To avoid damaging your hull when first starting a job, always take the least aggressive approach since each surface is different. To do this, begin with a slow rotational speed and light hand pressure, then increase rotational speed and/or hand pressure until you get the result you are seeking (more on this topic later in the guide).

Accessories – Backing Plates and Pad Washers

Backing Plates

Backing plates are usually screwed on to the polisher and allow the pad to then be secured to the backing plate itself. Rotary polishers usually come from the factory with a 7” backing plate that will accept hook and loop style wool and foam pads from 8” up to 10” in diameter. Aftermarket backing plates are also available in smaller sizes and are designed for numerous pad sizes. Dual-action polishers usually accept foam pads with the stud built directly into the pad, however I prefer using a universal aftermarket 5” backing plate mated to 5.5” foam pads because of the ease of pad changing and wide availability of different density pads.



Example of a Dual-Action backing plate

Example of a High Speed backing plate

Pad Washer

Pad washers are a fast and effective way to clean your pads as they become dirty while buffing, and if using the same pad when switching between compounds and polishes, for example. They also save a lot of time, especially if you have a lot of surface area on your boat. The downside is they can be expensive. Below is a photo of a pad washer.

A pad washer is a great tool for cleaning your wool or foam pads and extending their life.

Product Selection

Some of the world's top boat manufacturers use and endorse Performance Boat Candy products because of their superior quality, effectiveness, and ease of use. There are many products to choose from on the market, however as part of the PBC Advantage, I've designed our product mix to correlate with the 3 major levels of oxidation, making product selection easy for novices and experts alike. Below is a list of our Base Care products used for each gelcoat condition:

Heavy Oxidation: **Crystal Cut Extreme Compound™**
Moderate Oxidation: **Crystal Cut Compound™**
Light Oxidation: **Crystal Cut Polish™**
No Oxidation: **Crystal Gloss wax™**

Our advanced lineup of Performance Boat Candy's technology-driven products that produce amazing results

Later in this guide, we'll introduce our Restoration Matrix that matches up the right products and tools to your hull's specific condition.

Performance Boat Candy™ *Crystal Cut Extreme Compound*™ is a heavy cutting compound that incorporates our new advanced proprietary DCT2 (Diminishing Cutting Technology) formula to remove major oxidation, fading, UV damage, and 1000 – 1500 grit scratches and sanding marks to restore your boat's finish.

Performance Boat Candy™ *Crystal Cut Compound*™ incorporates our new advanced proprietary DCT2 (Diminishing Cutting Technology) formula to remove moderate oxidation, swirl marks, UV damage, scratches, and 1500 – 2000 grit scratches and sanding marks. This zero dust proprietary formula provides long work times and a uniform result that unlocks a deep, swirl-free finish in just a few passes.

Performance Boat Candy™ *Crystal Cut Polish*™ incorporates our new advanced proprietary DCT2 (Diminishing Cutting Technology) the most ultra-refined cutting powders available to remove minor oxidation, swirl marks, fading, water spots, and 2000 – 3500 grit scratches to produce a deep shine.

Wax

Performance Boat Candy™ *Crystal Gloss*™ polymer wax glaze provides a long-lasting deep shine that repels water spots and micro contaminants. This acrylic blend utilizes an anti-static formula offering the highest level of UVA and UVB protection. Crystal Gloss contains advanced gloss enhancers to produce a vibrant, high-clarity result while filling in minor swirl marks and imperfections producing unmatched results.

Restoration Matrix

Restoration Matrix

The Restoration Matrix is an integral part of the PBC Advantage that displays an at-a-glance look at the product, polisher, and pad you should use based upon your boat's particular level of oxidation—either heavy, moderate, or light. Below is a modified matrix for each level of oxidation. Note: skipping any of the phases within each matrix could produce undesired results, and is not recommended.

