CAUTION

Holes and punctures in the bulkhead web cannot be considered negligible damage, as air leakage may cause over heating of engine.

6-18. WEB DAMAGE REPAIRABLE BY PATCHING. Web damage which exceeds the specified limits of negligible damage must be repaired. Remove damaged area by cutting a circular or rectangular hole; minimum corner radii for rectangular cutouts to be 1/2 inch. Smooth all edges to remove burrs. Cut an .051 24 ST alclad patch larger than cutout to accommodate rivets with proper edge distance. Attach patch to bulkhead web with a single row of AN470AD5 rivets at 3/4 inch spacing with a minimum edge distance of 5/16 inch. Repair to be of the type shown in Figure B-3.

6-19. FLANGE NEGLIGIBLE DAMAGE. Bent or dented flanges free of cracks or abrasions, which are bumped back to their original shape, free of waviness, and without cracking or creasing the flanges may be considered negligible damage. Scratches which do not penetrate beyond the alclad coating may be disregarded.

6-20. FLANGE DAMAGE REPAIRABLE BY PATCHING. Flange damage which exceeds the specified limits of negligible damage must be repaired. Trim all damage and smooth all edges to remove burrs. Flange damage adjacent to the engine mount skin, between the upper and lower longerons, may be repaired by nesting a formed .040x3/4x3/4 24ST alclad angle along the flange and web. Attach with AN470AD5 rivets at approximately 3/4 inch spacing with four rivets thru the flange and repair angle and four rivets thru the web and repair angle, making a total of eight rivets each side of the damaged area.

6-21. ENGINE MOUNT CROSS TUBE.

6-22. DESCRIPTION. (See Figure 6-1.) The engine mount cross tube is normalized 4130 chrome-molybdenum steel with engine mount brackets and support bushings welded to the tube. The tube dimensions are .065x1-1/4 outside diameter.

6-23. NEGLIGIBLE DAMAGE. Scratches or nicks, free of cracks, running lengthwise of the tube may be classified as negligible damage if, after smoothing the damage, the damage does not exceed .005 inch in depth and 1-1/2 inches in length. Smooth out sharp nicks and scratches with a fine file, fine emery cloth, or steel wool. Smoothing of damage will remove stress concentrations at the damaged area. Paint all smoothed damage with at least one coat of zinc chromate primer.

NOTE

Deep scratches or nicks running around tube cannot be considered negligible damage.

Any signs of nicks or scratches appearing to have cracked the tube should be checked by magnetic inspection. Magnetic inspection by means of magnetic powder such as magnaflux and black rouge has proven to be a practical and non-destructive method. This process will indicate the presence of minute cracks. The surface to be examined should be thoroughly cleaned as it is otherwise difficult to detect cracks. Magnetically inspected parts must be demagnetized before assembly on airplanes. Another less accurate method of checking for cracks, is to apply a liberal coating of light oil to the affected area, thoroughly wipe the oil off, and then apply a coat of whiting. A crack will usually show by the appearance of oil on the whiting from the crack recess.

NOTE

Cracks can never be considered as negligible damage.

6-24. DAMAGE REPAIRABLE BY PATCHING. Damage which exceeds the specified limits of negligible damage, must be repaired in accordance with instructions in AN01-1A-1, General Manual for Structural Repair.

6-25. DAMAGE NECESSITATING REPLACEMENT. Damage not covered in AN01-1A-1, General Manual for Structural Repair necessitates replacement of part.

6-26. NOSE COWL.

6-27. DESCRIPTION. (See Figure 6-1.) The engine nose cowl is a stamped part made of .040 52S0 aluminum alloy. The cowl covers the forward portion of the engine, and contains an air inlet for cooling the engine. The nose cowl is bolted to the engine mount, and is supported at the top by a channel running aft to the firewall.

6-28. NEGLIGIBLE DAMAGE. Disregard shallow smooth dents or nicks free of cracks or abrasions. Scratches less than .005 inch deep and 1-1/2 inches long are considered negligible damage after burnishing. Deep dents formed back to contour and free of cracks or scratches are considered negligible damage.

6-29. DAMAGE REPAIRABLE BY PATCHING. See Figure B-1. Trim all damaged material to a circular or rectangular cutout; minimum corner radii for rectangular cutouts is 1/2 inch. Smooth all edges to remove burrs. Cut a .051 52S0 doubler to fit on inner side of nose cowl; doubler to be formed to contour and larger than cutout to accommodate rivets to cowl with proper edge distance. Cut flush skin patch of .040 52S0 to fit as closely to outline of cutout as possible and locate position on doubler to provide equal overlap at all edges of cutout. Attach nose cowl to doubler and doubler to flush patch with a staggered double row of AN470AD5 rivets, maintaining a 3/4 inch rivet spacing with the rows 5/8 of an inch apart with a minimum edge distance of 5/16 of an inch at all sheet edges.

NOTE

When the central portion of the doubler has not been removed, a single row of AN470AD5 rivets thru the doubler and flush patch at a one inch spacing may be used. Two rows of rivets are required thru the cowl skin and doubler.

6-30. HINGED COWL.

6-31. DESCRIPTION. The hinged cowl is made from .032 24 ST alclad, reinforced by three vertical formers on each side. The cowl is secured by three hinge fittings on top and Dzus fasteners at the bottom.

6-32. NEGLIGIBLE DAMAGE. Disregard smooth dents and nicks free of cracks and abrasions, and scratches which do not penetrate beyond the alclad coating. Punctures, deep dents, cracks, and deep scratches which are cleaned up with a 1/2 inch diameter hole or smaller and are two inches from adjacent structure are considered negligible damage. Adjacent negligible damage must be at least ten times the diameter