U.S. PAINT
CORPORATION

HOW TO USE THIS GUIDE

This guide is in five basic parts:

I. General Guidelines – Includes recommendations and tips for:

- Surface cleaning.
- Application equipment selection.
- Air compressors and compressed air.
- Sanding and masking materials.
- General paint environment.

II. Above Waterline Application Systems

III. Below Waterline Application Systems

IV. Troubleshooting

V. Product Data Sheets - Includes:

- Product Check Lists
- Product Description by Code Number
- Glossary of Paint Terms
- Maintaining the Topcoats

If after reading the material you still have specific questions, call, fax, or write the Customer Service Department.

United States:

U.S. Paint Corporation
Headquarters and Laboratory
31 South 21st Street
St. Louis, Missouri
63103, U.S.A.

Telephone: 314.621.0525
Facsimile: 314.621.0722

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NOF Europe N.V.
Bouwelven 1
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Facsimile: 321.423.0880

U.S. PAINT CORPORATION

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INTRODUCTION

This guide is designed to supply the professional applicator with the necessary information required to apply our products. It is not intended as a “How To” guide for the do-it-yourselfer. We encourage you to read the entire guide carefully, especially those sections on safety before applying any product.

Material Safety Data Sheets (MSDS) should be read by the applicator before applying a U.S. Paint Product. These documents contain extensive information for safe handling of our products. Please contact your local distributor or U.S. Paint’s Environmental Health and Safety Department at **(314) 621-0525** for this essential information.

Along with application systems information, the guide contains a complete section containing technical bulletins for each product. These bulletins contain the basic mixing and application specifications for each product. The appropriate bulletins should be reviewed before using a product. The AWLGRIP® Premium Coating Systems are available world wide. Local regulations may limit the availability of certain products in some parts of the world. In some cases packaging will differ depending on local specifications and standards.

Please remember that the AWLGRIP® Premium Coating Systems are designed specifically for the pleasure craft industry and provide chemically cured finishes that are resistant to abrasion, chalking, corrosion, and chemical attack. Only a complete AWLGRIP® Coating System will provide these characteristics.

Do not incorporate any thinner, additive, modifier, converter, primer, or related product that is not specifically recommended by U.S. Paint into any U.S. Paint Coating System. Such substitution can jeopardize the unique characteristics of the U.S. Paint Coating System resulting in poor cosmetics and/or premature failure of the system and will void U.S. Paint’s Limited Warranty.

SAFETY CONSIDERATIONS

U.S. Paint Corporation is committed to provide you with state-of-the-art chemical coatings technology and systems. With that commitment comes a responsibility of much greater consequence, a dedication to provide you with the necessary safety information concerning the application and handling of these products.

Please read the cautions and warnings on the U.S. Paint labels carefully. They are there for your benefit. The recommended safety equipment ensures the safe use of our products.

If you have any questions, **contact CHEMTREC at (800) 424-9300 or U.S. Paint’s Environmental Health and Safety Department at (314) 621-0525**. Please have the appropriate label and container information available when you call.

Material Safety Data Sheets “MSDS”’s are available on each U.S. Paint Product.

SURFACE CLEANING

A clean, dry surface is essential to the success of any coatings application. Our systems include products and procedures which will enable you to obtain proper surface conditions.

Remember – Clean before sanding.
Sanding often melts greases and oils into the surface making it impossible to obtain a clean surface.

T0008 AWL-PREP® Surface Cleaner
Using the Two Cloth Method wipe down with AWL-PREP® T0008 before and after sanding, and between applications of primers, fillers, and topcoats. AWL-PREP® T0008 has a "drying" effect which removes latent moisture from the surface. Latent moisture on the surface can cause a gloss finish to come out flat.

T0115 AWL-PREP® PLUS Wax and Grease Remover
A strong solvent designed to remove waxes, oils, and greases commonly found on painted surfaces and new or aged gelcoat. Use before and after sanding the substrate prior to priming.

Detergent Scrubbing:

Many applicators scrub the surface they are going to paint with household cleanser and a 3M Scotchbrite® Pad before any other prep work is performed. This is an excellent practice as careful observation of the rinse water will tell you when you have a clean surface. Breaks, holes or beading of the rinse water indicates areas which need additional attention.

Two Cloth Cleaning Method:

1. The surface should be cleaned thoroughly of all dust, using a vacuum or clean dry compressed air to blow while wiping with clean, oil free, dry cotton cloths.

2. Soak one cloth in AWL-PREP® or AWL-PREP® PLUS. Use this cloth to wet the surface.

3. Use a dry second cloth to wipe the surface dry and lift the contamination off the surface.

* Work small areas (4 sq. feet or less) to keep the surface cleaner from drying before the second rag wipes it clean.

* Repeat steps 2 and 3, changing rags frequently, until the surface is residue free.

WARNING: Wiping the surface with one wet cloth only smears contamination around. Be sure the cloth used does not have any contaminates; clean cotton works the best.

The surface must be dry before using tack rags.

AWLGRIP®/ALUMIGRIP® TACK RAGS

Tack rags are used just before painting to remove the lightest dust or dirt from what would otherwise be considered a clean, ready to paint surface.

Tack rags are used before final primer and topcoat applications. They are usually not needed when applying fairing materials or surfacers.

When tacking a primer or topcoat surface, use only AWLGRIP®/ ALUMIGRIP® Tack Rags (#73009). They have the proper type and amount of resin to pick up dust without leaving contamination on the surface. Other tack rags can easily leave a residue that causes fisheyes and cratering of the topcoat.

Be careful not to use excessive hand pressure when using tack rags. A light dusting is all that is necessary, let the resin do the work. Even AWLGRIP®/ALUMIGRIP® Tack Rags can leave a resin on the surface if used improperly.

Notes:

TAPING AND MASKING MATERIALS

Masking Tapes:

Masking tapes are produced in various grades. Review tape manufacturers' recommendations and then make your selection based on your working conditions and technique. A minimum requirement is tape designed for use with urethane and epoxy coatings.

Common problems with tapes not designed for use with these types of coatings are poor solvent resistance, creeping, adhesive residue remaining on the surface, and poor moisture resistance.

For striping, a thin plastic tape such as 3M Fine Line® #218 is recommended. Pushing the edge of the tape to be painted down with fine sandpaper, a green Scotchbrite® pad, and/or a plastic spreader will help insure a sealed edge and a fine, even, no creep line.

Masking Paper:

Masking papers are manufactured in various grades. The solvents in urethane and epoxy coatings require a paper with excellent resistance to solvent penetration. 3M's Scotchblok® Masking Paper is highly recommended.

WARNING:

1. **Do not use** light weight plastic masking materials that "cling" to the surface. This can leave tracks or marks on the paint film which cannot be removed.

2. **Do not use** plastic sheeting on a surface longer than two days. Condensation can form under the plastic, causing blistering, bubbling, or loss of gloss in the paint finish.

3. **Do not use** newsprint or newspapers; these can stain the paint finish.

COMPRESSORS AND COMPRESSED AIR

Clean, oil-free, dry air is essential for operating spray equipment, air power tools, and blowing off surfaces prior to priming or painting.

Air supply lines should have oil and water separators. For separators to be effective, air from the compressor must have time to cool before reaching the separators. Usually a minimum of 30 feet is required between the compressor and the separators. Additional separators may be required.

SANDING AND SANDPAPER

Read all safety and health information contained in Material Safety Data Sheets.

Always thoroughly clean the surface before sanding. See surface cleaning on page 2.

1. When sanding or grinding, work in areas with adequate ventilation, maintaining a continuous flow of fresh air.

2. Do not breathe sanding or grinding dust.

3. Keep sanding dust off skin and out of eyes.

4. Wear a properly fitted chemical cartridge/mechanical filter respirator TC-23C (NIOSH/MSHA approved) during sanding, grinding, and blowing off.

5. Keep bystanders and unprotected workers out of sanding and grinding areas.

Proper sanding promotes adhesion for the next coat. Excessive sanding or using too coarse a grit can open pores in the surface or create a sanding scratch profile too deep to be filled by the next product to be applied. This can cause porosity holes in gelcoat and sand scratch print-through.

There are four basic types of sanding and throughout this book references are made to each type. All four types may be accomplished by hand, machine, or block. The surface shape, size, and quality requirements, will determine the tools or combination of tools required.

1. Scratch Sanding: Scuffing or scratching a smooth surface to create a profile to promote adhesion of another coating. 3M Scotchbrite® Pads #'s 7447 or 7448 may be used to push stripe edges down or remove light overspray from primer. Caution is recommended when considering Scotchbrite® for scratch sanding between topcoats as adhesion will be questionable. Sandpaper is recommended.

2. Smooth Sanding: Sanding the surface smooth of orange peel or fine texture. This is usually done with small blocks, small pad machine, or hand sanding using relatively fine grits. This type of sanding is not considered fairing.

3. Block Sanding: Block sanding is used for fairing. Block sanding by hand-board or machine is used to level a surface. The depth and height of the highs and lows, and the width between them will determine the size block as well as the amount of filler/surface products needed to fair the surface.

4. Grinding: Is for the removal of material. Grits are coarse, 24-36-60, with the primary purpose being removal of undesirable material and creating surface profile. Grinding would be used to brighten corroded metal, remove old coatings and to remove heavily oxidized or damaged gelcoat.

Sanding Grit Cross Reference:

The finish sanding grits in this book are for 3M Tri-M-ite® Fre-Cut® sandpaper.

When choosing 3M® Gold, or Wetordry® sandpapers, a finer grit choice will be necessary to match the sanding scratch profile or depth of the Tri-M-ite® Fre-Cut®.

Example:

Tri-M-ite® Fre-Cut®	Gold	Champagne®	Wetordry®
220	280	280	400
320	400	400	500/600

Clears and dark topcoat colors tend to show sanding scratches more than lighter colors. Using finer grits will help overcome this condition. Use:

Tri-M-ite®	Champagne®	Wetordry®
320	400	500/600

to sand before applying clears or dark topcoat colors.

Notes:

APPLICATION EQUIPMENT

Ventilation/Respiratory Protection: Use only with adequate ventilation. Maintain continuous flow of fresh air. Do not breathe vapors, spray mists, or sanding dusts. Wear appropriate, properly fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates vapor and particulate levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Engineering or administrative controls should be implemented to reduce exposure. Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV's (Threshold Limit Values).

Personal Protective Equipment: Do not get in eyes, on skin, or on clothing. Use solvent resistant safety eyewear with splash guards. Solvent impermeable gloves, clothing, and boots should be worn to prevent skin contact. When applying an AWLGRIP® or AWLCRAFT® 2000 Topcoat or any other isocyanate containing product, a respirator that is approved for use with such products must be used. A positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) is recommended.

SPRAY EQUIPMENT

Air Atomized
For use with AWLGRIP®, AWLCRAFT® 2000, and lower viscosity U.S. Paint primers such as 545 Primer, 30-Y-94 TM , QUIK-GRIP®, ZINC CHROMATE WASH Primer, and AWL-QUIK®.

Pressure Pot System Guns
Binks or equivalent:
Spray Gun: #95
Fluid Nozzle: #63BSS (.046" Orifice Size)
Fluid Needle: #663A
Air Nozzle: #63PW
Pressure pot gauge should read 8 to 12 lbs. with 50 to 60 lbs. atomization.

Siphon or Cup Gun System
Binks or equivalent:
Spray Gun: #95
Fluid Nozzle: #66SS (.070" Orifice Size)
Fluid Needle: #665
Air Nozzle: #63SK
Atomizing air pressure should be approximately 50 to 60 lbs. The above set up works well on a pressure pot when applying GRIPTEX® Non-Skid, High Build, and 545 Primer.

Pressure Pot Only
For use with high viscosity primers such as ULTRA-BUILD®, HIGH BUILD, Sprayable Fairing Compound, HULL-GARD® E.R., HULL-GARD® W.B., and AWLSTAR TM GOLD LABEL Anti-Fouling.
Binks or equivalent:
Spray Gun: #95
Fluid Nozzle: #68SS (.110" Orifice Size)
Fluid Needle: #668
Air Nozzle: #68PB
Pressure pot gauge should read 15 to 25 lbs. atomizing pressure 50+ lbs.

Airless Equipment
For use with high viscosity primers, surfacers, AWL-QUIK®, High Build, HULL-GARD® E.R., HULL-GARD® W.B., Sprayable Fairing Compound, ULTRA-BUILD®, and AWLSTAR TM GOLD LABEL Anti-Fouling.
Binks or equivalent:
Spray Gun: Airless 1
Orifice Size: 028" - .043"
Fan Size & Angle: 8" - 80, or 6" - 60
On a 25-1 pump, the pressure gauge should read 70 to 80 lbs.
On a 40-1 pump, the pressure gauge should read 50 to 60 lbs.

High Volume Low Pressure Guns
Binks MACH 1 or equivalent pressure pot:
For use with all U.S. Paint Topcoats and low viscosity primers.
Fluid Nozzle: #91 (.040" Orifice Size)
#92 (.046" Orifice Size)
Fluid Needle: #54-4382
Air Nozzle: #93P

For use with high viscosity products:
Fluid Nozzle: #94 (.055" Orifice Size) , Med. Primer
#97 (.070" Orifice Size) GRIPTEX®, AWL- QUIK®, High Build Epoxy
#905 or 909 (.089" and .111")
Sprayable Fairing Compound,
ULTRA-BUILD®, HULL-GARD® E.R. & W.B.,
and AWLSTAR TM Anti-Fouling Fluid

Needle: #54-4382
Air Nozzle for #94 and 97 is 97P. #905 and 909 use 905-907P.

Notes:

BRUSHES AND ROLLERS

Use brushes and rollers covers which are specified for use with urethanes and epoxies. Household types will “melt” because of their lack of solvent resistance. The listed products from Corona Brushes and Redtree Industries have proven to perform satisfactorily with our products. Equivalent products from other manufacturers may be satisfactory as well.

Brushes:

Corona:
Heritage® or Urethaner® brushes are recommended for most work; or a Europa® if a thinner brush is needed for fine detail work.

Redtree:
The Badger®, Onyx®, and Chinese Ox® are recommended for fine finish work. The Fooler® is recommended for epoxy coatings and maintenance grade work. It is sometimes helpful to use at least two brushes. Keep one soaking in T0031 while using the other. Switch brushes periodically to keep material from building up in the heel.

Note: Remove excess reducer thoroughly from the brush that was soaking before using again. Spin brushes with a brush spinner for best results.

Roller Covers:

Corona:
The Glasskoter® R101F (1/8” nap), and R201F (3/8” nap) are conventional mohair type roller covers. The Foam Slicker® F780-012F is a foam cover.

Redtree:
The Deluxe Mohair® R-11PH (3/16” nap) is recommended for topside enamels and varnishes. The Foam Roller® (1/8” nap) is designed for all urethanes and epoxies. The Dynex® R-22PH (3/8” nap) is recommended for bottom paints, epoxies and resins.

A brush should be used for tipping off the paint to remove any bubbles or stipples left by even the shortest nap rollers.

Use fresh T0002 and/or T0031 to clean or soak equipment.

Always keep extra equipment handy on the job.

Warning:

1. Never soak brushes in conditioners, oils, or turpentine.
2. Foam brushes become soft and “melt” into the coatings. They are only suitable for tipping roller stipple on small projects.

For more information about brushes and rollers contact:

Corona Brushes, Inc.
5065 Savarese Circle
Tampa, FL
33634
Tel: 813-885-2525
Fax: 813-882-9810

Redtree Industries, Inc.
161 Abington Avenue
Newark, NJ
07107
Tel: 973-481-0200
Fax: 973-481-0941

PAINTING ENVIRONMENT

Cure Cycles:
AWLGRIP® Urethane Topcoats require three cure cycles.

First Cure Cycle
This cycle requires 12 to 24 hours at the standard conditions of 77°F, 50% R.H. When this stage is complete, the painted surface can be handled; masking tape can be applied for striping, and the finish appears to be dry. The coating can now be exposed to weather.

Second Cure Cycle
The second cure requires 72 to 96 hours at 77°F, 50% R.H. During this stage the film becomes much harder. Abrasion and chemical resistance develop. After the second cure cycle is complete, the boat can be safely returned to limited service.

Third Cure Cycle
This third cycle requires 14 to 21 days at 77°F, 50% R.H. During this time the coating develops all its physical properties. The casual observer may not be able to determine a significant difference between Cycle 2 and Cycle 3. However, the cure is not complete during Cycle 2 and severe service conditions should be avoided.

These cure calculations are based on exposure at standard conditions (77°F, 50% R.H.) and with coatings applied at the recommended film thickness.

Caution: Cure rates are subject to many variables. These include, but are not limited to; ambient temperature, substrate temperature, relative humidity, applied film thickness, reducer selection, use of accelerators, retarders, and air flow. Temperatures warmer than the standard conditions of 77°F, 50% R.H. speed, dry and cure times. Cooler temperatures will create slower dry and cure rates.

Moisture Complications
Moisture on the surface can be disastrous. Problems are noticeable when moisture comes in contact with the AWLGRIP® or AWLCRAFT® 2000 Topcoats before they complete the first stage of curing.

Results can be:
- overall loss of gloss and image
- flat spots
- a rough or grainy surface
- blistering

These problems can also occur as a result of overcoating a primed surface that has not adequately cured, or applying the topcoat to a surface that is contaminated with moisture.

Avoid applying topcoats in situations where rain, dew, fog or other condensation can contact the paint surface before the coating has completed the first stage of cure. Whenever feasible, erect some kind of cover or shade over the work area. This cover will help keep dew from the curing finish.

Condensation occurs when the air becomes completely saturated with moisture and the temperature drops below the dew point. At standard conditions (77°F, 50% R.H.), avoid applying topcoats when the temperature could drop below the dew point within 6 to 8 hours after the application.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
PREVIOUSLY PAINTED SURFACES

There are many situations where repainting is needed but removing all the old paint is impractical. However, the cost of labor and materials for a sand and repaint is significant and there is no gain in painting over a system that is severely deteriorated or chemically incompatible with the U.S. Paint Coatings Systems.

When considering such a project, carefully evaluate the surface and the condition of the current topcoat and the coatings under it all the way down to the substrate. Old paint that is peeling extensively, heavily chalked, blistered, or cracked should be completely removed.

Metal substrates should be thoroughly examined for corrosion. This includes obvious corrosion damage and slight blistering which may indicate corrosion just ready to break the surface. Large blisters or soft spots in the film may indicate old fairing work that is failing. On fiberglass substrates, these conditions may be indicative of voids in the glass system or osmotic blistering. These conditions must be repaired before applying new coatings.

After initial evaluation, perform the following three tests in the order listed, to determine the adhesion of the old system and its chemical compatibility with the U.S. Paint Coating Systems.

Performing these tests on more than one area will add validity to the results. Make notes, collect chips, and take photos for the job file. If any of the following compatibility tests fail, the old coatings must be removed down to a sound coating layer or to the substrate.

Please take this testing seriously, as new epoxy-urethane systems have failed because of unstable underlying coatings and fillers. While the tests are not fool proof, if strictly followed they can be very accurate. Diligence in performing the tests can save hours of costly labor, down time, and wasted materials.

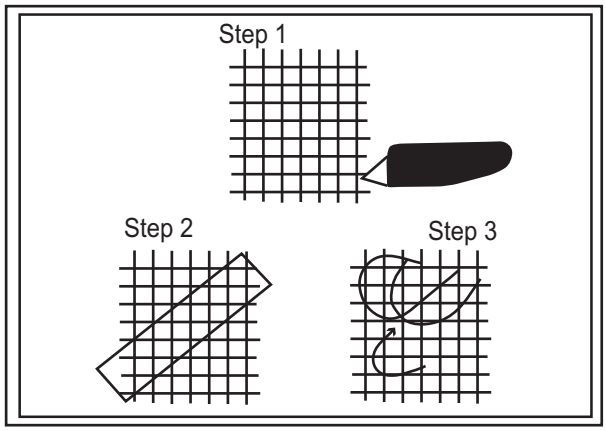
- Assuming the existing paint system passes the adhesion and compatibility tests, repainting would include the following:
- Inspection of the surface
- Removal of coatings which fail the adhesion and compatibility tests.
- Repair of defects
- Priming the entire surface
- Application of an AWLGRIP® or AWLCRAFT® 2000 Topcoat

Conditions and remedies should be discussed with the owner, possibly using a condition report or making notes in the painting contract. Areas that were not repaired because of time or budget must be noted on the final invoice

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
PREVIOUSLY PAINTED SURFACES (Cont'd)

COATINGS COMPATIBILITY & ADHESION TESTS



Test One: Cross Hatch Adhesion (See diagram above.)

1. Select a test area or areas on the surface to be painted. Thoroughly clean, de-wax, and degrease this area.
2. With a single-edge razor blade, scribe a 2" x 2" test area in a 1/4" checkerboard pattern. The cuts must be deep enough to reach the substrate. On a thick fairing system this test may have to be done to several different layers.
3. Apply 3M #610, #895 or #898 3M Scotch Brand Filament Tape (or similar type of packaging tape) over the scribed area, making certain that the tape is tightly adhered to the test surface. Do not use masking tape.
4. With an abrupt yank, pull the tape back parallel to the surface. To pull the tape straight up will give no test at all.
5. Examine the test surface. If any square of old coating in the scribed area is removed, the adhesion has failed. All the failed layers must be removed.

Test Two: Solvent Resistance

1. Saturate a cotton ball or small wad of cloth with one of the U.S. Paint Topcoat or Primer Reducers. (T0006 or T0003).
2. Tape the reducer saturated ball to the scribed area surface for 30 minutes.
3. After 30 minutes, remove the cotton ball. If the reducer has dissolved or severely softened the old coating, the coating is incompatible and must be removed. If the scribed area has remained intact, allow a 15 minute recovery period and repeat all steps in Test 1 again.
4. If any square areas are removed, all the failed layers must be removed.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
PREVIOUSLY PAINTED SURFACES (Cont'd)

COATINGS COMPATIBILITY & ADHESION TESTS Cont'd)

Test Three: Coating Compatibility

If the old coating is still intact after Tests 1 and 2, perform Test 3.

1. Lightly sand a small test area with 220 grit paper. Clean the sanded areas thoroughly with AWL-PREP® and clean cloths.
2. Paint a small patch of the surface with U.S. Paint Topcoat. Do not use masking tape on the edges of the test application as the paint edges created by the tape will "print through" and be visible in the finish.
3. Allow the coated area to cure for 24 hours, at temperatures above 77°F.
4. After the area has been allowed to cure, check for intercoat adhesion with Test 1 Cross Hatch Adhesion Test.
5. If there is no lifting, wrinkling, or loss of adhesion caused by this cross hatch test, the U.S. Paint Coating Systems are compatible and surface preparation can begin.

If this test fails, all coatings must be removed down to a sound, well adhered, compatible coating or to the original substrate.

SURFACE PREPARATION & APPLICATION OF PRODUCTS

Surfaces that are sound and chemically compatible with U.S. Paint Coating Systems and no heavy filling or fairing is required.

1. Thoroughly clean the surface, scrubbing with household cleanser. Wipe with AWL-PREP® or AWL-PREP® PLUS, using the Two Cloth Method. These procedures are outlined on page 2.
2. Inspect the surface for pinholes and small scratches . Mark the imperfections with a pencil. Do not use a felt tip marker or ink pen.
3. Scratch sand the imperfections with 80 grit paper creating both a feathered edge and a proper surface profile over which primers and fillers can be applied. Prime these areas with either 545 Epoxy Primer (Spray) or AWL-QUIK® Epoxy Primer (Brush & Roll). Allow to cure 12 hours or overnight.

If bare metal was exposed by the 80 grit sanding, prime the bare metal with the recommended U.S. Paint anti-corrosive primer before applying other primers or fillers.

See aluminum, steel or blister repair sections for details on bare metal surface preparation and priming.

ABOVE THE WATERLINE

SURFACE PREPARATION & APPLICATION OF PRODUCTS (Cont'd.)
PREVIOUSLY PAINTED SURFACES (Cont'd)

Caution: If polyester putties are used, they should be kept to an absolute minimum. Only use polyester putties for pinholes and very slight scratches or dings. Polyester putties shrink and distort rapidly. Epoxy fillers are much more stable products. Do not apply polyester putties over or under AWL-FAIR® L.W.

4. Block sand the filled areas leaving a smooth, level surface.
5. Smooth sand the entire surface with 100-180 grit to remove all gloss from the previous finish.
6. Blow off the surface with clean, dry compressed air while dry wiping with clean rags to remove sanding dust and residue.

Then wipe with AWL-PREP® T0008 using the Two Cloth Method.

7. Prime the entire surface with 545 Primer (Spray) or AWL-QUIK® Epoxy Primers (Brush & Roll). Two to three coats may be needed. Allow to dry 12+ hours.

Tip: Use care when applying this primer. If smoothly applied and all surfaces are adequately covered, it may be used as the final prime step.

Surface is ready for final prime and topcoat. See Page 33.

Notes:

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
FIBERGLASS/GELCOAT

Gelcoat/fiberglass surfaces are found in four basic forms:

1. New gelcoat and aged gelcoat which is sound; basically free of any crazing, damage, or delamination.

2. Aged gelcoat with minor crazing and oxidation but no major cracking, crazing, damage, or delamination.

3. Heavily crazed, cracked, broken and delaminated surfaces.

4. Raw fiberglass, laminating resin with no gelcoat.

Most projects involving molded fiberglass/gelcoat usually fall into categories 1.) or 2.) and require very little filling or fairing. Refinishing these surfaces can be accomplished with relatively simple systems of:

- Cleaning and de-waxing the surface.
- Sanding the surface.
- Applying 545 Primer or AWL-QUIK® Primer.
- Topcoat application.

Surface conditions described in catagories 3.) or 4.) require more extensive attention to abrading the surface and the use of fairing and surfacing products.

Heavily crazed and damaged surfaces require thorough inspection and removal of all damaged or deteriorated materials. Cracking and crazing caused by excessive flexing of the surface may require structural reinforcement to reduce the flexing. Deep crazing and cracking must be ground out before filling to change the dynamics of the working surfaces. Just filling and painting over cracking and crazing usually results in the defect quickly “printing through” in the new finish.

Raw laminating resin is very hard and slick compared to pigmented gelcoats and fairing compounds.

Both polyester or epoxy resins must be washed with household cleanser and water before sanding or grinding. Washing removes mold release materials, un-reacted styrene on polyester surfaces and amine residue on epoxy resins.

Raw fiberglass resin must be ground with 36-60 grit sand paper until 100% of the surface is dull, with a 36-60 grit surface profile. Allowing even small spots of un-sanded resin in the weave of the fiber strands can lead to adhesion failures.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
FIBERGLASS/GELCOAT (Cont'd)

Fiberglass repairs often have an extra layer of laminating resin applied to give the repair a smoother finish. This allows easy sanding without exposing the fiberglass itself.

