Inspection and maintenance

F.O. Taddey

Abstract — This chapter shows the after-sales related activities for Glare structures within the Airbus consortium. For the Glare demonstrator panel on the MRT A310 MSN 484 of the German Air Force a supplemental SRM has been developed. This SRM is the starting point for the activities related to the A380 design and development. Allowable damage limits and repairs on Glare parts will be tested as part of the “Megaliner Barrel” research project.

25.1 History of the Glare demonstrator panel

In 1999 the Glare demonstrator panel for an Airbus A310 at position Fr. 35-40 and between STGR 5RH and STGR 13 RH (Section 14) was redesigned, manufactured and installed. The panel consists of internal doublers at the riveted butt and lap joint run-outs, which are all covered by the internal aluminium layer, and a splice configuration in the middle of the panel. The stringers are mainly bonded, but in the first and last frame bays, riveted stringer/skin joints have been used. Clips are riveted, as are butt and lap joints.

The installation was performed during the conversion working party of this aircraft from a PAX to a Multirole Transport A/C (MRT) at Lufthansa Technik in Hamburg.

25.2 Design of the Glare panel

The original production design has been rebuilt, taking Glare design principles into consideration. Around the panel edges, the original design requires reinforcement doublers. These reinforcement doublers are all located at the inner side of the panel.

In addition to the doublers a Glare splice was designed, which interferes with the reinforcement doubler. This was a complicated design that required a lot of harmonisation work with manufacturing. Fokker Aerostructures performed the redesign.
25.3 Manufacturing of the Glare demonstrator panel

The panel was manufactured without having an original template for its shape. The manufacturing template or mould was built especially for this panel. To avoid any sizing problems, a detailed measurement of the original panel was carried out. These data were transferred to the mould of the new panel and the panel was delivered with these final dimensions. Fokker Aerostructures undertook the manufacturing of the panel.

25.4 Installation

The installation procedure was defined by Service Bulletin A300-53-021 under modification number GAF06698A [1] and was approved by the LBA (German airworthiness authority).

The installation was performed like a normal panel replacement after major damage. Only two concessions / abnormalities occurred:
1. Problem: one countersunk hole was damaged due to a broken tool.
   Corrective action: the hole was enlarged to the next nominal diameter
2. Problem: clips P/N was changed.
   Corrective action: interchangeable parts were installed.

The installation procedure is illustrated by a series of photos. Figures 25.1 through 6 show in succession: the removal of the original skin panel, the Glare demonstrator panel and the installation of the Glare demonstrator panel on the fuselage.