

ets are used instead of plate nuts and screws. If an external patch is desired, use the repair shown in Figure B-3.

3-15. RIVETED SKIN PATCH, OVER INTERNAL STRUCTURE. (See Figure B-1.) Flush skin patches integral with the damaged skin panel may be made by riveting the doubler to the existing skin and riveting the flush skin patch to the doubler and the internal structure. The skin patch repair data is shown at the bottom of the figure. The procedure for making the repair is the same as for the installation of an access cover plate as described in paragraph 3-12, except that rivets are used instead of plate nuts. The rivets tying the skin patch to the repaired internal structure should be the same as the existing rivets or one diameter larger, and should have the same spacing as the rivets in the original structure. If an external patch is desired, use the repair data shown in Figure B-3.

3-16. LEADING EDGE REPAIR, CLEAR OF INTERNAL STRUCTURE. Damage to the leading edge clear of internal structure must be repaired as shown in figure B-2. The skin patch repair information may be obtained at the bottom of the Figure. The repair can be effected by trimming beyond the damaged skin, leaving sufficient skin to allow for the installation of the doubler. This type of skin patch may be installed, provided there is access through which the rivets can be bucked, or Cherry rivets (CR-163C) are used. After the doubler is riveted to the skin, attach the cover plate to the doubler with rivets. A removable cover plate attached with plate nuts and screws may also be used, making the repair the same as the installation of an access door as described in Paragraph 3-12.

3-17. LEADING EDGE REPAIR, OVER INTERNAL STRUCTURE. Damage to the leading edge, over internal structure must be repaired as shown in Figure B-2. The skin patch repair information may be obtained at the bottom of the Figure. Trim the skin beyond the damaged area, leaving sufficient skin to allow for the installation of the doubler. Trim the rib back beyond the existing skin sufficiently to allow for the installation of the doubler. Repair the rib by forming a new rib nose section and making an extension splice. The depth of the new nose section must be such that, when the doubler and flush skin patch are riveted to the doubler, the skin patch will be flush. It will be necessary to put a filler between the existing rib flange and the rib extension splice member. This type of skin patch may be installed, provided there is access through which the rivets can be bucked, or Cherry rivets (CR-163C) are used. After the doubler is installed and the rib repaired, rivet the flush skin patch to the doubler and the new rib section. Use the same spacing as the original spacing to attach the skin patch to the new rib nose section. If a removable access cover is desirable, use plate nuts and screws as described in Paragraph 3-12.

3-18. DAMAGE REPAIRABLE BY INSERTION. Skin that is damaged extensively should be repaired by splicing in a new skin from one structural member to the next. The repair should be made to lie along stiffening members, stringers, ribs or beams, and each seam should be made exactly the same in regard to rivet size, spacing and rivet pattern as the parallel manufactured seams at the edges of the original sheet. If the manufactured seams are different the stronger one must be copied. A similar repair is shown in figure 2-3.

3-19. DAMAGE NECESSITATING REPLACEMENT. Damage to skin which cannot be repaired by insertion must be repaired by replacement of the skin panel.

3-20. HORIZONTAL STABILIZER BEAM.

3-21. DESCRIPTION. This beam is built up of 24ST alclad sheets riveted together with AN470AD4 and AN470AD5 rivets. Bend radii are 3/16". The channel web is .032 gage with spar caps of .125 gage riveted on and continuous between stations 46.5 left and right. A .125 gage reinforcing strip, also riveted to the flanges, extends to station 31-3/4 either side of airplane center. Outboard of station 46.5 the beam is a simple .032 channel.

3-22. NEGLIGIBLE DAMAGE. Web damage not exceeding the following limits requires no repair or reinforcement. Smooth dents 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 dents are at a distance of 15 inches. Web dents exceeding the above limits and subsequently bumped back to contour without cracking, creasing or oil canning the web may be classified negligible damage. Bent or dented cap angles and flanges free of cracks and abrasions which are reworked to their original shape, free of waviness, and without cracking or creasing may be considered negligible damage. Scratches, located anywhere on the beam which do not penetrate beyond the alclad coating may be classified negligible damage.

3-23. DAMAGE REPAIRABLE BY PATCHING.

3-24. GENERAL. The repair shown is for damage occurring between stations 12.0 and 46.5. If damage is extensive, it will be necessary to remove portions of the skin and any other structure which will interfere with making the repair. These parts of the structure that are removed or cut back must be replaced or repaired and joined as in the original structure, to regain the full strength of the structure. Jigs should be used to maintain the proper alignment of the structure. Trim all damage smooth so that a good fit of repair members is obtained. Paint all base metal with two coats of zinc chromate primer.

3-25. BEAM REPAIRS BETWEEN STATIONS 12.0 AND 46.5. (See Figure 3-3.) Damage to the beam cap flanges must be repaired by replacement of the .125 24ST alclad angle and the .125 24ST alclad strip. The skin attached to the replaced cap flanges must pick up the existing rivet holes. Damaged spar webs should be repaired by a splice plate and angles made of .040 24ST alclad. All rivets used for the repair are AN470AD5.

3-26. BEAM REPAIRS BETWEEN STATION 46.5 AND 76.06. The spar consists of an .032 24ST alclad channel in this region. Damaged web and flanges can be repaired similar to Figure 3-3, using the .040 24ST alclad angles and splice plate and AN470AD5 rivets. The .125 24ST alclad angle and strip are not required for repairs outboard of station 46.5. The double row of rivets thru the splice plate and web, and rivets thru the angles into the beam flanges and web should be identical to Figure 3-3.

3-27. DAMAGE REPAIRABLE BY INSERTION. Damaged beam caps and web, occurring between the airplane centerline and Station 12 must be repaired by the insertion of a .032 24ST alclad beam channel extending 13