Even though these areas may appear fair and true it is important to give them the full 36-60 grit grind to ensure good adhesion of the coating system.

Refinishing heavily crazed, broken, delaminated surfaces, or raw laminating resin requires more steps involving more products:

- Cleaning and de-waxing the surface.
- Sanding/grinding the surface.
- Applying primer to the surface.
- Fairing with AWL-FAIR® L.W.
- Applying HIGH BUILD or ULTRA-BUILD® Surfacers.
- Sealing with 545 Primer.
- Topcoat application.

This section provides detailed instructions for surface preparation and priming of gelcoat and fiberglass.

This first system covers new and sound, aged surfaces. The second is for heavily crazed/damaged surfaces and raw laminating resins.

FIBERGLASS/GELCOAT
System I.
New and Sound Aged Surfaces
Preparation and Priming

Removal of all surface contamination (waxes, mold release products, dirt, grease, oil, and mildew) is imperative to insure adhesion of the new U.S. Paint Coatings Systems.

Sanding the surface with sandpaper does not remove wax or other contamination. Sanding spreads the contamination from one area to another. The heat generated by the sanding melts wax and other contamination into pores in the surface.

1. The surface must be clean and free of any waxes or mold release compounds before beginning any other work.

De-wax with AWL-PREP® PLUS T0115 using the Two Cloth Method. Thoroughly scrub with commercial detergent or powdered household cleanser. Then rinse with fresh water until a break-free rinse is obtained. Allow to dry. Some surfaces may need a second application of T0115 and additional scrubbing. Be sure to rinse thoroughly.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
FIBERGLASS/GELCOAT – System I. (Cont'd)

2. Inspect the surface for pinholes and small scratches. Mark the imperfections with a pencil. Do not use a felt tip marker.

3. Sand out and feather any scratches or dings with 80 grit paper. Sand any raw resin until completely dull.

4. Brush prime these areas with 545 Primer or AWL-QUIK® Primer.

5. Scratch sand primed spots with 150 grit.

6. Fill scratches, gouges, and dings with AWL-FAIR® L.W. Allow to cure 12+ hours.

Caution: If polyester putties are used, they should be kept to an absolute minimum. Only use polyester putties for pinholes and very slight scratches or dings. Polyester putties shrink and distort rapidly. Epoxy fillers are much more stable.

7. Block sand the filled areas leaving a smooth, level surface.

8. Smooth sand the entire surface with 100-150 grit to remove all gloss from the previous finish. Feather any dents, dings, or scratches. Sanding must be thorough enough to remove all gloss from the gelcoat, all oxidized gelcoat, and any light crazing in the surface. However, do not over-sand. This needlessly exposes porosity in the gelcoat which will require extra materials and labor to fill.

9. Prime the entire surface with 545 Primer (spray) or AWL-QUIK® Epoxy Primers (brush & roll). Allow to cure 12+ hours.

Tip: Use care when applying this primer. If smoothly applied and all surfaces are adequately covered, it may be used as the final prime step.

Surface is now ready for final priming and topcoating. See page 33.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
FIBERGLASS/GELCOAT (Cont'd)

System II. Surfaces with heavily crazed, cracked, broken, delaminated gelcoat, and raw laminating resin.

1. Thoroughly scrub with commercial detergent or powdered household cleanser. Then rinse with fresh water until a break-free rinse is obtained. Allow to dry.

2. Inspect heavily crazed areas or damaged areas for excessive flexing or structural damage. Make structural reinforcements and fiberglass repairs as needed.

3. Remove heavily crazed, broken and delaminated gelcoat or fiberglass laminate.

4. Thoroughly grind out damaged areas with a 36-60 grit disk. Heavy crazing must be completely removed. Grind raw resin areas with 36-60 grit sand paper.

5. Prime these repair areas with 545 Primer. Two or three coats may be needed. Allow to dry 12+ hours.

OR:

For heavily damaged areas and all areas where 36 grit paper was used, prime with HIGH BUILD Epoxy Primer. Reduce the first coat of HIGH BUILD Epoxy 25% by volume with T0006 Reducer. Two to three coats may be required.

6. Sand primed areas with 80 grit paper.

7. Blow off the surface with clean, dry compressed air while dry wiped with clean rags to remove sanding dust and residue.

Note: The repair areas are ready for fairing and surfacing. This will include application of some or all of the following products:

- HIGH BUILD Epoxy Primer
- ULTRA BUILD® Epoxy Primer
- Sprayable Fairing Compound
- AWL-FAIR® L.W. Trowelable Fairing Compound
- AWL-QUIK® Sanding Surfacer.

Details of the application of these products begin on page 30.

After the fairing and surfacing is completed all areas of sound surface must be cleaned, sanded, and primed and prepped before applying a topcoat. See page 16 for preparation of sound gelcoat/fiberglass and page 33 for final prime and topcoat.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
ALUMINUM

This section contains five systems for the preparation and priming of aluminum surfaces. The systems are:

I.) Aluminum to be heavily faired, where ALUMIPREP® 33 Acid Cleaner and ALODINE® 1201 Chrome Conversion Coating will not be used.

II.) Aluminum to be heavily faired, where ALUMIPREP® 33 and ALODINE® 1201 will be used.

III.) Aluminum which requires little or no fairing. ALUMIPREP® 33 and ALODINE® 1201 will be used.

IV.) Repair of blisters caused by corrosion on previously painted aluminum.

V.) Anodized parts where ALUMIPREP® 33 and ALODINE® 1201 cannot be used. No fairing required.

These systems are designed to provide maximum performance of the coating system with allowances and adjustments for facility and engineering limitations.

ALUMIPREP® 33 and ALODINE® 1201 can create an excellent anti-corrosive base for a paint system. However, both products are very aggressive acids which require very careful handling and a thorough assessment of the project before they are used. There are many situations where the use of these products is not practical.

In these situations blasting or grinding the aluminum to remove oxidation, creating clean, bright, shiny aluminum with an appropriate profile will provide excellent performance. The key here is priming the surface immediately after completing the blast or grind; before the aluminum can re-oxidize.

The system for blister repairs on previously painted surfaces specifically takes into account difficulties in obtaining perfect surface preparation in these situations.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING

System I.) ALUMINUM - FULL FAIRING SYSTEM

No ALUMIPREP® 33 & ALODINE® 1201 Acid Treatments are used in this system.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP® PLUS as a final wipe down of the surface.

Important: Plan your work schedule carefully! Any area which is ground or blasted per Step 2 must be primed per Step 3 during the same work shift. Products in Step 4 must be applied within 24 hours of the completion of Step 3 or the surface will have to be sanded and Step 3 repeated.

2. Grind with 36 grit paper and/or sand blast thoroughly to bright, clean aluminum. The metal must be bright silver, completely free of gray oxidation. The surface profile will be 4-6 mils (100-150 microns).

Blow off the surface thoroughly with clean, dry, compressed air to remove all blast/grind residue and any dust or dirt. Use a brush or broom if necessary.

Caution: Do not use rags to clean this surface. The sharp metal will snag fibers from the rags. These fibers can act as wicks for moisture or other contamination to enter the paint film. This can lead to premature failure of the U.S. Paint Coating System.

Proceed to Step 3 within 4 hours.

3. Spray apply 30-Y-94 TM Mil Spec Anti-Corrosive Epoxy Primer. Apply one full wet coat to approximately 3-4 mils (75-100 microns) wet film thickness to achieve 0.6-0.9 mils (15-23 microns) dry film thickness. Allow to cure 2 to 4 hours.

Note: If chromated primer cannot be used; prime with 545 Gray (D1001/D3001). Two coats will be needed. Allow to cure 12+ hours.
Caution: Do not use a roller to apply either primer. See previous caution regarding wicks.

4. Spray apply HIGH BUILD Epoxy Primer-Yellow (D9002/D3002). Apply two heavy coats. Allow at least one hour between coats.

Surface is now ready for fairing and surfacing see page 30.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System II.) ALUMINUM - FULL FAIRING SYSTEM

Using: ALUMIPREP 33 & ALODINE 1201 Acid Treatments

Only use this system IF:

- Conditions will allow complete rinsing of the ALUMIPREP 33 and ALODINE 1201.
- Facilities are in place for proper disposal of waste generated by the use of these products.
- Applicators have the proper personal protective equipment for worker protection.

Do not apply ALUMIPREP 33 or ALODINE 1201 with paint spray equipment.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS for a final wipe down of the surface.

Important: Plan your work schedule carefully! Surfaces treated with ALUMIPREP 33 in Step 3 must be immediately treated with ALODINE 1201. Products in Step 5 must be applied within 24 hours of completion of Step 4 or the surface will have to be sanded and Step 4 repeated.

2. Grind with 36 grit paper and/or sand blast thoroughly to bright, clean aluminum. The metal must be bright silver, completely free of gray oxidation. The surface profile will be 4-6 mils (100-140 microns).

Blow off the surface with clean, dry, compressed air to remove all blast/grind residue and any dust or dirt. Use a brush or broom if necessary.

Caution: Do not use rags to clean this surface. The sharp metal will snag fibers from the rags. These fibers can act as wicks for moisture or other contamination to enter the paint film. This can lead to premature failure of the U.S. Paint Coating System.

ALUMIPREP 33 & ALODINE 1201

Application of ALUMIPREP 33

3. Dilute 1 part ALUMIPREP 33 with 3 parts water.

Apply ALUMIPREP 33 using Scotchbrite pads or acid resistant brushes. Start at the bottom of the surface and work up to the top.

Allow the ALUMIPREP 33 to work for 2 to 5 minutes, then rinse thoroughly with clean water. The rinse should sheet out over the entire surface with no breaks or holes in the water. This indicates a totally clean surface.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System II.) ALUMINUM - FULL FAIRING SYSTEM

Using: ALUMIPREP 33 & ALODINE 1201 Acid Treatments(Cont'd.)

Caution: Do not allow the ALUMIPREP 33 solution to dry on the surface. Crystalline salts will form which will cause corrosion. If the ALUMIPREP 33 dries on the surface, re-wet the surface with fresh ALUMIPREP 33. Rescrub and rinse the surface thoroughly with water. Repeat until a break-free rinse is obtained.

Application of ALODINE 1201

While the surface is still wet from rinsing the ALUMIPREP 33, immediately apply ALODINE 1201. Do not dilute. Apply full strength with acid resistant brushes. Start at the bottom of the surface and work up to the top. This will avoid streaking or burning of the surface. Allow to react 2 to 3 minutes. The surface should be a light gold/tan color. Rinse thoroughly with water. The rinse water should sheet out with no breaks or holes in the rinse.

Caution: Do not allow the ALODINE 1201 to dry on the surface prior to rinsing. Should drying occur, recleaning with ALUMIPREP 33 may be necessary to remove the dark brown burn/stain and the ALODINE 1201 residue. This residue can cause corrosion and premature adhesion failure of the coatings system. Repeat procedure until proper color and a break-free rinse is obtained.

After the rinse is complete, blow the water out of the seams, joints, and crevices with clean, dry, compressed air. Allow the surface to dry completely.

The treated surface should be primed as soon as possible after the surface is completely dry. Always prime before fairing.

Do not use Zinc Chromate Wash Primer (G9072/G3014) to prime an ALODINE treated surface.

4. Spray apply 30-Y-94™ Mil Spec Anti-Corrosive Epoxy Primer. Apply one full wet coat to approximately 3-4 mils (75-100 microns) wet film thickness to achieve 0.6-0.9 mils (13-23 microns) dry film thickness. Allow to cure 2 to 4 hours.

Caution: Do not use a roller to apply the primer. See previous caution regarding wicks.

5. Spray apply HIGH BUILD Epoxy Primer (D9002/D3002). Apply two heavy coats. Allow at least one hour between coats.

Surface is now ready for fairing and surfacing see page 30.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System III.) ALUMINUM

Fast re-coat system for masts, spars, equipment, and accessories that are mounted above deck. No filling or fairing.

USING: ALUMIPREP 33 & ALODINE 1201 Acid Treatments

Only use this system IF:

- Conditions will allow complete rinsing of the ALUMIPREP 33 and ALODINE 1201.
- Facilities are in place for proper disposal of waste generated by the use of these products.
- Applicators have the proper personal protective equipment for worker protection.
- Extra care must be taken to rinse the interior of masts/spars and other hollow fabrications. All ALUMIPREP 33 and ALODINE 1201 residue must be rinsed from these surfaces.
- Dried residue of ALUMIPREP 33 and ALODINE 1201 in the interior of these fabrications can cause serious corrosion problems.

Do not apply ALUMIPREP 33 or ALODINE 1201 with paint spray equipment.

Note: Anodized parts should be lightly sanded with 220 grit paper to “break” the anodized surface to insure acceptance of the ALUMIPREP 33/ALODINE 1201 treatment. Remove sanding dust/residue before beginning ALUMIPREP 33/ALODINE 1201 acid treatments.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS for a final wipe down of the surface.

Important: Plan your work schedule carefully! Surfaces treated with ALUMIPREP 33 in Step 2 must be immediately treated with ALODINE 1201.

ALUMIPREP 33 & ALODINE 1201
Application of ALUMIPREP 33

2. Dilute 1 part ALUMIPREP 33 with 3 parts water.

Apply ALUMIPREP 33 using Scotchbrite pads or acid resistant brushes. Start at the bottom of the surface and work up to the top.

Allow the ALUMIPREP 33 to work for 2 to 5 minutes, then rinse thoroughly with clean water. The rinse should sheet out over the entire surface with no breaks or holes in the water. This indicates a totally clean surface.

Caution: Do not allow the ALUMIPREP 33 solution to dry on the surface. Crystalline salts will form which will cause corrosion. If the ALUMIPREP 33 dries on the surface, re-wet the surface with fresh ALUMIPREP 33. Rescrub and rinse the surface thoroughly with water. Repeat until a break-free rinse is obtained.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System III.) ALUMINUM

Fast re-coat system for masts, spars, equipment, and accessories that are mounted above deck.
No filling or fairing.

USING: ALUMIPREP 33 & ALODINE 1201 Acid Treatments

Application of ALODINE 1201

While the surface is still wet from rinsing the ALUMIPREP 33, immediately apply ALODINE 1201. Do not dilute. Apply full strength with acid resistant brushes. Start at the bottom of the surface and work up to the top. This will avoid streaking or burning of the surface. Allow to react 2 to 3 minutes. The surface should be a light gold/tan color. Rinse thoroughly with water. The rinse water should sheet out with no breaks or holes in the rinse.

Caution:
Do not allow the ALODINE 1201 to dry on the surface prior to rinsing. Should drying occur, re-cleaning with ALUMIPREP 33 may be necessary to remove the dark brown burn/stain and the ALODINE 1201 residue. This residue can cause corrosion and premature adhesion failure of the coatings system. Repeat procedure until proper color and a break-free rinse is obtained.

After the rinse is complete, blow the water out of the seams, joints, and crevices with clean, dry, compressed air. Allow the surface to dry completely.

The treated surface should be primed as soon as possible after the surface is completely dry. Always prime before fairing.

Do not use Zinc Chromate Wash Primer (G9072/G3014) to prime an ALODINE treated surface.

3. Spray apply 30-Y-94™ Mil Spec Anti-Corrosive Epoxy Primer. Apply one full wet coat to approximately 3-4 mils (75-100 microns) wet film thickness to achieve 0.6-0.9 mils (13-23 microns) dry film thickness.

An AWLGRIP Topcoat can be applied within 2 to 24 hours after application of the 30-Y-94™. If more than 24 hours elapse, the 30-Y-94™ will have to be sanded and Step 3 repeated before topcoating. For topcoat information see page 33.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System IV.) ALUMINUM — BLISTER REPAIR

This system is for repairing corrosion related blistering on both heavily faired surfaces and surfaces with little or no fairing, where obtaining ideal surface preparation and profile is not feasible. The intact coatings around the repair area must be tested for adhesion and compatibility with the U.S. Paint Coating Systems. See Previously Painted Surfaces, page 11 for details of these tests.

On heavily faired surfaces this system should be limited to repairs one square foot or less of bare metal. Repairs exposing more than one square foot of bare metal are indicators of serious problems in the paint system. Proper repair would require removal of large areas of the coating system and preparation per System I page 20.

After completion of the repairs, the blistered areas and surrounding sound surfaces would be prepared and primed per “Previously Painted Surfaces” page 13.

Note: Corrosion and the resultant blistering is often caused by construction features such as stitch welded attachment of rails and brackets, contact of dissimilar metals at hardware attachments, and improperly grounded electrical systems.

Repairs which only address the blister and not the root cause of the blisters, usually result in reoccurrence of the blister in the same area.

A detailed condition report should be written for those responsible for the yacht’s maintenance. With the report, the owner or owner’s representative can make an informed decision on how extensive the repair process should be.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS for a final wipe down of the surface.

2. Grind with a 36 to 60 grit disk to remove blistered materials. Grind until all loose materials are removed and you reach a hard, tightly bound edge to the paint system. Then bevel/feather the edge of the repair at a 6 to 1 ratio. The slope of the repair must be at least 6 times the depth.

If more than one square foot of bare metal is exposed, regrind the areas with a 36 grit disk until a hard, tightly bound edge is obtained. Refer to System I page 20 for preparation and priming of this condition.

ABOVE THE WATERLINE

SURFACE PREPARATION & PRIMING
System IV.) ALUMINUM — BLISTER REPAIR(Cont'd.)

3.a. On areas where fairing will be needed: Grind bare metal with a 36 to 60 grit disk until bright, silver metal is obtained. After grinding, remove corrosion from pits by spot blasting.

3.b. On smooth, unfilled areas, clean the metal bright using 120-180 grit paper. Spot sand blasting may be necessary to remove corrosion from pits.

Blow off surface thoroughly to remove grinding/blasting residue, dust, and dirt. Use a brush or broom if necessary. Do not use rags.

4. Apply ZINC CHROMATE WASH PRIMER (G9072/G3014) by brush or spray to the bare metal. Apply one very thin coat of 1 mil (25 microns) wet film to achieve 0.2 to 0.3 mils (5 to 7.5 microns) of dry film. Do not apply a thicker film or second coat without sanding off the first coat. Thick films of ZINC CHROMATE WASH PRIMER will split and peel. This coating is transparent.

Allow to cure 2 hours but not more than 6 hours. If ZINC CHROMATE WASH PRIMER is not recoated within 6 hours, it must be sanded and reapplied before proceeding.

For thin film applications go to Step 5.a., for heavily faired areas go to Step 5.b.

5.a. For thin film, no fairing systems--masts, spars, window frames, and other smooth, cast or extruded parts:

Apply one or two coats of 545 Primer to cover the ZINC CHROMATE WASH PRIMERand the feathered edge of the existing, sound paint system. After preparation of surrounding areas, the surface is now ready for Final Prime and Topcoat.

Tip: Use care when applying this primer. If smoothly applied and all surfaces are adequately covered, it may be used as the final prime step.

or:

5.b. For heavily faired areas, apply one or two coats of High Build Yellow D9002/D3002 Epoxy Primer to cover the ZINC CHROMATE WASH PRIMERand the beveled slope of the existing paint system.

Allow to cure 12+ hours.

The defect area can now be filled and faired to conform to the surrounding surface. See page 30.

ABOVE THE WATERLINE

Surface Preparation & Priming
System V.) ANODIZED PARTS

Fast re-coat system for ANODIZED masts, spars, equipment, and accessories that are mounted above deck. No filling or fairing.

ALUMIPREP 33 & ALODINE 1201—Cannot Be Used

This is designed for the coating of smooth parts which required no fairing or filling. In almost all cases, using ALUMIPREP 33 and ALODINE 1201 would provide a better system; this system is provided for situations where physical or regulatory restraints prevent their use.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS for a final wipe down of the surface.

Note: Anodized parts should be hand sanded with 180-220 grit paper to “break” the anodized surface to insure adhesion of the ZINC CHROMATE WASH PRIMER.

2. Apply ZINC CHROMATE WASH PRIMER (G9072/G3014) by spray to the bare metal. Apply one very thin coat of 1 mil (25 microns) wet film to achieve 0.2 to 0.3 mils (5 to 7.5 microns) of dry film. Do not apply a thicker film or second coat without sanding off the first coat. Thick films of ZINC CHROMATE WASH PRIMER will split or peel. This coating is transparent.

Allow to cure 2 hours but not more than 6 hours. If ZINC CHROMATE WASH PRIMER is not recoated within 6 hours, it must be sanded and reapplied before proceeding.

ZINC CHROMATE WASH PRIMER could be brush applied on small parts or small areas; it would be very difficult to brush on an area of any substantial size.

Do not apply 30-Y-94™ Primer over ZINC CHROMATE WASH PRIMER.

3. Apply two coats of 545 Primer. AWL-QUIK could be used for brush/roll applications.

Tip:
Use care in applying this primer. If smoothly applied and all surfaces are adequately covered, it may be used as the final prime step.

Surface is now ready for final prime and topcoat. See page 33.

ABOVE THE WATERLINE

Surface Preparation & Priming
WOOD

Wooden boats seldom require any extensive filling or fairing. The following surface preparation system is recommended for all but the most severe cases of deterioration on a wooden boat.

The AWLGRIP Topcoat may crack over working seams and miters. If the paint on the boat is cracking, the seam will crack when painted with AWLGRIP. The AWLGRIP Topcoat may crack when previous coatings did not.

U.S. Paint Corporation does not consider cracking over seams or miters a failure.

Surface Preparation & Priming:

1. The wood must be clean, dry, and well seasoned. Never paint wet or green lumber. Painted wet or green lumber will blister. Sand the surface smooth with 80 to 100 grit paper.

2. Blow off the surface with clean, dry, compressed air while wiping with clean rags to remove sanding dust and residue.

3. Apply a light coat of 545 Primer or AWL-QUIK to seams before applying a seam sealer. Allow 545 Primer or AWL-QUIK to cure 4 to 6 hours.

4. Fill seams with a high quality marine seam compound such as a polyurethane or polysulfide. This will move with the wood rather than crack and separate. On boats with working seams, this flexing may cause the AWLGRIP coating to crack. Allow the sealer to thoroughly cure before proceeding.

5. Seal the wood with a light coat of 545 Primer (spray) or AWL-QUIK Primer (brush & roll).

For the sealer coat, reduce the 545 Primer 40% with T0006 (spray). Reduce the AWL-QUIK 50-70% with T0031 (brush & roll).

Allow to cure 12-16 hours. If cured more than 24 hours, the seal coat must be lightly sanded with 180-220 grit paper before proceeding to Step 6.

6. Apply 2-3 coats 545 Primer (spray) or AWL-QUIK Primer (brush & roll). Allow to cure 12+ hours.

The surface is now ready for final priming and topcoating. See page 33.

Note: The previous step may be a suitable “final prime” application with the surface now only requiring topcoat.

ABOVE THE WATERLINE

Surface Preparation & Priming
STEEL - HOT & COLD ROLLED

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS as a final wipe down of the surface.

Important: Plan your work schedule carefully! Any area which is ground or blasted per Step 2 must be primed per Step 3 during the same work shift. Products in Step 4 must be applied within 24 hours of the completion of Step 3 or the surface will have to be sanded and Step 3 repeated.

2. Sand blast to white metal in accordance with SSPC-SP5-85 to a 3 to 4 mil profile or power grind with a 16 to 36 disc to obtain profile. If profile is particularly jagged, grind to remove “spikes”, providing a more uniform surface.

Blow off the surface thoroughly with clean, dry, compressed air to remove all blast/grind residue and any dust or dirt. Use a brush or broom if necessary.

Caution: Do not use rags to clean this surface. The sharp metal will snag fibers from the rags. These fibers can act as wicks for moisture or other contamination to enter the paint film. This can lead to premature failure of the U.S. Paint Coating System.

Proceed to Step 3 within 4 hours.

3. Spray apply 30-Y-94™ Mil Spec Anti-Corrosive Epoxy Primer. Apply one full wet coat to approximately 3-4 mils (75-100 microns) wet film thickness to achieve 0.6-0.9 mils (15-23 microns) dry film thickness. Allow 30-Y-94™ to cure 2 hours (77F, 50% R.H.) before proceeding to step 4.

Note: If chromated primer cannot be used; prime with 545 Primer-Gray (D1001/D3001). Two coats will be needed. Allow 545 Primer cure 10 to 12 hours or overnight before proceeding to step 4.

Caution: Do not use a roller to apply either primer. See previous caution in step 2. regarding creation of wicks.

4. Spray apply HIGH BUILD Epoxy Primer-Yellow (D9002/ D3002). Apply two heavy coats. Allow at least one hour between coats.

Surface is now ready for fairing and surfacing see page 30.

If no fairing or surfacing is needed, proceed to final prime and topcoat, page 33.

ABOVE THE WATERLINE

FAIRING & SURFACING

Fairing and surfacing are similar activities with subtle but specific differences. Often both procedures will be used on the same project or surface.

In general fairing involves the use of trowel applied filler putties such as AWL-FAIR L.W., which can be applied to virtually infinite film thickness. Fairing often involves creating a new line or shape to the surface, not just filling low areas or dents and dings.

Surfacing is usually accomplished through the use of liquid coatings which are relatively thick (viscous) products which will fill and cover scratches, dings, pinholes, light crazing, mold defects and other relatively minor physical defects on a surface or part which otherwise has a true or fair line. U.S. Paint Corporation products which fit this description include ULTRA-BUILD, Sprayable Fairing Compound, High Build Epoxy Primer, and AWL-QUIK.

Above the waterline fairing and surfacing has four basic requirements:

- Properly prepare and prime the surface with the recommended primer before starting any filling or fairing.
- Start work with heavy fillers and proceed to lighter products. Make large depressions or low spots into smaller or more shallow areas as your work progresses.
- Always sand between applications of AWL-FAIR L.W.
- Always seal the completed fairing/surfacing system with at least two full wet coats of 545 Primer before topcoating. 545 Primer seals the relatively porous, heavily filled surfacing materials. This sealing also provides uniform color holdout for the AWLGRIP/AWLCRAFT 2000 Topcoats, thus a better looking job with uniform gloss, color, and appearance.

Warning: Do not use automotive body fillers, spot putties, lacquer glazing putties, or similar water sensitive products in fairing projects. These products are not designed for marine applications and will not adhere to AWL-FAIR L.W. or Sprayable Fairing Compound.

Fairing Procedures

1. Properly prepare and prime the surface. See surface preparation sections for each substrate for this information.

It is recommended that two to three coats of HIGH BUILD EPOXY PRIMER be applied over the primer on metal surfaces and other projects which will require extensive amounts of fairing.

The HIGH BUILD EPOXY PRIMER provides protection against sand throughs to the metal, plus after sanding it makes an excellent base on which to apply the AWL-FAIR L.W.

ABOVE THE WATERLINE

FAIRING & SURFACING (Cont'd.)

