AD/DC3/26 Amdt 2 — Wing Centre Section Structure at Stn 141-142 - Inspection and Modification — NK

Applicability: All models DC3 and C47.

Requirement:

1. Outer Wing Panel Lower Surface Attachment Angles and Attachment Angle Doublers: Modification:

   Replace the lower surface attachment angle and light gauge doublers, P/N 570602-206 and -207 or P/N 5115200-206 and -207 of .064-in. material and 570602-208 and -209 or P/N 5115200-208 and -209 of .051-in. material with heavy gauge doublers, P/N 570602-206 and -207 or P/N 5115200-206 and -207 of .072-in. material and 570602-208 and -209 or P/N 5115200-208 and -209 of .064-in. material and mating attachment angles, or with heavy gauge doublers P/N 524128-1400, -1401, -1402 and -1403 and mating attachment angles.

Note: It is imperative that the above modification should be carried out strictly in accordance with the recommended procedures and practices of Douglas Aircraft Company and that the highest standard of workmanship and accuracy should be maintained throughout.

2. Centre Section Lower Surface Skin - Modification:

   (a) Provided for the inspection of the centre section skin by cutting six 5/8-in. diameter inspection holes in the internal doublers as shown in Figure 1 of Douglas SB DC3. No. 262, Re-issue No. 2, 6 December 1963.

   (b) Modify the centre section lower surface by installing new wrap around doublers and attachment angles in accordance with the above Douglas SB, or to an equivalent scheme approved by the Secretary, except that modifications made prior to the issue of this Order in accordance with Douglas Drawing 5406787 Issue “E” or “F” are satisfactory until parts must again be replaced.

Note: It is imperative that the highest standard of workman-ship and accuracy should be maintained throughout.

3. Outer Wing and Centre Section Upper and Lower Attachment Angles, Attachment Angle Bolts and Spar Cap Bolts at Stations 141-142 - Inspection:

   (a) (i) With the aid of a lens of not less than X8 magnification, inspect the upper and lower attachment angles for cracks and evidence of corrosion, paying particular attention to the radius and to the areas between the bolt holes.

   (ii) Visually inspect the attachment angle bolts for evidence of looseness or breakage.

   (iii) Visually inspect the spar cap bolts for evidence of looseness of breakage.

   (b) At every fourth inspection:

(i) If any signs of corrosion are detected in the attach angles remove all paint and other organic finishes and thoroughly clean the attachment angles prior to carrying out the inspection contained in para. 3(a).

(ii) Remove each 10th attach angle bolt as a sample and inspect removed bolts for corrosion and general condition. Identify removed bolts before reinstallation and select different samples at each subsequent inspection.

(iii) Check that the attach angle bolts and spar cap bolts are tightened to the correct torque values.

(c) Attachment angles which are cracked or which are corroded beyond the limitations specified in Douglas SB No. 262 Re-issue No. 2, 6 Dec. 1963, shall be replaced before further flight.

(d) Loose or damaged attachment angle bolts, together with at least the next two bolts on each side of the defective item, shall be replaced with new bolts before further flight, and at the same time a torque check shall be made of all bolts in the affected joint.

(e) Loose or damaged spar cap bolts shall be replaced with new items or re-torqued as necessary before further flight. When bolts are tightened a check shall be made to ensure that the countersunk head on each bolt makes at least a 75 per cent blue contact with the countersink in the attachment angle and that the bolt holes in the vertical flanges of the wing and centre section attachment angles are in proper alignment.

4. Outer Wing Panel Lower Surface Attachment Angle Doublers and Skin - Inspection:

(a) Remove the outer wing panels and strip all paint and organic finishes from the area to be inspected and for a distance of at least 6 inches outboard of the wing joint and thoroughly clean the bare surfaces.

(b) With the aid of a lens of not less than a x8 magnification inspect the lower surface skin and doublers adjacent to the wing joint for cracking, paying particular attention to the vertical flange of the doublers. Restore the protective finish when the inspection is completed.

(c) Cracked doublers shall be replaced with new items, preferably of the heavy gauge type referred to in para. 1 of this Order, before further flight. Cracked skin shall be renewed or repaired before further flight in accordance with a scheme approved by the Secretary.

5. Centre Section Lower Surface Skin Doublers - Inspection:

(a) Remove the outer wing panels and strip all paint and other organic finishes from the area to be inspected and for a distance of at least 6 inches inboard of the wing joint and thoroughly clean the bare surfaces.

(b) With the aid of a lens of not less than a x8 magnification, inspect the lower surface doublers, skin and, if fitted, splice plates for cracks in the area adjacent to the wing joint. Pay particular attention to the radius and vertical flange of the wrap-around skin or splice plates and to the area of skin or splice plates visible through the inspection holes forward and aft of the front and centre spars. Restore the protective finish when the inspection is completed.

