

Service Letter No. SL-AG-19
22 August, 1962

FIN AND RUDDER HINGES

APPLICABILITY: All S-2 Aircraft Serial 1023 through 1151

There have been several cases reported of cracking in the tubing around the rudder and fin hinges. The probable cause of this cracking has not been determined but could result from any of the following conditions:

- (a) Freezing of the hinges due to insufficient lubrication.
- (b) Freezing of the hinges due to corrosion from chemical action.
- (c) Parking aircraft down-wind without installing gust locks.
- (d) Misalignment of hinges.
- (e) Propeller slipstream loads on the top portion of the rudder.

It is suggested that an immediate inspection be carried out and thereafter every 100 hours until Kit #19 is installed. The paint should be scraped away from the hinges in the region of the weld for inspection purposes. Also, make sure the hinges are lubricated with a light weight oil periodically.

If cracks are found at any hinge location, Kit #19 should be installed at all three hinge points. This kit is FAA approved and should be installed in accordance with the following instructions:

- 1 Remove rudder from aircraft. Cut fabric away from hinge positions.
- 2 Loosen top tail brace wires only and remove vertical fin.
- 3 Cut the top and the bottom hinges from the vertical fin and file off old weld.
- 4 Attach the rudder to the fin center hinge, and using the rudder for alignment purposes, tack-weld the 19-11 fin post hinge assembly in place at the top and bottom hinge locations. The clevis pins attaching the 19-11 assembly to the rudder hinges should be in place during the tack-welding.
- 5 Remove rudder and complete welding operations on top and bottom vertical fin hinges.
- 6 Cut the top and bottom hinges from the rudder and file off the old weld.

- 7 Attach the rudder to the fin center hinge, and using the fin for alignment purposes, tack-weld the 19-10 rudder post hinge assembly in place at the top and bottom hinge locations. The clevis pins attaching the 19-10 assembly to the fin hinges should be in place during the tack-welding.
- 8 Remove the rudder and complete welding operations on top and bottom rudder hinges.
- 9 Cut the center hinge from the rudder and file off old weld.
- 10 Attach the rudder to the fin and using the fin for alignment purposes, tack-weld the 19-10 rudder post hinge assembly in place at the center hinge location. The clevis pin attaching the 19-10 assembly to the fin hinge should be in place during the tack-welding.
- 11 Remove the rudder and complete welding operations at the center rudder hinge.
- 12 Cut the center hinge from the fin and file off old weld.
- 13 Attach the rudder to the fin and using the rudder for alignment purposes, tack-weld the 19-11 fin post hinge assembly in place at the center hinge location. The clevis pin attaching the 19-11 assembly to the rudder hinge should be in place during the tack-welding.
- 14 Remove the rudder and complete welding operations at the center fin hinge.
- 15 Clean welded areas and prime with zinc chromate. Apply coat of activated Copon paint and patch fabric where cut.
- 16 Attach vertical fin to fuselage and tighten top tail brace wires to original position.
- 17 Check alignment of the three fin hinges. This may be done by stretching a string through the center of the top and bottom hinges and checking the center hinge for alignment. Lateral alignment may be accomplished by adjusting the top rear tail brace wires. Fore and aft alignment may require installing 3 1/2" x 2 1/2" 2024T-3 shims .063 thick between the bottom fin attach bracket and the fuselage.
- 18 Install rudder on aircraft per sketch on Page 4.
- 19 Fill out enclosed card and mail to factory.

Kit #19

<u>No Req'd</u>	<u>Part No.</u>	<u>Description</u>
3	19-10	Rudder Post Hinge Ass'y
3	19-11	Fin Post Hinge Ass'y
3	----	AN 394-63 Clevis Pin
3	----	AN 380-2-4 Cotter Pin
3	412-75	Bronze bushing 3/4" long
6	412-74	Bronze bushing 1/2" long
9	----	AN960-416 Washer
3	----	AN960-416L Washer
3	----	Shim 3 1/2" x 2 1/2" x .063 2024T-3