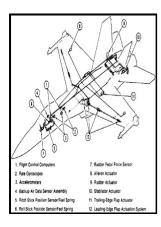
# Effect of thermal stresses on the integrity of three built-up aircraft structures

## Dryden Flight Research Center - The 5 Key Considerations to Prevent Corrosion



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Thermal stresses

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Notes: Bibliographical references: p.15-17.

This edition was published in 1980



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#### Types of Loads on Structures

As a result, both computers and composite materials are necessary to create lighter, stronger, safer, more fuel-efficient aircraft. The effect of these changes on bonded-joint durability and substrate corrosion resistance needs to be evaluated. These methods can detect disbonds, porosity, and voids, but are difficult to perform in the field.

#### 12 Types of Loads Considered for Design of Bridge Structures

With proper consideration, however, corrosion can be limited and even prevented almost entirely. A genetic algorithm applied to optimisation of patch repairs for cracked plates.

#### 4 Degradation Mechanisms

TITANIUM ALLOYS The primary results of degradation due to aging in titanium alloys in the temperature range of 200°C 392°F or less would be possible loss of strength, fracture toughness, and fatigue crack growth resistance at these temperatures. These stresses reduces the fatigue life of the repair structures.

#### Types of Loads on Structures

Also the lead cracks in actual aircraft structures are likely to have nucleated from other, larger discontinuities caused by production or surface finishing processes. The disadvantages of integrally stiffened structures are that fabrication of complex parts is difficult, tooling costs can be high, inspection especially in the limited-access stiffener web areas is difficult, and disassembly and repair can be very costly. Recent advances in bonded composite repair technology for metallic aircraft components.

#### Airplane

Fatigue cracks with the dimension of material microstructures propagate under the influence of microstructural inhomogeneities and sometimes are impeded by various microstructural barriers Suresh and Ritchie, 1984; Miller, 1984; Tanaka, 1987. Residual stresses are a common consequence of the manufacturing process of composite laminates e.

### Aircraft load (Part I)

In this study, the numerical model is built up to analyze the effect of the thermal loadings on pressurized and cracked pressurized pipes by using FEM. Introduction Recently, the use of adhesives is accepted as a process of structures repairs to increase the service life of damaged components 1-6.

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