How To Polish Aircraft Brightwork

Procedure

Aircraft Brightwork Polishing.

The following polishing procedures are a compilation of many methods developed through our own use of our products in field and lab testing, and from the many customers who have offered their own findings through their experiences in the field. Although the following is a recommended procedure, it may not be the only procedure to provide good results. Metal polishing is at least as much an art as a procedure, but we have found that the following method will usually give you outstanding results in the shortest amount of time –and with the least amount of hard work. Join in the fun, and give your aircraft personalized touch of a truly "knock your socks off", outstanding polish finish – with the absolute best depth, clarity and image obtainable, anywhere, any way – period!

Believe it or not… users of Nuvite NuShine II have coined the phrase **"**The Nuvite Look" to describe the excellence of polish jobs on aircraft. …Well, we couldn't say it better ourselves! "The Better the Polish Job, The Longer It lasts!" It's true! -once the surface is polished to that clear, deep image Nuvite NuShine II offers, (aka. "That Nuvite Look") and the more times it gets that Nuvite polish job, the longer it will last. This is because the metal surface becomes better and better. The surface is more "healed". The Nuvite system of Graded polishes allows you to truly remove embedded oxidation. Oxidation left in the polished surface rapidly increases the breeding of more oxidation, causing the polish job to dull quicker. The cleaner the surface of oxidation, the longer the polish job lasts.

Nuvite's NuShine II polishes are designed, specifically, to be a "System" of differing polishes – with characteristics that do specific tasks that will save you time and a great deal of effort to accomplish the particular phase of the process leading to the outstanding results you, and we, desire.

The Nuvite NuShine II Metal Polish System

Finishing Grades:

For use after surface of the metal has been "healed" or prepared with the compounding Grades listed below.

NuShine II Grade S – the finishing grade that gives the really deep, clear image when used as a final finish over a properly prepared, oxidation-free surface. (Here's "The Nuvite Look")

NuShine II Grade A – a medium-finish grade that gives a clear, clean shine and can be used as a light compounding grade to remove very slight oxidation, such as when a good polish job starts to slightly degrade. Also useful for hand polishing in tight spots where buffers cannot reach. Will give good finishes good, bright look similar to usual commercial grade polishes, but does not offer the "spectacular look" of NuShine II Grade S.

Compounding Grades:

Before a polished metal surface can present a really clear deep image, it needs to be prepared for the final finish to "heal the surface". One or more of the NuShine II Compounding Grades may need to be used before the final "Nuvite Look" can be achieved.

NuShine II Grade C – C is a light compounding grade polish that we recommend to use for prep of already polished surfaces prior to using Grade S. Grade C will remove the cloudy/hazy white background (called "undercast") and other surface dullness found in many otherwise good polish finishes. (See Specific Procedures).

Cutting Grades:

The first of the 3 step polishing method. Before starting, determine the condition of the metal surface. You will start with one of the grades below if the surface has not been previously polished or if there is damage such as pitting, corrosion, or deep scratches. If the surface is void of these defects, you can skip step 1 and go directly to step 2.

NuShine Grade G6 – When the surface has not been polished, or has been allowed to deteriorate, G6 may be a good answer as it will quickly but gently get to a "healed" surface finish. G6 has a high-tech abrasive system that is designed to do a quick, aggressive oxidation cut, and immediately break down to a finer

cut, similar to Grade C. Use when there is normal to serious oxidation on the surface of the aluminium, or even when very light surface marks are evident. Can also be used to blend light surface scratches in aluminium and will polish stainless steel.

NuShine II Grade F7 – F7 has a very hard and sharp, but very fine abrasive that continues its compounding action throughout the buffing process. It is best used for blending very light pitting or scratches from aluminium surfaces, polishing new, non-clad, cast, or forged, smooth surface aluminium, or for polishing smooth stainless steel or titanium. You can follow F7 with Grade S for final finish without intermediate steps.

NuShine II Grade F9 – F9 is used where the surface has been damaged by corrosion, has severe pitting, or has had severe stripping processes, including being sanded or scratched by abrasive cloth. Ask your Nuvite representative for specific recommendations, but never use standard commercial grade sanding papers –even wet, on aluminium to be polished. Alternatively, there are specialty micro fine surface sanding materials (specialty grade abrasives –not commercial grade sandpapers) that may be helpful in really severe situations prior to using F9.

