

Types of Corrosion

It is important to understand the types of corrosion that can occur on your aircraft. The different types of corrosion can be broken down according to the affected area and the time frame. Degradation of the metal can either occur over a large area (a situation called uniform corrosion) or over a small area (localized corrosion). Similarly, corrosion can be time-dependent, cycle-dependent, or time-independent.



Seat Track Fitting

Time-dependent & Cycle-dependent Corrosion

Time-dependent and cycle-dependent corrosion are associated with a slow degradation of equipment. Both require a significant amount of time to elapse before they become harmful. The most common subcategories are as follows:

Galvanic corrosion begins when two dissimilar metal surfaces abut each other.

Uniform corrosion happens when a metal surface is consistently eroded, typically on the outer surface and underbelly of the aircraft.

Crevice corrosion is the most frequent subtype found in aircraft. The chemistry behind it is similar to galvanic corrosion, except dissimilar environmental conditions are the root cause instead of dissimilar metals.

Pitting-type corrosion can be recognized by its appearance: the metal surface will begin to dull and look dusty.

Fretting is the result of two different effects - surface weathering and cell corrosion - and occurs through the same electrochemical process as galvanic corrosion.



Corrosion on Structure Beam

[Time-independent Corrosion](#)

Time-independent corrosion arises infrequently and has two subtypes:

Stress corrosion cracking is induced by stress from constant tension combined with oxidative corrosion which causes the metal surface to crack.

Embrittlement is a type of corrosion that occurs due to hydrogen reactions instead of oxidation ones.

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