2. Examine the surface for highs and lows. Mark low areas with a pencil. Do not use felt tip markers or ink pens.

3. Sand areas where AWL-FAIR L.W. is to be applied with 80 grit paper. For heavy fairing projects where the AWL-FAIR L.W. will be applied to HIGH BUILD EPOXY PRIMER; sand the High Build with 60 to 80 grit paper.

Blow off the surface with clean, dry compressed air while dry wiping with clean rags to remove sanding dust and residue.

4. Fill all areas deeper than 20 mils (500 microns) with AWL-FAIR L.W. Fairing Compound. Thoroughly mix the material to a uniform pink color with no streaks or lumps.

Warning: Do not add reducers, solvents or thinners of any kind to AWL-FAIR L.W. See page 83 for AWL-FAIR L.W. specifications.

5. Apply AWL-FAIR L.W. by trowel to an area you can work in 15 to 20 minutes. Start with thin coats in low areas and build out to high areas. Allow to cure. Several applications may be necessary to fill large areas. Block and machine sand with 36 to 80 grit paper. Blow off sanding dust and residue before applying more AWL-FAIR L.W. Stop when the faired surface has a uniform surface which meets the fairing quality specified for the project.

SURFACING PROCEDURES

Surfacing products in the U.S. Paint line include AWL-QUIK Sanding Surfacer, High Build Primer, ULTRA-BUILD Primer, and Epoxy Sprayable Fairing Compound. Each product has unique characteristics which can help to make the surfacing process easier.

A typical full fairing and surfacing project may use the following schedule of products. Some areas may need extra applications and additional block sanding to achieve specified quality (i.e. under dark hulls). Other areas of a project may use only a few, one, or none of the products in the schedule. It is not required that all listed products be used.

It is required that all surfaces be properly prepared and sanded before applying the next product and no product be used beyond its recommended maximum dry film thickness.

After initial priming or application of AWL-FAIR L.W.:

- Sprayable Fairing Compound apply 2 to 3 coats. Allow at least 2 days (48 hours) to dry, then block sand with 60 to 100 grit paper.
- ULTRA-BUILD or High Build Primer, apply 2 coats. Allow to cure overnight (12 to 24 hours). Block or machine sand with 80 to 120 grit paper.
- 545 Primer or AWL-QUIK apply as necessary for spray or brush application to seal the fairing and surfacing products before topcoating.

ABOVE THE WATERLINE

FAIRING & SURFACING (Cont'd.)

GUIDE TO SELECTING SURFACING PRODUCTS

AWL-QUIK (D8003/D9001) has twice the build per coat of 545 Primer. AWL-QUIK dries fast, is easy to sand, and the easiest primer to brush. Can be used as both a sanding surfacer and as a finish primer in brush and roller applications. Will provide 2 to 3 mils of dry film.

High Build Epoxy Primer (D8002 Off White Base/D9002 Yellow Base/ D3002 Converter) has twice the build per coat as AWL-QUIK. The yellow version is recommended for filling blast/grind profiles on metal surfaces. Cured product goes from medium-to-hard to sand after a few days of cure. Will provide 5 to 7 mils of dry film.

Sanded High Build is an excellent base for AWL-FAIR L.W. on major fairing projects.

ULTRA-BUILD (D8008/D3018) clean white color helps to start turning projects white. Can be applied to 15 to 20 mils dry film, double the fill of High Build per coat. ULTRA-BUILD becomes very hard to sand after 48 to 96 hours of cure.

Epoxy Sprayable Fairing Compound (D6001/D3011). Builds at twice the film thickness per coat of ULTRA-BUILD. Sprayable Fairing Compound often requires 2 to 3 days cure before it can be sanded. Easy to sand at extended cure. Mixed full body with no reducer, this product can be applied by trowel or knife to fill slight scratches or pinholes.

Epoxy Sprayable Fairing Compound must be overcoated with either ULTRA-BUILD or High Build before 545 Primer or AWL-QUIK could be applied as a final primer.

Only useEpoxy Sprayable Fairing Compound Compound for surfacing full panels. Do not use Epoxy Sprayable Fairing Compound when spot repairing. Tight time constrictions in spot repair schedules usually do not allow enough time for proper cure of the D6001/D3011. Use High Build or ULTRA-BUILD on spot repair projects.

ABOVE THE WATERLINE

FINAL PRIMING & TOPCOATING

The final primer and application of the topcoat completes the coating system.

Primers and Sealers:
The final primer supplies a hard, tight film on which to apply the topcoat, sealing the more porous fairing or surfacing materials below it. This hard tight film supports the AWLGRIP or AWLCRAFT 2000 Topcoat maximizing the gloss and distinction of image (D.O.I.).

For spray applications, 545 Primer is the recommended product for final priming and sealing. AWL-QUIK is acceptable for use in brush and roll applications.

When painting fiberglass/gelcoat, wood, and smooth surfaced aluminum (masts, spars, etc.), there are many projects where no fairing or surfacing materials are used. In these cases the initial priming of the surface and the final priming can all be part of the same process. The only real distinction is which coat of primer is being applied.

Topcoats:
The AWLGRIP Premium Urethane Topcoat is a polyester based polyurethane coating which can be applied by spray, brush, roller or the roller/brush combination. Regardless of application method it provides the toughest finish available to the pleasure craft industry.

AWLCRAFT 2000 is an acrylic based polyurethane coating designed only for spray application. It is designed for the yard, applicator, or owner who is willing to sacrifice a little durability to have a faster curing, more easily repaired finish.

A few points which apply to both the traditional AWLGRIP finish and AWLCRAFT 2000.

- Both products provide a tough, chemical, and abrasion resistant coating which has been proven to perform in the marine environment.
- Both products require two coats minimum--regardless of application technique. Some applicators prefer to use three coats, and three coats may be the easier way to go with some colors, but two coats minimum are needed to obtain proper performance.
- **Do not** clear coat over whites or pastels with either system. Each system has a clear available. For AWLGRIP it is G3005 High Gloss Clear; for AWLCRAFT 2000 it is F3029. However, these products should only be used over dark colors.

Application of Final Primer
1. Sand the surface smooth with 120-220 grit paper. Grit choice will be determined by condition and make up of the surface.

Blow off the surface with clean, dry, compressed air while dry wiping with clean rags to remove sanding dust and residue. Then wipe with AWL-PREP T0008 using the Two Cloth Method.

2. Tack off the surface with AWLGRIP Tack Rags #73009.

Spray Application
3. Apply two to three coats of 545 Primer. Allow at least one hour between coats. Allow the surface to dry 12 to 24 hours.

ABOVE THE WATERLINE

FINAL PRIMING & TOPCOATING (Cont'd.)

Brush/Roll Application

4. Apply two coats of 545 Primer or two coats of AWL-QUIK Sanding Surfacer. Allow 12 to 24 hours between coats. Sanding between coats with 220-280 grit paper will give a smoother finish.

Note: AWL-QUIK is easier to apply by brush/roll than 545 Primer. However, 545 Primer will provide a more durable system.

5. Sand the entire primed surface with 220-400 grit paper to a smooth, flat finish. Blow off the surface with clean, dry, compressed air while dry wiping to remove sanding dust and residue.
6. Solvent wipe with AWL-PREP using the Two Cloth Method. Repeat process as necessary until the surface is completely clean. Allow the surface to dry.
7. Tack off the surface with AWLGRIP Tack Rags.

Finish Coat Application
Spray Application - AWLGRIP
Mix equal parts by volume AWLGRIP Color Base and AWL-CAT #2 Spray Converter. Reduce 25% with the appropriate reducer for the application conditions.

Spray Application – AWLCRAFT 2000
Mix two parts by volume AWLCRAFT 2000 Color Base with one part AWL-CAT #2 Spray Converter. Reduce 25% with the appropriate reducer for the application conditions.

Using recommended spray equipment, apply a light, smooth, slightly wet tack coat to the surface. Allow tack coat to “flash off” 30 to 45 minutes. Then apply a full, wet coverage coat to achieve color coverage (i.e., hide) and film thickness requirements.

If preferred, three coats may be used. Allow the second coat to “flash off” 30 to 45 minutes until only slightly tacky before applying third coat. Topcoating cannot be done in one coat.

Brush/Roll
Mix AWLGRIP Color Base with AWL-CAT #3 Brushing Converter. Reduce 25% to 35% with Brushing Reducer.

Apply AWLGRIP Topcoat in two coats* of 1.5 to 2.5 mils WFT each. Allow 12 to 14 hours between each coat.

* Depending on film thickness applied and color choice, one or possibly two additional coats may be needed.

Topcoating cannot be done in one coat. Sanding between coats with 280-400 grit paper will provide a smoother finish. After sanding, blow off sanding dust and residue while dry wiping. Solvent wipe with AWL-PREP using the Two Cloth Method. Tack off the surface with AWLGRIP Tack Rags.

On large surfaces such as hull sides, transoms, and house sides, first roll the AWLGRIP Topcoat and then smooth the roller stipple by lightly tipping the surface with a brush. This can be done with 2 painters working side by side (i.e., 1 rolling and 1 tipping), or with 1 painter rolling approximately 6 square feet and then tipping that area before rolling any further.

ABOVE THE WATERLINE

BRIGHTWORK

Reducing brightwork maintenance without sacrificing aesthetics or cosmetics has been an elusive goal.

To paraphrase the old business axiom, price-service-quality, pick any two. The three goals for brightwork: easy application, classic appearance, long term durability/low maintenance have been difficult to obtain.

U.S. Paint Corporation offers two products and three systems tailored to meet varying tastes, concerns, and performance requirements for brightwork finishes.

System I. Traditional Varnish System - AWLSPAR Classic Spar Varnish

AWLSPAR Varnish, M3131, is a traditional phenolic, tung oil varnish modified with state of the art UV inhibitors and absorbers.

AWLSPAR is a fast-dry material. Two and sometimes even three coats can be applied in a single day, allowing you to quickly apply a full system, reducing varnish down time.

AWLSPAR is the perfect product for the traditionalist who wants an easy to apply, easy to repair product, and doesn't object to regular maintenance coats.

System II. Low Maintenance Urethane System Featuring AWL-BRITE PLUS Urethane System

AWL-BRITE PLUS is a buffable, three component, clear acrylic urethane with excellent UV resistance, chemical resistance and abrasion resistance. These two performance characteristics are coupled with a fast drying formula which makes quick work of brightwork maintenance. Properly applied AWL-BRITE PLUS will cut brightwork maintenance in half when compared to the maintenance requirements of traditional spar varnishes.

Its hard, tough finish makes it an excellent product for interior use as well. Bar tops, table tops, countertops, sills, anywhere a tough, high gloss finish is needed. Resistance to water spots and glass rings makes it an excellent coating for bars and countertops.

A short fall, is traditionalists feel the coating is too clear--it does not take on the amber cast of a spar varnish--some woods lighten in color under AWL-BRITE PLUS.

System III. AWLSPAR/AWL-BRITE PLUS Ultimate Brightwork System

This system combines the color highlights of the AWLSPAR Varnish to provide a traditional look, with the durability of the AWL-BRITE PLUS in a fast recoat, relatively easy to repair combination of varnish and urethane coatings.

Early efforts at combining spar varnish and urethane coatings had a number of limitations.

1. First the varnishes were very slow to cure--sometimes as long as 60 days were required between the last application of varnish and the first application of a urethane coating.

BRIGHTWORK (Cont'd.)

2. The urethane coatings available at the time would not bond to bare wood, so the wood had to be totally covered by varnish.

3. The urethane coatings, such as AWLGRIP G3005 Clear, were very slow to dry. Only one coat could be applied per day, and eight or more coats were needed.

While these systems had the potential to provide exceptional service, they were tedious to apply and nightmares to repair. Systems involving epoxy resins and AWLGRIP Clear G3005, had flexibility problems, with similar repair headaches.

The fast cure of AWLSPAR and the low solvent content of the AWL-BRITE PLUS eliminates the 30-60 day wait between varnish and urethane.

Both products allow two or more coats per day. The Ultimate System can be applied in seven to ten days. This union of AWLSPAR and AWL-BRITE PLUS allows you to have all three: Easy application, traditional appearance, long term durability/low maintenance.

VARNISHING TIPS

- Coating brightwork requires the same basic conditions as other paint work. Surfaces to be coated must be clean and dry.
- Use good quality, natural bristle varnish brushes. Natural bristle badger hair brushes are best. Thoroughly “wetting” the bristles before applying material helps prevent bubbles in the film,
- When applying AWL-BRITE PLUS or AWLSPAR Varnish, never use a brush that has been used to apply paint or primers.
- Mix and use small quantities of AWLSPAR or AWL-BRITE PLUS at a time. Keep the original containers covered when not in use.
- Do not shake AWL-BRITE PLUS or AWLSPAR. Shaking creates air bubbles in the material. When adding converter to AWL-BRITE PLUS or reducer to AWLSPAR, hand stir only.
- Apply AWL-BRITE PLUS or AWLSPAR in shaded, well ventilated areas. Optimum application temperatures are between 70F and 90F.
- Avoid applying AWL-BRITE PLUS to hot surfaces or in direct sunlight. Excessive heat blisters the coating and makes it difficult to carry a wet edge. A surface that is warm to the touch, above 105F/38C, is generally too hot to paint.
- Do not apply these products if temperatures are below 65F.
- Do not move coated items into direct sunlight to dry. Direct sunlight will inhibit flow and may result in blisters.
- Do not apply AWL-BRITE PLUS or AWLSPAR when dew can form on the surface in the first 6 hours of cure. Be sure all surfaces are completely free of moisture before applying AWL-BRITE PLUS or AWLSPAR.

Completely remove all sanding dust and residue. All surfaces should be cleaned with AWL-PREP before and after sanding.

BRIGHTWORK (Cont'd.)

Apply light, smooth coats. Heavier coats will not flow as well as light coats. Heavy coats are also more prone to solvent popping and blistering. When in doubt, put on a lighter coat.

AWL-BRITE PLUS and AWLSPAR should be compatible with most conventional, oil based, penetrating wood stains. Apply a test patch of AWL-BRITE PLUS or AWLSPAR to the stained wood to check for compatibility before continuing a project of any size. Stains should be applied according to the manufacturer's recommendations.

SURFACE PREPARATION

The wood should be clean, dry, smooth, and well seasoned.

Use of a marine teak cleaner or wood bleach is advised on new wood to remove excess oils, promote color uniformity, and adhesion. Follow the manufacturer's instructions for use and thoroughly remove all cleaner and neutralizer residue before proceeding.

Rough sawn lumber must receive heavy sanding to level the grain. Sand with 3M Production (Brown) sandpaper. The 3M Gold or Tri-M-ite type sandpapers may leave a white stain. Work through the grits to effectively level the grain 60/80 to 100/150 to 220, and so on. When the grain is level, smooth sand the surface with 320 grit paper.

Remove all sanding dust and residue. Wipe the surface with AWL-PREP T0008.

Select a brightwork system from information on following pages.

SYSTEM I. Traditional Varnish System
New/Bare Wood

1. Apply one, light, smooth coat of AWLSPAR M3131 mixed 1:1 by volume with AWLSPAR Reducer T0016. Allow to dry 8-12 hours.

2. Lightly sand the surface with 320-400 grit paper to remove wicks and nubs. Remove sanding dust and residue. Tack off with AWLGRIP #73009 Tack Rags.

3. Apply light, smooth, even coats of AWLSPAR M3131 two to four hours apart. Above 75F, two to three coats may be applied per day.

4. Repeat this process until the grain is filled and covered, six to eight coats may be needed. Keep sanding to a minimum. The only reason to sand is to remove obvious defects, or if more than 24 to 36 hours elapse between applications. The goal is to fill and cover the grain with varnish.

A light rub with a Scotchbrite pad is often enough to break the glaze of the previous coat, providing sufficient adhesion for subsequent coats.

Tip: Avoid holidays and make it easier to see the wet edge by dulling the surface with a white or green Scotchbrite pad between coats. Rub the surface just enough to noticeably lower the gloss. This minimizes coating removal and dust while making it easier to see holidays and locate your wet edge when applying a glossy clear to a glossy surface.

5. When the grain is completely filled and covered, lightly sand the surface smooth with 400-500 grit paper. Apply one coat of AWLSPAR M3131 to restore gloss to the sanded surface.

SYSTEM II. Low Maintenance Urethane System Featuring AWL-BRITE PLUS
New/Bare Wood

The key to performance of any varnish system is applying enough material. This is especially true with AWL-BRITE PLUS Clear Urethane.

These directions call for more coats than needed to achieve basic cosmetic qualities. If you stop the system when it looks good, or sand excessively, you will not achieve the desired performance.

1. Mix by volume 2 parts J3005 Base with 1 part J3006 Converter and 1/2 part A0031. A suggested mix is 4 oz. J3005 + 2 oz. J3006 + 1 oz. A0031= 7 oz. total. Additional A0031 can be added to help maintain a wet edge in warm weather, but the standard mix of 2:1:1/2 is required for proper cure. Mix only enough for one sealer coat. Apply one thin coat, allow to cure 8-12 hours.

2. Lightly sand the surface with 320-400 grit paper to remove any wicks or nubs. Remove sanding dust and residue. Tack off with AWLGRIP #73009 Tack Rags.

3. Apply light, even coats of AWL-BRITE PLUS. Allow a minimum of 3 to 4 hours between coats. Above 80F apply as many as 3 coats per day. Allow to cure 8 to 12 hours.

4. Repeat this process until the grain is filled and covered, 8 to 10 coats may be needed. Keep sanding to a minimum. The only reason to sand is to remove obvious defects, or more than 36 hours have elapsed between applications. The goal is to fill and cover the grain with AWL-BRITE PLUS.

A light rub with a Scotchbrite pad is often enough to break the glaze of the previous coat, providing sufficient adhesion for subsequent coats. If you sand, use 400 grit paper or finer.

Tip: Avoid holidays and make it easier to see the wet edge by dulling the surface with a white or green Scotchbrite pad between coats. Rub the surface just enough to noticeably lower the gloss. This minimizes coating removal and dust while making it easier to see holidays and locate your wet edge when applying a glossy clear to a glossy surface.

When the grain is filled and covered allow to cure 8 to 12 hours. Total DFT must be 10 to 12 mils.

5. Lightly sand the surface with 400-500 grit paper. Remove sanding dust and residue. Tack off with AWLGRIP #73009 Tack Rags.

6. Apply two light, finish coats of AWL-BRITE PLUS, The coating will be ready for light service in 12 hours.

For the finest smoothness and gloss, or to remove imbedded dust particles in the final coat, dry and hard AWL-BRITE PLUS can be buffed with a fine grade of polishing compound. When buffing or polishing, use care not to remove excessive amounts of film. Use less effort near sharp edges and miters, the coating is generally thinnest in these areas.

BRIGHTWORK (Cont'd.)

SYSTEM III. Ultimate Brightwork System AWLSPAR/AWL-BRITE PLUS

This system primes and seals the wood with AWLSPAR Varnish. The AWLSPAR bonds to the wood and supplies the traditional amber cast of fine varnish systems.

Then the AWLSPAR is sealed with a full system of AWL-BRITE PLUS Clear Urethane.

Important: Test applications must be made over the AWLSPAR Varnish before applying the AWL-BRITE PLUS.

At a constant 75F or higher around the clock, the AWLSPAR will need to cure approximately 72 hours before the AWL-BRITE PLUS can be applied. At 65F it may be 7 to 10 days before the AWL-BRITE PLUS can be applied.

The key to performance of a varnish system is applying enough material. This is especially true with AWL-BRITE PLUS Clear Urethane.

This system calls for more coats than is necessary to achieve initial cosmetic qualities. If you stop the system when it looks good, or sand excessively, you will not achieve the desired performance.

New/Bare Wood
Application of AWLSPAR Varnish

1. Apply one, light, smooth coat of AWLSPAR M3131 mixed 1:1 by volume with AWLSPAR Reducer T0016. Allow to dry 8-12 hours.

2. Lightly sand the surface with 320-400 grit paper to remove wicks and nubs. Remove sanding dust and residue. Tack off with AWLGRIP #73009 Tack Rags.

3. Apply 2 to 3 smooth coats of AWLSPAR M3131. Use the AWLSPAR full-bodied or with as little reducer as possible.

Allow to cure a minimum of 72 hours at constant, around the clock temperature of 75F or above before proceeding. At lower temperatures, 7 to 10 days may be needed.

Test Application of AWL-BRITE PLUS

4. Lightly sand the AWLSPAR with 320-400 grit paper. The AWLSPAR should powder sand, if it is still gummy or clogs the paper, stop and allow the AWLSPAR to cure longer. Re-check every 24-48 hours until the surface will powder sand.

After sanding, remove sanding dust and residue, and tack off approximately two square feet. Mix enough AWL-BRITE PLUS to coat this area. Apply two light smooth coats about 3-4 hours apart. If during the application of either coat you experience:

- Excessive brush drag.
- Blistering.
- Bubbling.
- Crazing or cracking;

Stop the application and allow the materials to cure 24-48 hours before attempting the test again.

BRIGHTWORK (Cont'd.)

After the test area has been coated, with none of the above mentioned problems, allow the AWL-BRITE PLUS to cure 24 hours at 65F or higher.

5. Inspect the test application area. The coating should be smooth and glossy with no blisters, bubbles, crazing, cracking, solvent pop, or pin holes.

If the coating appears satisfactory, lightly sand the test area and the rest of the AWLSPAR with 320-400 grit paper.

If the test area is not satisfactory, repeat the test application on another area until satisfactory results are obtained.

After sanding the entire surface, remove the sanding dust and residue, and tacking off with AWLGRIP #73009 Tack Rags, proceed to step 6.

6. Apply light, even coats of AWL-BRITE PLUS. Allow a minimum of 3 to 4 hours between coats. Above 80F apply as many as 3 coats per day. Allow to cure 8 to 12 hours.

7. Repeat this process until the grain is filled and covered, 8 to 10 coats may be needed. Keep sanding to a minimum. The only reason to sand is to remove obvious defects, or more than 36 hours have elapsed between applications. The goal is to fill and cover the grain with AWL-BRITE PLUS.

A light rub with a Scotchbrite pad is often enough to break the glaze of the previous coat, providing sufficient adhesion for subsequent coats. If you sand, use 400 grit paper or finer.

Tip: Avoid holidays and make it easier to see the wet edge by dulling the surface with a white or green Scotchbrite pad between coats. Rub the surface just enough to noticeably lower the gloss. This minimizes coating removal and dust while making it easier to see holidays and locate your wet edge when applying a glossy clear to a glossy surface.

When the grain is filled and covered, allow to cure 8 to 12 hours. Total DFT must be 10 to 12 mils.

8. Lightly sand the surface with 400 to 500 grit paper. Remove sanding dust and residue. Tack off with AWLGRIP #73009 Tack Rags.

9. Apply two light, finish coats of AWL-BRITE PLUS The coating will be ready for light service in 12 hours.

For the finest smoothness and gloss, or to remove imbedded dust particles in the final coat, dry and hard AWL-BRITE PLUS can be buffed with a fine grade of polishing compound. When buffing or polishing, use care not to remove excessive amounts of film. Use less effort near sharp edges and miters, the coating is generally thinnest in these areas.

The key to performance of a varnish system is applying enough material. This is especially true with AWL-BRITE PLUS Clear Urethane.

This system calls for more coats than is necessary to achieve initial cosmetic qualities. If you stop the system when it looks good, or sand excessively, you will not achieve the desired performance.

BELOW THE WATERLINE

AWLSTAR ™ GOLD LABEL
ANTI-FOULING SYSTEMS

AWLSTAR ™ GOLD LABEL is a tin-free ablative co-polymer type anti-fouling designed to provide multi-season protection from fouling when applied according to specification. An ablative anti-fouling performs by the movement of the hull through the water, gradually wearing away the coating. As a result a fresh, fully potent layer of anti-fouling is always exposed to the water.

AWLSTAR™ GOLD LABEL is a very versatile product. It performs in both warm and cold water, on sail and power craft. It is hard enough to stay on high speed power boats but burnishes easily for racing sailboats. Truly static boats may be better off with a hard, leaching type anti-fouling.

AWLSTAR™ GOLD LABEL is:

- Available in 5 bright colors and White Lightning.
- Recommended on fiberglass, steel, and wood.
- Recommended for extended dry docking. Take the boat out of the water as often as you like for as long as you like. AWLSTAR™ GOLD LABEL will maintain its anti-fouling capability.
- Must not be used on aluminum.

AWLSTAR™ GOLD LABEL is designed to be applied over a HULL-GARD Primer. The HULL-GARD Primers protect the hull from attack from water while providing an ideal surface for which to apply the AWLSTAR™ GOLD LABEL. A key element of any AWLSTAR™ GOLD LABEL System is applying the first coat of the AWLSTAR™ GOLD LABEL when the last coat of HULL-GARD Primer is barely tack free. This procedure ensures bond of the two coatings, providing the basis for multi-season performance.

Three application systems are included. Each is suitable for fiberglass, steel, and wood. Many owners of wooden boats prefer to apply an anti-foulant directly to the wood. This is not practical with AWLSTAR™ GOLD LABEL. AWLSTAR™ GOLD LABEL will not bond to wood.

Each system provides a minimum of 12 dry mils of HULL-GARD Epoxy Primer overcoated with 6-12 mils of AWLSTAR™ GOLD LABEL Anti-Fouling.

- **Standard Fast Recoat System** : This is the simplest and most popular system. Just two products: HULL-GARD E.R. and AWLSTAR™ GOLD LABEL - Three coats of each.
- **Economy System:** Has the least number of coats and the least amount of labor. This system uses HULL-GARD E.R. as a base primer then utilizes the high film build characteristic of HULL-GARD W.B. to quickly get to 12 mils DFT of HULL-GARD Epoxy. Two medium coats of AWLSTAR™ GOLD LABEL will achieve 6 mils DFT. Plenty of protection for boats which are not in the water year round. This system can easily be upgraded for year round use just by applying more AWLSTAR™ GOLD LABEL.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

Maximum Water Barrier System: This system combines 545 Primer, HULL-GARD E.R., HULL-GARD W.B. (to provide 20-24 mils of epoxy--maximizing resistance to water), and AWLSTAR™ GOLD LABEL.

There is no system recommendation for aluminum hulls. AWLSTAR™ GOLD LABEL must not be used on aluminum.

SURFACE PREPARATION
Fiberglass/Gelcoat: New and Aged, Bare Sound Surfaces.

Below waterline gelcoat with very minor surface crazing and no other cracking, blistering, or impact damage is a sound surface. Surfaces with crazing penetrating deep into or through the gelcoat are heavily crazed. These surfaces must be repaired before applying an AWLSTAR™ GOLD LABEL Anti-Fouling Bottom System.

1. New surfaces must be clean and free of any waxes or mold release components.

Aged surfaces must be clean and free of any dirt, grease, grime, wax, or other foreign material.

• New Fiberglass/Gelcoat

To remove mold releases use a commercial detergent or a powdered household cleanser. Scrub with a sponge, soft brush, or Scotchbrite pad as necessary. Rinse surface thoroughly to remove all soap residue. Repeat process until rinse water “sheets out” over the entire surface with no breaks or holes in the water film. Allow to dry.

