

SERVICE BULLETIN 77

SUBJECT: MAIN GEAR HYDRAULIC ACTUATOR ROD-END REINFORCEMENT

APPLICATION: All Glasair III aircraft, in particular aircraft that are now flying or will be flying within four months.

DESCRIPTION: During normal operation of our prototype Glasair III, we have experienced bending failure of the main gear hydraulic actuator rod-end bearings. The bent rod-ends have been discovered during preflight inspections. Part of the problem is that, in order to provide a wide range of adjustment and to prevent the jam nut from interfering with the bellcrank mechanism, a relatively long portion of the rod-end threads must be left exposed and unsupported by the end of the actuator rod. We have determined that the solution to the problem is to special order rod-end bearings manufactured from 4130 steel heat treated to 176 KSI instead of the present plain carbon steel rod-end bearings. Unfortunately, delivery time on the new bearings is about 14 weeks.

As an alternative measure, we have developed a stainless steel threaded barrel that replaces the jam nut and reinforces the long, exposed threaded portion of the rod-end. Testing has shown that a rod-end reinforced by the barrel is 140% stronger in bending. The threaded barrel is tapered on the inboard end to prevent interference with the side brace bellcrank, and flats are provided on the barrel so a wrench can be used to tighten it against the hydraulic actuator rod.

To install the threaded barrels, the aircraft must be in the final assembly stage with the landing gear operating by its own hydraulic system, as described in Subsection AN, starting on page G-582 of the Final Assembly section of the Instruction Manuals. After final adjustments to the landing gear have been made, measure the exposed threaded portion of each rod end, including the jam nut thickness. Cut each barrel to the measured length by trimming the tapered end. (The tapered end is trimmed to ensure that the other end remains square to fit properly against the actuator rod.) Retaper the inboard end using a file or a grinder, if necessary, to prevent binding against the side brace bellcrank. Install the barrel onto the rod-end threads in place of the jam nut, readjust the assembly, and tighten the threaded barrel against the actuator rod. Make sure the barrel is securely tightened against the actuator rod; if the barrel becomes loose and a gap occurs between the barrel and the actuator rod, the stresses in the rod-end will concentrate at the gap, possibly leading to failure.

To save time, we have initially made only a limited number of the threaded barrels. We request, therefore, that Glasair III builders ordering the barrels indicate whether their airplanes are currently flying or expected to be flying within four months so we can give them priority. A second production run of the threaded barrels will be ordered in the near future.

We are offering the threaded barrels (part number 523-5627-001) at our cost of \$4.50 each. Two are required per airplane. To place your order, call Stoddard-Hamilton and ask for the order desk.



MODEL	ASSEMBLY NAME	REVISION	DATE	VOLUME	PAGE
GLASAIR III	SERVICE BULLETIN 77		3/26/90		1 of 1