(c) If cracking is present:-

(i) At the inspection hole either forward or aft of the front spar but not extending past the inspection hole;

(ii) At the first inspection hole only either forward or aft of the centre spar;

(iii) In the vertical flange of the wrap-around skin or splice plate but not extending more than 3 1/2 inches forward or aft of the front or centre spar; repair the damage before further flight, either temporarily in accordance with Douglas Drawing Nos. 3481664 or 3481679 or permanently in accordance with para. 2(b) of this order.

(d) Temporary repairs in accordance with Douglas Drawing Nos. 3481664 or 3481679 must be replaced with a permanent rework in accordance with para. 2(b) of this Order within the next 2,000 hours time in service after the temporary repairs have been effected.

(e) If cracking is present:-

(i) At the inspection hole either forward or aft of the front spar and extending past the inspection hole;

(ii) At the second or further inspection hole either forward of aft of the centre spar;

(iii) In the vertical flange of the wrap-around skin or splice plate and extending for more than 3 1/2 inches either forward or aft of the front or centre spar; or (iv) Exceeding in any other way the limits specified in para. 5 (c) of this Order, repair the damage before further flight in accordance with para. 2 (b) of this Order.

(f) In cases where damage is present in the lower surface of the centre sections already reworked in accordance with para. 2 (b) of this Order, repairs may be effected by replacing only the damaged component of the joint with a new component of the same drawing number. In all other cases the complete rework specified in para. 2 (b) of this Order must be accomplished.

6. Outer Wing and Centre Section Upper Surface Attachment Angle Doublers - Inspection:

(a) Remove the outer wing panels and strip all paint and other organic finishes from the areas to be inspected and thoroughly clean the bare surfaces.

(b) With the aid of a lens of not less than a x8 magnification, inspect the outer wing and centre section upper surface attachment angle doublers for cracking along the radius of the bent up flange. Restore the protective finish when the inspection has been completed.

(c) Replace cracked doublers with new items before further flight.

7. Rivet Inspection:

(a) Inspect for looseness of the rivets securing lower wing skin of the centre section to the stringers located between the front and rear spars inboard of the attachment angles at Station 142 and over the area covered by the internal skin doubler. The inspection shall be carried out both visually and by lightly tapping the rivet heads with a wooden block.

(b) If any rivets are found loose or broken they shall be replaced and a careful internal and external inspection for corrosion shall be carried out in the area before further flight.

Compliance: For Paragraph 1: Before 16,000 hours time in service since installation of the light gauge doublers and attach angles.

For Paragraph 2(a): At the next removal of the outer wing panel.

For Paragraph 2(b):

(a) For aircraft already reworked in accordance with para. 2(b) or having original centre section lower surface skins NOT fitted with steel doubler plates at the centre and/or front spar positions - before 36,000 hours time in service since new or since last rework and thereafter at intervals not exceeding 36,000 hours time in service.

(b) For aircraft having centre section lower surface skins fitted with steel doubler plates at the centre spar and/or front spar positions - Forthwith.

(c) As specified in paragraphs 5(d) and 5(e). For Paragraph 3(a): At intervals not exceeding 500 hours time in service or six months whichever occurs first.

For Paragraph 3(b): At intervals not exceeding 2000 hours time in service or two years whichever occurs first.

For Paragraph 4(a) and 4(b): Initially within 8000 hours time in service since new or since rework in accordance with para. 1 of this Order and thereafter at intervals not exceeding 2500 hours time in service except that if the wing has not exceeded 16000 hours time in service since rework in accordance with para. 1 every second inspection may be made “in situ” by an X-ray technique approved by the Secretary.

For Paragraphs 5(a) and 5(b):

(a) For aircraft having centre section lower surface skins fitted with steel doubler plates at the front and/or centre spar positions - within 1500 hours time in service since the last visual or X-ray inspection, for cracking at the inspection holes forward or aft of the front and centre spars.

(b) Aircraft other than those specified in (a) above - initially within 8000 hours time in service since new or since rework in accordance with para. 2(b) of this Order and thereafter at intervals not exceeding 2500 hours time in service except that after rework in accordance with para. 2(b) of this Order, every second inspection may be made “in situ” by an X-ray technique approved by the Secretary.

For Paragraphs 6(a) and 6(b): Initially within 8000 hours time in service since new and thereafter at intervals not exceeding 5000 hours time in service.

For Paragraph 7(a): At intervals not exceeding 2000 hours time in service or two years whichever occurs first.