• Aged, Sound Fiberglass/Gelcoat

The surface must be clean, free of any dirt, grease, grime, wax, or other foreign material. Hand wash with commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface.

Repeat process until rinse water “sheets out” over the entire surface with no breaks or holes in the water film. Allow to dry.

2. Wipe surface with AWL-PREP or AWL-PREP PLUS using the Two Cloth Method. Change cloths frequently. Allow to dry.

3. Lightly machine sand the surface with 100-150 grit paper. Sand just enough to remove the gloss from the surface.

Caution: Do not sand excessively. This will create porosity in the surface that will have to be filled.

4. Blow off the surface with clean, dry, compressed air while dry wiping to remove sanding dust and residue. Then wipe with AWL-PREP or AWL-PREP PLUS using the Two Cloth Method.

Select an AWLSTAR™ Bottom System. See page 41.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

Steel - Below the Waterline

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS as a final wipe down of the surface.

Important: Plan your work schedule carefully! Any area which is ground or blasted per Step 2 must be primed during the same work shift. Preferably within 4 hours.

2. Sand blast to white metal in accordance with SSPC-SP5-85 to a 3 to 4 mil profile or power grind with a 24 to 36 grit disk to obtain profile. If profile is particularly jagged, grind to remove "spikes", providing a more uniform surface.

Blow off the surface thoroughly with clean, dry, compressed air to remove all blast/grind residue and any dust or dirt. Use a brush or broom if necessary.

Caution: Do not use rags to clean this surface. The sharp metal will snag fibers from the rags. These fibers can act as wicks for moisture or other contamination to enter the paint film. This can lead to premature failure of the U.S. Paint Coating System.

This surface must be primed within 4 hours. The Maximum Water Barrier System is recommended.

See page 44.

Wood - Below the Waterline

1. The wood must be clean, dry, and well seasoned. Never paint wet or green lumber. Painted wet or green lumber will blister. Sand the surface smooth with 80-120 grit paper. Blow off sanding dust and residue with clean, dry, compressed air. Solvent wipe with AWL-PREP or AWL-PREP PLUS using the Two Cloth Method. Allow surface to dry.

2. Fill seams with high quality marine seam sealer such as polyurethane or polysulfide. Follow the manufacturer's recommendations for application and cure of the seam sealer.

Select an AWLSTAR™ GOLD LABEL Bottom System. See page 41.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

PRIMERS

Standard Fast Re-Coat System for Fiberglass, Wood, and Steel.

1. Apply multiple coats of HULL-GARD E.R. to achieve 12 mils DFT. Twelve mils of DFT requires one gallon of HULL-GARD E.R. for each 60 square feet of below waterline hull area. If applied by airless spray, 3 to 4 coats will be required. The additional reduction required for air atomized or roller application may require 1 to 2 additional coats to achieve 12 mils DFT.

Allow 2 hours between coats at 77F/25C, 50% R.H. HULL-GARD E.R.'s extended recoat capability allows recoating with itself at any time up to 8 weeks without requiring sanding. The aged HULL-GARD E.R. must be thoroughly cleaned and free of all foreign material before recoating with additional HULL-GARD E.R.

2. Apply AWLSTAR™ GOLD LABEL Anti-Fouling as soon as the last coat of HULL-GARD E.R. is barely tack free, about 2 hours at 77F/25C, 50% R.H. Three coats (12 mils DFT) is recommended.

See page 46.

Maximum Water Barrier System for Fiberglass, Wood, and Steel.

1. Prime with 545 Epoxy Primer-Gray to cover surface profile. This may require 2 to 3 coats. Apply 1 mixed gallon (combined base and converter) for every 180 square feet of below waterline hull area. Allow one hour minimum between coats at 77F/25C, 50% R.H. Allow to cure 12 to 14 hours. If the 545 cures more than 24 hours, it must be sanded with 150-180 grit and the sanding residue removed before proceeding to step 2.

2. Apply a smooth, even coat of HULL-GARD E.R. Apply at 8 to 9 mils wet film to yield 4 mils dry film. Allow to cure to tack free, minimum 2 hours at 77F/25C, 50% R.H.

A one gallon kit of HULL-GARD E.R. is required for every 180 square feet of below waterline hull area to achieve 4 mils DFT.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

3. Within 24 hours of completion of the HULL-GARD E.R. application, apply the first coat of HULL-GARD W.B. Two to 4 coats may be required depending upon reduction and method of application. A total DFT of 16 mils is required. The wet to dry film yield is 3 to 2, (i.e., every 3 mils of WFT will yield 2 mils DFT). Allow a minimum of 4 hours between coats at 77F/25C, 50% R.H. HULL-GARD W.B. can be recoated with itself without sanding for up to 30 days. Use of a wet film thickness gauge to determine applied film thickness is recommended. A one gallon kit of HULL-GARD W.B. is required for every 65 square feet of below waterline hull area to achieve 16 mils DFT.

4. Apply AWLSTAR™ GOLD LABEL Anti-Fouling as soon as the last coat of HULL-GARD W.B. is barely tack free (i.e., approximately 4 hours), but still soft enough to allow indentation with a fingernail. 3 coats (12 mils DFT) recommended.

See page 46.

Economy System for Fiberglass, Wood, and Steel.

1. Apply a smooth, even coat of HULL-GARD E.R. Apply at 8 to 9 mils wet film to yield 4 mils dry film. Allow to cure to tack free, minimum 2 hours at 77F/25C, 50% R.H. A one gallon kit of HULL-GARD E.R. is required for every 180 square feet of below the waterline hull area to achieve 4 mils DFT.

2. Within 24 hours of completion of the HULL-GARD E.R. application, apply the first coat of HULL-GARD W.B. Two coats may be required depending upon reduction and method of application. A total DFT of 8 mils is required. Allow a minimum of 4 hours between coats at 77F/25C, 50% R.H. HULL-GARD W.B. can be recoated with itself without sanding for up to 30 days. Use of a wet film thickness gauge to determine applied film thickness is recommended. A one gallon kit of HULL-GARD W.B. is required for every 130 square feet of below waterline hull area to achieve 8 mils DFT.

3. Apply AWLSTAR™ GOLD LABEL Anti-Fouling as soon as the last coat of HULL-GARD W.B. is barely tack free (i.e., approximately 4 hours), but still soft enough to allow indentation with a fingernail.

Note: Economy System requires only 2 medium coats (6 mils DFT) of AWLSTAR™ GOLD LABEL.

See page 46.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

Application of AWLSTAR™ GOLD LABEL Anti-Fouling

New Applications

AWLSTAR™ GOLD LABEL is designed to be applied over a HULL-GARD Primer. The first coat of AWLSTAR™ GOLD LABEL must be applied when the last coat of HULL-GARD has dried to a barely tack-free state, but not cured hard. At 77F/25C, 50% R.H., HULL-GARD E.R. reaches this point in approximately 2 hours, HULL-GARD W.B. reaches this point in approximately 4 hours.

AWLSTAR™ GOLD LABEL can be applied by airless spray, brush or rollers.

For maximum anti-fouling performance and protection, apply a minimum of 3 coats of AWLSTAR™ GOLD LABEL at a wet film thickness of 9 mils (225 microns) per coat to achieve 4 mils (100 microns) dry per coat. Allow a minimum of 4 hours at 77F/25C, 50% R.H. between coats.

Optimum performance is achieved at a total dry film thickness of 12 mils (300 microns). One gallon (3.785 liters) of AWLSTAR™ GOLD LABEL is required for each 65 square feet (6.04 sq.m.) of below waterline hull area to achieve 12 mils (300 microns) DFT.

To provide a built-in indicator of when it is time to renew your AWLSTAR™, apply the first coat in a different color from the remaining coats. When you can see the first color showing through, it is time to renew.

Extra protection and more uniform wear properties result when 1 or 2 extra coats are applied to high wear areas, such as the bow, rudder, leading edge of the keel, stabilizers, cavitation plates, propeller cavitation areas, and trim tabs.

Allow a minimum of 5 hours at 77F/25C, 50% R.H. after the application of the last coat of AWLSTAR™ GOLD LABEL before launching. Allowing 24 hours before launching is preferred.

Cooler temperatures will require longer cure times between coats and before launching. DO NOT apply or attempt to cure AWLSTAR™ GOLD LABEL or HULL-GARD products at temperatures below 50F/10C.

RENEWING AWLSTAR™ GOLD LABEL

AWLSTAR™ GOLD LABEL that is wearing thin can be easily renewed. Wash down the hull, using a high pressure, clean water wash as soon as possible after hauling. The surface must be clean, dry, and free of all oil, grease, salt, dirt, corrosion, or other surface contamination.

Sanding with 80 grit paper is advised under any of the following conditions:

- If the hull was not power washed while it was still wet from hauling.
- Anytime the cleanliness of the surface is in doubt.
- Faster, high use boats where the AWLSTAR™ has ablated to a slick surface.
- Sailboats recently burnished.

BELOW THE WATERLINE

AWLSTAR™ GOLD LABEL
ANTI-FOULING SYSTEMS (Cont'd.)

PAINTING OVER OTHER ANTI-FOULANTS

Although AWLSTAR™ GOLD LABEL will work over some existing anti-foulings, U.S. Paint cannot endorse this practice. We have no control over other anti-fouling manufacturer's quality control or formulation. AWLSTAR™ will not perform over any of the tin-copolymer/organotin anti-foulings, soft conventional types, or vinyls.

AWLSTAR™ GOLD LABEL will perform adequately over hard conventional type anti-foulings, and tin-free ablative copolymer anti-foulings that contain copper. The most common problem encountered with these applications is mudcracking. A test application should be made before recoating an entire hull unless all other anti-foulant is removed.

Do not apply primers over old anti-fouling paints. If the test application indicates a compatible situation, sand the surface with 80 grit, then apply 3 coats of AWLSTAR™ GOLD LABEL.

*SPECIAL NOTES ABOUT WHITE LIGHTNING BP802

White Lightning is based on the same technology as other AWLSTAR™ colors, however the white color limits the amount of cuprous oxide in the BP802 formula. Therefore, the anti-fouling capability of White Lightning is slightly less than other AWLSTAR™ GOLD LABEL colors.

The most noticeable difference will be in static performance with the waterline areas requiring a little extra attention to avoid algae and scum build up. In general, low use and slower boats moored in warm water will require the most attention. U.S. Paint recommends applying 2 to 3 extra coats of BP802 to the waterline area of the boat. The extra coats will allow the waterline to perform at the same rate as the rest of the hull.

Cleaning agents and other chemicals may stain or discolor White Lightning. White Lightning that has been completely out of water for extended periods, will oxidize to a blue/green color. Repainting will be required to restore the white color to stained and oxidized areas.

BELOW THE WATERLINE

SURFACE PREPARATION, PRIMING & APPLICATION OF AWLSTAR™ GOLD LABEL ANTI-FOULING

RUNNING GEAR AND HARDWARE

Below waterline hardware can be difficult to coat for a variety of reasons. Two primary problems are:

- The difficulty in obtaining good surface preparation.
- The specific metal alloys used for below waterline hardware. Brass, bronze, and stainless steel do not hold paint very well.

U.S. Paint Corporation has had good results with the following system. Please note that it is critical the metal be primed immediately after grinding or sand blasting and great care should be used on rotating parts, such as shafts and propellers. Uneven grinding could take a shaft or propeller out of balance.

Remember AWLSTAR™ GOLD LABEL is an ablative coating which wears away in use. It will perform satisfactorily on a rotating shaft, but would wear away very rapidly on a propeller.

Note: This system must not be used on aluminum hardware of any kind.

1. Thoroughly clean and degrease the surface. Use commercial detergents, steam cleaners, or pressure washers. Be sure all detergent residue is rinsed from the surface. Use AWL-PREP PLUS as a final wipe down of the surface.

2. Power grind with a 60 grit disk to obtain profile. If the profile is particularly jagged, grind to remove “spikes” providing a more uniform surface.

Blow off the surface thoroughly with clean, dry, compressed air to remove all blast/grind residue and any dust or dirt. Use a brush or broom if necessary.

Caution: Do not use rags to clean this surface. The sharp metal will snag fibers from the rags. These fibers can act as wicks for moisture or other contamination to enter the paint film. This can lead to premature failure of the U.S. Paint Coating System.

This surface must be primed within 4 hours.

3. Apply a minimum of two coats of HULL-GARD E.R. to achieve 6-8 mils DFT. Six mils DFT requires one gallon of HULL-GARD E.R. for every 130 square feet of surface. If the schedule allows, 3 full coats at 12 mils DFT would be preferred.

Allow 2 hours between coats at 77F/25C, 50% R.H.

HULL-GARD E.R.’s extended recoat capability allows recoating with itself at any time up to 8 weeks without requiring sanding. The aged HULL-GARD E.R. must be thoroughly cleaned and free of all foreign material before recoating with additional HULL-GARD E.R.

4. Apply AWLSTAR™ GOLD LABEL Anti-Fouling as soon as the last coat of HULL-GARD E.R. is barely tack free, about 2 hours at 77F/25C, 50% R.H. Apply a minimum of two coats of AWLSTAR™ GOLD LABEL Anti-Fouling. If the schedule allows, three coats is preferred. See page 46.

BELOW THE WATERLINE

OSMOTIC BLISTER PREVENTION, TREATMENT, AND REPAIR

In recent years, discussion regarding the repair and prevention of osmotic blistering on fiberglass or gelcoat hulls has generated controversy among applicators, owners, builders, and resin suppliers.

A consensus has resulted. Fiberglass/gelcoat hulls that are in the water much of the time require extra protection to prevent eventual attack and blistering.

Prevention

The maximum water barrier application system detailed in the fiberglass/gelcoat application below the waterline section, page 44, has proven to be effective in preventing osmotic blistering when properly applied and properly maintained on new or unaffected hulls.

Treatment

The most effective and prudent procedure must begin with the removal of all the below waterline gelcoat and any water damaged laminate.

Before removal of any gelcoat, a moisture meter should be used to determine the moisture content of the hull. Readings should be taken both above and below the waterline.

Procedures that only expose damaged areas without removal of the water damaged laminate make drying the hull difficult or impossible. Inadequate removal results in only a temporary, cosmetic solution. The problem quickly reappears, often worse than it was originally.

After removing the gelcoat and any damaged, swollen laminate, the exposed laminate should be thoroughly flushed with fresh water.

Laminate damage and the quantity to be removed will vary with each hull. There is no reason to remove sound, intact, tightly bound laminate.

The laminate of a blistered hull can contain a wide variety of chemical contamination. These contaminates affect the adhesion of the repair and in most cases will cause blistering to reoccur. The laminate must be scrubbed with commercial detergent and thoroughly rinsed to remove all chemical contamination and detergent residue.

Next, the hull must be dried. Refer to the moisture readings taken before the removal of the gelcoat. Check them again and establish regular periods of re-checking. There is debate regarding a correct moisture level. A definite minimum is to obtain the same readings above and below the waterline, provided there was a difference initially. A reading below the waterline of 5 or less on a Sovereign Meter is considered sufficient. While a hull may be too “wet” it can not be too “dry”.

On boats with severe blistering above and below the waterline, especially those produced using “fire resistant resins”, effective treatment and repair may be impossible. Having the boat surveyed before beginning treatment or repair of osmotic blistering is recommended.

BELOW THE WATERLINE

OSMOTIC BLISTER PREVENTION, TREATMENT, AND REPAIR (Cont'd.)

Repair

After the removal, flushing, and drying of the laminate, begin repair or restoration of the hull. This process includes four steps.

- Sealing of the exposed laminate.
- Application of fairing compound to restore the form of the hull.
- Sealing the fairing.
- Application of a water barrier and anti-fouling coating.

1. Apply 2 or more contrasting color coats of 545 Primer-White and 545 Primer-Gray. These materials must be mixed without reducer and applied by brush or roller to force the material into the laminate, sealing voids and pin holes.

2. Apply AWL-FAIR L.W. Epoxy Fairing Compound to restore the shape of the hull.

3. Seal the fairing. Apply contrasting color coats of 545 Primer to seal the AWL-FAIR L.W. Mix the 545 Primer full bodied (i.e., no reducer) to avoid solvent entrapment in the system.

4. Apply the Maximum Water Barrier System. See page 44.

The preceding is an outline of a repair system. This procedure should not be viewed in the same light as the specific application systems. It is only supplied as a guide. No repair of the osmotic blistering should begin without a complete survey of the hull to accurately assess the problem. The project should be directed by someone with experience in such repairs. After a hull survey has been completed, please contact our Technical Service Department in St. Louis.

Note: Osmotic blister repairs receive no warranty either expressed or implied from U.S. Paint Corporation.

TROUBLE SHOOTING

Most application problems are a direct result of poor or improper procedures, marginal housekeeping conditions, inadequate equipment, or a combination of these factors.

Following a few rules and checking regularly that the rules are being followed can prevent many problems before they occur.

1. When using compressed air, a clean, oil-free, dry air supply is a must. This is just as important for tool operation (e.g., grinders, sanders, etc.) as it is when spraying paint. General air quality, filters and dryers should be checked regularly. See page 4 for more information about compressed air.

2. Make certain the products and procedures used in or near the paint areas are compatible with U.S. Paint products and general paint procedures. Sealers, cleaners, lubricants and hand cleaners containing silicone should not be used in or around the paint shop.

3. Machinery exhaust frequently is oil bearing and should not be allowed in the paint area.

4. Keep quantities of clean AWLGRIP Tack Rags available to tack off surfaces.

5. Wear clean, cloth gloves during all stages of surface preparation and application to prevent contaminating the paint surface with skin oils.

ORANGE PEEL and DRY SPRAY

Textured, uneven surface like the skin of an orange.

A smooth texture-free surface is the happy medium between surface preparation, component mix/reduction, spray gun adjustment, and application technique. The most common cause is under atomization of the paint, as a result of some combination of improper reduction, poor gun adjustment, and poor spray technique. However, there are a number of factors which can contribute to or cause orange peel.

Causes:

1. Hot surface.
2. Improper gun adjustment or spray techniques.
3. Improper pressure adjustment.
4. Orange peel in primer is printing in the topcoat.
5. Temperature is too low or too high.
6. Viscosity is too high.
7. Wrong choice of reducer.
8. Improper spraying sequence.
9. Improper recoat time

TROUBLE SHOOTING (Cont'd.)

ORANGE PEEL and DRY SPRAY

Solutions:

1. Smooth sand the surface. Clean with AWL-PREP or AWL-PREP PLUS. Re-paint using more appropriate reducer, correct air pressure, or correct spray technique and sequence.

2. Select proper reducer, allow sufficient dry time between coats.

3. Reduce to recommended application viscosity.

4. Use correct spray technique and sequence.

5. Do not paint hot surfaces. A surface too hot to comfortably hold your hand on is too hot to paint!

PIN HOLING

Tiny holes in the finish caused by surface porosity or other imperfections in the substrate. Pin holing is sometimes confused with or inaccurately described as solvent popping.

Causes:

1. Imperfections in the substrate.
2. Substrate surface porosity.
3. Insufficient amount of reducer.

Solutions:

1. Clean surface with AWL-PREP T0008 or AWL-PREP PLUS T0115.

2. Sand down to smooth surface, re-clean with AWL-PREP or AWL-PREP PLUS, and tack off the surface.

3. Squeegee or knife apply AWL-QUIK Sanding Surfacer into the pinholes.

4. Smooth sand the surface, clean with AWL-PREP or AWL-PREP PLUS and tack off surface. Seal with 545 Primer and re-apply topcoat.

Prevention:

Inspect the surface and correct porosity or surface imperfections in the substrate before applying the topcoat.

TROUBLE SHOOTING (Cont'd.)

SOLVENT POPPING

Tiny open blisters that appear in the paint film very shortly after application. Usually occurs when too thick a film is applied to a horizontal surface in hot weather. Reducer choice and excessive air flow can also be factors.

Causes:

1. Wrong reducer selection.
2. Too thick or too heavy an application.
3. Premature surface skinning of the paint film before all the underlying solvent can evaporate.

Solutions:

1. If possible, wash off the still wet coating with the appropriate reducer. If the coating is allowed to cure, smooth sand until all blisters are removed.

2. Clean with AWL-PREP T0008 or AWL-PREP PLUS T0115 using the Two Cloth Method.

3. Tack off surface, and re-coat using proper reducer while applying thin coats.

At very high temperatures of 90F to 105F, increase the amount of reducer to 35% and apply an additional coat to ensure proper film thickness. The extra reducer will improve flow while helping to keep the film open to avoid solvent popping.

CRATERS and FISH EYES

Small, crater-like openings in the finish caused by contamination on the surface being painted.

Causes:

1. Improper surface cleaning.
2. Effects of previous repair.
3. Contaminated equipment.
4. Workers using a silicone containing hand lotion or cream.
5. Old finish containing excessive fish eye preventer.
6. Wrong spray technique/improper dry times.
7. Wrong reducer.
8. Wax on the surface.
9. Water or oil in the air lines.

TROUBLE SHOOTING (Cont'd.)

CRATERS and FISH EYES

Solutions:

1. If the coating is still wet, wash off with the recommended reducer and properly clean and prepare the surface before proceeding with any further painting.

2. If the coating has cured, wipe down with AWL-PREP PLUS using the Two Cloth Method.

AWL-PREP PLUS will clean most surfaces thoroughly. In some cases, especially on fiberglass, extreme surface contamination such as mold release wax, silicone polish wax, diesel fuel or oil is present. In these situations, you must scrub the surface with a powdered household cleanser and a Scotchbrite pad until rinse water applied to the surface “sheets out” over the entire area with no breaks or holes in the water film.

Blow dry the surface and thoroughly wipe the surface to remove any cleanser residue and help remove moisture on the gelcoat.

3. Smooth sand, then re-clean with AWL-PREP PLUS.

4. Tack off surface and re-coat.

Prevention:

1. Clean surface thoroughly with AWL-PREP or AWL-PREP PLUS before and after sanding.

Only use AWL-PREP PLUS to remove wax. Other de-waxer solvents will melt wax into the pores of the gelcoat substrate.

2. Solvent wipe the entire surface with AWL-PREP PLUS or AWL-PREP using the Two Cloth Method.

3. Drain and clean equipment.

4. Add CRATER-X as recommended to AWLGRIP and AWLCRAFT 2000 Topcoats.

5. Use proper spray technique, select proper reducer.

6. Allow sufficient dry time between coats.

PRODUCT DATA SHEETS
AWLGRIP TOPCOATS

Features & Uses
A two component, polyester based, light-fast, linear aliphatic polyurethane coating with long lasting gloss and color retention, and outstanding chemical resistance. Do not use below the waterline. A low maintenance coating. Do not wax, buff, compound, or polish.

Specification Data
Type: Two Component Linear Aliphatic Polyester Polyurethane
Color: See Color Card
Packaging: Available in 1 gallon and 1 quart containers.
Theoretical Coverage - Sq. Feet/Gallon
Spray Application: 530 Sq. Feet at 1 mil dry film thickness.
210 Sq. Feet at recommended dry film thickness.
Recommended Wet Film Thickness: 6-9 mils (150-225 microns), total of 2-3 coats.
Recommended Dry Film Thickness: 2-3 mils (50-75 microns), total of 2-3 coats.
Coverage calculations are calculated for mixed base and converter, reduced 25% and are based on a theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Anticipated Cure Time at 77F/50% R.H: 24 hours to tape free;
3 days to light service; 14 days for full cure.
Brush/Roller Application: 700-725 Sq. Feet at 1 mil dry
285 Sq. Feet at recommended dry film thickness.
Recommended Wet Film Thickness: 4.5-6 mils (112.5-150 microns), total of 2 coats.
Recommended Dry Film Thickness: 2-3 mils (50-75 microns), total of 2 coats.
Recoatability: Spray applications consist of two to three coats applied over 1-4 hours. Exact time will vary with temperature, project size, and film thickness applied. Brush/Roller applications require at least 2 coats applied a minimum of 16 hours apart. AWLGRIP topcoats which have been allowed to cure more than 24 hours must be sanded before recoating.

Product Components, Reducers, Additives, and Auxiliary Components

AWLGRIP Gloss Topcoat Base	(Number from the Stock List)
High Gloss Clear Base	G3005
AWL-CAT #2 Spray Converter	G3010
AWL-CAT #3 Brushing Converter	H3002
Standard Reducer-Spray	T0003
Fast Evaporating Reducer-Spray	T0001
Very Fast Evaporating Reducer-Spray	T0002
Hot Weather Reducer-Spray	T0005
Brush/Roller Reducer	T0031
PRO-CURE Accelerator X-98	73014
PRO-CURE Accelerator X-138	73015
GRIPTEX Non-Skid Particles-Fine	73012
GRIPTEX Non-Skid Particles-Coarse	73013
1010 Flattening Agent	G3013
CRATER-X	M1017
SPATTER IT Texture Additive	M3048
Equipment Cleaning	T0001, T0002, or T0003, or M.E.K.

Application Equipment
Conventional air atomized spray, HVLP spray, brush or roller. See page 7.

PRODUCT DATA SHEETS

AWLGRIP TOPCOATS (Cont'd.)

Surface Preparation

AWLGRIP colors should be applied over properly prepared 545 Primer or in brush/roller applications AWL-QUIK Primer.

AWLGRIP High Gloss Clear G3005 can be applied over dark AWLGRIP colors which have been sanded with 320-400 grit paper. Do not apply G3005 over white or pastel colors. Do not apply G3005 directly to bare wood.

Mixing & Reduction

Spray: Mix by volume one part AWLGRIP Topcoat Base Component with one part AWL-CAT #2/G3010 Spray Converter to a smooth, homogenous mixture. Reduce up to 25% with the spray reducer(s) appropriate for conditions. Overall mix is 1:1:1/2 by volume. Example: 8 oz. Base, 8 oz. G3010, 4 oz. Reducer. 25% reduction is a standard mix. Clear coats, metallic colors, and painting in high temperature conditions may require additional reduction. 40% reduction is the maximum recommendation.

Brush/Roller: Mix by volume two parts AWLGRIP Topcoat Base Component with one part AWL-CAT #3/H3002 Brushing Converter until one smooth, homogenous mixture is obtained. Reduce 25% to 33% with T0031. Overall mix is 2:1:3/4-1 by volume.
Example: 8 oz. Base, 4 oz. H3002, 3-4 oz. T0031.

Application Instructions

General: The primed surface must be clean and dry. Achieving maximum gloss and distinction of image requires the primer be smooth sanded with 220-320 grit paper before topcoat application. Using a contrasting mist coat of lacquer primer as a “guide coat” is recommended. Smooth sanding until all the “guide coat” is removed indicates a texture free surface.

Two to three coats are recommended for spray applications. Brush/Roller applications require two coats. Regardless of application method two coats is the minimum! Topcoating cannot be done in one coat!

