



SURFACE SEAL® RAIN REPELLANT COATING SYSTEM

**MAINTENANCE, ASSESSMENT, APPLICATION PROCEDURES
FOR AIRCRAFT AND SPECIALTY GLASS-FACED WINDSHIELDS**

DOCUMENT/PART NUMBER DSS KITS, REVISION 5

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REVISION TRANSMITTAL SHEET

Revision	Date	Pages Affected	By	Approved By	Description of Change
Original	5/2/2019	ALL	AMK	JAR	Formulation Revision
1	3/16/2020		AMK	JAR	Added 8 hour cure option
2	5/12/2020	23-29	AMK	JAR	Corrected kit contents
3	6/5/2020	24	AMK	JAR	Corrected kit contents
4	10/28/2021	All	CL	JAR	Page numbers inserted
5	1/26/2021	26,29	CL	JAR	deleted spray bottle from DSS4027, add DSS4100 to order form



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Note: Coating system application as defined herein pertains to reapplication or first time application to previously uncoated windshields.

1.0 SURFACE SEAL COATED CLASS – DEFINITION

Developed to enhance vision during rain conditions, *Surface Seal* Coated Glass from PPG incorporates a durable transparent water-repellent coating on the windshield surface for efficient rain removal.

2.0 APPLICABLE DOCUMENT

To assist in that process, PPG offers the *Surface Seal* Coating system, which includes customized kits for coating-application, refurbishing, and efficiency measurement. DSS4040 Master Kits contain reusable equipment, replenishable supplies and chemicals to coat 6 windshields. DSS4015 Application Kits (Kit A) contains the chemicals to coat 1 windshield. DSS4027 Master Kit Refill contains replenishable supplies and Surface Seal Prep and Coating Solutions to prepare approximately 6 windshields. DSS2000 - 2999 and DSS3001-3010 Curing Kits, contains protective films and customized heating blankets. Included in the DSS4040 Master Kit is a video for “Application” and “Coating Efficiency Assessment”.

DSS3000 Coating Efficiency Measurement by Contact Angle Kits are also available but typically only used on aircraft using *Surface Seal* Coating as the primary rain removal system with stricter requirements for coating efficiency measurement by contact angle determination.

In planning the project, allow about 30 minutes for windshield preparation and allow about 45 minutes for coating application. If using the heat cycle option for maximum coating performance, allow 8 hours for curing and 15 minutes for cleanup after heat curing.

Note: All 220/240V electric heat blankets are provided without plugs attached. The master kit contains a variety of plugs for each blanket to allow the operator to select the correct plug for their receptacle.

Materials not called out specifically in this procedure must be verified in the Aircraft Manufacturer’s Maintenance Manuals before use on a windshield. SDS for any chemicals not supplied in the PPG Kit should be obtained and reviewed prior to use. Chemical formulations containing fluorides or with a PH > 10.5 should not be used on *Surface Seal* Coated Glass.

3.0 HEALTH AND SAFETY – GENERAL



Throughout each described procedure, it is recommended that gloves (for cleanliness) and safety glasses be worn. For additional health and safety information, refer to applicable safety documents and to the specific SDS (Safety Data Sheet) information contained in the Master Kit.

4.0 STORAGE AND INSPECTION

4.1 Storage

Surface Seal solutions shall be stored in a clean environment suitable to insure the materials and packaging are not damaged.

4.2 Shelf Life

There is no storage life limit.

4.3 Inspection

Surface Seal coated windshields should be inspected for effectiveness following exposure to a catastrophic event such as volcanic ash.

During routine aircraft operation it is recommended the *Surface Seal* coating should be inspected every 4 months or 1000 flight hours which ever comes first.

5.0 MAINTENANCE

The Master Kit provides disposable gloves, gauze, wipes, and a plastic cleaning pad to assist in cleaning the windshield.

5.1 Cleaning Procedure

If applicable, verify windshield heat is turned off. Flush the glass surface with clean water to remove excessive amounts of dirt.

CAUTION: Never use razor blades or scrapers of any type to dislodge adhered particles as these devices may damage the coating or the glass itself. Put on a pair of protective gloves. Use only clean materials such as a soft cloth or clean sponge or soft paper wipe (such as Kimwipes®). Wash with a 50/50 mixture of Isopropanol and deionized water. Adhered particles can be dislodged using the plastic cleaning pad. Be extremely careful that the removed particles do not become embedded in the pad and become a potential cause of scratches in the coating or on the glass.

Note: None of the cleaning chemicals recommended for this procedure are provided in the Master Kit. Specific health and safety information for the recommended chemicals should be obtained and reviewed by the user.



Flush thoroughly with clean water and dry. Wipe dry with strokes in one direction using only clean materials such as a damp soft cloth, damp sponge, or soft paper wipe (such as Kimwipes®).

To ensure cleanliness within the critical vision area, perform this cleaning twice, wiping thoroughly with disposable wipes after each application.

6.0 COATING EFFICIENCY ASSESSMENT

Although the *Surface Seal* Coated Glass is easily maintained and protected by routine cleaning practices, the coating may not last the entire service life of a windshield. Periodic assessment of coating efficiency can be timed with regular windshield cleaning (Maintenance).

In planning the assessment, first watch the PPG video "Coating Efficiency Assessment", that provides overall direction and guidelines. This video is contained in the Master Kit. The following instructions provide the specific procedure as demonstrated in the video.

Before beginning coating efficiency assessment, (if applicable) be sure the windshield electrical heat is turned off. It is necessary to gain access to the windshield so that it can be thoroughly cleaned, can be examined clearly, and space is available for kit contents.

Other requirements include a dry environment (not raining, sleeting, or snowing, and preferably roof protected) and adequate lighting for inspecting the windshield. The windshield itself should not be hot to the touch and should be out of direct sunlight.

6.1 Step 1 – Windshield Preparation

Access the Master Kit. Remove one disposal bag and place it in a convenient nearby position.

Using the Cleaning Procedure as described in previous Paragraph 5.1, thoroughly clean the windshield. Kimwipes® from the Master Kit can be used for washing and drying the glass surface.

