

Service Letter No. SL-AG-18

17 July, 1962

WING ATTACH ANGLES

APPLICABILITY: All S-2 Aircraft through Serial Numbers 1140C

There have been several reports of elongated bolt holes in the wing to fuselage attach angles.

These holes are those used in attaching the angles to the fuselage vertical tube immediately aft of the main spar. The probable cause of the hole elongation is from repeated wing flexing when making hard landings and operating from rough strips.

An immediate inspection of the attach angles is suggested. This may be accomplished by removing the four AN4 bolts attaching each wing to the fuselage vertical tube and visually inspecting the holes.

Inspections should be conducted at least once each year, or every 300 hours; whichever comes first. If elongated holes are found, the following steps should be taken. This fix is FAA approved.

- 1 Install a 1/16" shim between the lower longeron and the lower spar web flange of each wing to hold wing in place when angles are removed.
- 2 Mark each angle to identify location and remove.
- 3 There are four 1/4" diameter holes and eight 3/16" holes in the wing attach angles. If the 1/4" holes are elongated to the extent that it is impossible to determine the exact original location, OR if the 3/16" holes are elongated, it will be necessary to replace the wing attach angle. Follow the instructions on Page 2 if this is required.
- 4 Place the wing attach angles in a drill press and enlarge the 1/4" holes to .496 (tolerance + .002/- .000). For this operation, a 1/2" spot facer ground to .496" diameter with a 1/4" pilot is used. Great care should be exercised to place the pilot in the exact original location of the elongated hole.
- 5 Install all bolts attaching the wing angles to the fuselage and spar web. Do not tighten until all bolts are in place. Use the new AN3-6A and AN3-7A bolts with AN365-1032 nuts and AB960-10 washers furnished in the kit to attach the angles to the spar web. Use the new AN4-30A bolts with AN365-428 nuts furnished in the kit to attach the angles to the fuselage vertical tube. Fill out the enclosed card and return to the factory.

INSTRUCTIONS FOR INSTALLING NEW WING ATTACH ANGLES

- 1 Install a 1/16" thick shim between the lower longeron and the lower flange of the wing spar web to keep the wing from touching the fuselage structure.
- 2 Remove the old wing attach angles. Make sure the wing is not shifted from its original position.
- 3 Clamp new wing attach angles in place. If the angles ride any of the spar web rivet heads, file a smooth cut out in the angle until clearance is obtained. Angles should be fully against the main spar web and touching the attach bushings in the vertical tube.
- 4 Using the holes to the spar web as a guide, drill the top and bottom holes through each angle, using a #13 drill (.185 diameter).
- 5 Attach the angles to the spar web with AN3 bolts in order to secure the angle for drilling the remaining holes.
- 6 Using the #13 drill bit, drill the remaining holes through the spar web and through the attach angle. Use extreme care during drilling so as not to elongate the existing holes in the spar web. Drilling is done from the front side of the spar and care should be taken to see that the drill is held perpendicular to the spar web at all times.
- 7 Remove the inboard angles from the spar web and drill the 1/4" diameter holes through the outboard wing attach angles, using the attach bushings in the vertical fuselage tube as a guide for drilling. This is a little difficult in the S-2C due to lack of working space, so an eighteen inch extension bit (1/4" diameter) is furnished.
- 8 Now remove the outboard wing attach angles and install the inboard angles with AN3 bolts to the spar web, using the top and bottom holes.
- 9 Drill the 1/4" holes through the inboard wing attach angles, using the attach bushings in the vertical fuselage tube as a guide for drilling. For this operation, a right angle adapter for the drill motor is required, since working space between the fuselage frame and the wing root rib is only a few inches.
- 10 Install the stainless shoulder bushings and attach the angles to the wing as called out in instructions in Page 1.

Kit #18-1 Parts
(For Installing Bushings Only)

<u>No Req'd</u>	<u>Part No.</u>	<u>Description</u>
16	112-10	Shoulder Bushing
8	-----	AN4-30A Bolts
8	-----	AN365-428 Nuts
16	-----	AN3-6A Bolts
16	-----	AN3-7A Bolts
32	-----	AN365-1032 Nuts
64	-----	AN960-10 Washers
2	-----	.063 x 2 x 1 2024T-3 Shim
1	-----	½" Spot Faced Ground to .496" with ¼" pilot (DoAll #D-376)

Kit #18-2 Parts
(For Installing New Wing Attach Angles)

<u>No Req'd</u>	<u>Part No.</u>	<u>Description</u>
4	112-B	Wing Attach Angle
1	-----	18" long ¼" diameter drill bit
1	-----	#13 (.185 dia.) Drill bit