

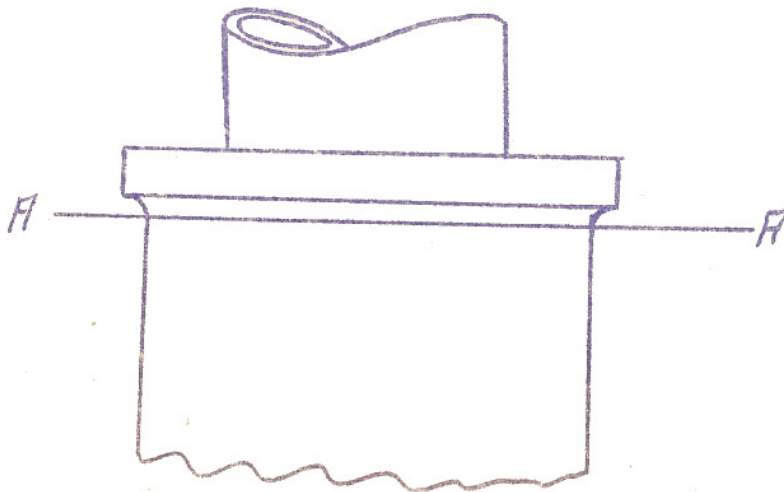
HARTZELL PROPELLER COMPANY
PIQUA, OHIO

BULLETIN NO. 8 (Seabee and Widgeon)
MANDATORY

May 28, 1949

SUBJECT: Service Life and Periodic Inspection of Propeller
Hub Spider (Models HC-12X20-2,-3)

1. On October 26, 1948 we pointed out in general Bulletin No. 10 the importance of periodic inspections of the bases of the shoulders on Hub Part C-49. This seemed advisable as these parts have been in service for several years under severe vibratory and corrosive conditions. Recent inspections have revealed several instances of badly rusted parts which probably would result in fatigue failure in a short time. A few other instances were found where fatigue cracks had already started, the cause of which could not be readily determined. In view of these findings, we and the C.A.A. both feel that certain precautionary steps must be taken in order to avoid possible serious accidents.
2. Hub spider parts, C-49, which have 500 hours or more, must be retired as soon as possible, or not later than the time specified by C.A.A. airworthiness directive. This part should be replaced by one of improved design, C-49-2C, characterized by a larger radius. New A-16-2 split rings must also be used. It is believed that this new design has a sufficiently large margin of safety as to preclude the possibility of future failure due to either vibration or corrosion. New type hubs have serial numbers 4300 and over.
3. For hub spiders that have less than 500 hours, periodic inspections must be made at intervals of 200 hours, or six calendar months, whichever occurs more frequently. After the 500 hour period is reached the new type hub spider, C-49-2C must be installed. This type of inspection may then be discontinued. These inspections should consist of a visual determination of the presence of rust pits, tool marks, or fatigue cracks at section A-A of sketch below.



The area in the fillet and that immediately adjacent to it should be polished to a mirror finish with emery and polishing paper wrapped around a 1/8" file or rod. If any rust pits cannot be readily removed by polishing the surface, the hub must be retired. In removing tool marks, it is best to chuck the opposite pilot tube in a lathe and use 1/8" diameter fine file in working out the surface irregularities. Final polishing is done with emery paper, and then polishing paper. Care must be exercised in this operation to avoid changing the radius shape. The shoulder proper should not be touched.

4. The A-16 Split rings are paired and stenciled with serial numbers. Be sure they are replaced in pairs, as any difference in thickness of the two rings will concentrate the load on one side of the hub shoulder. If the stenciled numbers in the split rings cannot be read, check the thickness of the halves with a micrometer. Halves of pairs will be equal in thickness.
5. Use a waterproof grease such as Lubriplate 630AA, in order to keep the internal parts from rusting. Other recommended greases are listed in third and fourth printing service manuals, and also in Bulletin #2 dated September 4, 1947.
6. A possible contributing cause of fatigue cracking of the C-49 hub is excessive looseness of the blade on the pilot tube. When testing for blade looseness by hand, if the tip moves a distance greater than 1/8 inch, the pilot tube should be replaced with an oversize one and the blades reamed to fit. Rough engines, or unbalanced propellers may also contribute to fatigue failures.
7. In some airplanes, such as the Widgeon, propeller roughness may be indicative of the presence of a crack in the C-49 hub, and should be investigated immediately.