Spray application: Apply a light, smooth, slightly wet tack coat to the surface. Allow tack coat to “flash off” 30 to 45 minutes. Then apply a full, wet coat to achieve color coverage (i.e., hide) and film thickness requirements. If preferred, three coats may be used. Allow the second coat to “flash off” 30 to 45 minutes until only slightly tacky before applying third coat. In three coat applications, coats two and three are not “full, wet” coats. The second coat is a slightly heavy tack coat with the third coat just wet enough to obtain full hide (opacity) or color coverage.

Brush/Roller application: Apply AWLGRIP Topcoat in two coats of 1.5 to 2.5 mils WFT each. Allow 16 hours between each coat. Sanding between coats with 280 to 400 grit paper will provide a smoother finish.

On large surfaces such as hull sides, transoms, and house sides, first roll the AWLGRIP Topcoat and then smooth the roller stipple by lightly tipping the surface with a brush. This can be done with 2 painters working side by side (i.e., 1 rolling and 1 tipping), or with 1 painter rolling approximately 6 square feet and then tipping that area before rolling any further.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

AWLGRIP METAL FLAKE POWDERS
Pale Gold 73010; Cordovan Gold 73011

Features & Uses

The AWLGRIP system currently offers two distinctly different types of AWLGRIP Metallic Topcoats found on the standard color card and stocking list.

One system consists of a dry metallic powder that is added to G3003/G3004 Clear to make Pale Gold 73010 and Cordovan Gold 73011.

Cautions:

1. Metallics must be clear coated to prevent fading and discoloration.

2. Both types of metallics are designed for spray application only and have significantly shorter pot life than AWLGRIP Pigmented Topcoats. Because PRO-CURE Accelerator shortens topcoat pot life, neither type of AWLGRIP Metallic Topcoat should be accelerated with PRO-CURE.

3. Metallic topcoats must be applied over the appropriate U.S. Paint primer or an AWLGRIP Topcoat that has been sanded until all gloss is removed.

Specification Data

Type: Two Component Linear Aliphatic Polyester Polyurethane
Color: See Color Card
Packaging: Base and converter components are packaged in quarts and gallons; 73010 & 73011 metallic powders are packaged by weight; 4 oz. per container.
Theoretical Coverage: Sq. Ft./Gallon
475 Sq. Ft. at 1 mil dry (25 microns)
155-240 Sq. Ft. at recommended film thickness
Coverage calculations area based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size and application environment.
Recommended dry film thickness: 2-3 mils (50-75 microns)
Anticipated cure time at 77F, 50% R.H: 24 hours to tape free; 3 days to light service; 14 days to full cure.
Recoatability: Spray applications of metallic colors consist of three, four, or more coats applied over 1-4 hours. Exact time will vary with temperature, project size, and film thickness applied. Clear overcoats can be applied after 8-12 hours of cure. AWLGRIP topcoats which have been allowed to cure more than 24 hours must be sanded before recoating.

Product Components, Reducers, Additives, and Auxiliary Components for Pale Gold & Cordovan Gold Colors

Pale Gold Powder	73010
Cordovan Gold Powder	73011
Clear Gloss for Metallics	G3003
AWL-CAT #12 Spray Converter	G3004
Fast Evaporating Reducer-Spray	T0001
Very Fast Evaporating Reducer-Spray	T0002
CRATER-X	M1017
Equipment Cleaning	T0001 or T0002, or M.E.K.

AWLGRIP METAL FLAKE POWDERS
Pale Gold 73010; Cordovan Gold 73011 (Cont'd.)

Application Equipment
Conventional air atomized spray or HVLP spray. See page 7.

Surface Preparation
AWLGRIP colors should be applied over properly prepared 545 Primer. When applying topcoat colors over other topcoat colors, sand the surface with 220-400 grit paper.

Mixing & Reduction

Mixing Instructions for Pale Gold (73010) and Cordovan Gold (73011) Metallic Powders:
Both 73010 and 73011 must be mixed with Clear Gloss for Metallics (G3003) and AWL-CAT #12 Converter (G3004) prior to application.

1. Mix 4 ounces (by weight) of Gold Metallic Powder with small amounts of T0001 Reducer to produce a smooth homogeneous slurry.

2. Blend this slurry with 1 quart of Clear Gloss for Metallics (G3003).

3. Add 1 quart of AWL-CAT #12 Low Solids Converter (G3004) to the Gold Powder mixture. Mix thoroughly. Reduce this mixture 25% with T0001 or T0002. Overall mix is 1:1:1/2.

Induction time after mixing: None
Anticipated pot life at 77F, 50% R.H: 2 Hours

Application Instructions
Metallic colors are applied differently than conventional pigmented topcoats.

Caution: Apply by spray in 3 to 4 light, smooth, slightly wet coats. Allow 5 to 10 minutes tack time between coats. This spray method allows uniform development of the metallic color without flooding or floating the metallic particles.

After achieving the specified color, allow the coating to cure a minimum of 8 hours but not more than 24 hours. Within this period, seal dry powder metallics with Clear Gloss for Metallics (G3003/G3004).

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

AWLGRIP PRE-MIXED METALLIC TOPCOATS
Bright Aluminum H1021; Silver H1048

Features & Uses
The AWLGRIP system currently offers two distinctly different types of AWLGRIP Metallic Topcoats found on the standard color card and stocking list.

Bright Aluminum (H1021) and Silver (H1048) have the metallic flake pre-mixed into the color base and are mixed in the same way as conventional pigmented AWLGRIP Topcoats. Custom metallic formulations will be supplied in the pre-mixed version upon request.

Cautions:

1. Metallics must be clear coated to prevent fading and discoloration.

2. Both types of metallics are designed for spray application only and have significantly shorter pot life than AWLGRIP Pigmented Topcoats. Because PRO-CURE Accelerator shortens topcoat pot life, neither type of AWLGRIP Metallic Topcoats should be accelerated with PRO-CURE.

3. Metallic topcoats must be applied over the appropriate U.S. Paint primer or an AWLGRIP Topcoat that has been sanded until all gloss is removed.

Specification Data
Type: Two Component Linear Aliphatic Polyester Polyurethane
Color: See Color Card
Packaging: Color base and converter components are packaged in quarts and gallons.
Theoretical Coverage: Sq. Ft./Gallon
475 Sq. Ft. at 1 mil dry (25 microns)
155-240 Sq. Ft. at recommended film thickness
Coverage calculations area based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size and application environment.
Recommended dry film thickness: 2-3 mils (50-75 microns)
Anticipated cure time at 77F, 50% R.H: 24 hours to tape free; 3 days to light service; 14 days to full cure.
Recoatability: Spray applications of metallic colors consist of three, four, or more coats applied over 1-4 hours. Exact time will vary with temperature, project size, and film thickness applied. Clear overcoats can be applied after 8-12 hours of cure. AWLGRIP topcoats which have been allowed to cure more than 24 hours must be sanded before recoating.

Product Components, Reducers, Additives, and Auxiliary Components

Bright Aluminum	H1021
Silver	H1048
High Gloss Clear	G3005
AWL-CAT #2 Spray Converter	G3010
AWL-CAT #4 Converter	H3010
Standard Reducer-Spray	T0003
Fast Evaporating Reducer-Spray	T0001
Very Fast Evaporating Reducer-Spray	T0002
Hot Weather Reducer-Spray	T0005
CRATER-X	M1017
Equipment Cleaning	T0001, T0002, or T0003, or M.E.K.

AWLGRIP PRE-MIXED METALLIC TOPCOATS
Bright Aluminum H1021; Silver H1048 (Cont'd.)

Application Equipment
Conventional air atomized spray or HVLP spray. See page 7.

Surface Preparation
AWLGRIP colors should be applied over properly prepared 545 Primer. When applying topcoat colors over other topcoat colors, sand the surface with 220-400 grit paper.

Mixing & Reduction

Mixing Instructions for Bright Aluminum (H1021) and Silver (H1048) Pre-Mixed AWLGRIP Metallic Topcoats:
Spray: Mix by volume 1 part H1021 or H1048 Topcoat Base component with 1 part AWL-CAT #2/G3010 Spray Converter to a smooth, homogenous mixture. Reduce 10-25% with the spray reducer(s) appropriate for conditions. Overall mix is 1:1:1/4-1/2 by volume. Example: 8 oz. Base, 8 oz. G3010, 2-4 oz. Reducer. 25% reduction is a standard mix. Clear coats, metallic colors, and painting in high temperature conditions may require additional reduction. 40% reduction is the maximum recommendation.

If additional sag control is required, use AWL-CAT #4 (H3010) in place of AWL-CAT #2. When using H3010, mix as follows: Spray: Mix by volume 2 parts H1021 or H1048 Topcoat Base component with 1 part AWL-CAT #4/H3010 Spray Converter to a smooth, homogenous mixture. Reduce 25% or as needed with the spray reducer(s) appropriate for conditions. Overall mix is 2:1:3/4 by volume. Example: 8 oz. Base, 4 oz. H3010, 3 oz. Reducer. 25% reduction is a standard mix. Clear coats, metallic colors, and painting in high temperature conditions may require additional reduction. 40% reduction is the maximum recommendation.

Application Instructions
Metallic colors are applied differently than conventional pigmented topcoats.

Caution: Apply by spray in 3 to 4 light, smooth, slightly wet coats. Allow 5 to 10 minutes tack time between coats. This spray method allows uniform development of the metallic color without flooding or floating the metallic particles.

After achieving the specified color, allow the coating to cure a minimum of 8 hours but not more than 24 hours. Within this period, seal the H1021 or H1048 with High Gloss Clear (G3005/G3010).

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

AWLCRAFT 2000 ACRYLIC URETHANE TOPCOAT

Features & Uses
A two component, fast drying acrylic urethane coating with long lasting gloss and color retention. Provides an easy to apply, buffable finish. Spray application only. Do not use below the waterline.

Specification Data
Type: Two Component Acrylic Urethane
Color: See Color Card
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Ft./Gallon
573 Sq. Feet at one mil dry
230 Sq. Feet at recommended dry film thickness
Calculated for mixed base and converter, reduced 25%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 6-9 mils (150-225 microns) total of 2-3 coats.
Recommended Dry Film Thickness: 2-3 mils (50-75 microns) total of 2-3 coats.
Anticipated Cure Time at 77F, 50% R.H: 24 Hours to tape free; 3 days to light service; 14 days for full cure.
Recoatability: Spray applications consist of two to three coats applied over 1-4 hours. Exact time will vary with temperature, project size, and film thickness applied. AWLCRAFT 2000 topcoats which have been allowed to cure more than 24 hours must be sanded before recoating.

Product Components, Reducers, Additives, and Auxiliary Components

AWLCRAFT 2000 Topcoat Base	(Number from the Stock List)
High Gloss Clear	F3029
AWL-CAT #2 Spray Converter	G3010
Standard Reducer-Spray	T0003
Fast Evaporating Reducer-Spray	T0001
Very Fast Evaporating Reducer-Spray	T0002
Hot Weather Reducer-Spray	T0005
PRO-CURE Accelerator X-98	73014
PRO-CURE Accelerator X-138	73015
CRATER-X	M1017
GRIPTEX Non-Skid Particles-Fine	73012
GRIPTEX Non-Skid Particles-Coarse	73013
Flattening Agent	G3013
Equipment Cleaning	T0001, T0002 or T0003 Reducers or M.E.K.

Application Equipment
Conventional air atomized spray or HVLP spray. See page 7.

Surface Preparation
Best results are achieved when sprayed over properly prepared AWLGRIP 545 Primer. May be applied directly over some existing finishes. The existing finish must be sound, tightly adhered to the substrate, and chemically compatible with AWLCRAFT 2000. See page 11 for testing previously painted surfaces.

AWLCRAFT 2000 ACRYLIC URETHANE TOPCOAT (Cont'd.)

Mixing & Reduction

Spray: Mix by volume two parts AWLCRAFT 2000 Topcoat Base Component with one part AWL-CAT #2/G3010 Spray Converter to a smooth, homogenous mixture. Reduce 25%-33% with the spray reducer(s) appropriate for conditions. Overall mix is 2:1:3/4-1 by volume. Example: 8 oz. Base, 4 oz. G3010, 3-4 oz. Reducer.

25% reduction is a standard mix. Clear coats, metallic colors, and painting in high temperature conditions may require additional reduction. 40% reduction is the maximum recommendation.

Application Instructions

General: The primed surface must be clean and dry. Achieving maximum gloss and distinction of image requires the primer be smooth sanded with 220-320 grit paper before topcoat application. Using a contrasting mist coat of lacquer primer as a “guide coat” is recommended. Smooth sanding until all the “guide coat” is removed indicates a texture free surface.

Two to three coats are recommended for spray applications.

Spray application: Apply a light, smooth, slightly wet tack coat to the surface. Allow tack coat to “flash off” 30 to 45 minutes. Then apply a full, wet coat to achieve color coverage (i.e., hide) and film thickness requirements. If preferred, three coats may be used. Allow the second coat to “flash off” 30 to 45 minutes until only slightly tacky before applying third coat. In three coat applications, coats two and three are not “full, wet” coats. The second coat is a slightly heavy tack coat with the third coat just wet enough to obtain full hide (opacity) or color coverage.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

Notes:

AWLSPAR CLASSIC SPAR VARNISH: M3131

Features & Uses
Excellent durability. Specifically formulated to create the highest quality of classic spar varnish. Excellent build characteristics. Apply 2 to 3 coats per day when temperatures are above 75F. Excellent recoatability. Excellent application by brush. Designed for brightwork where its tough, high gloss film helps protect against water and weather. Do not use below the waterline.

Specification Data
Type: Phenolic Varnish
Color: Amber.
Packaging: Available in gallons, quarts, or pints.
Theoretical Coverage - Sq. Feet/Gallon.
700 Sq. Feet at 1 mil dry (25 microns).
70-100 Sq. Feet at recommended total dry film thickness of 7-10 mils. Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 2-3 mils (50-75 microns) per coat. Recommended Dry Film Thickness: 1-11/2 mils (25-37.5 microns) per coat. Anticipated Cure Time at 77F/50% R.H: 24 hours to handle. Recommended Coats: 7-10
Recoatability: With itself: 3-4 hours, 36 hours maximum without sanding or scuffing. With AWL-BRITE PLUS: 3 days minimum.
See page 39 for test application details.

Product Components, Reducers, Additives, and Auxiliary Components

AWLSPAR Base - Amber/Clear	M3131
AWLSPAR Reducer	T0016
Equipment Cleaning	T0016 or Odorless Mineral Spirits

Application Equipment
Brush and roller application. See page 9.

Surface Preparation
The wood should be clean, dry, smooth, and well seasoned.
New Wood: Use of a marine teak cleaner or wood bleach is advised on new wood to remove excess oils, promote color uniformity, and adhesion. Follow manufacturer's instructions for use and thoroughly remove all cleaner and neutralizer residue before proceeding.

Rough sawn lumber must receive heavy sanding to level the grain. Work through the grits to effectively level the grain 60/80 to 100/150 to 220 and so on. When the grain is level, smooth sand the surface with 320 grit paper.

Old finishes in good condition should be washed with AWL-PREP Surface Cleaner, then sanded with 220-320 grit paper to remove the gloss. Old finishes in poor condition should be removed. Test on a small area to make sure AWLSPAR doesn't attack the old finish. If old finish is attacked, it must be completely removed.

AWLSPAR CLASSIC SPAR VARNISH: M3131 (Cont'd.)

Mixing & Reduction
New Wood Reduction: When finishing new wood reduce 100%
(1 part M3131 to 1 part T0016 by volume) with T0016 for **first coat only**. This will allow the AWLSPAR to penetrate and seal the grain. Otherwise thinning or reduction is not normally required. If desired, reduce up to 20% with T0016. **Stir only do not shake!**
Induction Time after Mixing: N/A
Anticipated Pot Life at 77 F, 50% RH: N/A

Application Instructions

After new wood has been sealed, or on previously coated surfaces, apply light, smooth, even coats (2-3 mils wet) of full bodied material. At temperatures above 75F, 2 to 3 coats can be applied per day. If sanding is required, allow to cure 24 hours before sanding. Best results are achieved when surface is sanded smooth with 320 -400 grit paper after every 2 to 3 coats. A good system would include 7 to 10 coats. Exact number of coats needed will vary by applied film thickness and the amount of sanding. AWLSPAR will cure at temperatures as low as 45F; however, best results are achieved when temperatures are between 60F and 90F. If possible avoid applying or curing the material in direct sunlight.

Do not apply paint materials to surfaces warmer than 105F or colder than 45F. Do not attempt to cure products at temperatures below 45F.

Notes:

AWL-BRITE PLUS CLEAR URETHANE FOR BRIGHTWORK

Features & Uses
AWL-BRITE PLUS is a new buffable, high build, three component clear urethane for marine brightwork. AWL-BRITE PLUS provides a far more durable finish than varnish, is faster curing and as easy to apply. Do not use below the waterline.

Specification Data
Type: Three Component Acrylic Urethane
Color: Clear
Packaging: 56 oz. kit, Gallons and Quarts
Theoretical Coverage - Sq. Feet/Gallon
930 Sq. Feet at 1 mil dry (25 microns)
93 Sq. Feet at recommended dry film thickness of 10 coats.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 2.0-2.5 mils (50-62 microns) per coat.
Recommended Dry Film Thickness: 1.0-1.2 mils (25-30 microns) per coat.
Anticipated Cure Time at 77F/50% R.H: 3 hours to recoat; 12 hours to light service; 7 days for full cure.
Recoatability: With itself: 3 hours minimum, 36 hours maximum without sanding or scuffing.

Product Components, Reducers, Additives, and Auxiliary Components

Base	J3005
Converter	J3006
Brushing Activator	A0031
56 oz. Kit	J3005-K41
Equipment Cleaning	T0001, T0002, or T0003, or M.E.K.

Application Equipment
Brush and roller application. See page 9.

Surface Preparation
The wood should be clean, dry, smooth, and well seasoned.

New Wood: Use of a marine teak cleaner or wood bleach is advised on new wood to remove excess oils, promote color uniformity, and adhesion. Follow manufacturer's instructions for use and thoroughly remove all cleaner and neutralizer residue before proceeding.

Rough sawn lumber must receive heavy sanding to level the grain. Work through the grits to effectively level the grain 60/80 to 100/150 to 220 to, and so on. When the grain is level, smooth sand the surface with 320 grit paper.

Old finishes in good condition should be washed with AWL-PREP Surface Cleaner, then sanded with 220-320 grit paper to remove the gloss. Old finishes in poor condition should be removed. Test on a small area to make sure AWL-BRITE PLUS doesn't attack the old finish. If old finish is attacked, it must be completely removed.

AWL-BRITE PLUS CLEAR URETHANE FOR BRIGHTWORK (Cont'd.)

Mixing & Reduction

AWL-BRITE PLUS is a three component product. Mix by volume 2 parts J3005 with 1 part J3006 until one smooth, homogenous mixture is obtained. Then add 1/2 part A0031. Overall mix is 2:1:1/2 by volume. Example: 4 oz. J3005, 2 oz. J3006, 1 oz. A0031. Additional A0031 can be added if desired, but standard 2:1:1/2 ratio is required.

Mix and use small quantities of AWL-BRITE PLUS at a time. Keep the original containers closed when not in use. Do not shake AWL-BRITE PLUS.

Induction Time after Mixing: None

Anticipated Pot Life at 77F, 50% R.H: 1 to 2 Hours

Application Instructions

General: The key to performance of any varnish system is applying enough material. This is especially true with AWL-BRITE PLUS Clear Urethane.

These directions call for more coats than are needed to achieve basic cosmetic qualities. If you stop the system when it looks good, or sand excessively, you will not achieve the desired performance.

New/Bare Wood: Apply one light, smooth coat and allow to cure 8-12 hours. Lightly sand this coat with 320-400 grit paper to remove wicks and nubs before applying additional material.

General: Apply light, smooth coats. Apply two coats in an 8 hour period. Allow to cure 8-12 hours or overnight and repeat. Ten coats are recommended.

Sand as little as possible. Sanding is only required when:

- Runs, sags or brush marks need to be leveled.
- Dirt or grit needs to be removed from the surface.
- If it has been more than 36 hours since the last application.

If no leveling is required, but it has been more than 36 hours since the last application; dulling the surface with Scotchbrite Pads is recommended, see pages 35 to 40 for systems.

If possible, avoid applying or curing the material in direct sunlight. Do not apply or attempt to cure AWL-BRITE PLUS below 65F.

HULL-GARD E.R. (EXTENDED RECOAT) EPOXY PRIMER: D8022/D9016

Features & Uses
A two component epoxy that can be recoated as soon as the solvents evaporate, even at low temperatures (50-60F). Offers excellent corrosion protection and excellent aged recoatability. For use below the waterline only.

Specification Dat
Type: Two Component Epoxy
Packaging: Available in 1 gallon kit and 1 quart kit.
Theoretical Coverage - Sq. Feet/Gallon
722 Sq. Feet at 1 mil dry (25 microns)
180 Sq. Feet at 4 mils dry (100 microns)
Calculated for mixed base and converter, no reducer added.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 7-9 mils (175-225 microns) per coat.
Recommended Dry Film Thickness: 3-4 mils (75-100 microns) per coat.
Recoatability: Minimum 2 hours at 77F with itself, AWLSTAR™ GOLD LABEL Anti-Fouling, or HULL-GARD W.B. Maximum recoat without sanding, with itself: 8 weeks; AWLSTAR™ GOLD LABEL: 2 hours; HULL-GARD W.B.: 1 week.

Product Components, Reducers, Additives, and Auxiliary Components

One Gallon Kit	D8022-S12
One Quart Kit	D8022-S42
Kit Contains:	Buff Base D8022; Converter D9016
HULL-GARD Reducer	T0093
Equipment Cleaning	T0093 or T0006 Reducers or M.E.K.

Application Equipment
Apply by airless spray, air atomized spray, brush, or roller. Airless spray is the most efficient way to apply this product.

Surface Preparation
HULL-GARD E.R. may be directly applied to sandblasted steel and scuff sanded, solvent wiped fiberglass or wood.

Mixing & Reduction
HULL-GARD E.R. is supplied in 1 gallon and 1 quart kits which contain the proper ratio of ingredients. Mixing the entire contents of both containers yield either 1 gallon or 1 quart of material. Mix ratio by volume is 9 parts D8022 to 1 part D9016. Reduction is normally not required, however, at low temperatures (50-60F), or when brushing or rolling, small amounts (5% or less) of T0093 can be added. Do not reduce more than 10% (12 oz.) per one gallon kit.
Induction Time after Mixing: 30 Minutes
Anticipated Pot Life at 77F/50% R.H: 24 Hours

Application Instructions
Apply by spray, brush, or roll. Apply coats of 9 mils WFT yielding 4 mils DFT. Three coats are needed for the Standard Fast Recoat System (12 mils DFT). To achieve 12 mils DFT requires a 1 gallon kit for every 60 sq. feet. Four mils DFT requires a 1gallon kit for every 180 sq. feet.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

HULL-GARD W.B. (WATER BARRIER)
EPOXY BARRIER COAT PRIMER: D2007/D3037; D8024/D3037

Features & Uses
HULL-GARD' W.B. has outstanding resistance to both salt and fresh water. With its fast recoatability, HULL-GARD W.B. can be recoated as soon as it is tack free. For use below the waterline only.

Specification Data
Type: Two Component Epoxy
Packaging: Available in 1 gallon kit.
Theoretical Coverage - Sq. Feet/Gallon
130 Sq. Feet at 8 mils dry (200 microns)
Calculated for mixed base and converter, no reducer added.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Dry Film Thickness: 8-16 mils (200-400 microns)
Recoatability: Minimum 4 hours at 77F with itself and AWLSTAR™ GOLD LABEL Anti-Fouling. Maximum recoat without sanding, with itself: 4 weeks; with AWLSTAR™ GOLD LABEL: 4 hours.

Product Components, Reducers, Additives, and Auxiliary Components

One Gallon Kit (Black)	D2007-S12
Kit Contains:	Black Base D2007; Converter D3037
One Gallon Kit (White)	D8024-S12
Kit Contains:	White Base D8024; Converter D3037
Reducer Airless Spray	T0093
Reducer Conventional Spray & Brush	T0006
Equipment Cleaning .	T0093 or T0006 Reducers or M.E.K

Application Equipment
Apply by airless spray, air atomized spray, brush, or roller. Airless spray is the most efficient way to apply this product.

Surface Preparation
HULL-GARD W.B. can be applied over properly prepared 545 Epoxy Primer or HULL-GARD E.R. Primer.

Mixing & Reduction
HULL-GARD W.B. is a two component product packaged in a kit. Mixing the entire contents of each container yields one gallon of HULL-GARD W.B. Mix ratio by volume is 4 parts base to 1 part D3037. Reduction is not normally required for airless spray but may be needed for conventional air atomized spray or brush and roll applications. 10% or 12 oz. per gallon is a recommended maximum reduction. Excessive reduction will require more coats to achieve desired amount of dry film thickness.
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 5 Hours

Application Instructions
Conventional or airless spray, brush, or roller. Pressure feed equipment required for spray application. Apply by spray, brush, or roll. Apply coats of 12 mils WFT yielding 8 mils DFT. To achieve 8 mils DFT requires a 1 gallon kit for every 130 sq. feet. 16 mils DFT requires a 1 gallon kit for every 65 sq. feet. Multiple coats may be required.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

AWLGRIP AWLSTAR™ GOLD LABEL
ANTI-FOULING: BP201,401,501,502,701,& 802

Features & Uses

For use below the waterline only. Unique cleaning mechanism prevents permanent attachment of slime and all other types of fouling organisms. Eliminates the need to dive and scrub. Self polishing surface “ablates” away at a controlled rate that reduces the drag on the underwater hull and increases speed. Excellent static fouling protection. Ideal for use where serious fouling conditions are encountered. Recommended for use where extended dry-docking intervals are required. Tin-free. Extended shelf-life. For use on fiberglass, steel, or wood hulls.

Specification Data

Type: Tin-free Polypeptide Co-Polymer
Packaging: Available in 1 gallon and 1 quart containers.

Active Ingredients:	BP501	BP201, BP401, BP502, BP701	BP802
Cuprous Oxide:	40.36*	44.15*	17.0*
**(Metallic Copper Equivalent)*	*(35.56%)*	*(38.95%)*	*(15.54%)*
Inert Ingredients:	59.64	55.85	83.0
	100%	100%	100%

Theoretical Coverage - Sq. Feet/Gallon
780 Sq. Feet at 1 mil dry (25 microns)
65 Sq. Feet at recommended dry film thickness: 12 mils (300 microns) 3 to 4 coats.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recoatability: With itself; 4 hours minimum at 77F/50% R.H.
No maximum recoat time.
To Launch: 77F/50% R.H.: 5 hours minimum, 24 hours preferred.
No maximum launch time.

