

512413 - Exterior Metallic Surfaces - Polishing

NOTE: Normal procedures for polishing horizontal stabilizer leading edges, vertical stabilizer leading edge, wing and winglet leading edges, engine intakes and pylons are as follows:

- Pylon Leading Edge - Polishing, 54-50-00, Cleaning / Painting or Code 545005
- Horizontal Stabilizer Leading Edge - Polishing, 55-11-00, Cleaning / Painting or Code 551108
- Vertical Stabilizer Leading Edge - Polishing, 55-30-00, Cleaning / Painting or Code 553011
- Winglet Leading Edge - Polishing, 57-32-00, Cleaning / Painting or Code 573202
- Wing Leading Edge - Polishing, 57-40-05, Cleaning / Painting or Code 574010
- Inlet Cowl Lipskin - Nonabrasive Polish, 71-11-00, Maintenance Practices or Code 711108

For Xzilon Protection Treatment, see Step B(3).

This process is applicable to APU exhaust fairing, engine nacelle surfaces (e.g., nose cowl and T/Rev) as well as other metallic exterior components requiring normal routine maintenance and cosmetic polishing.

The application of Xzilon 3 as an additional protective layer to inhibit corrosion is recommended by Gulfstream for aircraft operating in corrosion prone environments.

Application of Xzilon 3 on cockpit windshield and side window frame is required regardless of aircraft operating environment.

This process is applicable to exterior metallic surfaces to attain a high luster (glossy) finish, to include leading edges of wing, winglets, vertical stabilizer, horizontal stabilizer, engine pylons, APU exhaust fairing, engine nacelle surfaces (e.g., nose cowl, thrust reversers) as well as other metallic exterior components requiring normal routine maintenance and cosmetic polishing. Clean and polish per instructions in Step A(2) and Step B(1). The application of Xzilon 3 as an additional protective layer to inhibit corrosion is recommended by Gulfstream for aircraft operating in corrosion prone environments and is to be applied per Step B(3).

If pitting corrosion is present and material removal is beyond engineering blueprint tolerances, contact Gulfstream Customer Support for further assistance.

A. Preparation**SPECIAL TOOLS AND TEST EQUIPMENT**

Cyclo-oribitor / orbital polisher, 12,000 rpm	Standard
Rotary buffer	Standard

CONSUMABLES

Cotton / wool rotary pad	Standard
Granitize Aviation Int, Xzilon 3 kit	Granitize part No. X-3500 (See Note)
Granitize Aviation Int, hard surface cleaner	Granitize part No. XG-5 or 100% Isopropyl alcohol
Isopropyl alcohol	TT-I-735 or ASTM D770
Lint free cloth	Standard
Lint free wiper	Standard

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Masking tape, 1 - 2 inches (25.4 - 50.8 mm)	Standard
Polish	See Note
Protective covering	Plastic or paper
Solvent	See Note
Synthetic cloth	H-73
Terry cloth	Standard

NOTE: Use approved polish and solvent. See Table 1 and Table 2.

Granitize Aviation Int, Xzilon 3 kit includes H-73 synthetic cloth and H-38X red felt applicator.

Alternate solvents complying with AMS-1530 may be used.

(1) Reference(s)

- Safe Ground Maintenance Procedure, 20-00-00, Maintenance Practices
- Pylon Leading Edge - Polishing, 54-50-00, Cleaning / Painting or Code 545005
- Horizontal Stabilizer Leading Edge - Polishing, 55-11-00, Cleaning / Painting or Code 551108
- Vertical Stabilizer Leading Edge - Polishing, 55-30-00, Cleaning / Painting or Code 553011
- Winglet Leading Edge - Polishing, 57-32-00, Cleaning / Painting or Code 573202
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(2) Aircraft Preparation

- (a) Prepare aircraft for safe ground maintenance. See Safe Ground Maintenance Procedure, 20-00-00, Maintenance Practices.

CAUTION: NO SANDING, CHLORINATED SOLVENTS OR CHLORINATED CLEANERS SHALL BE USED.

- (b) Clean exterior metallic surfaces prior to polishing with lint free cloth and an approved cleaning solvent. See Table 2.
- (c) Cover any opened areas to prevent dust and compound buildup during process which may damage internal structure.
- (d) Cover any opened areas to prevent dust and compound buildup during process which may damage internal structure.

