



WACO Classic Aircraft Corp.
15955 South Airport Rd.
Battle Creek, MI 49015

SERVICE BULLETIN

GREAT LAKES AIRCRAFT

WACO CLASSIC CONSIDERS
COMPLIANCE MANDATORY

SB-GL12-01R

SUBJECT:

HORIZONTAL STABILIZER SPAR INSPECTION

SUPERCEEDS GREAT LAKES AIRCRAFT SERVICE BULLETIN #15 DATED MAY1, 2000

AFFECTED MODELS:

2T-1A

2T-1A-1

2T-1A-2

SERIAL NUMBERS AFFECTED:

0501 and 0502

0503 through 0699

0701 through 1012

COMPLIANCE TIME:

Prior to performing any aerobatic flight maneuvers, within the next 10 hours of non-aerobatic flight, or the next Annual/100 Hour Inspection whichever occurs first. Thereafter, at intervals not to exceed 200 hours flight time.

APPROVAL:

The technical content of this Service Bulletin has been shown to comply with the applicable Federal Aviation Regulations and is FAA approved.

PURPOSE:

The purpose of this Service Bulletin is to alert owners and operators of the affected models listed above that a condition may exist which, if uncorrected, could lead to the loss of control of the aircraft in flight resulting in serious injury or death to the occupants and/or persons or property on the ground and to provide the information needed to determine if the condition exists and, if so, the corrective action to be taken.

BACKGROUND:

In March, 2011, a Great Lakes 2T-1A-2, was substantially damaged when the right horizontal stabilizer failed as the airplane completed some aerobatic maneuvers and separated from the airplane while it was on final approach for landing. The pilot was able to continue to a landing at the airport but, due to the damage to the rudder, was unable to maintain directional control, and the airplane ground looped to the right. Examination of the right stabilizer revealed evidence of a pre-existing crack in the front spar at the rivets securing the steel attach fitting tube. The spar moved outward and disengaged from the fitting. At least one maintenance facility familiar with this aircraft type has reported finding similar cracks in the stabilizer front spar on a number of occasions during routine maintenance.

Great Lakes Aircraft Service Bulletin #15, issued May 1, 2000, points out the possibility of front spar failure inside the attach fitting as a result of excessive torque loads due to improperly rigged tail brace wires. It also notes that a frozen Front Center Beam may be a contributing factor. Broken front stabilizer spar tubes inside the attach fitting was also the subject of a Service Alert published by Phoenix Aircraft Company on 12/24/1988. Both the service bulletin by Great Lakes and the service alert by Phoenix Aircraft emphasize that the tail brace wire fitting attach bolt through the rear stabilizer spar should be free to move when the stabilizer trim is adjusted up and down.

Although previous known instances of stabilizer spar cracking and suggested inspections have been limited to the front spar, WACO Classic Aircraft considers it prudent to inspect both front and rear stabilizer spars and to ensure that both the front and rear center beams turn freely and are well lubricated. In addition, the known cases of cracking and failure have occurred in aircraft used in aerobatic flight, and because these aircraft are certificated in the Aerobatic category it must be assumed that they will be subjected to aerobatic maneuvers. For this reason, WACO Classic is requiring that this be a recurring inspection.



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INSTRUCTIONS:

The following instructions assume that the tail section brace wires are currently properly rigged and tensioned. For proper tail rigging information refer to Great Lakes Aircraft Company (GLAC) Service Bulletin #4A Dated June 16, 1978, a copy of which can be obtained by contacting WACO Classic Aircraft Customer Service or by visiting the WACO Classic Aircraft web site at www.wacoclassic.com.

INSPECTION PROCEDURE:

A. Conduct a visual inspection of the inside of both horizontal stabilizer front and rear spars at the inboard end attach fitting. This inspection can be accomplished without removing the covering using the following procedure:

1. Uninstall left and right elevators by removing the three AN3-16A elevator attach bolts securing each elevator to the elevator horn assembly (see fig. 1) and sliding the elevator outboard until disengaged from the hinge pins and the elevator horn assembly.



Fig. 1

2. Remove left and right horizontal stabilizers as follows:

(a) Relieve tension on the upper stabilizer brace wires on both sides of the vertical fin by first loosening the jam nuts at each end of each of the four streamline wires. Using a tool designed for adjusting streamline wires, engage the flattened section of the wire as near to the round section as possible at each end and turn to loosen each wire 4 full turns. **IMPORTANT: DO NOT USE ANY TOOL THAT WILL MARK OR SCRATCH THE SURFACE OF THE WIRE. DOING SO CAN LEAD TO FAILURE OF THE BRACE WIRE.** (See fig. 2)



Fig. 2



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INSTRUCTIONS: continued

- (b) Remove the AN4 bolt through the stabilizer rear spar securing the brace wire fitting to the stabilizer (see Fig. 3).