Product Components, Reducers, Additives, and Auxiliary Components

Charcoal Black	BP201
Medium Green	BP401
Light Blue	BP501
Deep Blue	BP502
Red	BP701
White Lightning	BP802
Reducer	T0101
Equipment Cleaning	T0101 or T0093 Reducers or M.E.K.

Application Equipment

Conventional or airless spray, brush, or roller. Pressure feed equipment required for spray application. See page 7.

Surface Preparation

New Applications: Prime with HULL-GARD E.R or HULL-GARD W.B. Apply first coat of AWLSTAR™ GOLD LABEL just as the last coat of HULL-GARD Primer is tack free. This takes approximately 2 hours for HULL-GARD E.R. and 4 hours for HULL-GARD W.B.

Renewing AWLSTAR™: Power wash as soon as the boat comes out of the water, allow to dry. Sanding is not normally required but a thorough 80 grit sanding is advised under any of the following conditions:

- Any time the cleanliness of the surface is in doubt.
- Fast boats which have ablated to a very smooth surface.
- Sailboats which were recently burnished.
- The surface was not power washed immediately after hauling.

AWLGRIP AWLSTAR™ GOLD LABEL
ANTI-FOULING: BP201,401,501,502,701,& 802 (Cont'd.)

Mixing & Reduction
Check for settling, then thoroughly mix until a consistent homogenous blend is obtained. Power mixers or shakers are preferred. If not available, thorough hand mixing is acceptable. Reduction is not normally recommended. However, if needed for conventional air atomized spray equipment or brush/roller application, 10% or 12 oz. per gallon with T0101 is a recommended maximum reduction.
Induction Time after Mixing: N/A
Anticipated Pot Life at 77F/50% R.H.: N/A

Application Instructions
AWLSTAR™ GOLD LABEL can be applied by airless spray, brush, rollers, or air atomized spray.

Apply heavy coats of 9 mils WFT per coat, yielding 4 mils DFT per coat.

For maximum anti-fouling performance and protection apply a minimum of 3 coats of AWLSTAR™ GOLD LABEL Anti-Fouling. Optimum performance is achieved at a total dry film thickness of 12 mils. One gallon of AWLSTAR™ GOLD LABEL Anti-Fouling is required for each 65 square feet of below the waterline hull area to achieve 12 mils DFT. To provide a built-in indicator of when it is time to renew your AWLSTAR™ GOLD LABEL Anti-Fouling, apply the first coat in a different color from the remaining coats. When you can see the first color showing through, it is time to renew. Extra protection and more uniform wear properties result when 1 or 2 extra coats of AWLSTAR™ GOLD LABEL Anti-Fouling are applied to high wear areas.

Warning: Important, AWLSTAR™ GOLD LABEL Anti-Fouling must not be used on aluminum.

Do not apply paint materials to surfaces warmer than 105F or colder than 45F. Do not attempt to cure products at temperatures below 45F.

ALUMIPREP 33 CLEANER & CONDITIONER FOR ALUMINUM: 73001

Features & Uses

Cleaning and conditioner for aluminum. ALUMIPREP 33 is a non-flammable phosphoric acid based cleaner, brightener, and pre-paint conditioner for aluminum. ALUMIPREP 33 should not be used on high copper bearing aluminum alloys or aluminum castings. Cleaning with ALUMIPREP 33 produces a chemically clean and corrosion free aluminum surface.

Specification Data

Type: Phosphoric Acid Based Cleaner
Packaging: Gallons and Quart Containers
Theoretical Coverage: Sq. Feet/Gallon
The quantity of ALUMIPREP 33 needed will vary with the mix ratio, application efficiency, part size, and the amount of corrosion to be removed.

Under ideal conditions, a gallon of ALUMIPREP 33 will treat 1,600 square feet of surface.

Product Components, Reducers, Additives, and Auxiliary Components

ALUMIPREP 33 73001

Application Equipment

Acid resistant brushes, synthetic sponges, clean cloths. Mix ALUMIPREP 33 in acid resistant rubber, stainless steel or plastic buckets.

Surface Preparation

Surface should be free of heavy grease, grime, dirt or other foreign material allowing the ALUMIPREP 33 to treat the oxidized surface as efficiently as possible.

Mixing and Reduction

For light oxidation and corrosion removal, dilute one part ALUMIPREP 33 with five parts water.
For heavy oxidation and corrosion removal, dilute one part ALUMIPREP 33 with two parts water.

Application Instructions

Note: Operators should be equipped with rubber gloves, aprons and goggles to avoid contact with the solution. Adequate ventilation should be provided.

Selecting the size area to be treated at one time will depend on the method of application, condition of the metal surface, temperature and part configuration. A typical treatment time is where the ALUMIPREP 33 solution is in contact with the metal surface between two and five minutes.

ALUMIPREP 33 cleaning and conditioning chemicals aggressively attack aluminum oxidation and corrosion to completely remove them, leaving a bright, clean metal surface. In the case of heavy corrosion, its removal can be aided by the use of scrubbing. Often a Scotchbrite pad is used for scrubbing.

ALUMIPREP 33 CLEANER & CONDITIONER FOR ALUMINUM: 73001 (Cont'd.)

ALUMIPREP 33 solution should not be allowed to dry on the metal surface.

If drying does occur, re-wet the surface with ALUMIPREP 33 solution, prior to water rinsing.

Thorough rinsing after treatment is necessary to remove the residual salts and soils.

A clean surface has a “water break-free” rinse. The rinse water sheets out over the aluminum. Corrosion, oil or soil on the surface will cause the rinse water to bead up. Surfaces must be treated and rinsed until a “water break-free” rinse is obtained.

Note: ALUMIPREP 33 is a product of Henkel Surface Technologies (800-521-1355). For additional uses for the product and specific instructions on proper handling and disposal of its waste, please contact Henkel Surface Technologies.

ALODINE 1201: 73003

Features & Uses
Chrome conversion coating for aluminum. ALODINE 1201 is a non-flammable, chromic acid based, coating chemical that will produce a chrome conversion coating on aluminum and its alloys.

The coating formed by ALODINE 1201 is gold to tan in color and it becomes a part of the aluminum surface. This chrome conversion coating provides an excellent substrate for paint adhesion and corrosion resistance.

Specification Data
Type: Chromic Acid Conversion Coating
Packaging: Gallons and Quart Containers
Theoretical Coverage: Sq. Feet/Gallon
The quantity of ALODINE 1201 needed will vary with the mix ratio, application efficiency, part size, and the amount of corrosion to be removed.

Under ideal conditions, a gallon of ALODINE 1201 will treat 800 square feet of surface.

Product Components, Reducers, Additives, and Auxiliary Components

ALODINE 1201 73003

Application Equipment
Acid resistant brushes, synthetic sponges, clean cloths. Mix ALODINE 1201 in acid resistant rubber, stainless steel or plastic buckets.

Surface Preparation
Clean and deoxidize the surface with ALUMIPREP 33. After cleaning, the metal must be thoroughly rinsed with water. Inadequate rinsing may result in a surface condition which will cause corrosion of the finished part.

Mixing and Reduction
Use as packaged, no dilution needed.

Application Instructions

Note: Operators should be equipped with rubber gloves, aprons and goggles to avoid contact with the solution. Adequate ventilation should be provided.

Ideally the ALODINE 1201 should be applied while the surface is still wet from the rinse of the ALUMIPREP 33.

Operation

Time: 2 minutes to 5 minutes

Temperature: Room temperature to 100F.

Selecting the size of the area to be treated at one time depends on the method of application, condition of the metal surface, method in which the surface was cleaned, temperature and part configuration.

ALODINE 1201 coating chemical should not be allowed to dry on the metal surface. With brush application the surface should be re-wet with fresh ALODINE 1201 several times during the treatment time. If drying does occur, re-wet with ALODINE 1201 coating chemical prior to water rinsing.

ALODINE 1201: 73003 (Cont'd.)

Application Instructions (Cont'd.)

The coating produced by ALODINE 1201 will vary from a light gold to a dark tan. Variations in color result from different alloys, metal hardness, metal age, method of cleaning, etc.

A thorough rinse with clean water is necessary to remove residual ALODINE 1201 coating chemical salts from the metal surface. Blistering and corrosion problems under paint are often the results of poor rinsing. Chemical salts trapped under a paint film will eventually result in blistering or corrosion problems.

Rinse thoroughly until a “water break-free” rinse in obtained.

Waste Disposal Information

Applicable regulations concerning disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemical products used in this process is given on the Material Safety Data Sheet for each product.

The processing bath is acidic and contains hexavalent chromium. Waste treatment and neutralization may be required prior to discharge to sewer.

Note: ALODINE 1201 is a product of Henkel Surface Technologies (800-521-1355). For additional uses for the product and specific instructions on proper handling and disposal of its waste, please contact Henkel Surface Technologies.

30-Y-94™ NON-SANDING MIL-SPEC MIL-P-23377D, TYPE 1, CLASS 1 ANTI-CORROSIVE EPOXY PRIMER: S9001/S3001

Features & Uses
A two component anti-corrosive, strontium chromate epoxy primer for aluminum and steel with excellent chemical and solvent resistance. Do not use below the waterline.

Specification Data
Type: Epoxy Polyamide, Strontium Chromate, meets Mil-P-23377D
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Ft./Gallon
*298 Sq. Feet at one mil dry
*198-496 Sq. Feet at recommended dry film thickness
*Calculated for mixed base and converter, reduced 50%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 3-7.5 mils (75-175 microns)
Recommended Dry Film Thickness: 0.6-1.5 mils (15-37 microns)
Recoatability: At 77F/50% R.H. minimum 2-4 hours. Maximum without sanding is 24 hours. Plan your work schedule to eliminate having to sand
30-Y-94™. May be overcoated with AWLGRIP/AWLCRAFT 2000 Topcoats, 545 Epoxy Primer, High Build Epoxy Primer, AWL-QUIK Sanding Surfacer, and ULTRA-BUILD Epoxy Primer.

Product Components, Reducers, Additives, and Auxiliary Components

Base - Yellow	S9001
Acid Converter	S3001
Reducer	T0006
Equipment Cleaning	T0006 or T0002 Reducers or M.E.K.

Application Equipment
Conventional or airless spray. See page 7.

Surface Preparation
Aluminum: Sandblast/Grind to 100% clean silver color or treat with ALUMIPREP 33/ALODINE 1201. Steel: Sandblast/Grind SSPC-SP5-85. Do not apply over Zinc Chromate Wash Primer (G9072/G3014).

Mixing and Reduction
Mix by volume 1 part S9001 with 1 part S3001. When a smooth homogenous mixture is obtained, reduce up to 50% with T0006. Overall mix is 1:1:1 by volume.

Example: 8 oz. S9001, 8 oz. S3001, 8 oz. T0006.

Tip: You will get a smoother application by inducting the mixed S9001/S3001 30-45 minutes before adding the reducer. Stir the S9001/S3001 mixture every 10-15 minutes while inducting.

Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 8 Hours

Application Instructions
Spray only. Apply one smooth wet coat. Cross coating or double coating is acceptable on very rough surfaces. Substrate may be visible through the dry film. Too thick a film may split and peel.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

ZINC CHROMATE WASH PRIMER: G9072/G3014

Features & Uses
Designed to promote adhesion by uniformly etching the aluminum, steel, or anodized aluminum substrate. Not to be used below the waterline.

Specification Data
Type: Modified Vinyl/Phenolic Resin
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
266-400 Sq. Feet at recommended dry film thickness
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 5 mil (125 microns)
Recommended Dry Film Thickness: 0.2-0.3 mil (5.0-7.5 microns)
Anticipated Cure Time at 77F/50% R.H: 45 minutes to 1 Hour
Recoatability: 2 hours minimum; must be recoated within 6 hours. Can be overcoated with all U.S. Paint recommended primers, except 30-Y-94™ Epoxy Primer. In some cases, topcoats can be applied directly to Zinc Chromate Wash Primer: G9072/G3014.

Product Components, Reducers, Additives, and Auxiliary Components

Base - Yellow	G9072
Acid Reducer	G3014
Equipment Cleaning	T0002 or T0001 Reducers or M.E.K.

Application Equipment
Conventional or airless spray. See page 7.

Surface Preparation
Steel--solvent clean, grind.
Aluminum--deoxidize with ALUMIPREP 33.

Mixing and Reduction
Mix one part G9072 base with one part acid reducer G3014.
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 8 Hours

Application Instructions
Apply by spray on large and small areas, or by brush on very small areas only, 1 thin coat.

Substrate must be visible through the dry film. Too thick a film will split and peel.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

545 ANTI-CORROSIVE EPOXY PRIMER: D8001/D3001; D1001/D3001

Features & Uses

A two component epoxy primer with corrosion and adhesion properties for steel, aluminum, wood, and fiberglass substrates. Also used to seal filler primers, and fairing work before applying topcoats. May be applied by spray, brush, or roller. May be used above or below the waterline.

Specification Data

Type: Epoxy Polyamide
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
497 Sq. Feet at one mil dry.
165-248 Sq. Feet at recommended dry film thickness.
Calculated for mixed base and converter, reduced 25%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage will vary according to equipment choice, application techniques, part size, and environment.
Recommended Wet Film Thickness: 7-10 mils (175-250 microns) 2 to 3 coats.
Recommended Dry Film Thickness: 2-3 mils (50-75 microns).
Recoatability: At 77F/50% R.H.
Spray: minimum with itself 1 hour, with other products 12 hours.
Brush Roll: with itself 12 - 14 hours, with other products 12 - 14 hours. Maximum without sanding 24 hours. Sanding is recommended to improve adhesion and appearance. Overcoat with AWLGRIP/AWLCRAFT 2000 Topcoats, HIGH BUILD Epoxy Primer, AWL-QUIK Sanding Surfacer, ULTRA-BUILD Primer, HULL-GARD E.R., and HULL-GARD W.B.

Product Components, Reducers, Additives, and Auxiliary Components

White Base	D8001
Gray Base	D1001
Converter	D3001
Spray Reducer	T0006
Brushing Reducer	T0031
COLD CURE™ Accelerator	M3066
Equipment Cleaner	T0006 or T0002 Reducers or M.E.K.

Application Equipment

Conventional or airless spray and brush/roller. See page 7.

Surface Preparation

Aluminum: Sandblast/Grind to 100% clean silver color or treat with ALUMIPREP 33/ALODINE 1201. Steel: Sandblast/Grind SSPC-SP5-85. Gelcoat/Fiberglass: Sand with 100-150 grit paper. Wood: Smooth sand with 80-100 grit paper.

Mixing and Reduction

Spray: Mix by volume one part 545 base with one part D3001 to a smooth homogenous mixture. Reduce up to 25% with T0006. Overall mix is 1:1:1/2 by volume.
Example: 8 oz. 545 Base, 8 oz. D3001, 4 oz. T0006.
Brush/Roll: Reduce 5-10% with T0031. Below 75F you may use COLD CURE™ Accelerator M3066 to maintain dry and cure times. See page 8.
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 16 Hours

545 ANTI-CORROSIVE EPOXY PRIMER: D8001/D3001; D1001/D3001 (Cont'd.)

Application Instructions

Spray Application:
Apply smooth, wet coats to fill and cover surface profile. Two to 3 coats may be needed at 5.0-6.5 mils WFT yielding 2-3 mils DFT.

Brush or Roller Application:
Apply 2 coats at 3-4 mils WFT yielding 1.0-1.5 DFT per coat. Allow 12-14 hours between coats. Light sanding between coats will improve appearance. For large surfaces rolling, then tipping with a brush is preferred.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

COLD CURE™ ACCELERATOR for 545 EPOXY PRIMER: M3066

Features & Uses

COLD CURE™ Accelerator for 545 Primer reduces cure and recoat times for 545 Primer by as much as 50%. Add up to 12 1/2% of catalyzed volume of 545 Primer, replacing that amount of standard reducer. Use between 50F and 75F.

Specification Data

Type: Accelerator for 545 Primer
Packaging: 1 pint cans
Recoatability: at 77F/50% R.H.
Spray: 3 to 4 hours.
Brush Roll: 8 - 12 hours.
Maximum recommended amount of COLD CURE™ added.

Mixing and Reduction

COLD CURE™ can be added up to 12 1/2% of the mixed 545 base and converter.

Application Instructions

Mix 1 part by volume 545 Primer base with 1 part D3001 converter. Thoroughly mix the primer and allow the mixture to induct for 15 minutes. Remix after induction. Add COLD CURE™ to a maximum quantity of 12 1/2% by volume. Total mix by volume is 1:1:1/4.

Example: 8 oz. 545 Base, 8 oz. D3001, 2 oz. M3066.

Reduction for Spray Application
Use T0006 Reducer for additional reduction. 545 Primer is normally reduced 25% by volume. If the maximum quantity of COLD CURE™ is used, 1/4 part of T0006 is added to reach 25% reduction. Total mix by volume is: 1 part 545 Base: 1 part D3001: 1/4 part M3066 : 1/4 part T0006 Example: 8 oz. 545 Base : 8 oz. D3001 :
2 oz. M3066 : 2 oz. T0006

Reduction for Brush Application
Additional reduction may not be needed after the addition of COLD CURE™. If additional reduction is needed, use T0031 Brushing Reducer. The combined total of the M3066 and T0031 should not exceed 20% of the mixed base and converter.

Example: 8 oz. 545 Base : 8 oz. D3001 : 2 oz. M3066 : 1 oz. T0031

Warning: COLD CURE™ may considerably shorten the pot life of 545 Primer.

AWL-QUIK SANDING SURFACER: D8003/D9001

Features & Uses
A quick drying, medium build, easily sanded, two component epoxy primer/surfacer. Easy to apply by brush, roller or spray. Not to be used below the waterline.

Specification Data
Type: Epoxy Polyamide
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
609 Sq. Feet at one mil dry.
203-305 Sq. Feet at recommended dry film thickness.
Calculated for mixed base and converter reduced 50%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 5 mils (125 microns)
Recommended Dry Film Thickness: 2-3 mils (50-75 microns)
Recoatability: At 77F/50% R.H.
Spray: may be overcoated with itself, 4 hours; with 545 Primer or topcoat, 12 hours.
Brush Roll: with itself, 12 - 14 hours, with other products 12 - 14 hours.
Maximum without sanding: 24 Hours. May be overcoated with AWLGRIP/AWLCRAFT 2000 Topcoats, and 545 Epoxy Primer.

Note: Sealing AWL-QUIK with 545 Primer before applying an AWLGRIP/AWLCRAFT 2000 topcoat will maximize gloss and D.O.I. of the topcoat.

Product Components, Reducers, Additives, and Auxiliary Components

Off White Base	D8003
Converter	D9001
Spray Reducer	T0006
Brushing Reducer	T0031
Equipment Cleaning	T0006, T0002, or T0031 Reducers or M.E.K.

Application Equipment
Conventional or airless spray, and brush/roller. See page 7.

Surface Preparation
Best when used as a surfacer over other U.S. Paint Primers. May be applied by brush or roller directly to properly prepared wood or fiberglass. Best results are obtained when these surfaces are first sealed with 545 Primer.

Mixing and Reduction
Spray: Mix by volume 1 part D8003 Base with 1 part D9001 until a smooth, homogenous mixture is obtained. Reduce as necessary up to 50% with Spray Reducer T0006
Example: 8 oz. D8003, 8 oz. D9001, 8 oz. T0006.
Brush/Roll: Reduce mixed D8003/D9001 as needed up to 50% with T0031.
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 8 Hours

Application Instructions
Spray: Apply AWL-QUIK Sanding Surfacer in smooth coats of 4 to 6 mils (100 to 150 microns) WFT yielding 2 to 3 mils (50 to 75 microns) DFT. Allow 4 hours between coats at 77F, 50% R.H.

Brush/Roller: Two coats will be required. Light sanding between coats will improve appearance. For large surfaces rolling, then tipping with a brush is preferred.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

HIGH BUILD EPOXY PRIMER: D9002/D3002; D8002/D3002

Features & Uses
A two component epoxy primer for use where high build and filling is required. Not to be used below the waterline.

Specification Data
Type: Epoxy Polyamide
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
793 Sq. Feet at one mil dry
113-158 Sq. Feet at recommended dry film thickness
Calculated for mixed base and converter reduced 20%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and environment.
Recommended Wet Film Thickness: 8-10 mils (200-250 microns)
Recommended Dry Film Thickness: 5-7 mils (125-175 microns)
Recoatability: With itself, 4 hours; with other products, 12-24 hours. Maximum without sanding: 24 Hours. Sanding before overcoating with other products is recommended. May be overcoated with 545 Epoxy Primer, ULTRA-BUILD, Sprayable Fairing Compound, AWL-FAIR L.W., and AWL-QUIK.

Product Components, Reducers, Additives, and Auxiliary Components

Yellow Base	D9002
Off White Base	D8002
Converter	D3002
Reducer	T0006
Equipment Cleaning	T0006 or T0002 Reducers or M.E.K.

Application Equipment
Conventional or airless spray. Pressure feed equipment required. See page 7.

Surface Preparation
Best when used as a surfacer over other U.S. Paint Primers and fairing compounds. May be applied directly to properly prepared wood or fiberglass; however, best results are obtained when these surfaces are first sealed with 545 Primer. See Surface Preparation section for each type of substrate.

Mixing and Reduction
Mix by volume one part Base with one part D3002 to a smooth homogenous mixture. Reduce 10-20% with T0006.
Example: 8 oz. Base : 8 oz. D3002 : 3.2 oz. T0006
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 8 Hours

Application Instructions
Spray: Apply High Build Epoxy Primer in even coats of 8 to 10 mils (200 to 250 microns) wet film thickness yielding 4 to 5 mils (100 to 125 microns) DFT. Two to three coats may be required.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

ULTRA-BUILD EPOXY PRIMER: D8008/D3018

Features & Uses
A two component epoxy primer with excellent sag resistance and excellent film build/filling capability. For use where high build and filling is required above the waterline.

Specification Data
Type: Epoxy Polyamide
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
946 Sq. Feet at one mil dry
47-63 Sq. Feet at recommended dry film thickness
Calculated for mixed base and converter reduced 10%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: 25-30 mils (625-750 microns)
Recommended Dry Film Thickness: 15-20 mils (375-500 microns)
Recoatability: May be overcoated with 545 Primer, HIGH BUILD Primer, SPRAYABLE FAIRING Compound, AWL-FAIR L.W., and AWL-QUIK. Minimum with itself, 1 hour; other products, 12 hours. Maximum without sanding 24 hours. Sanding before overcoating with other products is recommended.

Product Components, Reducers, Additives, and Auxiliary Components

White Base	D8008
Converter	D3018
Reducer	T0073
Equipment Cleaning	T0073, T0006 or T0002 Reducers or M.E.K.

Application Equipment
Conventional or airless spray. Pressure feed equipment required. See page 7.

Surface Preparation
This product should only be applied over other properly prepared U.S. Paint Primers.

Mixing and Reduction
Mix by volume one part D8008 with one part D3018 to a smooth homogenous mixture. Reduce 5%-25% with T0073 for conventional spray. Airless spray application can be made with no reduction.
Example: 10 oz. D8008, 10 oz. D3018, 2 oz. T0073 (10% reduction)
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 8 Hours

Application Instructions
Apply in smooth, even coats, allow one hour between coats at 77F/50% R.H.

Note: Do not apply more than 2 coats without allowing to cure hard, 12 to 24 hours.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

EPOXY SPRAYABLE FAIRING COMPOUND: D6001/D3011

Features & Uses

A two component epoxy filler with excellent sag resistance, excellent film build capability, and is easy to sand. Generally used after AWL-FAIR L.W. on large fairing surfaces as a insulator/surfacer before High Build Primer or ULTRA-BUILD Primer. Do not use in spot repair systems. Not to be used below the waterline.

Specification Data

Type: Epoxy Polyamide
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
981 Sq. Feet at one mil dry.
65 Sq. Feet at recommended dry film thickness.
Calculated for mixed base and converter, reduced 15%.
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recommended Wet Film Thickness: Up to 60 mils (Up to 1,500 microns)
Recommended Dry Film Thickness: Up to 40 mils (Up to 1,000 microns) Recoatability: May be recoated with itself, minimum 2 hours; with other products, minimum 24 hours. Multiple coat applications will usually need 2-3 days (48-72 hours) before overcoating with other products. Maximum without sanding: 24 Hours. May be overcoated with High Build Epoxy Primer, and ULTRA-BUILD Primers. D6001/D3011 is very porous. It must be sealed with HIGH BUILD Epoxy or ULTRA-BUILD before applying a final primer or topcoat.

Product Components, Reducers, Additives, and Auxiliary Components

Base - Tan	D6001
Converter	D3011
Reducer	T0006
Equipment Cleaning	T0002 or T0006 Reducers or M.E.K.

Application Equipment

Conventional or airless spray. Pressure feed equipment required. See Page 7.

Surface Preparation

This product should only be applied over other properly prepared U.S. Paint Primers. See Surface Preparation section for each type of substrate.

Mixing and Reduction

Spray: Mix 1 part D6001 with 1 part D3011. When a smooth homogenous mixture is obtained, reduce 5-25% with T0006.
Overall mix is 1:1:1/10 by volume.
Example: 8 oz. D6001, 8 oz. D3011, 1.6 oz. T0006.
Induction Time after Mixing: 15 Minutes
Anticipated Pot Life at 77F/50% R.H: 16 Hours

Application Instructions

Spray: Apply heavy coats, 30 mils WFT or more. Multiple coats may be needed. Do not apply more than three coats without allowing to cure hard.

Trowel/Knife: Mix D6001 and D3011 without reducer. Allow to induct 30 minutes, re-stir. This mixture can be used to trowel into very minor pinholes or scratches.

Warning: Sprayable Fairing Compound can take 2 to 3 days to cure at 77F. Plan for longer cure times at temperatures below 77F. **Do not** apply paint materials to surfaces warmer than 105F or colder than 55F. **Do not** attempt to cure products at temperatures below 55F.

AWL-FAIR L.W. EPOXY TROWELABLE FAIRING COMPOUND: D8020/D7007

Features & Uses
A two component premium trowelable filler for fairing, leveling, or smoothing surface imperfections due to gouges, pitting, dents, or weld seams. May be used above or below the waterline.

Specification Data
Type: Two Component Epoxy
Packaging: Available in 1 gallon and 1 quart containers
Theoretical Coverage: Sq. Feet/Gallon
1,604 Sq. Feet at one mil dry
6.4 Sq. Feet; 1/4 inch; 250 mils (6,250 microns) DFT

Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.

Recoatability: AWL-FAIR L.W. must be sanded before recoating. It must be overcoated with an epoxy primer such as 545 Epoxy Primer, High Build, AWL-QUIK, or ULTRA-BUILD before topcoating.

Product Components, Reducers, Additives, and Auxiliary Components

AWL-FAIR L.W. Base - White	D8020
AWL-FAIR L.W. Converter – Red	D7007
Fast Dry	D7010
Equipment Cleaning	T0006 or T0002 Reducers or M.E.K.