Restoration Matrix for HEAVY Oxidation - 4 phase process

Phase	Gelcoat Condition	Product	Polisher	Pad
Phase 1	Heavily Oxydized	Crystal Cut Extreme Compound	Rotary	Heavy/Medium Wool Pad or Heavy Foam Pad
Phase 2	Moderately Oxydized	Crystal Cut Compound	Rotary or Dual-Action	Heavy/Medium Wool Pad or Heavy/Medium Foam Pad
Phase 3	Lightly Oxydized	Crystal Cut Polish	Rotary or Dual-Action	Medium/Light Wool Pad or Medium/Light Foam Pad
Phase 4	No Oxydation	Crystal Gloss Wax	Rotary or Dual-Action	Wax Foam Pad

Restoration Matrix for Moderate Oxidation - 3 phase process

Phase	Gelcoat Condition	Product	Polisher	Pad
Phase 1	Moderately Oxydized	Crystal Cut Compound	Rotary or Dual-Action	Heavy/Medium Wool Pad or Heavy/Medium Foam Pad
Phase 2	Lightly Oxydized	Crystal Cut Polish	Rotary or Dual-Action	Medium/Light Wool Pad or Medium/Light Foam Pad
Phase 3	No Oxydation	Crystal Gloss Wax	Rotary or Dual-Action	Wax Foam Pad

Restoration Matrix for Light Oxidation - 2 phase process

Phase	Gelcoat Condition	Product	Polisher	Pad
Phase 1	Lightly Oxydized	Crystal Cut Polish	Rotary or Dual-Action	Medium/Light Wool Pad or Medium/Light Foam Pad
Phase 2	No Oxydation	Crystal Gloss Wax	Rotary or Dual-Action	Wax Foam Pad

Wax Application - 1 phase process

Phase	Gelcoat Condition	Product	Polisher	Pad
Phase 1	No Oxydation	Crystal Gloss Wax	Rotary or Dual-Action	Wax Foam Pad

Buffing and Waxing Process

Buffing Process

1. Mist your foam pad with 1 to 2 sprays of water using a water bottle with a sprayer attachment to prime the pad (3-4 sprays for a wool pad). Keep the pad moist but not dripping wet.

2. Apply approximately 1 pea-sized drop of product for every inch of pad diameter. For example, if you have a 10" pad, apply 10 pea-sized drops of product. Pro Tip: Most detailers apply a "ribbon" of product about 1.5" from the outside edge of the pad, or they make an "X" pattern with the product (see the PBC Advantage Reconditioning section below for examples). Using more product than recommended won't increase the effectiveness or cutting action and will only clog your pad more quickly.

3. Randomly blot the pad against the hull across a 2' x 2' section to spread the product evenly over the surface. This gives you even product coverage over the area and will minimize splatter.

4. Start your rotary polisher at 1,000 RPM (2,000 OPM for dual-action polishers) to spread the product evenly over the section, then increase the speed and hand pressure slowly until you get the desired cutting action. I usually find that between 2,000 to 3,000 RPM for a rotary polisher and 5,000 to 6,000 OPM for a dual-action polisher is a good speed to do the job. Do not hold the polisher in one spot for too long, as this could cause marring or burning of the gelcoat.

5. Make slow back and forth horizontal passes overlapping half of the previous pass using approximately 5 lbs of hand pressure. Then follow with up and down vertical passes overlapping half of the previous pass (some tight sections of the hull will only allow for vertical or horizontal passes). Keep the pad relatively flat on the surface. Note: you can add more hand pressure and rotational speed until you get the desired result, making sure to begin slowly until the correct hand pressure and rotational speed is discovered.

6. Use as many passes as needed until the product becomes translucent or until you get the desired finish you are after. Take your time during the process, especially when beginning each stage of restoration. If the product begins to dry on the surface, stop your polisher and give your pad another spray or two of water then continue.
7. Stop the polisher and lightly buff the area by hand with a quality microfiber towel to remove any product left on the surface. Do not allow the product to dry on the hull.
8. Inspect the surface to ensure you get the result you want. You should see a noticeable difference at this point from the original hull finish. Pro tip: go through all of the phases of the restoration matrix if you are reconditioning heavy or moderate oxidation on the beginning section of your hull—this will give you a feel for the different products and allow you to see the end-result of your hull's finish when the process is complete.
9. Move on to the next 2' x 2' section and repeat steps 1 through 8 until you have completed buffing the entire hull, then move on to the next phase of the restoration matrix.

