The correct way to wash an aircraft.

Before we start with how to wash an aircraft correctly and successfully, maybe we should first ask; why should we wash an aircraft? Is this a trick question? Not really. Of course we wash aircraft to make them clean again after service. Why do we wish to have them clean? Is it purely for aesthetic reasons or is there a more important agenda behind this time consuming task? One of the main purposes of washing is to slow down or reduce the amount of corrosion occurring in the airframe. Other issues revolve around safety; being able to see through windows clearly, not slipping when boarding or disembarking on oil and exhaust fouling, etc. Another most important, yet overlooked safety aspect is that of an opportunity for a thorough inspection. Whilst washing, one can carefully inspect the airframe for impact damage, degradation to seals and plastic components, loose fittings and fastenings and other potential problems.

Now that we have ascertained why we are going to wash the aircraft, lets get ready to actually carry out the work. Equipment required for the job is usually: Cleaning fluid, buckets, mop/brush/sponge, chamois, hose with fine spray nozzle and other items of personal preference. If you are really fortunate, you may have access to a foam applicator for applying the cleaning fluid. This is the preferred method of applying the cleaning fluid to an aircraft. Notice that a pressure washing device **IS NOT INCLUDED** in this list! Pressure washers have no place in aircraft cleaning! They can cause horrendous long term damage to an airframe. There are far to many nooks, crannies and crevices on an aircraft where water and particles can lodge under pressure to cause long term degradation and damage to the airframe. Water under pressure can also damage and penetrate seals, exacerbate paint loss, and damage adhesive bonds found on aircraft structures.

Another literally, potentially fatal mistake that even professional operators make is to use cleaning products not specified or intended for aircraft use. On any aircraft type, whether it be ultralight, gyro, GA or heavy commercial, **ONLY** use products that have been designed and approved for use on airframes. Truck wash and car cleaners undoubtedly do a very good job of cleaning, however they are often found to contain highly corrosive constituents that may damage the aircraft. Certified aircraft cleaners have been thoroughly tested on materials found in airframes, to demonstrate that they will not damage or degrade any part of an aircraft structure. For all of you saying; “but I've got a composite aircraft it doesn't matter”, well sorry, it does. There are many constituents of commercial and household cleaners that will irreversibly damage composite substrates, acrylics, rubber and synthetic seal materials and even two pack paint. A problem far removed from the airframe itself is that of cleaners damaging electrical wiring terminations. When cleaning products are evaluated for military usage, they are tested specifically regarding this concern. Above all, never use cleaners containing solvents. Such cleaners may, as well as damaging substrate, remove grease from inside bushes and penetrate or otherwise damage seals on rod ends and similar.

Now that we have the correct kit, we can commence the task. First, lightly rinse the entire aircraft to remove loose material and dust/dirt that may scratch the surface. Next, dilute a small quantity of cleaning fluid to the manufactures recommendation for “Heavy duty” or “badly soiled”, or whatever terminology they use for a *strong* dilution. With this concentrated solution, wash all badly fouled areas of the aircraft including brakes and wheels, oleos, exhaust trails, oil streaks and deposits around static wicks. Most people use a sponge to apply the liquid. Purpose made soft bristle brushes designed for washing trucks and coaches are commonly available and lend themselves to aircraft washing. They save a lot of bending and stretching, not to mention keeping you away from the stuff dripping off the underside of the aircraft.

Once the concentrated solution has been applied to the areas in question, dilute the remains of the bucket at the ratio specified for general, or light cleaning. With this, go over the entire airframe starting at the highest point, agitating the solution on the surface with a sponge, broom or rag to loosen dirt and grime. All cleaning products require a bit of physical effort, despite manufacturers claims of miracles! Products that don't require movement or agitation on the surface are way to aggressive for aircraft use and may contain toxic substances which may end up in your liver.

Depending on the type of product being used, from this point on the cleaning process may need to be broken into sections and rinsing done at the end of each section. Again, no matter what the manufacturers claim, most detergents will leave spotting that is difficult to remove if they are allowed to dry on the surface. There are non detergent cleaners available such as colloidal based technology that do not seem to suffer from this problem. Either way move across the airframe as quickly and systematically as possible, using this opportunity to inspect the surface for any damage or defects. To complete the cleaning re-wash the areas that were done with the concentrated solution initially. If any parts have been missed go back and reapply solution to them.

It is suggested that the whole airframe should be lightly rinsed again using a fine spray from the hose and if required finish off with a chamois.

Often at this point we are faced with the dilemma of “To wax or not to wax”? Some people swear by the application of a wax or polish to their paint work. If you should choose to apply a surface finish, again, be exceedingly careful to ascertain that it is suitable for aircraft use. Many polishes contain a myriad of solvents and hydro carbons that should not be applied to plastics found on aircraft. Some preparations also build up a film on the surface which can capture and lock in marks and blemishes on the surface, making future cleaning more difficult. Even if the product information states that it is safe for use on plastics be over-cautious about applying it to windscreens, canopies and bubbles. Again, we are faced with problems that are not a great concern in other facets of life. Many products can leave a film on the windscreen which will produce optical distortion or halo effect. Both of these situations can be very dangerous in an aircraft. Haloing is the term given to the phenomenon of getting a circular rainbow image emanating from the solid surface. It can be very annoying and dangerous, as it can obscure vision beyond the windscreen or canopy.

It is probably a good time to point out that when working on a clear surface, such as the windscreen, there is a method which should not be deviated from. When rubbing with a cloth, sponge or even fingers, **ALWAYS** rub perpendicular to the horizon. This is extremely important. Should you unwittingly scratch the surface, you will be able to look around the scratch rather than having to try and look through it. Multiple fine scratches can produce a form of optical distortion which fortunately only have minimal effect when viewed vertically.

Happy Flying.