6.2 Step 2 – Evaluation via Photographic Comparison

Access a 500 mL bottle of Deionized Water and the spray nozzle from the Master Kit. Replace the closed cap on the bottle with the spray nozzle. With the nozzle pointing away, turn the nozzle adjustment counter-clockwise until no adjustment remains. The nozzle is now set to deliver a fine mist.

If the disposable gloves have been removed after windshield cleaning, replace them with another pair. Avoiding possible contamination of the glass surface from skin oil is important in this assessment.



Starting at the bottom of the windshield and with the nozzle at a 12" - 18" distance from the glass, pump the spray nozzle to fully wet the windshield with a mist from one side to the other. Progressively work up the windshield until the surface is fully misted. Starting at one side along the top edge, continue spraying the windshield until water droplets roll freely down the windshield. Continue across the windshield along the top edge until water droplets have rolled freely to the bottom of the windshield completely across the windshield. Smaller droplets that "crawl" through an area should be ignored.

Note: Once droplets are rolling freely down the windshield, do not continue to spray the same area. "Doubled-up" tracks may provide confusing results.

Examine the appearance of the remaining water on the windshield and the droplet "tracks" and compare within the critical vision area as defined in Paragraph 6.2.1.

Note: It is possible that the assessment produces more than one result. If such a situation is present, reapplication should be based on the overall performance of the coating within the defined critical vision area.

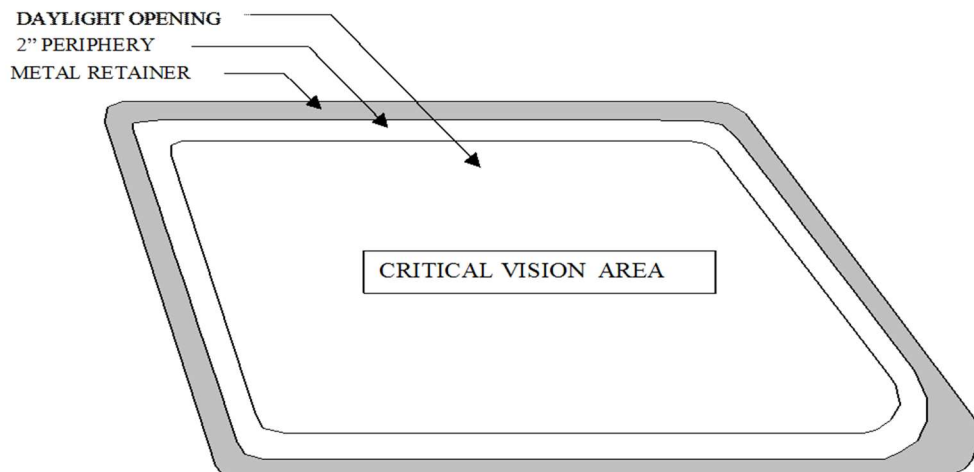


Figure 1 - Critical Vision Area

A two inch periphery around the daylight opening is generally considered unimportant for this assessment, since these vision areas are considered non-critical.

If the coating assessment is judged to be "like new" or "acceptable", no further action is required.

If the coating assessment is judged to be "conditional", coating refurbishment should be scheduled, or the alternate measurement procedure should be performed.

If the coating assessment is judged to be "unacceptable" coating refurbishment must be accomplished. Proceed to 6.3 – Follow-up.