Waxing Process

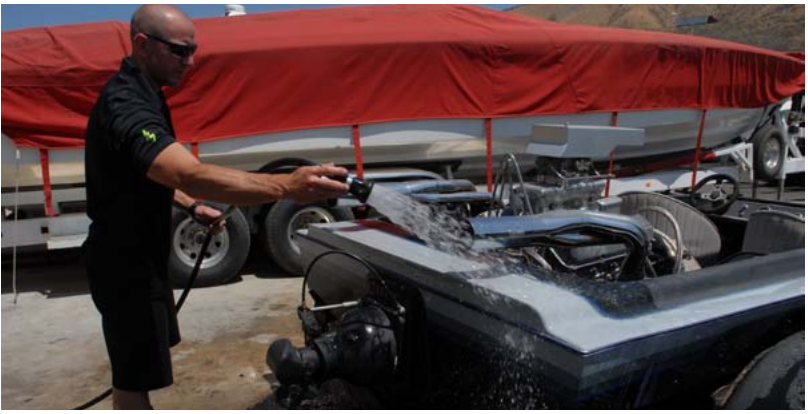
1. Just like the buffing process, mist your pad with water.
2. Apply 5 pea-sized drops of Crystal Gloss Wax to a 5” pad (approximately 1 pea-sized drop per inch of pad diameter).
3. Blot a 2’ x 2’ area to spread the wax over the section.
4. Start your rotary polisher at 1,000 RPM (2,000 OPM for dual-action polishers) to spread the product evenly over the surface. Using light hand pressure, increase the speed to 2,000 RPM (3,000 OPM for dual-action polishers).
5. Keeping the pad relatively flat on the surface, make horizontal passes overlapping half of the previous pass using light hand pressure.
6. Use as many passes as needed until the product becomes translucent or until you have complete and even coverage
7. Stop the polisher and buff the area by hand with a quality microfiber towel to remove any product left on the surface. Do not allow the product to dry on the hull.
8. Move on to the next 2’ x 2’ section and repeat steps 1 through 8.

The PBC Advantage Reconditioning System

Now that we've covered the main components of oxidation, products, tools, let's get started with the PBC Advantage gelcoat reconditioning system. In 4 easy steps, your boat will once again be admired on and off the water, so be prepared for fellow boaters to comment about your boat's appearance and ask your advice on how you keep it so shiny.

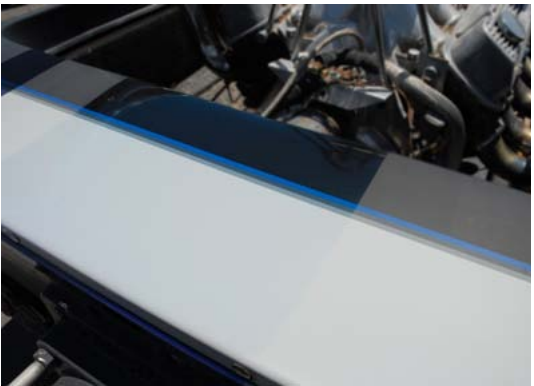
Step 1 – Wash and dry the hull

Before you can assess the true condition of your hull, we must first thoroughly wash it with a degreasing soap (such as Dawn®) and dry the surface completely. This will remove most of the surface contaminants and wax buildup so we can inspect the level of oxidation to decide which mix of products and tools are right for the job.



Step 2 – Hull Condition Inspection

Now that you've washed and dried the hull, inspect its condition relative to the 3 levels of oxidation (heavy, moderate, or light) as discussed in the previous section. Now that you have a good idea of your specific hull condition, it's time to move on to the next step.



Step 3 – Product/polisher/pad selection

After inspecting the hull condition and determining the level of oxidation, its time to select the proper tools and products for the job. Use the recommended Restoration Matrix in section 5 of this guide, which outlines the proper polisher, product, and pads suggested for each step relative to the level of oxidation you have.

The Best Products Available

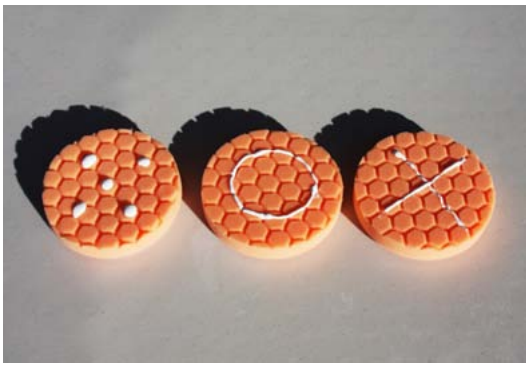
Step 4 – Restoration Process

Now it's time to begin reconditioning your hull following the Buffing and Waxing Process from section 6 in this guide. Below are some photos to help you visualize the process.