B. Procedure

WARNING: DO NOT ALLOW POLISHING COMPOUND ON SKIN, IN MOUTH OR IN EYES. USE APPLICABLE GLOVES, EYE PROTECTION AND FACE MASK. USE POLISHING COMPOUND ONLY IN AN AREA THAT HAS A GOOD AIRFLOW. DO NOT BREATHE FUMES FROM POLISHING COMPOUND. IF POLISHING COMPOUND COMES INTO CONTACT WITH SKIN, EYES OR MOUTH, IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 20 MINUTES AND GET MEDICAL AID.

CAUTION: NO SANDING, CHLORINATED SOLVENTS OR CHLORINATED CLEANERS SHALL BE USED.

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PROTECT SURROUNDING SURFACES THAT ARE NOT BEING POLISHED DURING THIS PROCESS.

(1) Polishing Exterior Metallic Surfaces

- (a) Thoroughly wipe entire surface with a detergent (Arm & Hammer plus OxiClean or equivalent) or approved cleaning solvent using a lint free wiper. See Table 2.
- (b) For routine maintenance polishing, use Nuvite NuShine II-C (Nuvite C) and NuShine II-S (Nuvite S). See Table 1.
 - (1) Polish heavily oxidized or dull surfaces with NuShine II-F7 (Nuvite F7) or NuShine II-G6 (Nuvite G6) using a rotary buffer with wool or cotton pad.
- (c) Polish surface with Nuvite C using an orbital polisher or cyclo-orbital polisher with a clean terry cloth (preferably 2 X 3 feet section) wrapped around pads.
- (d) Continue to polish surface until polish material starts to dry and surface begins to shine.
- (e) Remove excess polish by wiping with a clean, lint free wiper.
- (f) Wipe with terry cloth and continue until material is free of residue.
- (g) Polish surface with Nuvite S using a cyclo-orbital polisher with a clean terry cloth (preferably 2 X 3 feet section) wrapped around pads.
- (h) Continue to polish surface until polish material starts to dry and surface begins to shine.
- (i) To obtain a final luster appearance, hand polish in span direction using Nuvite S or Rolite AP-300 using clean terry cloth.
- (j) To maintain final luster appearance, routinely polish leading edge (bright work) with Nuvite S or Rolite AP-300.

NOTE: After surface undergoes final polish with Nuvite S or Rolite AP-300, avoid soap or solvent wiping which can remove polish film.

(2) Recommendations For Improved Corrosion Inhibition and Polish Longevity

- (a) Avoid use of detergents that are highly alkaline or those containing ammonia on polished metal.
- (b) Routinely hand dry surface to remove moisture or condensation. This will help to eliminate watermarks and remove dissolved minerals.

NOTE: Most dirt, debris and bugs on a properly polished surface may be removed by wiping with a clean rag and water. Detergents are normally not needed.

(c) Gulfstream recommends use of Xzilon 3 as follows:

- (1) Alclad is locally penetrated on Alclad component.
- (2) If aircraft operates in a corrosive environment.
- (3) Anytime cockpit windshield and side window frame is polished.

NOTE: Xzilon application results in dulling of shiny surface.

(d) Apply Xzilon 3 to provide additional layer of corrosion protection.

NOTE: Gulfstream has evaluated Xzilon 3 and recommends application of such coating as an additional protective layer for polished exterior metallic surfaces, especially for

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aircraft that operate in corrosion prone areas and leading edge sections that have areas of compromised alclad layer.

Application of Xzilon 3 on cockpit windshield and side window frame is required regardless of aircraft operating environment.

Xzilon application results in dulling of shiny surface.

- (e) If applying Xzilon 3 for an additional layer of corrosion protection, proceed to Step B(3), otherwise proceed to Step C

(3) Xzilon Protection Treatment

CAUTION: THE XZILON 3 MATERIAL SHALL BE APPLIED WITHIN A 12 HOUR WINDOW AFTER COMPLETING POLISHING OPERATION. KEEP ALL MATERIAL FROM BEING EXPOSED TO FLOOR AND SHOP CONTAMINATION.