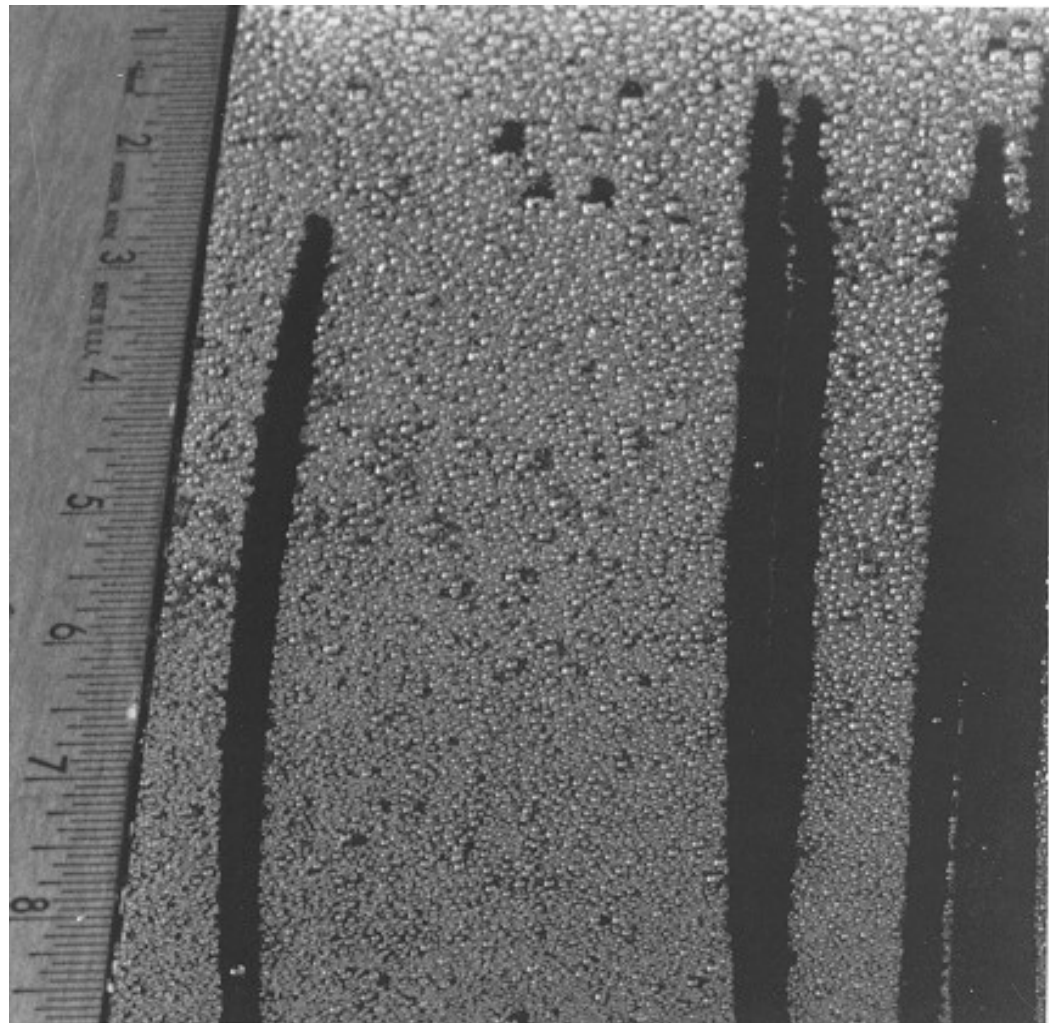


Once the water misting assessment has been completed, remove the spray nozzle from the water bottle and pump all water out of nozzle. Recap the water bottle, and return it and the nozzle to the kit.

6.2.1 Coating Efficiency Photographs

6.2.1.1 Like New Coating Performance

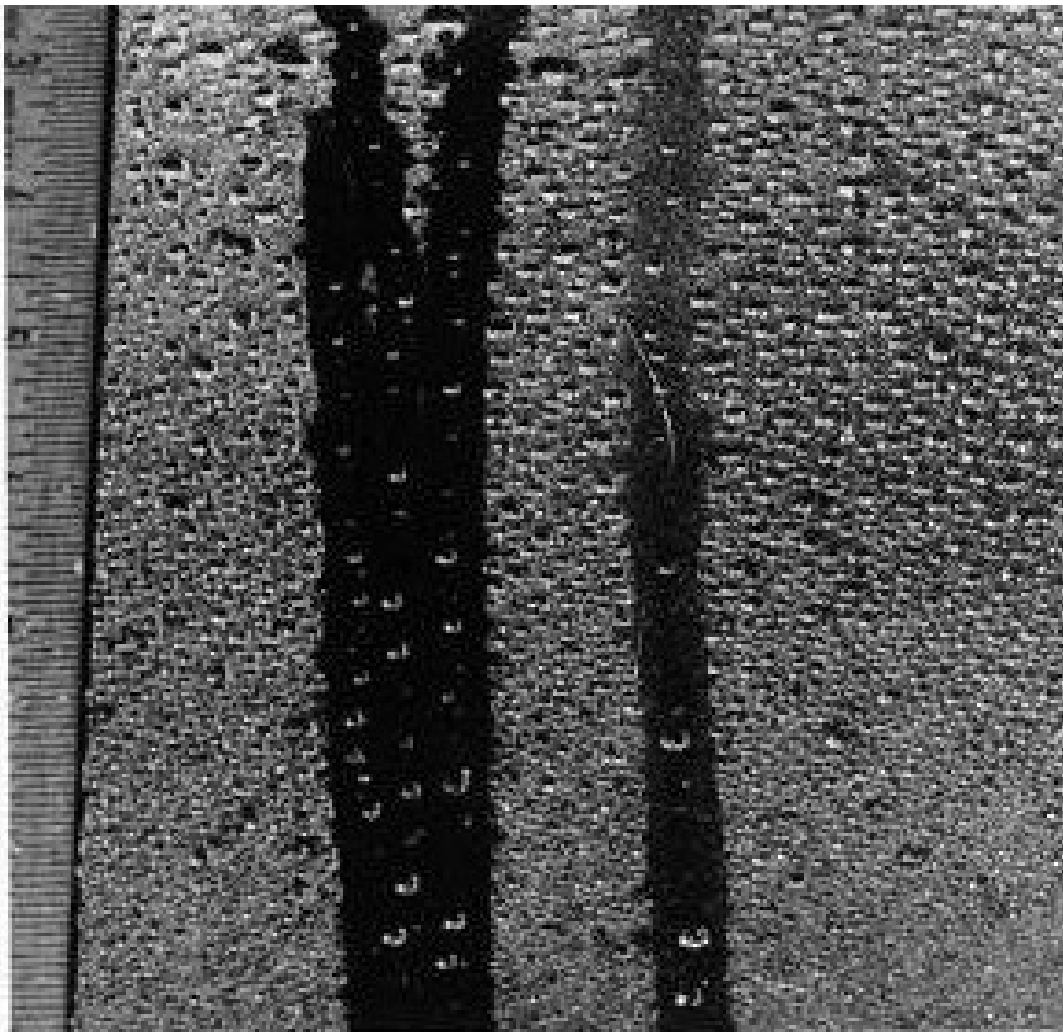
The sprayed water remains “beaded-up” as small droplets circular in shape. Water droplet “tracks” leave no water residue in the track itself. The coating is very water repellent, and no reapplication is necessary.





6.2.1.2 Acceptable Coating Performance

The sprayed water remains “beaded-up” but as slightly larger droplets (compared to 6.2.1.1). The largest droplets will be slightly elongated in the direction of gravity. Water droplet “tracks” leave water droplets within the “tracks” that are essentially elliptical in shape. The coating provides acceptable vision in rain. Reapplication is not necessary, but may be required after the next scheduled assessment.



6.2.1.3 Unacceptable Coating Performance



The sprayed water forms droplets of larger size (compared to 6.2.1.2) and of irregular shape. The largest droplets will be elongated in the direction of gravity. Water droplet “tracks” leave larger droplets within the “tracks” (compared to 6.2.1.2) that are elongated in the direction of gravity and of irregular shape. Some of the sprayed water may form only large droplets that combine with other droplets to form “sheeted-over” areas without any droplets. The coating has degraded to the level where reapplication must be accomplished.



6.2.2 Coating Efficiency Measurement Process Using Contact Angle

To protect materials during transit, all liquids have been closed-capped for shipment. Retain original cap for use in future shipment.

If the windshield is wet from the misted water procedure, dry it thoroughly using disposable wipes from the kit.



If the windshield coating efficiency has not been assessed using the misted water procedure, the windshield should be prepared using, 6.1 - Windshield Preparation, before proceeding further.

