

No. 101

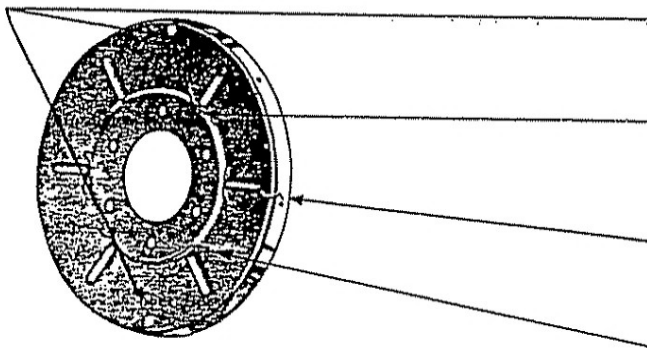
Date February 11, 1959

F.A.A. APPROVED

Subject: Propeller Spinner Backing Plates,
All Models Ercoupes and Aircoupes

THE PROBLEM

Several instances of fatigue failures of the propeller backing plates No. 415-40595 and No. 415-40592 have occurred in service. These failures have been of the type illustrated below.



Fret marks and cracks from "riding" against trailing edge of propeller.

Cracks starting at center most end of radial beads.

Cracks through or adjacent to attaching holes in flange.

Cracks adjacent to sharp edge of engine propeller flange.

Our Engineering Department has recently completed a thorough research and test program and found the failures to be attributed to the following reasons:

1. Stress concentration caused by beads.
2. Excessive out of balance caused by running "out of true".
3. Excessive propeller vibration.
4. Sharp edges of Tinnerman nut plates "digging in" to edge of flange.
5. Warping effect of using a wood propeller having a deep impression and ridge. This causes "joggle" in backing plate.
6. Sharp edge of crankshaft flange on engine.
7. Rim of flange "riding" against trailing edge of metal propeller.

RECOMMENDED ACTION

It is recommended that the spinner backing plates be inspected frequently for cracks and replaced immediately if any cracks are discovered.

The propeller flanges on some engines have a sharp edge. This edge should be stoned down to a radius of .010 so as not to "dig into" the propeller backing plate.

RECOMMENDED ACTION (cont.)

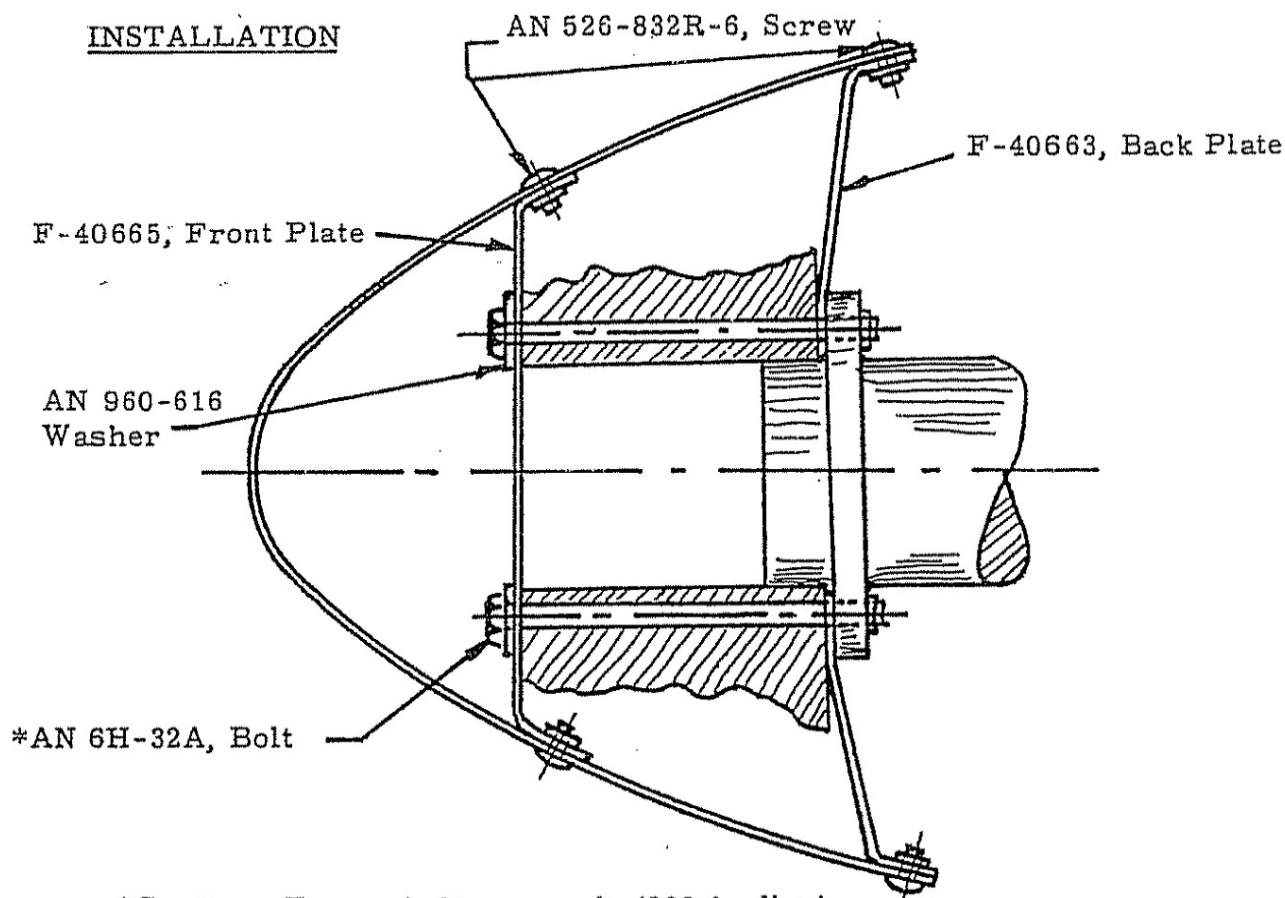
Old backing plates made for tapered shaft engines have 7/16 diameter holes around the hub. The bolts going through these holes are 3/8 diameter. Care should be taken to center the plate so that it runs true. If damage has occurred to the old backing plate, the spinner assembly should be removed immediately as a failure could prove dangerous. Backing Plates No. 415-40595 and No. 415-40592 are not considered as satisfactory replacements.

REPLACEMENT

In the course of investigating and testing, we have developed a new, improved spinner support consisting of a front plate as well as a new type back plate. This new support is installed in all Forney F-1 Aircoupes commencing with serial number 5656. Due to the design of this new mounting, it is available only for flanged crankshaft engines fitted with metal propellers. No replacements are available for engines with tapered crankshafts or wood propellers. Since the spinner must be jig drilled to match the front support, it is recommended that the entire kit be purchased and installed. This kit, designated as Kit No. FMK-15, includes the following parts:

- 1 Back Plate, No. F-40663
- 1 Front Plate, No. F-40665
- 12 AN 526-832R-6, Screw
- 1 Spinner, No. F-40594-S (All holes jig drilled.)
- 6 AN 6H-32A, Bolt (This longer bolt required due to addition of front plate.)
- 6 AN 960-616, Washer

INSTALLATION



*Caution: Torque bolts properly (300 in. lbs.)
Track propeller tip within 1/16 in.