

AIRCRAFT PAINT REMOVAL

Step by Step Procedures For:

Masking

Stripping

Detailed Stripping

Stripping Magnesium

*

Chemisphere Corporations

2101 Clifton Ave.

St. Louis, MO 63139

Chemisphere Corporations Industrial Solvents, Inc. shall not be held liable for injury to any person or damage to any aircraft resulting from the improper use of any Chemisphere Corporations product or for neglect in following the listed procedures. It is the responsibility of the user to determine the suitability of the Chemisphere Corporations product to use on a particular aircraft. Contact Chemisphere Corporations or the aircraft manufacturer if unsure.

Aircraft paint removers are made up of very corrosive materials and should be used with extreme care. They can damage aircraft windows, fiberglass, rubber, magnesium, and some engine components. Read and follow the precautions as stated on the product's material safety data sheet (MSDS). It will provide information regarding exposure levels, working conditions, and first aid in the event of an accident. The following pages contain suggested procedures for the preparation and stripping of aircraft. They should be read thoroughly prior to use and if any questions arise you should contact Chemisphere Corporations at (314) 266-4600.

Masking Technique in Preparation to Strip Aircraft

1. Clean windows with an appropriate solvent (make sure to wipe this solvent off or foil tape will not stick).
2. Hold a layer of Aeromask Foil over the window to size it up properly and cut it to the approximate size of the window (it should be bigger than the window itself).
3. Tape this layer of Aeromask Foil up temporarily so that the entire window is covered. Run a burnishing tool all the way around the window to get an impression of the window's border.
4. Trim the Aeromask Foil 1/2" or less *inside* this impression so that this layer is slightly smaller than the actual window.
5. Seal the Aeromask Foil over the window by running a border of 2" foil tape around the entire window beginning at the bottom. Bridge the gap between the fuselage and Aeromask Foil by overlapping the 2" tape so that approximately 1 1/2" is on top of the Aeromask Foil and 1/2" butts up against the aluminum on the fuselage (this 2" tape should be sticking directly to the window). *Note: It is important to begin masking this border on the bottom so that if stripper penetrates a layer of masking it will rim onto the next layer and it will not run underneath the masking and damage the window.*
6. Place a final border of 1" tape all the way around the window, again beginning at the bottom so that 1/2" covers the fuselage and 1/2" covers the previous 2" tape border.
7. Use a burnisher to insure a tight seal all the way around the edge of the window. Do not press the 1" tape border into the edge of the window so that it is creased, rather seal it with a burnisher so that it lays flat all the way around the window. If it is pressed into the border it will weaken the tape at that point. *Note: It is important to make sure that the masking job does not contain any creases in the Aeromask Foil or the tape because stripper can leak in these areas.*
8. The tires, antennas, any exposed plastic, fiberglass or rubber, any magnesium and the engine (if the cowling is removed) must also be either removed or covered with either aluminum foil or plastic to protect these portions of the aircraft from the stripper.
9. Place a layer of 1" tape around all door and baggage compartment seams to prevent the stripper from leaking in. Likewise mask everything with the foil tape that the stripper may leak into and harm, i.e. pilot tube, stall warning devices, etc.

For best results the control surfaces should be removed and stripped separately, especially control surfaces from Beechcraft products (see the section titled Stripping Magnesium).

WARNING: Aircraft Paint Removers will damage aircraft windows, fiberglass, rubber, magnesium, and some engine components. Chemisphere Corporations will not be held liable for damage to any aircraft due to improper preparation of the aircraft. If you have any question about how to prepare your aircraft after reading the above procedures, call Chemisphere Corporations Industrial Solvents, Inc. at (800)457-9144. Stripping Technique Using Chemisphere Corporations Aircraft Removers

1. Hangar temperature must be at least 70° F for stripper to be effective. *Note: Chemisphere Corporation's #945 remover boils at 103 °F and it should be stored out of direct sunlight, especially in the summer. Stripping will be most effective in a controlled environment (closed hangar) with adequate ventilation. Chemisphere Corporations recommends that*

exposure levels for all aircraft remover not exceed 100 parts per million (PPM).

2. Before working with the remover, protective clothing should be worn including a Tyvek Suit, chemical-resistant gloves and boots, and a full face respirator. It is especially important to wear this protective clothing and equipment prior to beginning the powerwash stage as this is the most likely time for remover to come into contact with your skin. *Note: The cartridges in your full face respirator should be replaced after every 4 to 6 hours of use.*
3. Check the hose clamps on the spray equipment for security and tighten them if necessary.
4. Stir the container of remover prior to use.
5. Stir the remover periodically throughout the work period to guarantee a homogenous mixture.
6. Apply a light coat of remover to the aircraft beginning with the belly. It will work best and fastest if you strip sections of the aircraft rather than trying to apply remover to the entire aircraft at once. *Do not powerwash each section of the aircraft before moving on to the next section unless you plan on letting the aircraft dry completely prior to applying remover to other sections. Remove as much of the paint from the entire aircraft as possible before proceeding to the Powerwash Stage.*
7. Let the aircraft set for about five minutes (perhaps longer depending on atmospheric conditions) with the light coat of stripper applied to allow it to take affect.
8. Apply another coat of remover and let it set another five to ten minutes then scrub it with an acid resistant brush (if it requires brushing).
9. Remove any excess paint with a squeegee. *Note: Steps 7 and 8 may be omitted if the paint lifts easily and can be power washed off without scrubbing and scraping.*
10. It may need another coat of remover if it does not remove all of the paint and it may then need to be scrubbed again.
11. Repeat steps 4 through 8 for each part of the aircraft; working from the bottom of the fuselage to the top and then moving to the wings applying the stripper to the underneath side first and from the outboard to the inboard portions.
12. Make sure that the entire aircraft is covered with a light coat of remover to keep it wet before beginning the powerwash stage.
13. Begin the powerwash stage by again starting from the **bottom up** and working from the empennage forward (the power wash should be done using 750 - 1500 psi). Once you have worked up to the wings (on a low-wing aircraft), they should be washed off beginning at the inboard section on the underneath side and working outboard and then on the top inboard portion and working outboard.
14. Finally, wash off the cabin area beginning at the wing root and work your way up (on a low-wing aircraft). *Note: For a high-wing aircraft the powerwash should begin by powerwashing the empennage then working forward on the fuselage leaving the wings for last. The wings should be powerwashed exactly like the wings on a low-wing aircraft.*
15. After the aircraft has been rinsed, collect all paint and remover sludge for proper waste disposal.
16. Rinse stripping area of all remover residue. *Note: Exercise caution when walking on remover wet floors. Paint removers are extremely slippery.*