Prior to placing pad to hull, be sure to mask off any deck hardware (rub rail, seats, cleats, gas caps, grab handles, nav lights, etc.) within the area to be polished, to avoid accidentally buffing any unintended areas.

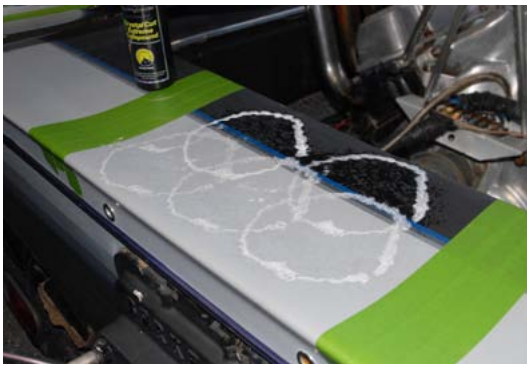
Mask all deck hardware after washing and drying your hull.

Mist your pad with water to prime the surface.



3 different ways to apply product to your pad.

A clean surface is essential before putting buffer to hull.



Blot the area evenly to avoid splatter when starting the buffing process.

Start slow to work product evenly onto surface.

Work product into surface until it has become translucent.

Buff residual product from surface to inspect result

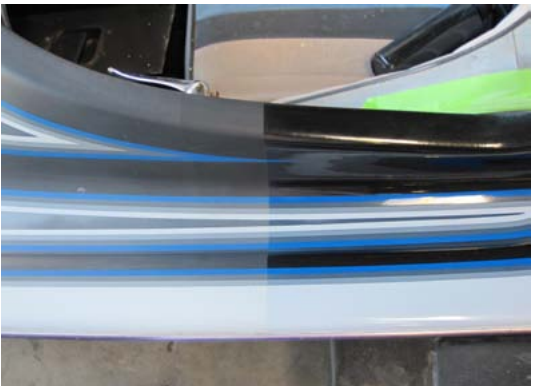
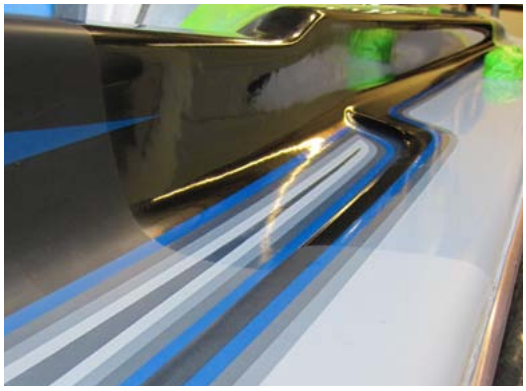
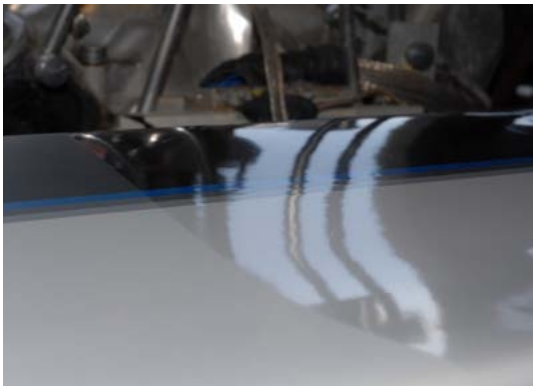
Just like magic, your hull is restored to its factory luster.