Remove the macroscope from the instrument case. Focus the reticle with the upper knurled ring, and set it aside. (Note: a battery-powered illuminator is supplied for use in reduced-lighting conditions.)

Remove the pipetter from the instrument case. Attach a 500 microliter tip; fill it with Deionized Water and set the pipetter dial to "one."

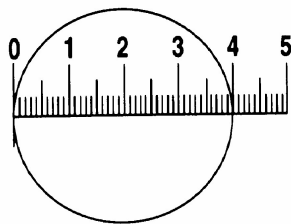
Because the pipetter can dispense an incorrect amount of water the first time, release one ten-microliter drop onto a non-test area of the windshield and wipe it away.

Move to the first specified test location and gently push out one ten-microliter drop of Deionized Water from the pipetter and touch the drop to the windshield. Slowly withdraw the pipetter, leaving the drop on the glass surface undisturbed. (The "Coating-Efficiency Measurement" video demonstrates this procedure in detail.)

Since evaporation will affect accuracy, drop-length dimension must be measured and recorded within one minute of drop placement. Place the macroscope on the glass surface, centered over the water droplet. (Removal of safety glasses will reduce awkwardness and widen your field of vision.)

Adjust the image focus along the longest dimension of the drop, using the lower knurled ring. Adjust the macroscope position relative to the drop until the image is in focus and one end of the drop lines up with the zero mark, as shown.

With one edge of the water droplet lined up with the zero mark, estimate the drop length to 0.05 millimeter accuracy (minimum scale division is 0.1 millimeter). Use only the upper scale of the reticle, which is 0 to 5 millimeters. (In the view shown, the drop length is 4.00 millimeters.)



Record the measurement onto the "Post-it" sheet. If the length is more than five millimeters, record the drop length as >5 millimeters.

Repeat the procedure until five readings have been recorded at the first location. If one measurement is significantly different than the others, do not use it, repeat the measurement.



Once five measurements have been made at all specified locations, calculate the average for each location, and write it on the "Post-it" note.

To correlate the drop dimension with contact angle, compare each of the average drop-length measurements with the appropriate chart in your aircraft maintenance manual.

Compare the lowest contact angle with the maintenance manual specifications to determine whether refurbishment is required.

6.3 Step 3 – Follow-Up

If reapplication is indicated, make all necessary scheduling arrangements. Note that it may be preferable to reapply the coating system to more than one windshield at the same time, even if only one is required.

Schedule the next coating-efficiency measurement, as per your aircraft maintenance manual instructions.

Take an immediate inventory of all contents of the Measurement Kit. If supplies must be reordered, make a photocopy of the DSS3000 Coating Efficiency Measurement Kit reorder form contained in this instruction booklet. Complete the form and return to PPG as per the form directions.

Return all supplies to their proper place. Discard disposal bag in accordance with national, regional, and local regulations.

7.0 APPLICATION AND REMOVAL PROCEDURE

If the results of the coating efficiency assessment indicate that reapplication is required, or if a first time application will be accomplished, prepare for this procedure by first watching the PPG video "Application". Contained in the Master Kit, this video provides step-by-step guidelines and overall direction.

The video is designed to supplement these written instructions, and should not be used without these instructions.

Materials needed for reapplication or first time application are contained in the Master Kit and the Curing Kit. Master Kit Contents are described in Paragraph 9.0 of this document. Throughout this procedure, use only PPG approved materials. Do not make any substitutions.

The Curing Kit consists of protective material and electric heat blankets that are designed for aircraft windshields. The protective material prevents the possibility of the heat blanket scratching the glass surface. The heat blanket is thermostatically controlled to provide a curing temperature for the coating. No substitutions are permitted for heat blankets.



7.1 Healthy and Safety

Inspect the contents of the Master Kit and Curing Kit carefully, reading all identification labels. Read the health and safety information as provided on the SDS sheets.

Disposable gloves, as included in the Master Kit, should be worn at all times during cleaning, chemicals application, and clean-up.

Because a change of gloves is called for several times during the application procedure, it is suggested that two pair be worn at the same time. Changing only the outer pair facilitates the glove-changing process.

Safety glasses, although not included in the kit, should also be worn from start to finish.

7.2 Application Procedure

To protect materials in the Master Kit during transit, all liquids have been closed-capped for shipment. Replace closed caps with flip-top caps that are packed inside the kit. Screw caps on tightly and make certain that each cap is fully closed after each use. Retain original caps for use in future shipment.

To prevent potential fluid cross-contamination, always match the cap with the bottle.

Before application can begin, five preliminary steps must be taken.

CAUTION: Make certain the windshield electrical heat is turned off.

First, as in the assessment procedure, it is necessary to gain access to all areas of the windshield with kit contents available at hand.

Second, the environment must be roof protected or outside with good weather available for the expected duration of the coating application. Ambient temperature should be in the 40F to 90F (4C to 32C) range.

Third, good lighting must be available for inspection of work in process. The windshield itself should not be hot to the touch and should be out of direct sunlight.

Fourth, make certain that the rechargeable orbital sander contained in the Master Kit is fully charged. If not, connect the battery to the charger. Allow about one hour for a complete charge. Adapter plugs are provided in the Master Kit if charger plug is not compatible with local power source receptacle.

Fifth, a 110/120/220/240 volt AC power source must be available at the windshield for the heat blanket cure.

Put on your disposable gloves and begin.



7.2.1 Step 1 – Windshield Cleaning

Remove one disposal bag and place it in a convenient nearby position. Using the Cleaning Procedure described in Paragraph 5.1 of this document, thoroughly clean the windshield. Use Kimwipes® from the Master Kit for washing and drying the windshield. Deposit soiled wipes in the disposal bag.

Note: If a windshield wiper is parked on the glass surface, this entire application procedure will be easier to accomplish if the wiper arm spring tension is released and the wiper arm taped away from the windshield. Refer to the appropriate Maintenance Manual for wiper removal and functional checks.

Note: Disposable gloves may be removed here if the taping step is easier to do bare-handed.

