

SERVICE



LETTER

Service Letter No. 439

November 13, 1964

TO: Distributors, Dealers, Certified Service Centers and Owners

SUBJECT: Lycoming Service Bulletin No. 300A (Crankshaft Propeller Flange Inspection)

MODELS AFFECTED: All PA-30 Twin Comanche Aircraft with Lycoming IO-320-B1A Engines Installed, Serial Nos. 30-1 to 30-597 incl., 30-599 to 30-605 incl., 30-607, 30-608, 30-611 to 30-615 incl., 30-617 to 30-619 incl., 30-621, 30-623, 30-624, 30-625, 30-627, 30-629, 30-630, 30-632, 30-635, 30-640, 30-644

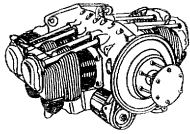
Lycoming Service Bulletin No. 300 dated June 2, 1964 has been superseded and made void by the release of Lycoming Service Bulletin No. 300A dated November 2, 1964, copy attached.

Compliance with Hartzell Bulletin No. 86 which was reprinted on the reverse side of Lycoming Service Bulletin No. 300 remains in effect.

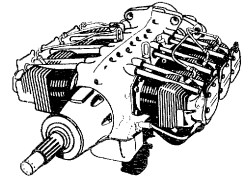
We have been advised by the F.A.A. that Airworthiness Directive 64-15-5 will be superseded by an Airworthiness Directive covering Lycoming Service Bulletin No. 300A.

As a result, a revised Flight Manual will be required for the aircraft serial numbers listed above. Distributors should estimate the number of revised flight manuals required and order PA-30 Flight Manual Report No. 1269, revised October 22, 1964, from the Service Spares Department.

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA., U. S. A.



LYCOMING



SERVICE BULLETIN

LYCOMING DIVISION



WILLIAMSPORT, PA., U.S.A.

DATE: November 2, 1964

Service Bulletin No. 300A
Approved by FAA

SUBJECT: Crankshaft Propeller Flange Inspection

MODELS AFFECTED: All Model IO-320-B1A Engines installed in Piper Model PA-30 Twin Comanche Aircraft

- TIME OF COMPLIANCE:
- I Following any flight involving prohibited aircraft maneuvers, inspect crankshaft flanges in accordance with section 2.
 - II Engines with more than 50 hours service time prior to the date of this bulletin must have crankshaft inspected in accordance with section 3 below at first engine overhaul not to exceed 1200 hours total service time.
 - III Engines with less than 50 hours since new prior to the date of this bulletin need not comply with the 1200 hour time compliance provided flight recommendations have been observed.

Extensive testing and field inspection reports that followed release of Service Bulletin No. 300 and FAA Airworthiness Directive 64-15-5 show that IO-320-B1A engines manufactured with lightening holes in the crankshaft propeller mounting flange are satisfactory and normal service life can be expected if the following precautionary measures are observed.

Tests prove that both the crankshafts with the lightening holes and revised crankshafts which eliminate the lightening holes beginning with engine Serial No. 681-55 and up are subject to certain flight restrictions in order to obtain maximum safety of flight and infinite crankshaft service life. High internal stresses can be accumulated in the area of the propeller mounting components whenever power-on stalls are performed at engine speeds above 2150 RPM. In addition, tests indicate that aircraft yaws which are performed excessively fast by applying rapid full left and full right hand rudder consecutively will create high stresses from gyroscopic action.

1. To prevent possible damage to either type crankshaft presently used in service, the following is recommended during the practice and/or demonstration of aircraft maneuvers.

- a. All maneuvers approved for normal category aircraft operation can be performed.
- b. For demonstrating and/or practicing power-on stalls, use engine speeds 2100 RPM or below.
- c. Avoid violent maneuvers not approved for normal category aircraft.

2. Inspection required before next flight following inadvertent maneuvers which are prohibited.

a. Remove the propeller and starter ring gear from the mounting flange of the engine and examine the entire area of the crankshaft flange from the crankshaft seal forward for evidence of cracks. Use a magnifying glass of approximately 10 power and adequate lighting for this purpose or portable magnetic particle test equipment. Pay particular attention to the flange area and fillet radius on rear face of propeller flange. See accompanying illustrations for possible location of where cracks might appear and type of structural damage which can occur. Because of machining marks, the factory does not recommend using dye penetrant for this inspection. Further flight with a cracked propeller flange is not permissible.

b. Record accomplishment of inspections in engine log book.

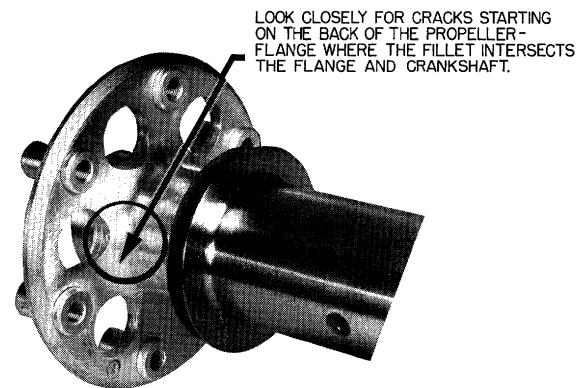


Figure 1. Rear View of Propeller Mounting Flange Showing Area of Lightening Holes.

3. Crankshaft inspection at first engine overhaul not to exceed 1200 hours total time in service.

a. During magnetic particle inspection, particular care should be taken to examine the propeller flange area in the large fillet radius tangent to the crankshaft in addition to the normal flange and shaft areas for possible cracks or other evidence which indicates bending.

b. Report immediately to the factory any crankshafts which fail to meet inspection standards in this area.

c. Crankshafts which conform to inspection standards at first overhaul can be returned to service.

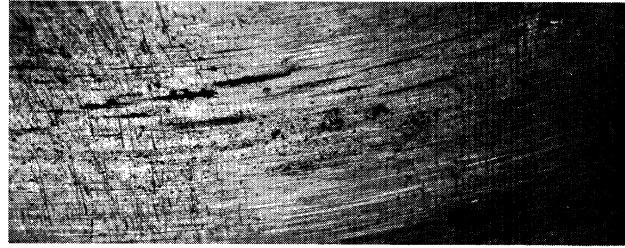


Figure 2. 10X magnified view showing appearance of area cracked due to abnormal loading imposed on the propeller flange during periods of unauthorized maneuvers.

NOTE

This bulletin supersedes and voids any further compliance with Service Bulletin No. 300.