Key tips to consider that will help you get a professional result:

- Never assume your gelcoat is too far gone to restore. In most cases using high quality cutting compounds, polishes, and waxes along with the right polisher, pads, and technique, will restore the finish. Only the most severe cases of gelcoat deterioration and discoloration need to receive a dry/wet sand (usually handled by a professional marine detailer) prior to compounding, polishing, and waxing.
- **Always thoroughly wash the hull before buffing.** Contaminants such as dirt, water residue, and so on will reduce the effectiveness of the compound/polish/wax and potentially do harm to the gelcoat during the buffing process.
- Keep your pads clean and free from excess product buildup during the process.
- **Never work in direct sunlight.** Always find a shaded place (optimally indoors) when applying compound/polish/wax.
- **Work slowly** in small specific areas (usually 2' x 2' sections) using even overlapping passes while making sure to **work the product completely into the finish** until it has become translucent or has a light haze before wiping it down by hand with a microfiber towel.
- Keep the polisher pad flat to the surface, or only slightly on edge if the pad is "grabbing" or "chattering" too much (Not keeping the pad flat on the surface leads to swirl marks which are not pleasing to look at). If you experience too much chattering, mist the pad with a bit more water.
- Inspect each step of the process thoroughly before moving on. This will ensure a great result.
- Lastly, apply a coat of high-quality wax to your hull **at least twice per year** (once before the boat season, and once after the season). **A good wax will slow or halt the oxidation process and keep your gelcoat looking great.** Also be sure to use a wax detailer, such as our **Speed Gloss™** after each boat use—this product will maintain the hull and keep it protected from UV degradation between semi-annual waxing.

Before and After photos

Heavy Oxidation

Moderate Oxidation



Light Oxidation



Important Tips & Information

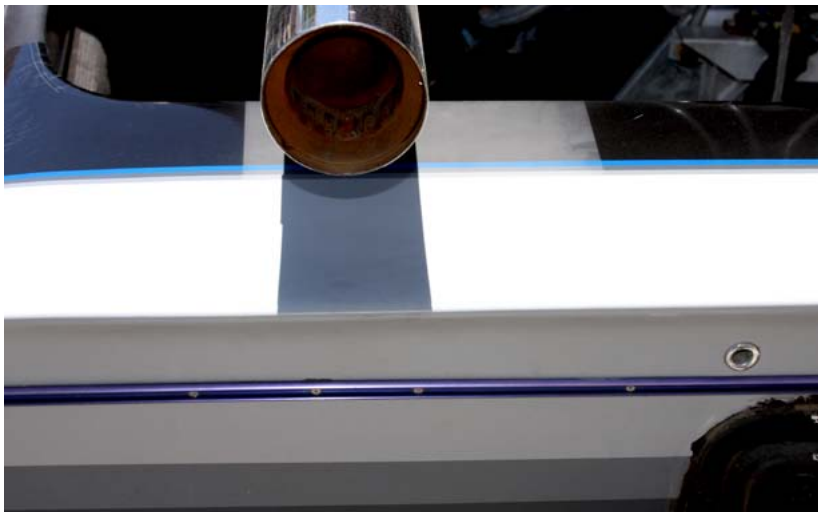
A common remark I hear is that oxidation has a tendency to “come back”. There are typically four cases why this happens:

1. The compound/polish used to remove oxidation incorporated the use of fillers to keep the manufacturing cost of the product low, therefore masking the true effect of the product and producing a false shine.
2. The compound/polish contained a wax or gloss enhancers that masked the effect of the product, giving it a false shine. Note: the term “cleaner wax” that contains both a polish and wax tends to fall into this category.
3. A good coat of wax was not used at least twice per year to protect the finish resulting in UV degradation.
4. The boat was not kept out of direct sunlight during prolonged periods when stored between use.

The photo below was taken by Sportboat Magazine in April 2012 of our 1978 Bahner test boat after reconditioning it for an article written about Performance Boat Candy’s Gelcoat Reconditioning System.

This was a photo taken by the PBC crew in June 2013 of the same area left untouched, more than a year later. This shows that by using a good quality wax, you can maintain your boat's appearance after the oxidation has been properly removed.

Here's another photo of a side-by-side view of the section reconditioned in 2012 on the right vs. the newly reconditioned section in 2013...there's virtually no difference!



Get more product information and check out our videos online at our website:
www.performanceboatcandy.com

Regards,

Tim Weinzirl
Founder
Performance Boat Candy

Special thanks to Bob Brown of Sportboat Magazine and Media Direction for providing images seen in this document.

Legal Notice

Performance Boat Candy
PO Box 8281
La Crescenta CA 91224
http://www.performanceboatcandy.com