Remove a roll of two-inch tape from the Master Kit and apply it to the windshield periphery. Start by covering the moisture seal and terminate on the windshield retainer or structure as illustrated below.

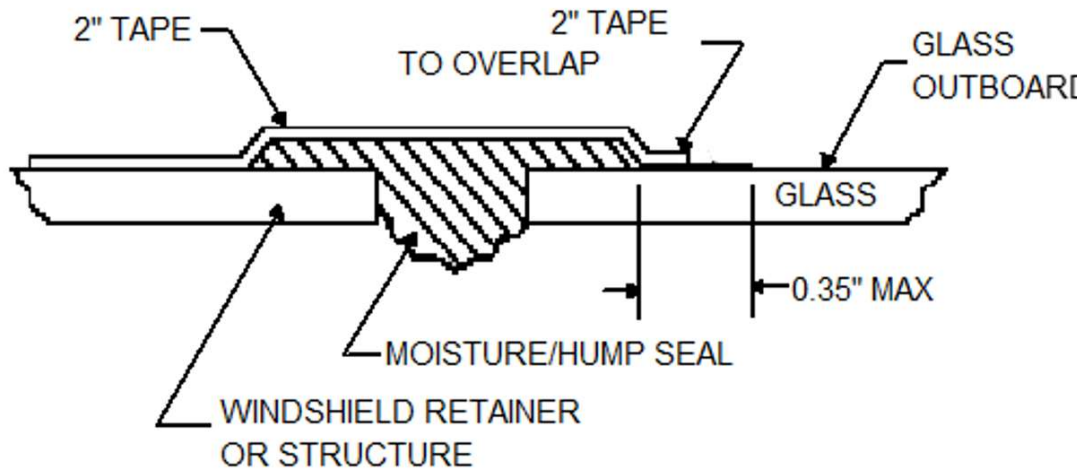


Figure 2 – Taping

Return the tape and scissors to the Master Kit. If gloves have been removed or torn during the taping process, replace them before proceeding. Gloves are extremely important in subsequent steps because elimination of skin-oil contamination is critical.

Remove the felt pad from the plastic bag inside the box labeled Kit A, and attach it to the fully charged orbital sander.

Note: The PPG-supplied sander is the only one approved for this process. Make no substitution. Use of other equipment such as an air powered sander



can result in oil contamination of the glass surface or permanent damage to the windshield.

Remove the bottle of Polishing Slurry . No substitution for this polishing compound is permitted. Shake the Polishing Slurry bottle until the slurry is consistent, then apply approximately 20 ml of the applicable slurry to the felt pad using the markings on the Polishing Slurry bottle. Be certain that no extraneous dirt or grit of any kind contacts the felt pad, and make certain it is moistened with slurry prior to contact with the pre-cleaned glass surface.

Determine if the windshield has an antistatic/pstatic coating.

For parts **without antistatic/pstatic coating**, continue polishing until the slurry maintains a thin, uniform film on the glass surface.

For parts with antistatic/pstatic coating, only polish with the Cerium Oxide Polishing Slurry for a maximum of **two** polishing coverages in the horizontal direction and **two** in the vertical direction at a linear rate of 1 foot per 2-3 seconds with pressure only sufficient to keep the sander in contact with the windshield. After this level of polishing, the windshield still may not achieve a thin, uniform film on the glass surface. This amount of sanding is satisfactory and is the suggested amount of sanding to prevent damage to the coating.

Note: Ensure sufficient slurry to initially wet the pad thoroughly and to keep the glass wet during polishing.

Lightly set the felt pad on the glass surface and turn on the sander. Light pressure is sufficient to keep the sander flat against the surface. The weight of the sander itself on the felt provides adequate polishing force on the glass surface. Use horizontal strokes and vertical overlapping strokes and cover the entire glass surface evenly. Add additional slurry as needed to keep the felt pad moistened throughout the polishing process. Do not allow the slurry to dry on the glass surface during the polishing process; all polishing must be performed with a wet slurry. It is acceptable to add more Polishing Slurry to the surface to keep it wet. Do not add too much Polishing Slurry so as to cause the slurry to spray from the pad. A thin, cloudy film of slurry will be left on the glass surface; but if it "breaks up", that is, if the Polishing Slurry does not remain in a thin film, continue the polishing operation.

After completing the polishing operation, set the sander aside on a clean Kimwipes® and remove and dispose of gloves used during the polishing operation. Put on a clean pair of gloves and clean all polishing residue from the glass surface and taped areas. Do not allow the slurry film to dry before cleaning. Change gloves as necessary during the cleaning process.

Spray the surface with DI water and begin wiping in the center of the windshield toward the taped edges, taking care not to wipe the taped edge. Wiping the taped edges and then wiping the center can transfer contamination from the tape to the glass.



After the glass area has been wiped clean, wipe the slurry from the taped edge areas, by wiping along the sides and edges. Do not wipe toward the center of the part from the taped edge. Discard the used Kimwipes®.

Continue cleaning with fresh Kimwipes® until all traces of the slurry have been removed. Inspect the used Kimwipes® for polishing residue. Continue cleaning until no visible residue is picked up by a fresh Kimwipes®. Polishing Slurry residue left on the glass surface or picked up with a Kimwipes® from the taped edge can contaminate the glass surface and cause staining during application of the surface prep.

Mist the dried clean surface with Deionized Water and test for a water break-free state, where water sheets and completely wets the surface. If beads of water are present, resume polishing until a water break-free state is obtained.

Note: Obtaining a water break free surface only applies to parts without antistatic/pstatic coating. Do not over-polish antistatic/pstatic parts.

Note: Remove soiled gloves carefully by pulling the cuff down over the hand so that the glove is removed inside out. This prevents any possible contamination by contact with the glove as it is deposited into the disposal bag.

Put on new gloves, and remove the container of Deionized Water and several disposable wipes from the kit. Wash and dry the windshield thoroughly to remove all traces of the Polishing Slurry and continue wiping until the glass is completely dry.

