size of the helicopter and types of paint used, a repaint can cost between $20,000 to $30,000.

PAINT PRESERVATION – A MONEY SAVER?

A number of new techniques are emerging to maximise that significant investment. To simply repaint an aircraft when it begins to look dull (oxidised) and dirty is financially and operationally unrealistic. The down time required for preparation and application plus the actual cost means for most repainting an aircraft is a once in an eight to 12 year event.

"By restoring and then protecting your aircraft's paint not only makes the aircraft look great, but can also reduce drag, reduce the number of time your aircraft is washed and adds life to the paint," claims Permagard director Mark Pettitt.

Permagard, an international paint preservation company headquartered in southern France, has developed a method of paint preservation and protection using a protection film and coating system for use by the luxury yacht, aeronautical and automotive industries.

"A very simple principle of paint maintenance all over the world, and certainly in Australia, is to cut [and polish] the paint. As soon you do that, you've started the degradation process of the paint and you could almost forecast when your next paint job is," observes Pettitt. "The principal is instead of cutting down on the paint, is to actually build up on the paint."

When paint cures, entrapped solvents evaporate from the base layer up through the paint, resulting in sediment being left in the paint's pores. Painted surfaces are exposed to amounts of sulphuric and nitric acids from the atmosphere that cling to the paint in the forms of oxides.

The Permagard paint protection system is a two part process. Having a washed airframe to begin with, a pre-treatment solution is applied to the paint using an orbital polisher to remove embedded hydrocarbons and all foreign impurities from the pores of the paint. The pre-treatment process also brightens the paint making it appear highly polished.

During the second stage, a reactive polymer coating is applied to chemically bond the pores of the paint, resealing and protecting the highly polished surface.

A Gulfstream IV has its paint treated using the Permagard protection system at Sydney Airport. Four people will take a combined 24 hours to complete the preservation. (Permagard)

As the treated surface cures (in approximately 24 hours), plasticised molecules elongate, interlocking with each other, resulting in a tough bonded protective coating over the paint.

A team of four people takes a combined total of 24 hours to complete a business jet sized aircraft, with the finished result a smooth, scratch-proof and highly reflective shine.

"It's such a highly smooth surface we create that anyone performing maintenance or inspections has to be careful not to slip off," notes Pettitt.

"Once an aircraft has been treated with the Permagard system there is no need to cut and polish it ever again as long as it's maintained correctly," he promises.

The cost to preserve and protect the paint of a corporate sized jet is approximately $20,000, with annual servicing of the protective coating costing $7000.

But the smoothness of the polymer coating is also realising significant cost savings through cutting aircraft drag.

An Australian based Gulfstream IV, for example, had its 12 month old paint restored by the Permagard process and has shown an initial reduction of fuel flow of between three to four per cent on a typical flight. Having only had the paint restoration work completed for six months, the Gulfstream's chief pilot said the effect of reduced fuel flow on the aircraft's annual fuel bill, estimated at $400,000-500,000, meant a fuel saving of around $20,000 per year was already being achieved.

Another benefit is a reduction in the number of times an aircraft has to be washed. A protected aircraft's paint is highly water resistant and super smooth so that virtually nothing can stick to it. Flying through rain is said to be all that is needed to wash an aircraft.

An Australian airline is now investigating the possibility of having its fleet preserved and protected using Permagard, which would be expected to halve the number of washes the airline carries out as well as extending the life of the paint.

WASHING NOW MAINTENANCE?

Aircraft owners of all stripes have long realised the benefits of regularly cleaning their aircraft to keep them in good condition reducing drag inducing grit and dirt. So when in January, CASA issued the 579/05 instrument that appeared to redefine the cleaning and polishing of an aircraft as maintenance rather than servicing, meaning it would have to be undertaken by a LAME, many aircraft owners became very concerned.

However a spokesperson from CASA has said the instrument was revoked in late January for review and further consultation with industry. CASA plans to reissue a clearer and revised instrument 579/05 in the coming months.

As industry concern over that planned change illustrated, aircraft painting issues concern large financial investments and run more than skin deep. ❑