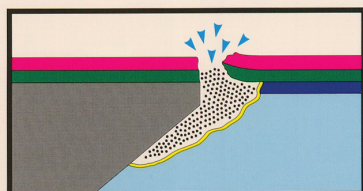


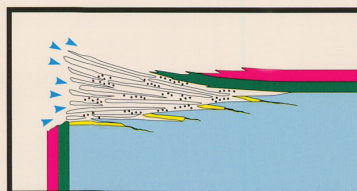
Aircraft Corrosion

Some kinds of corrosion are, or can become, visually quite spectacular; others can remain almost undetectable for long periods. For those persons who are not familiar with the problem, here are some examples of the different types of corrosion that may be found on aircraft structures. Identifying the symptoms and understanding the causes are, of course, a great help in preventing corrosion proliferation.



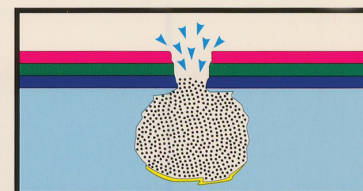
Galvanic

Symptoms: powder-like white or grey deposits.
Cause: two dissimilar metals in contact with each other in the presence of an electrolyte.
Prevention: detail design, protective treatment, special assembly techniques (sealing, electrical insulation of metals).



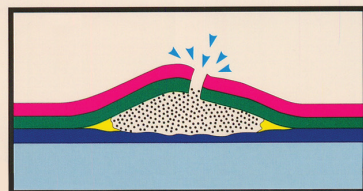
Exfoliation

Symptoms: flaking and loss of metal thickness.
Cause: swelling and flaking at grain ends exposed by machining.
Prevention: pre-heat treatment, material selection.



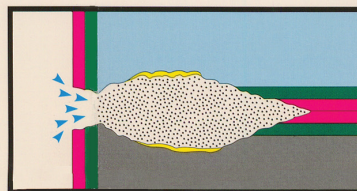
Pitting

Symptoms: holes in metal surface.
Cause: halogen ions present in attacking electrolyte (corrosive agent), destroying surface treatment.
Prevention: protective treatment.



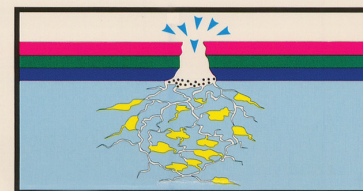
Filiform

Symptoms: paint bulging and longitudinal propagation of blisters on surface.
Cause: paint damage.
Prevention: corrosion-resistant primer, restoration of paint system.



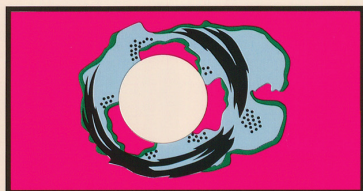
Crevice

Symptoms: severe local corrosion along adjoining surfaces.
Cause: penetration of oxygen and corrosive agent into a joint (due to flexing).
Prevention: efficient sealing of adjoining surfaces from corrosive substances.



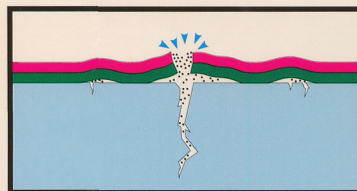
Intergranular

Symptoms: normally only perceived by cracking.
Cause: chemical action along grain boundaries within the material. Difference of electrical potential between grain and grain boundaries.
Prevention: material selection, protective treatment.



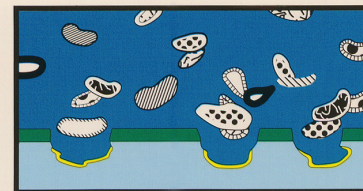
Fretting

Symptoms: destruction of natural protective film resulting from slight relative movement between mating surfaces and loss of metal from surfaces followed by oxidation.
Cause: abrasion of metal under load in humid environmental conditions.
Prevention: detail design, protective treatment, material selection.



Stress

Symptoms: normally only perceived by cracking with fast crack propagation leaving bare metal subject to corrosion.
Cause: residual stress from manufacturing process, or stress concentrations due to design features in a corrosive environment.
Prevention: material selection, handling care, detail design, assembly techniques, background surface protection.



Microbiological

Symptoms: local surface attack or formation of deposits such as fungi.
Cause: growth of micro-organisms in moisture traps.
Prevention: detail design, protective treatment, assembly techniques, use of inhibitors and primers.

Colour Key

Paint	Fungus colony
Primer	Aluminium oxide
Clad	Corroded area
Al alloy	Dissimilar metal
Anode, corrosion location	Micro-organisms
	Moisture

This list is not exhaustive. There are, of course, other types of corrosion which may occur under given conditions. But whatever the particular variety that is encountered, effective treatment begins with accurate reporting and prompt counter action. Maintenance crews should look carefully, look again – then do something about it!