

# BELLANCA SERVICE LETTER

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**SUBJECT:** Inspection Wing Rib/Spar Attachment and Leading Edge Support Block Nails

**AIRCRAFT AFFECTED:** Part I deals with the inspection of wing rib/spar attachment nails and applies to Bellanca (including Champion) Model 7 and Bellanca Model 8 aircraft as indicated below:

Model 7GC, 7GCA, 7GCB, 7GCBA, 7HC, 7KC, 7KCAB: All Serial Numbers.

Model 7ECA:	Serial Number 1 thru 1350-80
7GCAA:	Serial Number 1 thru 396-80
7GCBC:	Serial Number 1 thru 1213-80
8KCAB:	Serial Number 3-70 thru 638-80
8GCBC:	Serial Number 1-74 thru 355-80

Part II deals with the inspection of leading edge support block nails and applies to Bellanca Model 8KCAB, Serial Number 3-70 thru 638-80.

**COMPLIANCE:** Bellanca recommends that the inspection presented herein be accomplished within the next 60 days or 20 hours of flight and thereafter at each 100 hour/annual inspection. If the inspection determines that repair is required, the repair must be accomplished within the next 30 days or 10 hours of flight with acrobatic flight prohibited during this time.

## INTRODUCTION

Bellanca has received a few reports of the rib/spar attachment and leading edge support block nails loosening and backing out of the spar. Tests indicate that this problem may occur when the aircraft are subjected to very high loads combined with high ambient temperatures and/or prolonged low moisture conditions.

The rib/spar nails transmit the wing normal loads from the ribs to the spars. If the rib/spar nails become loose, these loads will be transmitted by other means in such a way that prolonged use may cause spar damage. If the leading edge support block nails become loose, the leading edge may buckle during high loading conditions; repeated buckling will eventually cause the leading edge to crack at the buckle.

The inspection presented herein is not a substitute for a complete 100 hour/annual inspection of the entire wing including rib/spar attachment nails at other locations of the wing.

#### PART I: RIB / SPAR NAIL INSPECTION

Remove the wing inspection covers at the wing station in the vicinity of the strut attachment just aft of the front spar and slightly ahead of rear spar. If the covers are not installed, cut out the fabric inside of the inspection rings.

Inspect the rib/spar attachment nails on the three ribs nearest the strut attachment (i.e. rib nearest the strut and ribs on both sides of same). The nails are located on the aft face of the front spar and the forward face of the rear spar and can be viewed with an inspection mirror through the above inspection holes. The nails should be tight against the rib flange.

If one or two nails in a single rib are more than 1/32 inch out but less than 1/8 inch out, tap the nails back into spar.

If three or more nails in a single rib are more than 1/32 inch out or any nails are more than 1/8 inch or are missing, remove the nails in that rib and inspect the spar as described below, replace the nails in that rib with 14 gauge ringed nails as described in Service Kit No. 273: Rib/Spar Nail Repair.

If all the nails in the three ribs nearest the strut attachments are secure (both spars, both wings), the Part I inspection is complete. If any nails in the three ribs nearest the strut attachment are loose, the inspection must be continued inboard and outboard until two consecutive ribs to not have any loose or missing nails. Additional inspection holes will be required; cut the inspection holes so they may also be used to accomplish the repair.

If the nails in any rib must be replaced per the above criteria, inspect the spar for damage after the nails are removed per the following procedures.

- 1) Inspect the top and bottom of the spar in the plane of the rib for damage resulting from abrasion by the rib web. The spar must be repaired or replaced if the abrasion has broken the wood grains in the spar completely across the spar and more than 1/16 inch into the spar.
- 2) Inspect the spar for nail hole elongation damage by pushing a standard 16 gauge nail in each existing hole (starting with all nails in that rib removed) one hole at a time and moving the rib up and down relative to the spar. If the nail can be inserted at least 1/2 inch into the spar with hand pressure and if it is possible to move the rib up and down  $\pm 1/16$  inch with moderate hand pressure, the spar must be inspected further by moving the rib and looking at the nail hole directly. Nail holes which have elongated such that wood grains are broken more than  $\pm 1/16$  at the surface require that the spar be repaired or replaced.

Note that the above spar inspection criteria require that the wood grain be broken as indicated. Minor chafing and small indentations are not cause for rejection.

Spar repair and associated rib modifications shall be accomplished in accordance with AC 43-13: Acceptable Methods, Techniques and Practices, or other Federal Aviation Administration approved data. Please contact the Bellanca Service Department if spar repair is required.

## PART II: LEADING EDGE SUPPORT BLOCK NAILS INSPECTION

Inspect the upper outside surface of the wing approximately 1/2 inch forward of the aft edge of the leading edge skin approximately halfway between ribs for indication of loose or missing nails. A nail is considered to be loose if it is pushing up the fabric more than 1/16 inch or if it has broken the fabric and the nail head is exposed. A missing nail may be identified by inspecting the above area very closely for a small break in the fabric.

If the nails are loose, replace them with nails as specified in Service Kit No. 274: Leading Edge Support Block Nail Repair. If any nails are missing, install Service Kit No. 275: Leading Edge Support Angle, and inspect the entire interior of the wing to locate any missing leading edge support blocks which could cause interference with aileron travel.

## LOG BOOK ENTRY

Install the inspection covers and make appropriate log book entries to indicate that this inspection has been accomplished and the necessary repairs complete.

This Service Letter describes procedures which apply to standard production aircraft. It may not apply directly to aircraft which have been field modified. Contact the Bellanca Service Department if you have questions concerning this Service Letter.