Application Equipment
Trowels, Spatulas, or Putty Knives.

Surface Preparation
Only apply over properly applied and prepared U.S. Paint primers. 545 Epoxy Primer and HIGH BUILD Epoxy Primer are preferred.

Mixing and Reduction
First shake or stir D7007 or D7010 to a uniform consistency. Mix by volume 1 part D7007 or D7010 with 1 part D8020. Thoroughly mix material to a uniform pink color with no streaks or lumps in the mix. **Do not add thinners or reducers to AWL-FAIR L.W.**
Induction Time after Mixing: None
Anticipated Pot Life at 77F/50% R.H: 30-45 Minutes

Application Instructions
Apply by trowel to an area you can work in 15 to 20 minutes. Start application in low areas and build out into high areas. Allow to cure. Several applications may be required to fill large areas. Block sand with 36-60 grit and blow off sanding dust and residue before applying more AWL-FAIR L.W. Shape material with tools of your choice.

Note: AWL-FAIR L.W. must be sealed with 545 Epoxy Primer when used below the waterline.

Note: Filler primer, fairing materials, and sanding surfacers should be sealed with 545 Epoxy Primer before applying AWLGRIP or AWLCRAFT 2000 Topcoats. This will maximize gloss and color holdout in the topcoat.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

QUIK-GRIP FAST DRY WHITE URETHANE PRIMER: D8016/D3028 OR D3040

Features & Uses
QUIK-GRIP is a fast drying primer. It is excellent for spot repairs or small parts.

Specification Data
Type: Vinyl/Moisture Cured Urethane
Packaging: Available in 1 gallon and 1 quart containers
Recommended Film Thickness: 1-3 mils dry (25-75 microns)
Theoretical Coverage: Sq. Feet/Gallon
101 to 311 Sq. Feet at recommended film thickness
Coverage calculations are based on theoretical transfer efficiency of 100%. Actual coverage rate obtained will vary according to equipment choice, application techniques, part size, and application environment.
Recoatability at 77F/50% R.H: Minimum 1-2 hours with any U.S. Paint urethane or epoxy coating. Maximum without sanding: 24 hours.

Product Components, Reducers, Additives, and Auxiliary Components

Fast Dry Urethane Primer (White)	D8016
Fast Dry Urethane Converter	D3028
Fast Dry NPR Converter	D3040
Reducers	T0003, T0001
Equipment Cleaning	T0002 or T0003 Reducers or M.E.K.

Application Equipment
Conventional or airless spray. See page 7.

Surface Preparation
Steel--sandblast. Aluminum--treat with ALUMIPREP 33 and ALODINE 1201. Fiberglass and Wood--sand with 100 to 150 grit sandpaper.

Mixing and Reduction
Mix one part base D8016 with one part converter D3028 or D3040 and reduce 25% to 50% with T0003 or T0001.
Induction Time after Mixing: None
Anticipated Pot Life: 4 hours at 77F/50% R.H; 1 hour at 100F.

Application Instructions
Spray apply only. Apply 2 to 3 smooth coats of 3 to 4 mils (75 to 100 microns) wet film thickness per coat, yielding 0.6 to 0.9 mils (15 to 22 microns) dry film thickness per coat.

Do not apply more than three coats without allowing the product to cure hard. After 24 hours, the surface must be lightly sanded before applying more material.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

REDUCERS, SURFACE CLEANING SOLVENTS

General Information
All of the listed reducers for AWLGRIP and AWLCRAFT 2000 Topcoats can be blended with each other in any ratio to fine tune flow and evaporation rates. Most AWLGRIP and AWLCRAFT 2000 Topcoats recommend 25% reduction. The reduction percentage is calculated from the combined total of the base component and converter component. Mixing a quart of base and a quart of converter yields 2 quarts of mixed base and converter: 25% would be 1/2 quart of reducer.

Examples of total mix quantities for 1:1 and 2:1 base to converter ratios are as follows:

1:1 mix materials AWLGRIP Topcoat Spray, 545 Primer, etc.

Reduction:	25%	30%	40%	50%
Color Base	12 oz.	12 oz.	12 oz.	12 oz.
Converter	12 oz.	12 oz.	12 oz.	12 oz.
Reducer	6 oz.	7 oz.	10 oz.	12 oz.
Total Mix	30 oz.	31 oz.	34 oz.	36 oz.

2:1 mix materials: AWLGRIP Topcoat Brush, AWLCRAFT 2000 Topcoat Spray

Reduction:	25%	30%	33%	40%
Color Base	12 oz.	12 oz.	12 oz.	12 oz.
Converter	6 oz.	6 oz.	6 oz.	6 oz.
Reducer	4.5 oz.	5.5 oz.	6 oz.	7 oz.
Total Mix	22.5 oz.	23.5 oz.	24 oz.	25 oz.

At higher temperatures, reducers evaporate faster. When painting in hot conditions increasing the amount of reducer in the mix by 5-10% will help compensate for this factor.

Notes:

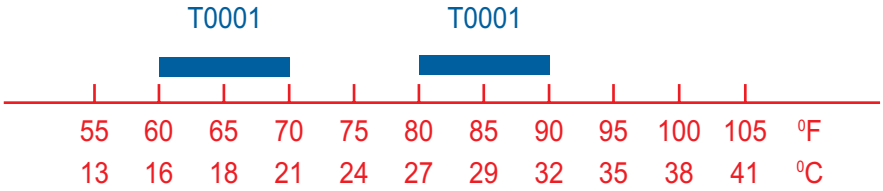
Topcoat Reducers T0001

Fast Evaporating Reducer for Spray Applied Urethane Topcoats

Use T0001 in AWLGRIP/AWLCRAFT 2000 Topcoats when application and cure temperatures are between 60F to 70F (16C to 21C) and 80F to 90F (27C to 32C).

At 60F to 70F (16C to 21C), T0001 will keep the paint film open for good flow but evaporate fast enough to provide adequate dry and dust-free times.

At higher temperatures, the solvency of T0001 helps maximize atomization. Its fast evaporation rate allows the solvent to exit the film before skinning occurs, avoiding solvent entrapment or solvent “pop”.



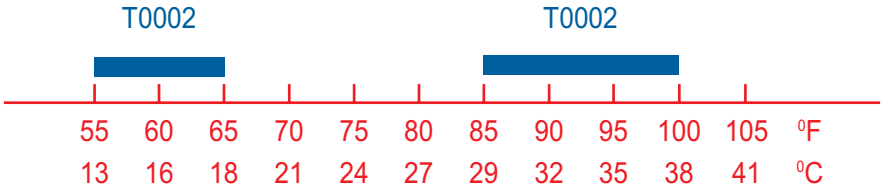
T0002

Fast Evaporating Reducer and Equipment Cleaner

Use T0002 in AWLGRIP/AWLCRAFT 2000 Topcoats when application and cure temperatures are between 55F to 65F (13C to 18C) and at temperatures above 85F (29C).

At lower temperatures, 55F to 65F (13C to 18C), T0002 will keep the paint film open but evaporate fast enough to provide adequate dry and dust-free times.

At higher temperatures, the solvency of T0002 helps maximize atomization. Its fast evaporation rate allows the solvent to exit the film before skinning occurs and avoids solvent entrapment or solvent “pop”. T0002 is also an excellent gun and equipment

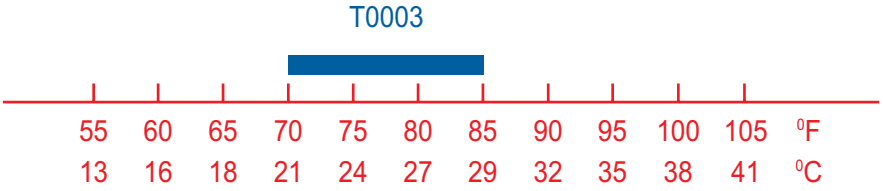


T0003

Standard Reducer for Spray Applied Urethane Topcoats

Use T0003 in AWLGRIP/AWLCRAFT 2000 Topcoats when application and cure temperatures are between 70F to 85F (21C to 29C).

T0003 will keep the paint film open but evaporate fast enough to provide adequate dry and dust-free times.



Topcoat Reducers (Cont'd.)

T0005

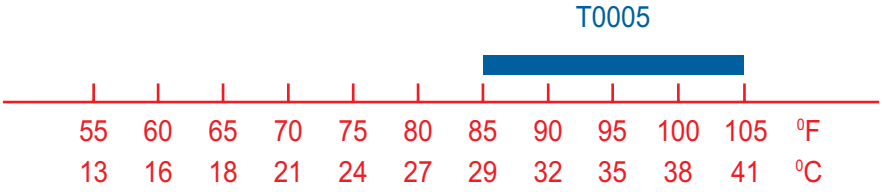
Hot Weather Reducer for Urethane Topcoats
Use T0005 in AWLGRIP/AWLCRAFT 2000 Topcoats when application and cure temperatures are above 85F (29C).

T0005 is most often used as an additive, blended with other spray reducers to improve flow. T0005 is seldom the sole reducer.

T0005 can be blended at any ratio with other U.S. Paint topcoat reducers to improve flow with those products or increase the evaporation rate of T0005.

T0005 has a very slow evaporation rate. Using T0005 at temperatures below 75F (24C) may result in very long dry and tape times.

Warning: Large amounts of T0005 in flat or semi-gloss products may result in higher gloss levels. Use care when adding T0005 to these products.



T0031

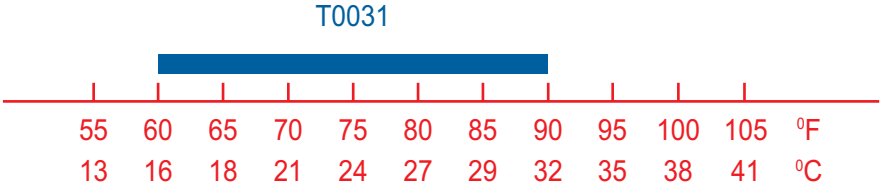
Brushing Reducer for Epoxy Primers and Urethane Topcoats
Use T0031 in AWLGRIP Topcoats, 545 Primer, and AWL-QUIK Sanding Surfacer in brush/roller applications.

T0031 evaporates very slowly, keeping the paint film open, maximizing flow and leveling while minimizing brush marks and roller stipple.

For AWLGRIP Topcoats, add T0031 at 10 to 35% of the total volume of the mixed color base and converter.

Application and cure temperatures between 60F and 90F (16C and 32C) produce the best results, with 70F to 85F (21C to 29C) being the optimum.

T0031 is not recommended for use in spray applications. If a “retarder” reducer is needed for spray application, T0005 should be used.



Special Purpose Reducers

A0031
Activator/Reducer for AWL-BRITE PLUS J3005/J3006/A0031
A0031 is a special blend of solvents and additives which is a required part of the AWL-BRITE PLUS mix. A0031 contains additives which stabilize the pot life of the mixture and initiate cure of the product.

T0016
Reducer for AWLSPAR Varnish
T0016 is specially formulated for use in AWLSPAR Varnish M3131. It should not be used in any urethane or epoxy coating.

T0101
AWLSTAR™ GOLD LABEL Anti-Fouling
T0101 is specially formulated for spray and brush/roll applications of AWLSTAR™ GOLD LABEL Anti-Fouling. It should not be used in urethane or epoxy coatings.

Primer Reducers

T0001
Usually used in AWLGRIP and AWLCRAFT 2000 Topcoats. T0001 is also recommended for use in QUIK-GRIP Primer.

T0003
Usually used in spray applications of AWLGRIP and AWLCRAFT 2000 Topcoats. T0003 is also recommended for use in QUIK-GRIP Primer.

T0006
Standard epoxy reducer for spray application of 545 Primer, AWL-QUIK, Sprayable Fairing Compound, 30-Y-94™, and High Build Epoxy Primer. Also used to brush or roll HULL-GARD, for conventional spray and brush applications of HULL-GARD W.B.

T0031
Brushing reducer to be used when brushing or rolling 545 Primer or AWL-QUIK Primer.

T0073
Special reducer for ULTRA-BUILD Primer (D8008-D3018).

T0093
Special reducer for HULL-GARD E.R. and HULL-GARD W.B. Use for spray and brush/roll applications of HULL-GARD E.R. and airless spray applications of HULL-GARD W.B.

Surface Cleaning Solvents

Care should be used when wiping primed or painted surfaces which are not fully cured. T0008 and T0115 can attack an epoxy or urethane coating which is not fully cured. Usually an epoxy or urethane surface which can be sanded is cured enough to be wiped down with T0008 or T0115. Always check a small area before beginning the Two Cloth Method on a primed or topcoated surface.

T0008

AWL-PREP Surface Cleaner
Use to wipe down final primed or topcoated surfaces before and after sanding. Use the Two Cloth Method to apply and remove the T0008.

T0115

AWL-PREP Plus Wax & Grease Remover
Excellent product for de-waxing aged gelcoat and other well cured finishes. Always de-wax before sanding. Use the Two Cloth Method to apply and remove T0115.

T0157

AWL-SOLV #45 Surface Cleaner
New high flash point cleaner for bare, unpainted substrates either metal or gelcoat. T0157 can also be used to clean spray guns.

Do not use T0157 to wipe down primed or painted surfaces.

AWLGRIP/ALUMIGRIP DELUXE TACK RAGS: 73009

They contain just enough resin to remove light dust particles from an otherwise clean surface. Tacking off the surface is the last step before applying the topcoat.

4 Tack Rags per Package
36 Packages per Case/Carton

73009 Deluxe Tack Rags are specifically designed for use with AWLGRIP and AWLCRAFT 2000 Topcoats.

Use:
Just before painting, lightly tack the dry surface being coated with the No. 73009 Deluxe Tack Rags.

Do not press hard, let the resin in the cloth do the work. Pressing hard may transfer resin residue from the cloth to the surface. This residue can cause fisheye or adhesion problems.

Only use No. 73009 Tack Rags with AWLGRIP and AWLCRAFT 2000 Topcoats .

PRO-CURE ACCELERATOR: X-98: 73014 or X-138: 73015

Features & Uses
PRO-CURE Accelerators may be used to decrease dry and cure times in AWLGRIP and AWLCRAFT 2000 Topcoats. **Do not use in primers.**

Specification Data
Type: Accelerator additive
Packaging: 2 ounce bottles/12 per case

Product Components, Reducers, Additives, and Auxiliary Components
PRO-CURE X-98 and PRO-CURE X-138 are additives used in AWLGRIP and AWLCRAFT 2000 Topcoats. See page 55 and 61.

Application Equipment
This product is an additive component. See instructions for the primary product.

Surface Preparation
This product is an additive component. See instructions for the primary product.

Mixing & Reduction
PRO-CURE X-98 (73014) 1/2 liquid ounce per 2 gallons of mixed topcoat color base and converter. This is the maximum amount; lesser quantities may be sufficient.
PRO-CURE X-138 (73015) 1 liquid ounce per 2 gallons of mixed topcoat color base and converter. This is the maximum amount; lesser quantities may be sufficient.
Induction Time after Mixing: N/A

Application Instructions
PRO-CURE X-98 should only be used in spray applications.
PRO-CURE X-138 may be used in both spray and brush applications. Recoatability: AWLGRIP Topcoats with a full add of **PRO-CURE X-98** may be recoated or taped in 4 to 6 hours at 77F, 50% R.H. AWLGRIP Topcoats with a full add of **PRO-CURE X-138** may be recoated or taped in 6 to 8 hours at 77F, 50% R.H.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

Spray Application*
DRY TIME: The amount of time required before the applied coating can be masked and taped.
APPLICATION LIFE: The amount of time required for the initial application viscosity to double.

NOTE: Accelerators are not recommended above 85F. PRO-CURE X-98 should not be used above 75F.

TEMP (F)	REDUCER	PRO-CURE ACCELERATOR	DRY TIME (HRS.)	APPLICATION LIFE (HRS.)
100	T0005 T0002	NONE	18-20	6-8
90	T0001	X-138/X-98	3-4/1-2	2-3/1-2
80	T0003	X-138/X-98	4-5/2-3	4-5/1-2
70	T0003	X-138/X-98	11-12/4-5	6-7/2-3
60	T0001	X-138/X-98	12+/6-7	6-7/3-4

1.) X-138: 1 liquid ounce per 2 gallons of catalyzed topcoat before adding reducer.
2.) X-98: 1/2 liquid ounce per 2 gallons of catalyzed topcoat before adding reducer.
* The chart is for AWLGRIP Topcoats mixed for spray application. Results for AWLCRAFT 2000 will be similar. AWLGRIP Topcoats mixed for brush/roll applications will have dry times of 10-20% longer. Application life will be the same to 10% shorter.

GRIPTEX NON-SKID PARTICLES: 73012 or 73013

Features & Uses
Gives AWLGRIP and AWLCRAFT 2000 Topcoats a non-skid texture for deck and step areas.

Specification Data
Type: Polymer Bead
Color: Translucent
Packaging: 10 oz. by weight in a quart container

Product Components, Reducers, Additives, and Auxiliary Components

GRIPTEX Non-Skid Particles - Fine	73012
GRIPTEX Non-Skid Particles - Coarse	73013

Application Equipment
Use air atomized spray equipment recommended for AWLGRIP or AWLCRAFT 2000 Topcoats. Fluid tip must be at least .070". Do not use airless or air assist airless spray equipment.

Surface Preparation
This product is an additive component. See instructions for the primary product.

Mixing & Reduction
For spray application, add 4 oz. (by weight) of GRIPTEX Non-Skid Particles to each gallon of mixed color base and converter.

Application Instructions
GRIPTEX Non-Skid Particles may be added to mixed topcoats and applied by spray. The dry particles can be broadcast or sprinkled into a tacky paint film.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

Cautions:

1. Previously painted surfaces must be tested for compatibility before applying U.S. Paint Products; See page 11.

2. Gelcoat non-skid areas need to be thoroughly cleaned and abraded. Use Scotchbrite, water, abrasive cleaners, and stiff brushes to ensure proper cleaning.

3. For final removal of abrasive residues and sanding dirt, wrap a stiff bristle brush in a clean cotton cloth. Scrub the sanded surface with the cloth wrapped brush. The bristles of the brush force the cloth into the grooves and valleys of the old non-skid, removing contaminants from the surface. Change the cloths frequently. Flush the surface with fresh water, allow to dry, then wipe with AWL-PREP or AWL-PREP PLUS.

Note: Even on small jobs, long-term performance is improved if surfaces are primed before an AWLGRIP or AWLCRAFT 2000 Topcoat is applied.

Application Instructions of AWLGRIP or AWLCRAFT 2000 Topcoat with GRIPTEX Non-Skid Particles-Broadcast Method:
The easiest way for beginners to obtain a non-skid finish is to use the Broadcast-Shaker Method. GRIPTEX Non-Skid is added to a still tacky application of AWLGRIP/AWLCRAFT 2000 Topcoat.

1. Clean the primed and sanded surface with AWL-PREP PLUS using the Two Cloth Method.

2. Mask the perimeter of the non-skid areas. 3M #218 Fine Line Tape can be used in all areas except those with tight curves. Use 3M #471 Blue Vinyl Plastic Tape for sections with tight curves.

GRIPTEX NON-SKID PARTICLES: 73012 or 73013 (Cont'd.)

3. Apply a light, smooth coat of AWLGRIP or AWLCRAFT 2000 Topcoat by spray, brush, or roller. Allow the topcoat to flash off 10 to 20 minutes until the surface is slightly dry but still sticky.

4. Using a flour sifter, powdered sugar shaker, or the punctured container itself, sprinkle the GRIPTEX Non-Skid into the paint film. To use the GRIPTEX container, first punch holes in the lid with a nail or ice pick. Overlap the broadcasting stroke to provide a uniform pattern. Allow to dry 12 to 16 hours.

5. Vacuum or blow off loose, excess GRIPTEX Non-Skid Particles. Repeat Steps 3 and 4 on any areas that need additional non-skid particles.

6. Apply 1 or 2 sealer coats of AWLGRIP or AWLCRAFT 2000 Topcoat over the entire non-skid surface. This coat encapsulates the GRIPTEX Non-Skid Particles in the paint, maximizing durability.

Application Instructions of AWLGRIP or AWLCRAFT 2000 Topcoat with GRIPTEX Non-Skid Particles - Spray Method

Use a siphon gun or a pressure pot with an agitator. A .070 fluid tip is required. Surround non-skid areas with 36” of masking paper. Also, protect other areas from overspray. Each spray pass must begin and end on the masking paper.

Warnings:

1. Do not stop spraying until you reach the masking paper on the opposite side. Each spray pass must begin and end on the masking paper. Large areas may require walking on the surface.

2. GRIPTEX Particles can be trapped in the fluid tip when the gun is shut off, causing the gun to spit and drip. Keep a rag handy to wipe the gun tip after each pass.

3. Never use GRIPTEX Particles in an airless spray gun or an air assist airless spray gun.

Mastering the spray application of non-skid finishes can be a very time consuming process. Applicators that do not apply non-skid materials on a regular basis will find the Broadcast Method much easier to master.

1. Clean the primed and sanded surface with AWL-PREP PLUS using the Two Cloth Method.

2. Mask the perimeter of the non-skid areas. 3M #218 Fine Line Tape can be used in all areas except those with tight curves. Use 3M #417 Blue Vinyl Plastic Tape for those areas.

3. Surround all non-skid areas with 36” of masking paper.

4. Mix AWLGRIP Color Base with AWL-CAT #2 and the appropriate reducer. Overall mix for this coat should be 1:1:1 by volume. Add 4 oz. by weight of GRIPTEX Non-Skid Particles for each mixed gallon of AWLGRIP or AWLCRAFT 2000 Topcoat.

5. Apply by triggering the gun over the masking paper and spraying across the non-skid area in one continuous pass. The spray gun should be held well off the surface. Spraying from waist high while walking is ideal. The paint will fall to the surface as a light, dry coat. If using a siphon gun, shake the gun and cup at the end of each pass to keep the GRIPTEX mixed in the paint. Allow the coat to thoroughly tack.

6. Apply a coat of AWLGRIP or AWLCRAFT 2000 Topcoat to seal the surface.

SPATTER IT: M3048

Texture Additive

Features & Use

SPATTER IT is a texture finish additive developed for use with AWLGRIP and AWLCRAFT 2000 Topcoats.
SPATTER IT is to be used in topcoats only--never add it to primers.

Specification Data

Packaging: Pint Cans
Type: Surface Tension Modifier
M3048 is an additive used in urethane topcoats.

Product Components, Reducers, Additives, and Auxiliary Components

SPATTER IT M3048

Application Equipment

This product is an additive component. See instructions for the primary product.

Surface Preparation

This product is an additive component. See instructions for the primary product.

Mixing & Reduction

Note: AWL-CAT #3 H3002 is usually used for brush/roll applications. It is used in these spray mixtures to provide a thicker product, more likely to spatter or texture.

AWLGRIP Topcoat - For Spray Application. Mix by volume 2 parts AWLGRIP Color Base with 1 part AWL-CAT #3 H3002 Converter, reduce 33% with SPATTER IT M3048. Overall mix by volume is 2:1:1. Example: 8 oz. Base to 4 oz.H3002 to 4 oz. M3048.

AWLCRAFT 2000 Topcoat - For Spray Application. Mix by volume 4 parts AWLCRAFT 2000 Color Base with 1 part AWL-CAT #3 H3002 Converter, reduce 30% with SPATTER IT M3048. Overall mix by volume is 4:1:11/2.

Example: 8 oz. Base to 2 oz. H3002 to 3 oz. M3048.

Application Instructions

Spray apply AWLGRIP or AWLCRAFT 2000 Topcoat in standard fashion. Lower atomizing pressure will help the spatter effect. If available, use a spattering tip on the spray gun.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

FLATTENING AGENT: G3013 for AWLGRIP or AWLCRAFT 2000 Topcoats

Features & Use
1010 Flattening Agent reduces the gloss of AWLGRIP or AWLCRAFT 2000 Urethane Topcoats to a flat or semi-gloss finish. Preferred application is by spray. Roller application will provide more uniform gloss than brushing. AWLCRAFT 2000 cannot be brushed or rolled.

Specification Data
Packaging: Quarts and Gallons
Type: Inert Extender
G3013 is an additive used in urethane topcoats.

Product Components, Reducers, Additives, and Auxiliary Components

1010 Flattening Agent G3013

This is an additive component, see instructions for the primary product.

Application Equipment
This product is an additive component. See instructions for the primary product.

Surface Preparation
This product is an additive component. See instructions for the primary product.

Mixing & Reduction
Thoroughly mix the color base and G3013 Flattening Agent. Then stir in the G3010. When one homogenous mixture is obtained add the T0002 Reducer. Strain mix with a 60-100 mesh cone strainer before applying.

AWLGRIP Topcoat: Mixture for Flat Finish
1 part by volume AWLGRIP Color Base
1 part by volume 1010 Flattening Agent
1 part by volume AWL-CAT #2 Converter
1 part by volume T0002 Reducer
Example: 8 oz. color base : 8 oz. G3013 : 8 oz. G3010 : 8 oz. T0002

AWLGRIP Topcoat: Mixture for Semi-Gloss Finish
1 part by volume AWLGRIP Color Base
1/2 part by volume 1010 Flattening Agent
1 part by volume AWL-CAT #2 Converter
1 part by volume T0002 Reducer
Example: 8 oz. color base : 4 oz. G3013 : 8 oz. G3010 : 8 oz. T0002

AWLCRAFT 2000 Topcoat: Mixture for Flat Finish
2 parts by volume AWLCRAFT 2000 Color Base
2 parts by volume 1010 Flattening Agent
1 part by volume AWL-CAT #2 Converter
1 part by volume T0002 Reducer
Example: 8 oz. color base : 8 oz. G3013 : 4 oz. G3010 : 4 oz. T0002

AWLCRAFT 2000 Topcoat: Mixture for Semi-Gloss Finish
2 parts by volume AWLCRAFT 2000 Color Base
1 part by volume 1010 Flattening Agent
1 part by volume AWL-CAT #2 Converter
1 part by volume T0002 Reducer
Example: 8 oz. color base : 4 oz. G3013 : 4 oz. G3010 : 4 oz. T0002

Application Instructions
Spray application is recommended when using G3013. The friction from brush and roller applications sometimes shears the G3013 causing areas of high and low gloss. If you absolutely cannot spray, rolling is preferred to brushing. AWLCRAFT 2000 cannot be brushed or rolled. Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

CRATER-X: M1017

Anti-Cratering Solution

Features & Use

CRATER-X is an additive developed for use with AWLGRIP and AWLCRAFT 2000 Topcoats to prevent cratering, crawling, and fisheyes caused by minor surface contamination.

CRATER-X alters the surface tension of the coating improving flow and leveling. Use CRATER-X after a surface contamination problem has been identified and corrected, or whenever the quality of surface preparation is in doubt.