But F9 is a good surface blender and is useful even for non-clad aluminium, forged and cast aluminium, stainless steel and titanium and anodized surfaces needing special procedures because of the surface hardness. Usually it is necessary to follow Grade F9 on aluminium with Grade G6 or C for further surface preparation prior to final finishing with Grade S.

Procedures:

Normal Procedures for Polishing Clad Aluminium

For repair of badly scratched or severely corroded metal, or special needs. Wear old clothes or a throwaway-type smock to save your clothes from black staining. For lightly pitted, very dull metal, with small surface scratches:

Remove any oils, paraffins (from smoke oils) and dirt from the surface before polishing. Surface should be dry with normal humidity conditions for best results.

1. Use Nuvite NuShine II – Grade F9 or G6 polish (depending on surface condition) starting with new or clean wool compounding pad on circular type buffer 2. Place one finger across the top surface of the polish, just wet your finger with polish (do NOT dip out a quantity of polish –only wet your finger with polish) and put a big, wet "fingerprint" of about half a finger length every 3" or so over an area of 18" – 2' square to be polished.

Work quickly – do not allow the polish to dry.

3. Pat the pad, or place the pad onto the "fingerprinted" area, and smear the polish around a little before turning on the polisher so wet polish does not throw. The polisher should not run more than about 1800-

2200 rpm. We do not recommend that higher than 2200 rpm be used due to the increased possibility of excess surface heating.

4. Tilt the pad up very slightly (10-15 degrees or so) so that one side of the pad touches the surface as it spins (do not lay flat). Sweep the polisher back and forth over the surface at a speed of about one to two seconds per foot of travel as it spins. It is not necessary to press hard against the surface. Light, but firm pressure is all that is needed. (If it were a horizontal surface, about the weight of the buffer or very slightly more.) Scratched area may require working back and forth, then up and down, then trace an "X" pattern over the scratched area several times to blend the scratches. Do not stop the pad movement back and forth and "bear down" on one area to blend the scratch. It can cause too much surface heating.

5. Black residue will form over the buffing area. Continue moving the buffer back and forth/up and down across the surface. After about 30 – 45 seconds, the black residue will begin to lighten and then disappear if you have the correct amount of polish. Continue moving over the area until the black residue is gone and the clean aluminium surface shows. Black residue may remain around the edges of your buffed area, but that will be cleared as we move to the next adjoining area to be buffed. If further work is needed to clear the cloudiness or scratches remain prominent, repeat the above process.

6. Repeat the above steps on the next adjoining area, and so on until the panel, or whole vehicle is complete. When the wool compounding pad "cakes up" (looks shiny) with polish, fluff the nap of the pad by "spurring" with a buffing spur or a screwdriver blade held vertical against the face of the spinning pad.

7. When through with buffing for the day, hand wipe around the areas where residue has built up –rivets, panel lines, etc. to remove any surface polish accumulations of residue from the compounding process before starting with finishing Grade S. Long nap microfiber cloth is very effective when polish is still fresh, and seems to have an affinity for the accumulated polish. Leaving the polish to dry makes the residue harder to remove, and may require mineral spirits.

New, clad aluminium or already polished metal with moderate to severe cloudiness in the reflecting image:

Remove any oils, paraffins (from smoke oils) and dirt from the surface before polishing.

Surface should be dry with normal humidity conditions for best results.

1. Use Nuvite NuShine II – Grade G6 or C polish (C if surface has been recently polished, G6 if it has been a while, or is acid rain damaged) with new or clean wool compounding pad on circular type buffer:

2. Place one finger across the top surface of the polish, just wet your finger with polish (do NOT dip out a quantity of polish –only wet your finger with polish) and put a big, wet "fingerprint" of about half a finger length every 3" or so over an area of 18" – 2' square to be polished. Work quickly – do not allow the polish to dry.

3. Pat the pad, or place the pad onto the "fingerprinted" area, and smear the polish around a little before turning on the polisher so wet polish does not throw. The polisher should not run more than about 1500-1800 rpm. We do not recommend that higher than 2000 rpm be used.

4. Tilt the pad up very slightly (10-15 degrees or so) so that one side of the pad touches the surface as it spins (do not lay flat). Move the polisher over the surface at a speed of about one to two seconds per foot of travel as it spins. It is not necessary to press hard against the surface. Light, but firm pressure is all that is needed. (If it were a horizontal surface, about the weight of the buffer or very slightly more.) Do not stop the pad movement back and forth and “bear down” on one area. It can cause too much surface heating.