To ensure the glass surface is clean from all contaminants or previous hydrophobic coating, an evaluation is necessary. Attach the spray nozzle from the Master Kit to the bottle of Deionized Water. With the nozzle pointing away adjust the nozzle completely counter-clockwise. Wet the entire windshield thoroughly until water rolls freely down the surface. The glass is thoroughly clean when there is no beading of water droplets, and when water droplets will combine to "sheet-over".

Note: If beaded water droplets are still present, repeat the polishing procedure in the affected area, repeat localized wash, dry, and evaluation as described previously until no beaded droplets form.

Dry the windshield thoroughly before continuing this procedure.

Remove the soiled gloves and deposit them in the disposal bag. The windshield glass surface is now extremely clean.

7.2.2 Step 2 – Surface Preparation

Whenever possible, the process should not be interrupted after the Polishing Slurry operation. No more than 15 minutes should elapse from the completion of the Polishing Slurry operation until application of Surface Prep and Coating Solution. If it is



unavoidable to delay the applications, when resuming the process, reclean with Deionized Water and Kimwipes®.

Make sure the surface appears the same as it did when the Polishing Slurry operation was completed. If there is any evidence of contamination, repeat the Polishing Slurry operation. Under no circumstances should any adhesive material be applied to a surface after the Polishing Slurry Operation and before application of Surface Prep and Coating Solution.

Put on a clean pair of disposable gloves, and remove one Surface Prep ampule from Kit A and several gauze pads from the Master Kit.

Visually inspect the Surface Prep Ampule to make sure it is not broken. Do not use if the glass has been broken or if there is any indication of white precipitate or leakage into the foam end.

Note: The Surface Prep material can be corrosive to the structure and may damage paint. Before proceeding, ensure that the tape masking the windshield is intact to prevent the chemical from wicking into the structure. Clean any spills immediately.

Hold the ampule in your hand and press against the sponge tip end with your thumb until the ampule snaps.

The Surface Prep ampule is surrounded by sealed plastic tubing above the foam filter. To open it, use scissors to cut off a corner of the plastic tubing at the top as illustrated. Do not cut into the foam.

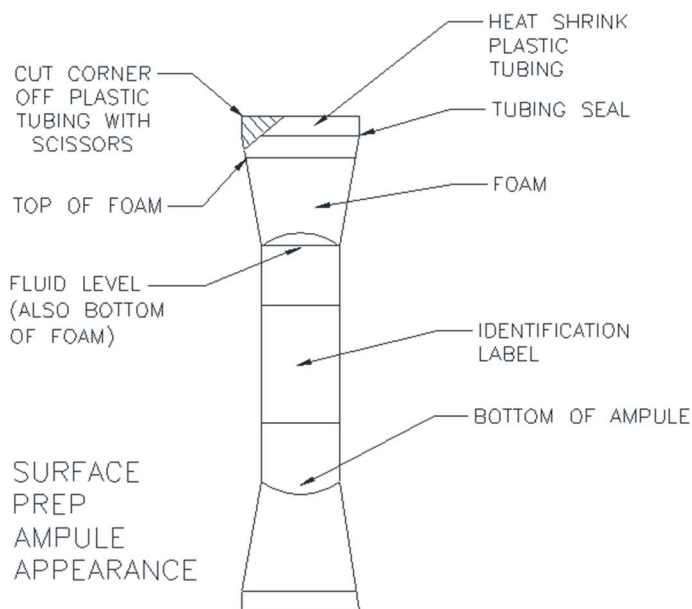


Figure 3 – Surface Prep Ampule



Obtain several gauze pads from the master kit. Dampen the pads with approximately $\frac{1}{4}$ of the Surface Prep solution, turning the pads so as to not drip significantly.

Note: Do not hold the pad over the aircraft structure or glass surface while pouring.

Immediately begin wiping quickly over the center portion of the glass surface with slightly overlapping straight - line strokes. If necessary, use a separate, dry gauze pad to immediately wipe away excess Surface Prep solution.

To prevent contamination of the center glass surfaces with residue from the taped edges, wipe in the center and wipe toward the edges. Stop each wiping pass just short of the taped edge.

A thin film of solution will trail from the gauze pad and quickly evaporate from the glass surface. Do not allow thick films of liquid to accumulate on the glass surface. If the solution is not quickly evaporated or wiped from the surface (within 2 to 3 seconds), a staining may occur.

As the pad begins to dry, add more Surface Prep to the application pad so as to maintain the thin trailing film that evaporates quickly. After thoroughly wiping the center area, wipe around edges, then discard the pad. Do not wipe the center area with the same pad that was used to wipe around the taped edges.

Note: Allow windshield to air-dry completely for a minimum of 5 minutes.

Repeat the application, starting in the center of the windshield, to apply a second application of the Surface Prep to the surface. Discard any remaining Surface Prep Solution. **Do not save material to use on another part.**

Remove the felt pad from the orbital sander and place the pad in the disposal bag. Apply some Deionized Water to a clean wipe and wipe off the sander. Return the sander to the storage box in the kit. Remove soiled gloves and deposit them into the disposal bag.

Note: Allow windshield to air-dry completely for a minimum of 5 minutes.

7.2.3 Step 3 – Coating Procedure

Put on clean, disposable gloves, and remove the *Surface Seal Coating Solution* ampule from Kit A and gauze pads from the master kit. Visually inspect the *Surface Seal Coating Solution* ampule to make sure it is not broken. Do not use if the glass has been broken or if there is any indication of white precipitate or leakage into the foam end.

