No Wobble Nose Gear

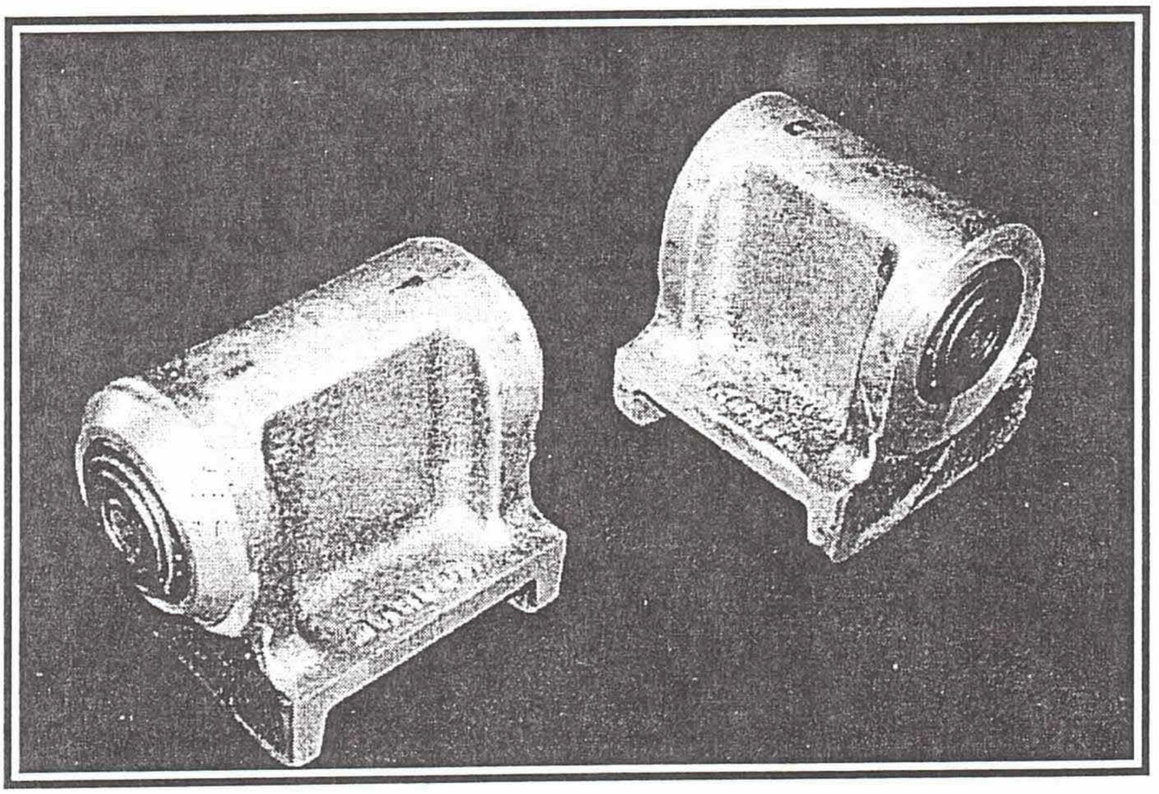
Jack Wilhelmson (SC) - When testing my Cozy, I was impressed with the flying and ground handling qualities. If built per plans, the airplane normally requires very light brake applications and tends to track straight on a level taxiway. As my airplane accumulated hours and landings I began to notice a deterioration of the ground handling. It seemed to refuse to track straight and required harder braking to make corrections. This led to brake heating and wear.

I discovered excessive side to side play in the nose gear caused the problem. The bronze bushings in the NG-6 casting had excessive clearance. After replacing them, ground handling returned to normal. A few landings later I noticed the problem beginning to return. I tried installing small sealed ball bearings in the casting. These failed even sooner than the bushings. It became apparent that bushing and bearing failure was caused by side impact loading during landing. Analysis of nose gear geometry revealed that loads could be high enough to fail the bearings. Adding to the problem was the fact that the clearance in the bearings is multiplied by about forty when the nose wheel touches the ground.

Only tapered roller bearings are capable of repeated impact loading without failure and zero clearance preload. That is why they are used as wheel bearings. Since the smallest standard tapered roller bearing is larger than the NG-6 casting, a new NG-6 was milled from a solid block of aluminum and the taper bearings installed. This has been in my airplane for four years and many hard landings with no increase in nose gear side play or deterioration in ground handling.