Detailing the Aircraft

1. Paint left on any rivets may be removed by wheeling it off with a nylon brushing wheel or by touching up with remover.
2. Paint left in any seams may be removed by wheeling it off with a circular wire brush or by touching up with remover.
3. Any primer that the remover did not remove may be removed by applying MEK or Acetone with Scotch Brite pads.
4. Paint left around the windows where the masking tape overlapped may be removed by applying remover with a small brush, allowing it to lift and then washing it off or simply by sanding it off.

Stripping Magnesium

Chemical stripping of magnesium components should be avoided due to the reaction of magnesium to the remover. Though Chemisphere Corporations states that Chemisphere Corporations removers should not be used on magnesium, we are aware of the industry's inability to remove catalyzed paint from magnesium and that the industry does use removers for this work. Aircraft refurbishers have found that magnesium components can be safely stripped individually with full attention of the operator and by removing the remover immediately after the paint has lifted from the substrate. The component must be inspected for structural integrity after the stripping process before reinstallation on the aircraft.

Though Chemisphere Corporations does not support this practice, the following lists methods that are being used and is presented as a guide to those who must remove the coating from magnesium parts. Chemisphere Corporations recommends that refurbishers notify aircraft owners of the possibility of damage to magnesium parts to relieve themselves of possible replacement liability.

1. Apply a coat of remover to the magnesium component.
2. As soon as the paint begins to lift, scrub it with an acid-resistant brush.
3. Rinse remover with the power washer immediately (this should be done within 10 to 15 minutes after the remover has been applied). This step is very important because the remover will react with the magnesium.
4. Detail the magnesium component removing any excess paint with a nylon brushing wheel.
5. Wash the entire component with soap and water and blow it dry with an air gun immediately.
6. The component should then have a protective magnesium coating applied to it. Let it dry then prime it. Note: It is critically important to complete this last step within 24 hours in order to prevent this component from corroding any further.
7. If the component had corrosion on it to begin with, this cannot be stopped, however, cleaning the metal, coating it with mag coat and priming it will slow the corrosion.

Warning: Many Beechcraft products contain magnesium on their control surfaces. The #945 remover will react with magnesium and damage it if it is not used properly. If you are stripping a Beechcraft product, please follow the above procedure

and call Chemisphere Corporations if you have any questions at (800)457-9144.

General Safety

Before starting, read and observe the safety precautions listed in the Chemisphere Corporations Business Guide and on the MSDS for the product or products being used.

Observe indoor safety precautions. Use at a liquid temperature between 60° F and 85° F. Solvent activity is reduced below 60° F and excessive evaporation will occur above 85° F. Use with adequate ventilation, avoid breathing of fumes, and maintain a constant movement of fresh air. Chemisphere Corporations recommends that the exposure level of all aircraft removers not exceed 100 PPM in the work area. **DO NOT USE NEAR HEAT, FLAME OR SPARKS.** There should be no furnace or heat source in the stripping area. When remover fumes or vapors are drawn into a furnace or if fumes come into contact with open flames or hot surfaces, a vapor containing carbon monoxide and hydrogen chloride is created. Hydrogen chloride will corrode the furnace's heat exchange and in a short time destroy the furnace. A buildup of hydrogen chloride vapors can rust and corrode metal components on the aircraft. Overexposure to carbon monoxide vapors can overcome and asphyxiate personnel.

Personal protection. Wear protective clothing (Tyvek Suit), chemical-resistant gloves and boots, and a full face respirator. Note: *The cartridges in the full face respirator should be replaced after every 4 to 6 hours of use.* Do not eat or drink in the work area. Wash thoroughly after use. Consult the MSDS for Health Hazard Data and First Aid for the product being used.

Sources of Information

How to Care for and Maintain Your Airplane, Ron Delp, 1992, Motorbooks International Publishers & Wholesalers, P. O. Box 2, Osceola, WI 54020.
General Aircraft Maintenance

Aircraft Painting and Finishing, Neal Carlson and IAP, Inc., 1985, IAP, Inc., P. O. Box 10000, Casper WY 82602-1000, (1-800-443-9250)
A complete start to finish guide for aircraft refinishing.

A & P Technician General Textbook, International Aviation Publishers, 1992, IAP, Inc., P. O. Box 10000, Casper WY 82602-1000, (1-800-443-9250)
Chapter 11, Corrosion and Its Control

A & P Technician Airframe Textbook, International Aviation Publishers, 1992, IAP, Inc., P. O. Box 10000, Casper WY 82602-1000, (1-800-443-9250)
Chapter 4, Aircraft Painting and Finishing

Aircraft Corrosion Control, International Aviation Publishers, 1985, IAP, Inc., P. O. Box 10000, Casper WY 82602-1000, (1-800-443-9250)
Corrosion and Its Control

*