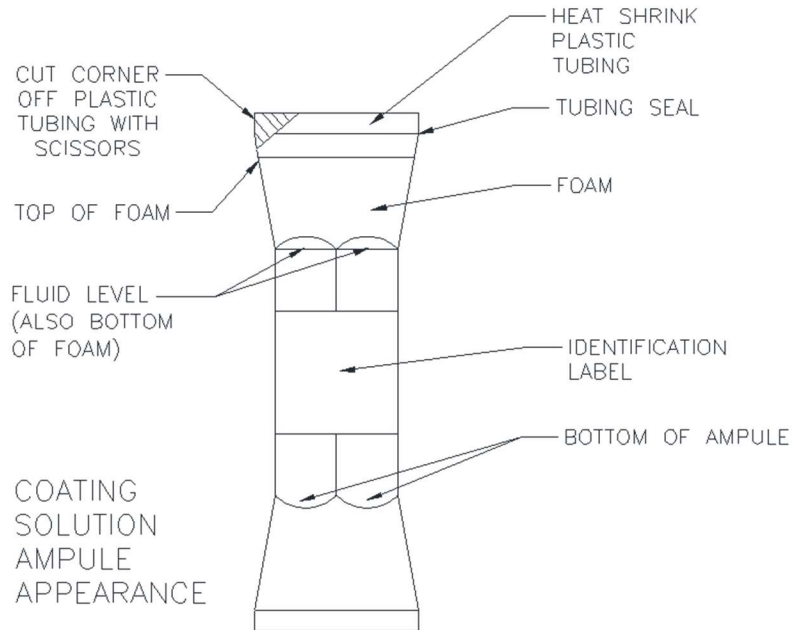


Figure 4 – Coating Solution Ampule

Similar to the previously explained technique for opening the single ampule, break both ampules and tilt the package to let the liquid go into the plastic surround packaging. Shake to mix for 2-5 minutes then cut corner of package and hold the ampule away from the aircraft, pour about one- third of the solution onto the gauze pads, and wipe the *Surface Seal* Coating Solution onto the glass surface, using quick, circular motions.

Obtain several gauze pads from the master kit. Dampen the pads with a small amount of *Surface Seal* Coating Solution, turning the pads so as to not drip significantly.

As the pad begins to dry, add more *Surface Seal* Coating Solution to the application pad so as to maintain the thin trailing film that evaporates quickly. After thoroughly wiping the center area, wipe around edges, then discard the pad. Do not wipe the center area with the same pad that was used to wipe around the taped edges.

Note: Allow windshield to air-dry completely for a minimum 5 minutes.

Repeat the application, starting in the center of the windshield, to apply a second application of the *Surface Seal* Coating Solution to the surface. Discard any remaining *Surface Seal* Coating Solution. **Do not save material to use on another part.**

Dispose of the gauze pads and soiled gloves.

Note: Allow windshield to air-dry completely for a minimum of 5 minutes.

7.2.4 Step 4 – Heat Cure Options



For *Surface Seal Coating*, heat cure is optional. However, heat curing the coating will result in a more durable, longer life coating.

To omit the heat cure proceed with Paragraph 7.2.4.2. For heat curing instructions, proceed with Paragraph 7.2.4.1.

7.2.4.1 Step 4A – Heat Cure

Note: To accomplish this procedure, the appropriate Curing Kit is required. Refer to Paragraph **Error! Reference source not found.** Curing Kit.

Carefully place a sheet of protective film over the windshield, making sure to line up all edges. Then, secure the film to the windshield retainer or structure at each corner, with short strips of two- inch tape.

Apply the heating blanket to the windshield's surface and secure it in place, using two- inch tape. Then, plug the blanket into the appropriate voltage power source.

The blanket temperature has been pre-set for the heat curing process.

Surface Seal Coating is suggested to have a minimum of 2 hours of heat application or 8 hours for best performance.

CAUTION: Although heat blankets do not transfer heat quickly, the temperature of the exposed surface will be high, so avoid any direct contact during the heat cure period.

If only one windshield is to be coated, close the disposal bag and dispose of it in full accordance with all national, regional, and local regulations.

After the desired curing time has elapsed, unplug the blanket and allow it to cool down to near-ambient room temperature. This should require no more than five or ten minutes.

After checking carefully to make certain that the blanket is not too hot to handle, remove the tape, blanket, and protective film. Return the blanket to its proper place in the Curing Kit. Remove all two-inch tape still attached to the windshield and dispose.

7.2.4.2 Step 4B – No Heat Cure

Remove all two-inch tape from the windshield and dispose in a disposable bag. Put on a clean pair of disposable gloves, remove several disposable wipes.

Wipe-off any remaining residues and visible haze from the surface of the windshield with disposable wipes. Several sets of wipings will be necessary. After residue and haze has been removed, wash the windshield with Deionized Water and dry it with disposable towels.



Because the windshield surface is now extremely water-repellent, it may be easier to apply water to the towels rather than applying it directly to the glass.

Discard the disposable gloves (pulling them off inside out) and place them in a disposal bag along with any used wipes. Seal the top of the bag, and dispose of it in full accordance with national, regional, and local regulations.

At this point, application/reapplication is complete. The effectiveness of the treatment and efficiency of the coating should be assessed.

7.3 Coating Efficiency Assessment

Repeat the coating efficiency assessment procedure as explained in Paragraph 6.0 of this document, and as demonstrated in the video "Coating Efficiency Assessment" found in the Master Kit. Record results as required.

If coating performance appears unacceptable, repeat the cleaning steps described in Paragraph 7.2.4.1 or 7.2.4.2. Then repeat the coating efficiency assessment procedure, again recording results as required.

8.0 INVENTORY AND RESUPPLY

Once the project is complete, take an immediate inventory of all Master Kit contents. Be certain that all equipment and re-usables have been returned to the correct kit locations and stored as originally packaged. As necessary, for reordering kit components or supplies, make photocopies of the order forms included in this document Paragraph 11.0. Complete the form and return to PPG as per the form directions.



9.0 MASTER KIT P/N DSS 4040 CONTENTS

DSS4040 - Master Kit Contents	Quantity
4015 Kits (Kit A)	6
• Next Gen III Coating Solution	1
• Surface Prep	1
• Felt Pad for Ryobi Sander	1
• Felt Pad for Durofix Sander	1
Scissors	1
Kimwipes Box of 90	2
Gauze Pads 4x4 (Pack of 200)	1
Spray Pump	1
Gloves (100)	1
Cleaning Pad	1
500mL DI Water	1
Sander and Battery	1
Charger 120V	1
Disposal Bags	1
500mL Cerium Oxide Polishing Slurry	1
Red Tape 2"	2
Surface Seal Application Procedure	1
DVD Surface Seal Application Procedure	1
SDS for DI Water	1
SDS for Next Gen III Coating Solution	1
SDS for Cerium Oxide Polishing Slurry	1
SDS for Surface Prep	1

10.0 CURING KIT CONTENTS

The Curing Kit is windshield specific and consists of the following items.