Fig. 3

- (c) Uninstall the right horizontal stabilizer by removing the inspection cover over front stabilizer attach bolts top and bottom. Remove the two (2) AN4-17A bolts securing the right front stabilizer spar to the stabilizer center front beam. Remove the three (3) AN3-16A bolts securing the right rear stabilizer spar to the stabilizer center rear beam. (see Fig. 4) Slide the right stabilizer outboard disengaging it from the front and rear center beams. Mark the position of the center beam tubes extending from the fuselage relative to the stabilizer attach fittings to insure correct hole alignment during re-assembly.

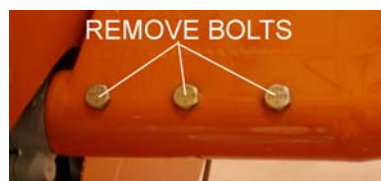


Fig 4

- (d) Uninstall the left horizontal stabilizer as described in (c) above.
- (e) Clean the area to be inspected using a clean, soft bristle brush or clean lint free cloth. Using a strong light and small mirror, bore scope or remote inspection camera, inspect the inside of the front and rear spar tubes of both left and right stabilizers for cracks. Particular attention is to be directed to the area adjacent to the rivets 3 ½ to 4 ¼ inches in from the end of the tube (see Fig. 5).
- (f) If no cracks are found, proceed to the re-assembly section.



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INSTRUCTIONS: continued



Fig. 5

REPAIR PROCEDURE:

- B. If the inspection reveals any cracks in either spar, the stabilizer is not airworthy. Repairs must be accomplished before further flight using one of the following methods:
- (a) Install a new P/N 10102-1 Stabilizer Front Spar Assembly and/or P/N 63219-11 Rear Beam (Spar) Assembly as needed.
 - (b) Replace the defective stabilizer with a new Stabilizer Frame Assembly P/N 63219.
 - (c) Replace the defective stabilizer with a serviceable unit having an 8130-3 Airworthiness Release Certificate stating in Block 13 that SB-GL12-01R has been complied with.

NOTE: A NEW 63255 CENTER FRONT BEAM AND A NEW 63258 CENTER REAR BEAM MUST BE INSTALLED WHEN REPLACING SPARS OR ONE OR BOTH STABILIZERS EITHER NEW OR SERVICEABLE IN ACCORDANCE WITH GREAT LAKES MAINTENANCE AND RIGGING MANUAL PAGE III-9 (2).

RE-ASSEMBLY:

- C. Prior to re-installing the stabilizers, inspect the condition of the front and rear Center Beam Assemblies to insure that they are free to rotate and are well lubricated with WD-40 (Ref. page II-1 of the Great Lakes Maintenance and Rigging Manual Model 2T-1A). (See Fig 6)

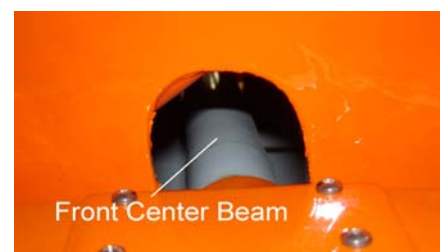


Fig. 6



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INSTRUCTIONS: continued

NOTE: If installing stabilizers with new spars, or new or serviceable stabilizers, refer to Great Lakes Model 2T-1A Maintenance and Rigging Manual Section III, General Assembly Instructions, Empennage Rigging for installation instructions.

Any operation required for reassembly and return to service not specifically defined by the instructions contained in this Service Bulletin is to be accomplished in accordance with FAA AC 43.13-1B Acceptable Methods, Techniques and Practices.

Re-install the left and right stabilizers aligning the reference marks made during disassembly taking care that the bolt holes in the stabilizer correspond to the holes in the center beam. Reinstall the two AN4-17 bolts in the front spars and the three AN3-16A bolts in the rear spars (Fig 4).

Attach the 10116-1 brace wire fitting (Fig 3) to the stabilizer rear spar tightening the AN4 bolt until the brace wire lug will not turn by hand then loosen the nut $\frac{3}{4}$ turn. The 10116-1 brace wire lug should now be free to move by hand. Re-install the inspection cover over the front stabilizer attach bolts top and bottom.

Re-tension the tail brace wires. Following the instructions in **INSPECTION PROCEDURE** A.2.(a) above with regard to the handling of brace wires, tighten each 4 full turns and set the jamb nuts.

Re-install the left and right elevator assemblies by sliding the elevator over the elevator horn assembly and engaging the hinge pins. Install the three AN3-16A elevator attach bolts (Fig 1).

DOCUMENTATION:

Following compliance with this service bulletin, an entry is to be made in the aircraft record in accordance with CFR Part 43.9(a) which includes the aircraft hours time in service when the next compliance is due.

AVAILABILITY of PARTS:

Contact WACO Classic Aircraft Corporation Customer Service.

EFFECTIVE DATE:

This Service Bulletin is effective as of the date released.

CONTACT INFORMATION:

Please direct all inquiries to:
Customer Service
(269) 565-1000 Voice
(269) 565-1100 Fax
flywaco@wacoclassic.com email
Please include this Service Bulletin Number with your inquiry

NOTE: Please notify WACO Classic of any corrections to address or ownership. Changes should include aircraft model, serial number, registration number and current owner's name and address.