

SERVICE BULLETIN 78

GENERAL SUBJECT: VARIOUS NOSE GEAR INSTALLATION PROBLEMS

APPLICATION: All Glasair III aircraft

SUBJECT 1: POSSIBLE NOSE GEAR FORK INTERFERENCE WITH DRAG BRACE ATTACH BRACKET MOUNTING BOLTS

DESCRIPTION: If the nose gear fork is not straight when the gear is retracted, it can catch on the bolt heads that fasten the drag brace attach bracket to the inside of the wheelwell. This can result in failure or binding of the nose gear retraction mechanism and subsequent inability to extend the gear.

SOLUTION: To avoid this problem, some builders are countersinking the drag brace attach bracket and replacing the AN4-6A bolts with AN509-416R12 countersunk screws.

SUBJECT 2: POSSIBLE INTERFERENCE BETWEEN NOSE GEAR DRAG BRACE AND NOSE GEAR ACTUATOR

DESCRIPTION: When the nose gear reaches the fully retracted position, the nose gear drag brace can contact the nose gear hydraulic actuator or actuator rod. This can place unusual loads on the actuator rod-end, resulting in failure. The problem may not show up when the gear is being operated by hand during initial nose landing gear installation, but may only appear when hydraulic pressure is applied to the system. This applies to landing gear serial numbers 001 through 171 only. On later gear, the retraction arm on the strut has been moved outboard slightly.

SOLUTION: During initial nose landing gear installation, and also during the initial actuation by the hydraulic system, verify that there is no interference between the drag brace and the hydraulic actuator. If interference occurs, adjust the positions of the drag brace attach brackets up or down to eliminate the interference.

SUBJECT 3: POSSIBLE INTERFERENCE BETWEEN THE NOSE GEAR DRAG BRACE AND ENGINE OIL SUMP

DESCRIPTION: In the fully retracted position, the nose gear drag brace can possibly contact the underside of the engine oil sump or provide too little clearance to accommodate engine movement. Besides placing unusual loads on the gear retraction mechanism, this condition can possibly result in damage to the engine.

SOLUTION: During nose landing gear installation and retraction tests, verify that there is a minimum clearance of 3/8" to 1/2" between the drag brace and the engine sump. Adjust the drag brace attach brackets up or down or increase the thickness of the drag brace travel stop to achieve this clearance.


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SUBJECT 4: POSSIBLE INTERFERENCE BETWEEN ELBOW FITTING ON HYDRAULIC ACTUATOR AND UPLOCK ACTUATING ARM SHAFT

DESCRIPTION: If the nose gear drag brace attach brackets have been moved upward as described in Subjects 2 and 3, the AN822-4D elbow in the nose gear hydraulic actuator can possibly interfere with the uplock actuating arm shaft during the retraction cycle.

SOLUTION: If interference occurs in this location, a female pipe thread tap may be used to enlarge the threads in the hydraulic actuator, allowing the elbow fitting to be threaded in more deeply. If this is done, the end of the elbow fitting that threads into the actuator must be shortened to prevent interference with the internal piston. Also, be careful not to thread the elbow in so far that it bottoms out and cannot be fully tightened or there is not enough room to connect the 491-4 hose end.

SUBJECT 5: POSSIBLE INTERFERENCE BETWEEN NOSE GEAR DRAG BRACE AND WELDS IN DRAG BRACE ATTACH BRACKET

DESCRIPTION: On some drag brace attach brackets, the weld in the slot in which the aft end of the nose gear drag brace fits is too big, preventing installation of the drag brace.

SOLUTION: If this condition occurs, grind a chamfer on the corner of the radiused aft end of the drag brace where it contacts the weld in the drag brace attach bracket. Verify that the drag brace can be inserted into the attach bracket far enough to permit installation of the pivot bolt through the attach bracket and the spherical bearing in the drag brace. Also verify that the drag brace is free to move through its full range of motion without contacting the weld in the attach bracket.

SUBJECT 6: SHIMMING CENTER ENGINE MOUNT PADS TO ELIMINATE NOSE GEAR STRUT BINDING

DESCRIPTION: The alignment of the two nose gear trunnion attach points on the engine mount is sensitive to minor irregularities on the firewall surface where the two center engine mount pads contact. If slight misalignment exists, the nose gear strut will not pivot freely on its trunnion pins, possibly resulting in increased wear of the pivot bushings or binding of the nose gear drag brace.

SOLUTION: When installing the engine mount for the final time after fire barrier installation, shim between the center engine mount pads and the firewall to achieve a good alignment of the two nose gear trunnion attach points. A shim thickness of as little as .015" (1/64") under one of the mounting pads may be all that is required. Install the nose strut to check that it pivots freely.


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