

Structure

51 Structures

**BEECHCRAFT
DUKE 60 SERIES
MAINTENANCE MANUAL**

CHAPTER 51

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CHAPTER 51 - STRUCTURES

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GENERAL - DESCRIPTION AND OPERATION

Being of semimonocoque construction, the BEECHCRAFT Duke fuselage is pressurized to the skin between pressure bulkheads at stations 100.00 and 242.00. All skin, bulkheads and structure points, plumbing and wiring connections passing through a pressure wall, access doors,

windows, control cables, and torque shafts are sealed to minimize air leakage. Although the carry through structure is an integral part of the fuselage, the wing panels may be removed at the attach points inboard of the nacelles. An emergency exit is installed on the right side of the fuselage at the forward cabin window. Individual passenger seats are provided, with the front seats installed facing aft.

"END"

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GENERAL - MAINTENANCE PRACTICES

STRUCTURAL REPAIR

WARNING

Drilling, modification, or any type of work which creates a break in the pressure vessel is considered the responsibility of the owner or facility performing the work. Obtaining approval of the work is therefore, their responsibility.

In general, structural repair methods used on the BEECHCRAFT Duke may be in accordance with AC 43.13-2 AIRCRAFT INSPECTION AND REPAIR MANUAL. Never make a skin replacement or patch from a material thinner than the original skin. Patches should be of the next thicker material. The following considerations are recommended in addition to AC 43.13-2 AIRCRAFT INSPECTION AND REPAIR MANUAL for repair of the pressure vessel of the Duke:

CAUTION

In the pressurized area, all skins, formers, stringers, etc., are structural members and should be treated as such.

- a. All lap joints, including patches, must have at least two staggered rows of rivets.
- b. All repair material must be free of any defects such as nicks, scratches, etc., which can cause stress rises.
- c. Never dimple a structural member by driving the rivet head into the part.
- d. Do not countersink deeper than 75% of the material thickness.

e. Scratches in the outer windows of acrylic plastic may be removed with 400 to 600 grit sandpaper, providing that not more than 0.30 inch of material is removed. Polish the repaired area smooth with buffing compound. The minimum thickness of the pilot's compartment side windows is 9/32 inch and for the cabin and baggage compartment windows, 7/32 inch. No crazing or cracks are permitted in the pressure windows.

REPAIR OF FIBERGLASS COMPONENTS

a. Large holes and cracks require that the damaged area be cut out and trimmed just beyond the area of damage. If the parts are painted, remove the paint and sand that portion of the part extending at least 2 inches beyond the cutout.

b. Prepare 3 patches of laminated glass cloth, such as Trevano, Uniglass, or their equivalent. Cut the first patch to the dimensions of the sanded area, the second patch 1/2-inch smaller than the first, and the third patch 1/2-inch smaller than the second.

c. Prepare the MIL-R-7575 resin (33, Chart 207, 91-00-00), for the patch in accordance with the manufacturer's instructions. Make sure that your hands are free of oil, grease, and dirt when handling the resin.

d. Apply an even coat of resin to the sanded area. Impregnate all three laminated glass cloth patches by laying the patches on clean waxed paper and working the resin through the fabric with a 2-inch brush.

e. Place the large patch over the cutout area, working out all air bubbles and wrinkles. If the patch starts to sag, place a support behind the repair area. Coat the support with automobile wax or waxed paper to prevent the resin from adhering to the support. Work out all air bubbles and wrinkles while installing the second patch over the first. Install the third patch over the second in the same manner.

f. Brush the repaired area with an even coat of resin. After the patches have cured for 24 hours at temperatures between 23°C (75°F) and 66°C (150°F), blend the patch into the contour of the part with fine sandpaper. Paint the repair to match the rest of the part.

"END"