CRATER-X is not a substitute for proper cleaning or surface preparation. It will not overcome severe surface contamination conditions.

CRATER-X is to be used in topcoats only--never add it to primers.

Specification Data

Packaging: Pint Cans
Type: Surface tension modifier.
M1017 is an additive used in urethane topcoats.

Product Components, Reducers, Additives, and Auxiliary Components

CRATER-X M1017

Application Equipment

This product is an additive component. See instructions for the primary product.

Surface Preparation

This product is an additive component. See instructions for the primary product.

Mixing & Reduction

Add 1/2 to 1 liquid ounce of CRATER-X to one gallon of AWLGRIP or AWLCRAFT 2000 base component. Thoroughly mix material under mechanical agitation.

Important: Allow mixture to stand for 30 minutes; then add converter and reducer and apply in the standard fashion.

CRATER-X can be added to topcoats when the base, converter, and reducer are already combined. However, CRATER-X is most effective when CRATER-X is added to the base component before the base and converter are combined.

Note: Do not use CRATER-X in primers.

Application Instructions

This product is an additive component. See instructions for the primary product.

Do not apply paint materials to surfaces warmer than 105F or colder than 55F. Do not attempt to cure products at temperatures below 55F.

Notes:

PRODUCT CHECK LISTS

TOPCOATS

AWLGRIP Linear Polyurethane Gloss Topcoat (See stock list.)
AWLCRAFT 2000 Acrylic Urethane Topcoat (See stock list.)
AWLCRAFT 2000 Clear Topcoat Base (F3029)

AWLGRIP Clear Topcoats
G3003 Clear Gloss for Metallics Base
G3005 High Gloss Clear Base

AWLSPAR Classic Spar Varnish
M3131 Base

AWL-BRITE PLUS Clear Urethane Varnish
J3005 Base
J3006 Converter
A0031 Activator

AWL-CAT Urethane Topcoat Converters
G3010 AWL-CAT #2 Standard Topcoat Converter for Spray Application
H3002 AWL-CAT #3 Brushing Topcoat Converter
H3010 AWL-CAT #4 Spray Converter to be used with Factory Pack Flat or Semi-Gloss Color Bases
G3004 AWL-CAT #12 G3003 Clear Urethane Topcoat Converter for Spray Application

BELOW WATERLINE SYSTEMS

AWLGRIP AWLSTAR™ GOLD LABEL Anti-Fouling
BP201 Charcoal Black BP502 Deep Blue
BP401 Medium Green BP701 Red
BP501 Light Blue BP802 White Lightning

HULL-GARD E.R. Epoxy Primer
D8022-S12 - Gallon Kit / D8022-S42 - Quart Kit Containing:
D8022 Buff Base D9016 Converter

HULL-GARD W.B. Epoxy Primer
D2007-S12 - Gallon Kit Containing:
D2007 Black Base D3037 Converter
D8024-S12 - Gallon Kit Containing:
D8024 White Base D3037 Converter

PRIMERS/SEALERS

Zinc Chromate Wash Primer
G9072 Yellow Base
G3014 Converter (Acid Reducer)

30-Y-94™ Non-Sanding Mil Spec Anti-Corrosive
Epoxy Primer for Fast Recoat (MIL-P-23377D, Type 1, Class 1)
S9001 Yellow Base
S3001 Converter

QUIK-GRIP Fast Dry Non-Sanding Primer
D8016 White Base
D3040 Non Photo Chemically Reactive Converter
D3028 Converter (LF)

545 Anti-Corrosive Epoxy Primers
D1001 Gray Base
D3001 Converter
D8001 White Base

AWL-QUIK Fast Recoat Spray or Brush Sanding Surfacer
D8003 Pale Yellow Base
D9001 Converter

PRODUCT CHECK LISTS

PRIMERS/SEALERS

ULTRA-BUILD High Build Epoxy Primer
D8008 White Base D3018 Converter

HIGH BUILD Epoxy Primers
D8002 Off White Base D3002 Converter
D9002 Yellow Base

FAIRING COMPOUND/EPOXY FILLER

AWL-FAIR L.W. Epoxy Trowelable Fairing Compound
D8020 White Base
D7007 Red Converter

EPOXY SPRAYABLE Fairing Compound
D6001 Tan Base
D3011 Converter

REDUCERS

Surface Cleaners
T0008 AWL-PREP Surface Cleaner
T0115 AWL-PREP PLUS Wax and Grease Remover
T0157 AWLSOLV #45 Surface Cleaner

Topcoat Reducers
T0001 Fast Evaporating Reducer for Spray Applied Urethane Topcoats and QUIK-GRIP Primer
T0002 Fast Evaporating Spray Reducer & Equipment Cleaner
T0003 Standard Reducer for Spray Applied Urethane Topcoats and QUIK-GRIP Primer
T0005 Hot Weather Reducer/Retarder
T0016 AWLSPAR Spar Varnish Reducer
T0031 Slow Drying Reducer for Brush Applied Epoxy Primers and Urethane Topcoats
T0101 Reducer for AWLGRIP AWLSTAR™ GOLD LABEL Anti-Foulings

Primer Reducers
T0006 Standard Reducer for Epoxy Primers
T0031 Slow Drying Reducer for Brush Applied Epoxy Primers and Urethane Topcoats
T0073 ULTRA-BUILD Reducer & Epoxy Primers Brushing Reducer
T0093 Reducer for HULL-GARD E.R. & HULL-GARD W.B. Epoxy Primer

AUXILIARY PRODUCTS

AWLGRIP Auxiliary Products
73009 Premium Tack Rags
73010 #5083 Pale Gold Metallic Powder
73011 #5093 Cordovan Gold Metallic Powder
73012 GRIPTEX Fine Grit Non-Skid Particles
73013 GRIPTEX Coarse Grit Non-Skid Particles
73014 PRO-CURE X-98 Fast Accelerator for Urethane Topcoats
73015 PRO-CURE X-138 Inhibited Accelerator for Urethane Topcoats
G3013 1010 Flattening Agent for Urethane Topcoats
M1017 CRATER-X Anti-Cratering Solution
M3048 SPATTER IT Texture Additive
M3066 COLD CURE™ Accelerator for 545 Epoxy Primer

Bare Metal Treatment Products
73001 ALUMIPREP 33 Cleaning and Conditioning Chemical for Aluminum
73003 ALODINE 1201 Gold Conversion Coating for Aluminum

PRODUCT DESCRIPTION BY CODE NUMBER

A0031 Brushing Reducer for AWL-BRITE PLUS Clear Urethane
BP201 AWLSTAR™ GOLD LABEL Anti-Fouling (Charcoal Black)
BP401 AWLSTAR™ GOLD LABEL Anti-Fouling (Medium Green)
BP501 AWLSTAR™ GOLD LABEL Anti-Fouling (Light Blue)
BP502 AWLSTAR™ GOLD LABEL Anti-Fouling (Deep Blue)
BP701 AWLSTAR™ GOLD LABEL Anti-Fouling (Red)
BP802 AWLSTAR™ GOLD LABEL Anti-Fouling (White Lightning)
D1001 545 Epoxy Primer Base (Gray)
D2007 HULL-GARD W.B. Epoxy Primer Base (Black)
D3001 545 Epoxy Primer Converter
D3002 High Build Epoxy Primer Converter
D3011 Epoxy Sprayable Fairing Compound Converter
D3018 ULTRA-BUILD Converter
D3028 QUIK-GRIP Converter (LF)
D3037 HULL-GARD W.B. Epoxy Primer Converter
D3040 QUIK-GRIP Non Photo Chemically Reactive Converter
D6001 Epoxy Sprayable Fairing Compound Converter
D7007 AWL-FAIR L.W. Fairing Compound Converter (Red)
D8001 AWLGRIP 545 Primer Base (White)
D8002 High Build Epoxy Primer Base (Off-White)
D8003 AWL-QUIK Primer Base (Pale Yellow)
D8008 ULTRA-BUILD Primer Base (White)
D8016 QUIK-GRIP Fast Dry Non-Sanding Primer Base (White)
D8020 AWL-FAIR L.W. Fairing Compound Base (Off-White)
D8022 HULL-GARD E.R. Epoxy Primer Base (Buff)
D8024 HULL-GARD W.B. Epoxy Primer Base (White)
D9001 AWL-QUIK Primer Converter (Yellow)
D9002 High Build Epoxy Primer Base (Yellow)
D9016 HULL-GARD E.R. Epoxy Primer Converter
G3003 Clear Gloss for Metallics Base
G3004 AWL-CAT #12 Clear Urethane Topcoat Converter for spray application
G3005 High Gloss Clear Topcoat Base
G3010 AWL-CAT #2 Standard Spray Topcoat Converter
G3013 1010 Flattening Agent for Urethane Topcoats
G3014 Converter (Acid Reducer) for Zinc Chromate Wash Primer
G9072 Zinc Chromate Wash Primer Base (Yellow)
H3002 AWL-CAT #3 Brushing Topcoat Converter
H3010 AWL-CAT #4 Spray Converter to be used with Factory
Pack Flat or Semi-Gloss Color Bases
J3005 AWL-BRITE PLUS Clear Urethane Base
J3005-K41 AWL-BRITE PLUS Clear Urethane Kit
J3006 AWL-BRITE PLUS Clear Urethane Converter
M1017 CRATER-X Anti-Cratering Solution

PRODUCT DESCRIPTION BY CODE NUMBER

M3131 AWLSPAR Premium Spar Varnish
M3048 SPATTER IT Texture Additive
M3066 COLD CURE Accelerator for 545 Epoxy Primer
S3001 30-Y-94™ Non-Sanding Anti-Corrosive Primer Converter
S9001 30-Y-94™ Non-Sanding Anti-Corrosive Primer Base (Yellow)
T0001 Fast Evaporating Reducer for Spray Applied Urethane Topcoats and QUIK-GRIP Primer
T0002 Fast Evaporating Spray Reducer and Equipment Cleaner
T0003 Standard Spray Reducer for Urethane Topcoats and QUIK-GRIP Primer
T0005 Hot Weather Reducer/Retarder
T0006 Standard Reducer for Epoxy Primer
T0008 AWL-PREP Surface Cleaner
T0016 Reducer for AWLSPAR Varnish
T0031 Standard Slow Drying Brushing Reducer
T0073 Reducer for ULTRA-BUILD Epoxy Primer
T0093 Reducer for HULL-GARD E.R. and W.B. Epoxy Primers
T0101 Reducer for AWLSTAR™ GOLD LABEL Anti-Fouling
T0115 AWL-PREP PLUS Wax and Grease Remover
T0157 AWLSOLV #45 Surface Cleaner
73001 ALUMIPREP 33 Cleaning & Conditioning Chemical for Aluminum
73003 ALODINE 1201 Gold Conversion Coating for Aluminum
73009 AWLGRIP/ALUMIGRIP Premium Tack Rags
73010 #5083 Pale Gold Metallic Powder
73011 #5093 Cordovan Gold Metallic Powder
73012 GRIPTEX Fine Non-Skid Particles
73013 GRIPTEX Coarse Non-Skid Particles
73014 PRO-CURE X-98 Fast Accelerator for AWLGRIP Topcoats
73015 PRO-CURE X-138 Inhibited Accelerator for AWLGRIP Topcoats

GLOSSARY OF PAINT TERMS

Ablative Coating: A coating that wears away in service by design AWLSTAR™GOLD LABEL Anti-Fouling is an ablative coating.

Accelerator: Catalyst, a material which accelerates the curing of certain coatings. PRO-CURE X-98 and X-138 are accelerators for AWLGRIP Topcoats.

Acrylic: Coating based on a polymer containing short chain esters of acrylic and methacrylic acid. AWLCRAFT 2000 is an acrylic resin cross-linked with an isocyanate resin (acrylic urethane).

Activator: Term used for the converter or curing agent. A required component in a coating's mix.

Additives: Any one of a number of special chemicals added to paint to bring about special effects; examples are PRO-CURE Accelerator, GRIPTEX Non-Skid, #1010 Flattening Agent.

Adhesion: The phenomenon by which one material is attached to another by means of surface attraction.

Adsorption: Process of attraction to a surface; attachment. The retention of foreign molecules on the surface of a substance.

Air Cap: The structure at the front of a spray nozzle which directs compressed air against the paint to form and shape an atomized cloud of droplets.

Airless Spray: System of applying paint in which the paint, under high pressure, is passed through a nozzle and broken into droplets (i.e. atomized) when it enters the lower pressure region outside the gun tip. A much smaller volume of air is used than in conventional air spraying so that problems of dry spray and paint bounce-back are reduced. Airless spray is preferred for HULL-GARD Primers and AWLSTAR™ Anti-Foulings.

Air Spray: System of applying paint in the form of tiny droplets in air; paint is broken into droplets (i.e. atomized) by a spray gun as a result of being forced into a high velocity air stream. Shape and paint density of the resulting droplet cloud can be controlled by air pressure, paint viscosity, and gun tip geometry. Air spray is preferred for applying AWLGRIP Topcoats.

Atomization: Formation of tiny droplets of liquid as in paint spraying process; atomization is usually caused by turbulence in an air stream, or sudden drop in pressure.

Blistering: The formation of hollow bubbles or water droplets in a paint film; usually caused by the expansion of air or moisture trapped beneath the film. Blisters can form around salt crystals trapped under a paint film because salt attracts moisture.

GLOSSARY OF PAINT TERMS (Cont'd.)

Break-Free Rinse: When the rinse water sheets out over a surface with no holes, breaks, or “pull backs” after cleaning. This indicates the surface is clean; free of dirt, wax, grease, oil and other contaminants. Also known as a water break-free surface.

Catalyst: Chemical used to change the rate of a chemical reaction; catalyst differs from a converter/curing agent in that the catalyst is not itself chemically consumed in the reaction while a curing agent is consumed; technically, catalysts that increase reaction rates are called accelerators; those which decrease reaction rates are called inhibitors or retarders. Often used incorrectly to identify converters or co-reactants in two component coatings. See Converter.

Checking: Type of failure in which cracks in the film begin at the surface and progress downward; the result is usually a straight V-shaped crack which is narrower at the bottom than the top. Checking is a method for relieving surface stresses. If the underlying surface is exposed, the failure is called cracking.

Converter: Co-reactant of the base in a two component coating; often—but not always—transparent, containing only resin and solvent. When the base and converter are mixed in different volumes, the converter quantity is usually listed second, after the base quantity. Converters are often called catalyst, activator, or hardener.

Copolymer: In anti-fouling coatings, an ablative anti-fouling with the toxin chemically bound to the polymer.

Corrosion: Decomposition of a metal in contact with its environment.

Coverage: The area a given unit of paint will cover at a specified thickness.

Curtain Call: The time at which gravity overcomes a coating’s film forming properties, resulting in sags or curtains.

Cross-Linking: Method by which polymers unite to form a protective film; the method of cure in two component enamels.

Cure: The process by which paint is converted from the liquid to the solid state.

Curtaining: Sagging.

Dew Point: The temperature at which water vapor condenses from the air; the dew point varies with relative humidity.

Distinction of Image (DOI): The quality of the reflection in a high-gloss finish. The mirror effect of the finish.

Dry Film Thickness (DFT): The film thickness of paint after all the solvent has evaporated from the wet paint.

GLOSSARY OF PAINT TERMS (Cont'd.)

Dry Spray: Sprayed paint which loses so much solvent in the air that it becomes too dry to flow out over the surface; dry spray usually has a lower gloss than the properly sprayed surface.

Drying Time: Time interval between application and final cure.

Dry to Handle: Time interval between application and ability to handle without damage.

Dry to Recoat: Time interval between application and ability to receive next coat satisfactorily.

Dry to Touch: Time interval between application and tack-free time.

Enamel: 1.) A paint which forms a film by chemical union of its component molecules during cure; 2.) In shop terminology, any paint which is not a lacquer.

Epoxy: Type of paint, adhesive or plastic noted for high mechanical strength, good adhesion and resistance to solvents, acids, alkalis, and corrosion. Epoxies do not weather well.

Fairing Compound: Filler putty used to fill surface depressions and shape forms until they are fair or smooth.

Filler Primer: Heavy paint applied to fill holes or other irregularities in a surface prior to topcoating.

Film Build: Dry film thickness characteristics per coat.

Film Thickness Gauge: Device for measuring film thickness above substrate; dry or wet film thickness gauges are available.

Flash Point: The lowest temperature at which a given flammable material will flash if a flame or spark is present.

Fluid Needle: The stop/start valve for fluid flow through the fluid tip.

Fluid Tip: Orifice in a spray gun into which a fluid needle is seated. The paint exits the spray gun at the fluid tip.

Hiding Power: The ability of a paint to mask the color or pattern of a surface.

High Solids Paint: Coatings that comply with regulations limiting the amount of volatile (organic solvents) materials in their composition. High Solids Coatings are generally more than 50% solids by volume. AWLGRIP 2 is a High Solids Coating.

Incompatibility: Inability to mix with or adhere to another material.

Induction: The time period required for the mixed base and converter components to cross-link chemically. Products requiring induction periods before application will not perform as designed without this waiting period.

GLOSSARY OF PAINT TERMS (Cont'd.)

Intercoat Adhesion: The ability of each coat of paint to stick to the preceding coat.

Isocyanate Resins: Resins characterized by NCO grouping. Isocyanate resins are used in polyurethane converters. AWL-CAT #2 and AWL-CAT #3 contain isocyanate resin.

Lacquer: Traditionally a paint which contains a synthetic resin and forms a film by solvent loss; the film remains susceptible to attack by the same or similar solvents; there is no chemical reaction or curing by the polymer.

Lifting: Softening and raising of an undercoat by application of a topcoat.

Linear Polymer: Polymer containing little or no branching (e.g. high density polyethylene and nitrocellulose of acrylic lacquers).

Orange Peel: Dimpled appearance of dried film; resembling an orange peel.

Osmosis: Transfer of liquid through a paint film or other membrane.

Overspray: Sprayed paint which misses the area being painted and falls upon the surrounding surface.

Paint: Material which when applied as a liquid to a surface, forms a solid film for the purpose of decoration and/or protection; generally a paint contains a binder(s), solvent(s) and a pigment(s); often other materials are present to give special properties to the paint film (e.g. such additives are rust inhibitors, light stabilizers, and softening agents (i.e. plasticizers).

Polyester: Type of paint or plastic containing the chemical group (RCOOCT). AWLGRIP Topcoats are made from polyester resins.

Polymers: Poly—meaning many, mer—meaning units; very large molecules built up by the combination of many small molecules; they often consist of many thousands of atoms. Polymers form the backbone or binder of a coating; often called resin.

Polyurethane: Wide range of possible binder systems with unique qualities; the aliphatic type is used for the highest quality enamels. The most durable aliphatic polyurethanes are polyester resins co-reacted with an isocyanate resin. AWLGRIP Topcoats are based on this chemistry.

Primer: Type of paint applied to a surface to increase its compatibility for the topcoat or to improve adhesion or the corrosion resistance of the substrate.

Primer Surfacer: Paint used to prime a surface as well as fill irregularities.

GLOSSARY OF PAINT TERMS (Cont'd.)

Profile: Surface contour as viewed from the edge.

Reducer: Solvent added to a coating to reduce the viscosity and/or alter the dry time. Often called thinner.

Resin: Material, natural or synthetic, contained in varnishes, lacquers, and paints; the film former.

Retarders: A solvent added to a paint to slow down its evaporation rate; retarders are often esters.

Sheeting Out: When rinse water spreads out over a surface in sheets, with no holes, breaks or “pull backs”. Also known a a water break-free or break-free surface.

Solids: The resins, pigments, and additives that form the permanent paint film after the volatile (solvents) components have evaporated. The solids content is expressed as a percentage of the total wet mix. Low V.O.C. coatings are often referred to as “High Solids”.

Solvent: The liquid or blend of liquids used to dissolve or disperse a paint; a true solvent is a single liquid that can dissolve the paint.

Spray Cap: Front enclosure of a spray gun equipped with atomizing air holes.

Spray Head: Combination of needle, tip, and air cap.

Substrate: Surface to be painted.

Tack Coat: A light finish coat that is allowed to dry or become tack free before subsequent heavier coverage coats are applied to the surface.

Tack Free: When a paint film has dried to a point where it is still soft, but not sticky. When pressure is applied to the surface, the coating will deform but not come off on the contact object.

Tape Adhesion: A test used to check for adhesion of a paint to a surface; the paint is scribed with an “X” or a cross-hatch line pattern and tape is applied over the scribed area; the tape is then ripped away and examined for paint which as been pulled from the surface.

Topcoat: Usually the final paint film applied to a surface.

Two Cloth Wiping Method: System of cleaning a surface where one cotton cloth rag is soaked in a solvent and used to wipe the surface; then a dry cloth is used to blot the surface. The second cloth lifts contaminants off the surface with the solvent it absorbs. Cloths are changed frequently to maintain maximum efficiency.

GLOSSARY OF PAINT TERMS (Cont'd.)

Ultraviolet Stabilizers/Absorbers: Chemicals added to paint to absorb the ultraviolet radiation present in sunlight; ultraviolet radiation decomposes the polymer molecules in a paint film and thus U.V. stabilizers are used to prolong paint life.

Urethanes: Type of paint or polymer characterized by the presence of ROCONHR linkages; urethanes are noted for their toughness and abrasion resistance. Usually two component coatings where an acrylic or polyester resin is co-reacted with an isocyanate resin. AWLGRIP Topcoats are two component urethanes based on polyester and isocyanate resins. AWLCRAFT 2000 uses an acrylic resin in place of the polyester resins.

Viscometer: Device for measuring the viscosity of a liquid. Several types are in use; some measure the time for a bubble to rise, or a ball to fall through a column of liquid. Others measure the time required for a given volume of liquid to drain through a standard size hole in the bottom of a cup.

Viscosity: The property of liquid which enables it to resist flow; a thick liquid such as molasses has a high viscosity.

Wash Primer: Thin, corrosion inhibiting paint usually chromate pigmented with a polyvinyl butyrate binder. U.S. Paint Corporation G9072/G3014 is this type of product.

Wet Edge: Keeping the paint wet enough when it is applied by brush so it can be brushed back into without showing lines or demarcations from one painted area to the next.

Wet Film Thickness (WFT): The thickness of a paint film measured while it is still wet. Wet film thickness must be measured immediately after application before any solvent evaporation and the resultant film shrinkage occur.

MAINTAINING AN AWLGRIP OR AWLCRAFT 2000 TOPCOAT

It is difficult for dirt, grime, and grease to adhere to an AWLGRIP or AWLCRAFT 2000 Topcoat. However, over time, a build up of dirt, grease, and other contaminants can cause the finish to appear dull.

The mirror-like gloss can be easily maintained by following these simple rules.

DO:

1. Wash the surface regularly with mild detergent and water. Regular cleaning will avoid build up which can slowly attack the AWLGRIP or AWLCRAFT 2000 Topcoat, prematurely aging the coating.

Thoroughly rinse all surfaces with fresh water after washing to remove all detergent residue.

Wiping the surface dry with a chamois or soft cotton towel is recommended.

2. **AWLGRIP ONLY:**

Solvents such as AWL-PREP -T0008, AWL-PREP PLUS-T0115, toluene, lacquer thinner, M.E.K., acetone, or kerosene may be used to soften or remove heavy build ups of grease and grime, felt tip markings, or spray paint on the AWLGRIP Topcoat.

AWLCRAFT 2000 ONLY:

Use only milder solvents to remove stubborn stains.
AWL-PREP T0008, mineral spirits, xylene, kerosene, and diesel fuel are acceptable for use on AWLCRAFT 2000.

FOR BOTH AWLGRIP AND AWLCRAFT 2000:

Apply cleaning solvents with soft clean cloths. Wipe up solvent quickly. Do not allow solvent to dry on the surface or puddle and soak into the surface. Wash these areas with mild detergent and water to remove solvent residue.

3. Always thoroughly rinse all surfaces with fresh water after cleaning with detergents or solvents. Latent solvent residue can attack the AWLGRIP or AWLCRAFT 2000 Topcoat, while detergent residue will attract dirt.

4. Use distilled white vinegar and hot water to remove stubborn salt stains.

5. Use 3M Liquid Polish #05993, by hand only, to remove stubborn diesel soot stains.

MAINTAINING AN AWLGRIP OR AWLCRAFT 2000 TOPCOAT (Cont'd)

DO NOT:

1. **Do not wax. General:** Wax build up ages and yellows very rapidly, creating the need to maintain the wax and causing the topcoat to appear yellow. Wax build up also collects dirt, increasing maintenance.

AWLGRIP Only: Waxing with a wax which contains no abrasives or cleaners will probably not hurt the surface, but at the same time offers no benefit. Regular waxing will not increase the life of an AWLGRIP Finish. Wax can temporarily restore the gloss to small scuffs, scrapes, or scratches. Sometimes allowing the postponement of repairs or repainting until a convenient time.

AWLCRAFT 2000 Only: Waxing will help maintain the gloss on AWLCRAFT 2000 Finishes, especially those which have been buffed or polished. Remember-waxing leads to having to maintain the wax. Do not wax areas unless they are dull or hazed.

2. **Do not** use abrasives, scratch pads, or polishing compounds. Scratching the surface gives dirt a place to cling while wearing out the resin layer. Using abrasives of any kind will reduce the overall life of the finish and voids the AWLGRIP Limited Warranty.

3. **Do not** allow contact between the AWLGRIP or AWLCRAFT 2000 Topcoat and teak cleaners. Most teak cleaners contain acids or caustic agents that stain and discolor an AWLGRIP or AWLCRAFT 2000 Topcoat.

4. **Do not** use strong solvents (e.g., lacquer thinner, M.E.K., acetone) to clean AWLCRAFT 2000, AWL-BRITE PLUS or AWLSPAR Varnish.

5. **Do not** allow wet equipment (e.g., seat cushions, coils of line, sails, sail covers, coolers) to trap and hold moisture against AWLGRIP Topcoats. This condition can result in blistering or delamination of the AWLGRIP or AWLCRAFT 2000 Topcoat.

6. **Do not** use acrylic teflon coatings over an AWLGRIP or AWLCRAFT 2000 Finish. Use of these coatings void the AWLGRIP Limited Warranty.

WINTER STORAGE

7. **Do not** “shrink wrap” or tightly bind AWLGRIP or AWLCRAFT 2000 Topcoat surfaces with plastic wrappings.

When tarping a boat for storage, the cover system should be ventilated to allow the coating system to “breathe”. Covers and tarps, whether synthetic or natural fiber, should not be pulled tight to surfaces painted with AWLGRIP or AWLCRAFT 2000 Topcoat. This condition can trap and hold moisture on the surface and may result in loss of gloss, blistering, or delamination of the topcoat.

Caution should also be used to ensure that the tarp does not chafe against the AWLGRIP or AWLCRAFT 2000 surface. Such chafing, especially when accompanied by airborne dirt, can abrade the surface and cause premature loss of gloss.