5. Black residue will form over the buffing area. Continue moving the buffer back and forth/up and down across the surface. After about 30 – 45 seconds, the black residue will begin to lighten and disappear if you have the correct amount of polish. Continue moving over the area until the black residue is gone and the clean aluminium surface shows. Black residue may remain around the edges of your buffed area, but that will be cleared as we move to the next adjoining area to be buffed. If further work is needed to clear the cloudiness, repeat the above process, or if using C, try a pass with G6.

6. Repeat the above steps on the next adjoining area, and so on until the panel, or whole vehicle is complete. When the wool compounding pad "cakes up" (looks shiny) with polish, fluff the nap of the pad by "spurring" with a buffing spur or a screwdriver blade held vertical against the face of the spinning pad.

7. When through with buffing for the day, hand wipe around the areas where residue has built up –rivets, panel lines, etc. to remove any surface polish accumulations of residue from the compounding process before starting with finishing Grade S. Long nap microfiber cloth is very effective when polish is still fresh, and seems to have an affinity for the accumulated polish. Leaving the polish to dry makes the residue harder to remove, and may require mineral spirits.

Finishing:

Use Nuvite NuShine II - Grade S polish and cotton flannel material (do not use flannel with any synthetic materials in the nap area – acrylic or polyester, etc.) on orbital (non-spinning pad) polisher. Final finish may be done by hand as well, but machine polishing is generally superior in result.

1.Place one finger across the top surface of the jar of polish, and put a big wet "fingerprint" of about half a finger length every 6" or so over an area of 18" – 2’ square to be polished. (Note that this is half the amount of polish used in the compounding grades.)

2. Place sheet of flannel, nap down, on a CLEAN surface and place buffer on it to wrap. Wrap flannel material so that flannel is smooth across the face of the polisher drive pad(s), holding the sheet of flannel with your hand on the grip, being sure to leave any motor air vent opening unobstructed. Pull the cotton flannel tight over the face of the polisher and hold with your hand as you grip the polisher handholds. NOTE: Avoid micro scratching the surface as you buff. Micro scratching appears after viewing polished

surface in daylight, and a “hologram” effect is seen on the surface. It is caused by dust, residue or other contaminate in the nap of the flannel. Be very cautious to keep the surface of the flannel clean before using.

3. Smear the face of the polisher around the area to be polished before turning on the polisher, then turn it on and again move the polisher over the area at about three seconds per foot of travel. Use only light pressure.

4. Move the polisher back and forth/up and down. Keep the polisher moving as before – work the areas around raised rivets and panel lines some extra, maybe even tipping the pad a small amount on these areas. Black residue will appear as before.

5. After 30 – 45 seconds, the black residue will begin to disappear as you continue buffing over the area, and the bright, clear shine will begin to appear. If residue stays on surface more than 60 seconds, for best results, wipe off and re-polish area using proper amount of polish.

6. Work back over rivets and panel lines to clean the residue from these areas as well as possible.

7. When the area is clean of surface polish, stop the polisher, move the flannel material to a new, clean spot of the material, and final buff over the area, continuing the cleaning and brightening of the finish and picking up any light residue caught around rivets and panel lines. Continue with the same process over the next area, and so on.

8. Using clean “microfiber” polishing cloth, work the areas close in around rivet heads and panel lines to clean the small amount of residue after final fishing. Continually move your fingers on the cloth slightly so that a clean spot is used to clean residue at all times. Removed residue can leave marks if rubbed into next area to be cleaned. Be careful not to drag any polish out onto the clean, clear, open panel polish image.

9. If needed, a final pass may be made after final cleaning of residue. Use a brand new flannel cloth, and use long sweeping passes to final “fluff buff” the surface. If the flannel picks up residue, be sure to move to new, ”virgin” area of the flannel so that micro scratching does not occur.

10. Step back and enjoy your handiwork! You’ve now got “The Nuvite Look!”

The table below can be printed and kept at the place of work as a quick reference to help select the correct grade of NuShine for a specific application.

Product			
Nuvite F9	Very Course Grade	Large sharp particles, do not break down.	Severely corroded aluminium, new aluminium
Nuvite G6	Course Grade	Initial quick cut then breaks down into a fine cut.	Pitted, chipped or scratched aluminium.
Nuvite F7	Medium Course Grade	Stay sharp but smaller than F9	Corroded, chipped, scratched aluminium.
Nuvite C	Medium Fine Grade	Softer rounded particles.	Relatively good condition, minor corrosion.
Nuvite S	Finish Polish	Fine polish for finishing.	