- (a) Cleaning Polished Metal Prior to Xzilon 3 Application

WARNING: ISOPROPYL ALCOHOL IS TOXIC AND FLAMMABLE. DO NOT USE NEAR SPARKS, FLAMES OR HEAT SOURCES. WEAR APPROPRIATE PROTECTIVE CLOTHING, SOLVENT RESISTANT GLOVES AND EYE PROTECTION. AVOID SKIN CONTACT. AVOID BREATHING FUMES. IF YOU GET ISOPROPYL ALCOHOL ON YOUR SKIN, WASH WITH SOAP AND WATER. IF YOU GET ISOPROPYL ALCOHOL IN YOUR EYES, IMMEDIATELY FLUSH WITH COLD WATER, LIFTING THE EYE LIDS TO FLUSH THE INSIDE SURFACES OF THE LIDS AND THE ENTIRE AREA OF YOUR EYE. FLUSH FOR 15 MINUTES AND SEEK MEDICAL ATTENTION.

- (1) Use Granitize Aviation XG-5 hard surface cleaner concentrate diluted to 1 part XG-5 to 3 parts distilled water in a spray bottle or 100% isopropyl alcohol.

NOTE: This is the most important application process.

- (2) Remove all residual polishing.
(3) Wipe with a clean H-73 synthetic cloth.

NOTE: Cloth is supplied in Granitize Aviation X-3500 kit.

- (4) Repeat Step B(3)(a)1 thru Step B(3)(a)3 as required, ensuring surfaces are clean from all polishing residue.

- (b) Apply Xzilon 3 as follows:

NOTE: Temperature during application should be between 45 - 90°F (7 - 32°C).

No visible moisture is allowed during the process. Keep Xzilon 3 container sealed when not in use. Product will attract moisture and harm formulation effectiveness defeating molecular adhesion properties. Shake bottle well repeatedly during application process. Use product sparingly.

- (1) Apply a small amount of Xzilon 3 (approximately one thimble full) to H-38X red felt applicator.
(2) When working an area of 2 x 2 feet (0.5 square meters) apply a thin film of Xzilon 3. Do not allow Xzilon 3 to dry.

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- (3) Wipe treated area with provided H-73 clean synthetic cloth until all wet film is buffed and no longer visible. Rotate H-73 cloth out as necessary when absorbency decreases.

NOTE: Cloth is supplied in Granitize Aviation X-3500 kit.

- (4) Repeat Step B(3)(b)1 thru Step B(3)(b)3 until all subject areas are treated.
- (5) Allow 30 - 45 minutes between coats.

NOTE: Three coats are mandatory for maximum protection and 12 hour cure time is mandatory after final coat is applied before flight.

- (c) Detect presence of Xzilon 3 as follows:

- (1) Use common 2 inch (50.8 mm) wide masking tape in a 6 inch (152.4 mm) length.
- (2) Tear two pieces off roll of tape. Make a lap over 1 inch (25.4 mm) tab at end of both pieces of tape.
- (3) Firmly press tape on subject treated area verses an untreated area.
- (4) Pull tape back slowly at a 90° angle to surface.
- (5) A noticeable ease in resistance will take place on a treated surface versus an untreated surface.

C. Follow On

- (1) Inspect for presence of foreign objects.
- (2) Once polishing is completed and polishing residues have been removed, reflectivity of polished surface shall be evaluated as follows:
- (a) Stand away from skin, holding mirror tag (see Figure 1) against chest. Polished surface shall be parallel to mirror tag as if it were a mirror.
- NOTE:** Stand one foot away from curved skins and two feet away from flat skins.
- (b) Reflectivity of polished surface shall be considered acceptable when definition of reflected image allows reading words off skin.
- (3) Remove protective covering from aircraft applied in Step A(2)(c).
- (4) Record all maintenance actions in accordance with current governing authority.

Table 1. Approved Polishing Compounds

APPROVED POLISHING COMPOUND	MANUFACTURER
AP-300	Rolite Company
NuShine II-G6 (quick cut)	Nuvite Chemical Compounds Corporation
NuShine II-C (oxidation remover)	Nuvite Chemical Compounds Corporation
NuShine F7 (heavy cut)	Nuvite Chemical Compounds Corporation
NuShine II-S (final finish)	Nuvite Chemical Compounds Corporation

Table 2. Approved Cleaning Solvents

CLEANING SOLVENTS
Isopropyl alcohol per TT-I-735 or ASTM-D-H770
Aircraft cleaner per AMS-1530
Mixture of 10% isopropyl alcohol and water
Arm & Hammer Plus OxiClean

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Mirror Tag
Figure 1

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