

2-45. DAMAGE NECESSITATING REPLACEMENT. Damage to the rib caps exceeding negligible damage requires replacement. The rib web should be replaced for extensive damage and when more than one insertion repair is required.

2-46. RIB AT STATION 50.

2-47. DESCRIPTION. This rib is continuous from the wing leading edge to the rear spar. It is a formed channel of .040 24ST alclad beaded and flanged inboard. There are flanged lightening holes and vertical stiffening angles. An .040 doubler channel extends from the rear spar to the center spar. It is flanged outboard and follows the contours of the top and bottom rib flanges, and is about an inch within them. Extruded angles parallel to the upper and lower rib flanges are riveted to the web about two inches below and above these flanges respectively stiffening the rib longitudinally from leading edge back to the doubler.

2-48. NEGLIGIBLE DAMAGE. Smooth dents in the web free of cracks and abrasions and clear of lightening hole flanges may be disregarded, provided the dents do not exceed a depth of 1/8 inch and 1-1/2 inches in diameter, and adjacent negligible dents are at a distance of 15 inches. Dents exceeding the above limits, and subsequently bumped back to contour without cracking or creasing the web may be considered negligible damage. Scratches which do not penetrate beyond the alclad coating may be considered negligible damage. No damage is permitted to the extruded cap angles.

2-49. DAMAGE REPAIRABLE BY PATCHING. Damage to the lightening hole flanges and adjacent web may be repaired similar to Figure 2-5. Clean out damaged area using generous radii, and burr edges. Cut reinforcement of the same gage and material as rib allowing sufficient material for a 3/4 inch bent-up flange and proper edge distance on all rivets. Attach patch to rib web with AN470AD6 rivets spaced at an average of 3/4 inch with a minimum edge distance of 3/8 inch. There must be two rows of rivets around each side of the break in the web. Damage or cracks not extending more than 1/3 the lightening hole flange width may be repaired as shown in Figure B-6. Punctures and holes in the web between the center spar and landing gear beam may be repaired by a patch plate (see Figure B-3). Remove damaged area by cutting a circular or rectangular cutout; minimum corner radii 1/2 inch for rectangular cutout. Smooth all edges to remove burrs. Cut web patch of .081 24ST alclad larger than the cutout to accommodate bolts to web with proper edge distance. Locate position of patch to provide equal overlap at all edges of cutout. Attach web patch to web with a single row of AN3 bolts and AN365-1032 nuts, spaced at 7/8 inch around the periphery of the cutout.

2-50. DAMAGE NECESSITATING REPLACEMENT. Damage to the rib web not repairable by patching should be replaced. The rib is manufactured in three sections and only the damaged portion need be replaced. Damage to the extruded cap angles requires replacement of the part.

2-51. WING RIBS EXCLUSIVE OF STATIONS 0 AND 50.

2-52. DESCRIPTION. The ribs at Stations 12.25, 24.5 and 37.25 are in two or three separate sections extending either side of the fuel tanks and landing gear well. Ribs at Station 130 and 194.25 are in one piece. All ribs from Station 66 through Station 178.75 inclusive are made up of two parts; nose ribs

and trailing edge sections; and are riveted together at stringer number five. All horizontal edges are flanged for skin and stringer attachment.

2-53. NEGLIGIBLE DAMAGE. The same limits as those specified in Paragraph 2-48, apply here.

2-54. DAMAGE REPAIRABLE BY PATCHING. Damage to ribs which may vary in extent and location must be repaired in accordance with the repair data shown on Figure B-5.

2-55. DAMAGE NECESSITATING REPLACEMENT. If any damage extends over half the length of any rib, it is advisable to replace the rib.

2-56. FORMING REPLACEMENT RIBS BY ORDINATES METHOD. Whenever possible, damaged ribs requiring replacement should be replaced by original spare parts. However, where spare parts are not available and immediate repair is necessary, the rib contour is obtained from Table 2-1. The rib upper and lower surface ordinates are charted. This information permits the contour of the rib to be laid out so that a form block can be cut. From 24ST alclad sheet material the same thickness as the original rib, cut material for a new rib by tracing the contour of the form block and adding sufficient width on the top and bottom to permit the forming of the rib flanges. The sheet is clamped to the form block and the rib flanges are formed by pounding with a mallet. Using the damaged rib as a pattern, make the stringer cutouts along the edges of the replacement rib. In place of the flanged lightening holes and stiffening beads of the original rib, bent-up 3/4 x 3/4 angles of the next heavier gage as the rib, are installed on the rib perpendicular to the rib flanges. The replacement rib is installed exactly the same as an original part.

2-57. WING STRINGERS.

2-58. DESCRIPTION. The stringers in the wing are made from 24ST aluminum alloy extrusions and 24ST alclad standard formed sections, varying in thickness from .025 to .125 inches. Detailed dimensions are shown in Section VIII; extrusions 1E128, 1E129 and standard formed angles 1S3, 1S4 and 1S4-3.

2-59. NEGLIGIBLE DAMAGE. Any damage to stringers must be repaired, no negligible damage is permitted.

2-60. DAMAGE REPAIRABLE BY PATCHING. The repairs shown in Figure 2-6 are for partial and complete damage to wing stringers. When damage occurs to any of the skin attachment flanges and skin, and a flush patch skin repair is used, it will be necessary to cut back the stringer's skin flange or the stringer. The skin flange is cut back beyond the skin cutout to allow the installation of the skin doubler as described in Paragraph 2-15. The stringers are reinforced by the repair materials shown in Figure 2-6, which extend beyond the damaged area and doubler sufficiently to permit installation of the rivets called out. When an external skin patch is used for repair, the stringer does not have to be cut back beyond the damaged length of the stringer. The stringer repair is made as shown in Figure 2-6. It will be necessary to insert a filler between the external patch and the stringer.

2-61. DAMAGE REPAIRABLE BY INSERTION. The repairs shown in Figure 2-6 may be used for splicing insertion stringers. The insertion stringer should be identical with the existing part or made from the permissible substitute shown in Section VIII. The insertion stringer must butt against the existing