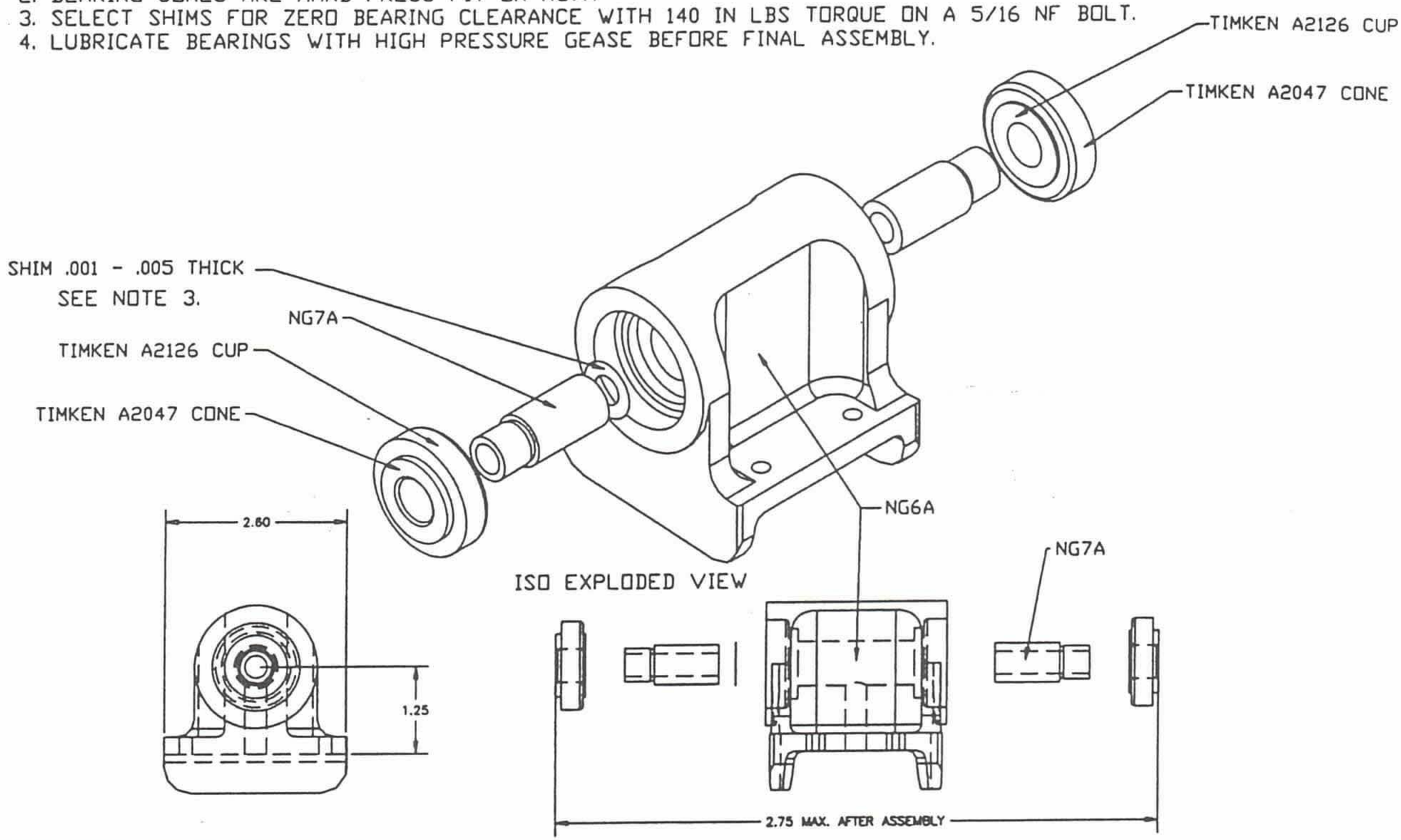
After making five of these for other people with Long EZs and Cozys. I made a casting pattern for Longs, Cozys, and MK-IVs. and had a short run of them cast. The aircraft grade aluminum has been heat treated to normalize them for machining.

Bearing races are press fit into the casting. Bearing inner races are light press fit into spindles that have a .322" diam. hole and accept the original 5/16" diam. mounting bolt. Bearing preload is controlled by length of the two spindles. The original mounting holes are left out of the casting to allow retrofit to an existing airplane. The installation is best done by putting the gear in place before the flox between the casting and the gear strut cures and checking for equal clearance on both sides of the strut in the retracted position. Installation is the same on new construction, except that the mounting holes must be drilled. I will be glad to drill the holes at no added cost if asked.



Beefy bearings on improved NG-6A

1. BEARING CUPS ARE PRESS FIT IN NG6A (WARM NG6A TO 150 DEG F).
2. BEARING CONES ARE HAND PRESS FIT ON NG7A
3. SELECT SHIMS FOR ZERO BEARING CLEARANCE WITH 140 IN LBS TORQUE ON A 5/16 NF BOLT.
4. LUBRICATE BEARINGS WITH HIGH PRESSURE GEASE BEFORE FINAL ASSEMBLY.



CUSTOM PRODUCT DESIGN
686 Pelzer DR.
Mt. Pleasant SC 29464

DRAWN JLV	DATE 10/95	NG6A ASSEMBLY
CHECKED		SIZE C — DWG NO. 7075001039008 — REV B
ENGR		SCALE VARIES — NG6ASY_B.DWG — SHEET 1 OF 1

Spinner Installation
<Canard.Com>

Gary Hunter (TX) - If you have a

ner tip. It will be obvious which way it is out of whack. Simply loosen the screws around the spinner bulkheads