



**Subject : Use specified procedures and tools to remove sealant from aircraft structure to prevent scribe marks that may contribute to cracks as a result of metal fatigue and deterioration.**

**Background :**

1. Boeing issued a notice in September 2003 indicating that cracks were found on the skin at butt joint of two B747 aircraft during maintenance inspections; one of them had a 30-inch crack. Metallurgical analysis confirmed the said crack was originated from the scribe mark on the skin. The scribe mark was caused by using improper tools to remove sealant from the aircraft during last paint stripping and resulted in the metal fatigue of skin, and eventually leading to crack.

Thereafter, Boeing also received reports of cracks found on the skin of two B737 aircraft.

2. Boeing recommends in its notice that maintenance personnel shall use specified procedures and tools to remove sealant. Moreover, Boeing has stopped installing external fillet seal at the skin lap joints since late 1980 to preclude the sealant removal process during paint stripping. However, the airlines may still elect to apply external fillet seal. If such is the case, then the airline must use specified tools to remove the sealant.

**Recommendations :**

1. Each air operator or repair station has to establish its standard operating procedure (SOP) (including suitable tools) for removing sealant from the aircraft structure and a training program requiring all maintenance personnel concerned to strictly follow the SOP when performing sealant removal.
2. When scribe marks on aircraft structure are detected (suspected) during maintenance, each air operator or repair station has to make prompt report to CAA and aircraft manufacturer so that proper control, inspection and repair can be made for continuous airworthiness of the aircraft.