1. Heat Blankets, 110/120V or 220/240V for applicable windshield(s)
2. Protective Films (30 ea.) for applicable windshield(s)
3. Container Case for Curing Kit



11.0 REORDER INFORMATION AND FORMS

The following paragraphs contain reorder forms for the Master Kit (Paragraph 11.1), Kit A - Application, (Paragraph 11.2), Kit D - Master Refill (Paragraph 11.34) and Curing Kit (Paragraph **Error! Reference source not found.**).

Shipping and Billing Information forms are included as paragraph 11.5.

11.1 *Surface Seal* Coating System Reorder Form

Master Kit

<u>Reorder</u> <u>Quantity</u>	<u>Part</u> <u>Number</u>	<u>Description</u>
_____	DSS4040	Master Kit Complete
_____	DSS4042	Maintenance, Assessment, Application Procedures
_____	DSS4002	Video, "Application" and "Coating Efficiency Assessment"
_____	DSS1005	Orbital Sander with 115 Volt Charger (220v converter included)
_____	DSS4015	Kit A, Application Chemicals (For one windshield only)
_____	DSS4027	Kit D, Master Refill (Consumables for approximately 6 windshields)
_____	DSS1018	Scissors
_____	DSS1028	Container Case For Master Kit
_____	DSS1029	Spray Nozzle
_____	DSS1031	Adapter Plugs

To reorder *Surface Seal* kits or components:

Contact your Transparencies BSS (Customer Service) representative via email or call 1-833-290-7001 for pricing and delivery lead time and information on submitting a purchase order.



11.2 Kit A, Application Reorder Form

<u>Quantity</u>	<u>Number</u>	<u>Description</u>
_____	DSS4015	Kit A, Application (chemicals to coat one windshield - each Kit A for one window only)

Kit A Components (Must be ordered as a kit - items are not available separately.)

1. Material Safety Data Sheets (SDS) for Surface Prep and *Surface Seal* Coating Solution
2. Felt Pad in Plastic Bag
3. Surface Prep (1), 20 mL Ampules
4. Coating Solution (1) 20 mL Ampule

To reorder *Surface Seal* kits or components:

Contact your Transparencies BSS (Customer Service) representative via email or call 1-833-290-7001 for pricing and delivery lead time and information on submitting a purchase order.



11.3 Kit D, Master Refill Reorder Form

<u>Reorder</u>	<u>Part</u>	<u>Description</u>
<u>Quantity</u>	<u>Number</u>	<u>Description</u>
_____	DSS4027	Kit D, Master Refill (Consumables to prepare approximately six windshields)

DSS4027 - Master Refill Kit	Quantity
4015 Kits (Kit A)	6
<ul style="list-style-type: none"> • Next Gen III Coating Solution • Surface Prep • Felt Pad for Ryobi Sander • Felt Pad for Durofix Sander 	1 1 1 1
Kimwipes Box of 90	2
Gauze Pads 4x4 (Pack of 200)	1
Gloves (100)	1
Cleaning Pad	1
500mL DI Water	1
Disposal Bags	1
500mL Cerium Oxide Polishing Slurry	1
Red Tape 2"	2
Surface Seal Application Procedure	1
SDS for DI Water	1
SDS for Next Gen III Coating Solution	1
SDS for Cerium Oxide Polishing Slurry	1
SDS for Surface Prep	1

To reorder *Surface Seal* kits or components:

Contact your Transparencies BSS (Customer Service) representative via email or call 1-833-290-7001 for pricing and delivery lead time and information on submitting a purchase order.





To reorder *Surface Seal* kits or components:

Contact your Transparencies BSS (Customer Service) representative via email or call 1-833-290-7001 for pricing and delivery lead time and information on submitting a purchase order.

11.4 DSS3000 Coating Efficiency Measurement Kit (Contact Angle)

<u>Reorder</u> <u>Quantity</u>	<u>Part</u> <u>Number</u>	<u>Description</u>
_____	DSS3000	Measurement Kit, Complete

Kit Components (Must be ordered as a kit - items are not available separately.)

1. Pen Light
2. Post-It Pad
3. Macroscope
4. Eppendorf Repeater
5. 15mL DI Water
6. Pipette Tips



11.5 Single Application Kit Reorder Form

<u>Reorder Quantity</u>	<u>Part Number</u>	<u>Description</u>
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_____	DSS4100A	
_____	DSS4100	

Single Application Kit (Coating and supplies for 1
Windshield)

Single Application Kit Components (Must be ordered as a kit - items are not available separately)

1. SDS Sheets (Prep and Coating Solutions, Polishing Slurry, DI Water)
2. Certificate of Conformance
3. Procedure Books (DSS4042 and DSS4022)
4. *Surface Seal* Prep Solution (1)
5. *Surface Seal* Coating (1)
6. Gloves (2)
7. Cleaning Cloths (50)
8. Sanding Block with Felt Pad
9. Tape, 2" (1 roll)
10. Polishing Slurry (120 mL bottle)
11. Deionized Water (500 mL bottle)
12. Gauze Pads (25)
13. Spout Cap
14. Cleaning Pad
15. Spray Nozzle

11.6 Shipping and Billing Information

SHIPPING INFORMATION



SHIP TO:

Name _____ Title/Department _____
Company _____
Division _____
Address _____
City _____ State _____ Zip/Postal Code _____
Country _____
Phone _____

BILLING INFORMATION

BILL TO:

P.O.# _____
Name _____ Title/Department _____
Company _____
Division _____
Address _____
City _____ State _____ Zip/Postal Code _____
Country _____
Phone _____

Authorized Signature _____

To reorder *Surface Seal* kits or components:

Contact your Transparencies BSS (Customer Service) representative via email or call 1-833-290-7001 for pricing and delivery lead time and information on submitting a purchase order.