

Twin Commander (Gulfstream/Rockwell/ Aerocommander 500, 600 and 700) Series Aeroplanes

**AD/AC/86
Amdt 1**

Wing Main Spar Lower Cap Microstructure

4/93

Applicability: All wing main spars fitted to 500, 600 and 700 series aeroplanes.

Requirement: Metallographically polish, etch, and inspect a machined surface of the main spar lower cap in a manner approved by the CAA. Any scheme to be approved must recognise that this inspection requires a trained person to interpret the microstructure. The CAA may be able to provide a qualified technical officer to perform the inspection. If the metal grains are large and elongated, as is usual for an extrusion, no further action is required by this directive. If the metal grains are small and equi-axed, indicating re-crystallisation has occurred, replace the spar cap before further flight.

Note: Twin Commander Service Bulletin 215 refers to a similar inspection requirement.

Compliance: Inspect the microstructure before 30 April 1992, and whenever a new spar cap is installed. This amendment becomes effective 1 April 1993.

Background: The CAA has discovered that some wing main spar lower caps were made from extrusion stock which has an abnormal re-crystallised microstructure. This makes them very susceptible to stress corrosion cracking. Affected spar caps cannot be identified from production records. Amendment 1 specifies that affected spar caps must be replaced. Recent analyses have demonstrated the impracticability of controlling this stress corrosion cracking safely by inspections.