



## CRITICAL SERVICE BULLETIN

CATEGORY 2

Contains information pertaining to a threat to the continued safe operation of an aircraft or to the safety of persons or property on the ground unless some specific action is taken by the aircraft owner

**SB-185A**

**REVISION A:** Update serials affected for AG-5B (was and subsequent). Change company name and address in inspection item 10. Change "INSPECTION" on page one to clarify inspection times. Change note on page 3 to reflect the release of the Tiger Aircraft AG-5B maintenance manual.

DATE: JANUARY 10, 2005

SUBJECT: **WING ATTACH SHOULDER BOLTS**

MODEL / SERIALS AFFECTED:

AA-5	AA5-0001 and subsequent
AA-5A	AA5A-0001 and subsequent
AA-5B	AA5B-0001 and subsequent
AG-5B	99998, 10000 thru 10174

TIME OF COMPLIANCE: For aircraft with more than 1,000 hours total time in service; Within the next 100 hours or at the next scheduled inspection, which ever occurs first, and every 500 hours thereafter.

### GENERAL:

We have received reports of inboard wing attach shoulder bolt (P/N 901044-2 and -3) failures on some of the above mentioned aircraft which may compromise the structural integrity of the aircraft and could result in loss of flight control should the second bolt in either wing fail. These failures were detected during routine scheduled 100 hour inspection while retorquing the wing attach shoulder bolts and had failed prior to reaching the bolt service life limit of 7,250 hours. No abnormal flight characteristics have been experienced prior to discovery of the broken shoulder bolts.

It is suspected that wing attach shoulder bolt failures occurred because of excessive wing to center spar clearance caused by the failure to check and to shim to the correct tolerance, per the Tiger Aircraft/Gulfstream Aerospace AA-5 Series Maintenance Manual Chapter 57 (or Tiger Aircraft AG-5B Maintenance Manual Chapter 57), during wing installation.

### INSPECTION:

Within the next 100 hours of time in service or at the next scheduled inspection, after accumulating 1,000 hours total time in service of the bolts, then at each 500 hours thereafter accomplish the following:

1. Prepare the aircraft for safe maintenance.
  - a. Disconnect the battery.
  - b. Connect the airframe to a suitable ground.
2. Remove the access panel from the lower wing root fairing (Figure 1).
3. From within the wing root, remove the (2) wing attach shoulder bolts (Figure 2) at each wing root main spar.
4. Inspect each of the four P/N 901044-3 wing attach shoulder bolts as follows:



- a. Inspect for fretting or scoring to the shoulder of the bolt. If there is any wear resulting in removal of the cad plating from the shoulder of the bolt (other than normal minor marks caused by installation and removal), the bolt must be removed from service and a new bolt installed.
  - b. Inspect the Shoulder Bolt profile. The Shoulder Bolt should have a smooth machined area between the threads and the shoulder bevel as shown in Figure 3. If the threads contact the shoulder of the bolt, the bolt must be removed from service and replaced with a bolt of the correct profile.
5. Prior to reinstallation of the shoulder bolts, accomplish the following:
- a. Apply a 25 pound down load at the wing tip and measure the gap at the top of the spar, between the center spar and the wing spar, using a wire type feeler gauge. If the gap exceeds **0.016** inch, shim the spar to reduce the gap not to exceed more than **0.008** inch in accordance with the Tiger Aircraft/Gulfstream Aerospace AA-5 Series Maintenance Manual Revision 5: dated March 1, 2004, Chapter 57, page 203 or Tiger Aircraft AG-5B Maintenance Manual, dated September 1, 2003, Chapter 57, pages 57-5).

**NOTE:** If the bolts that were installed have no evidence of wear as stated in (4-a) above, proceed to step (6). If the bolts have evidence of wear stated in (4-a) above, proceed with step (5-b).

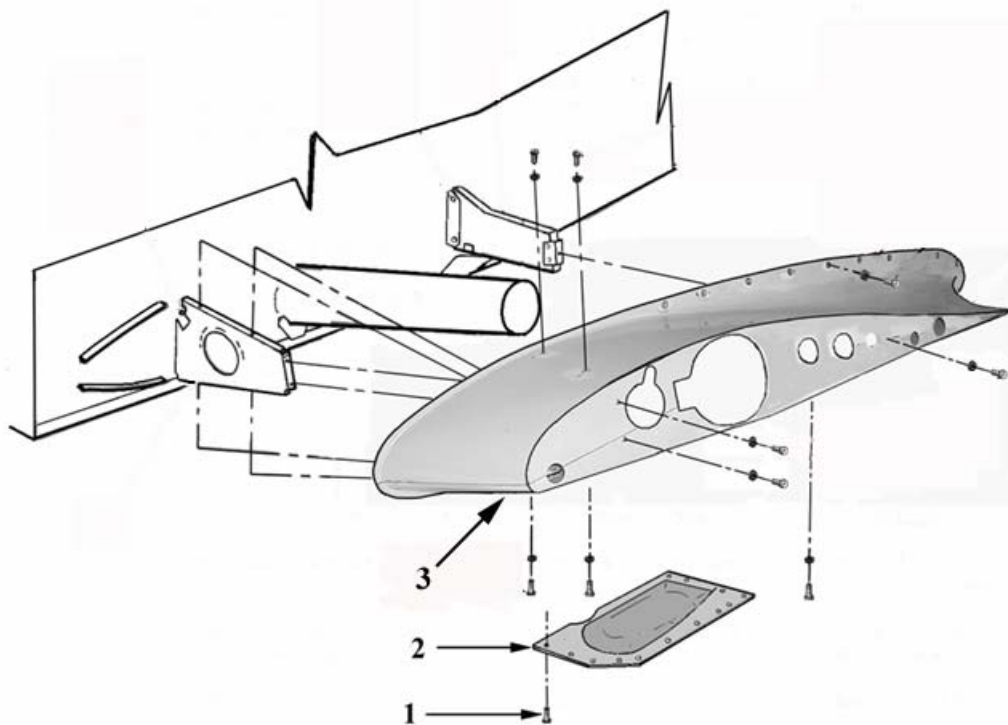
- b. Inspect the mounting holes in the wing spar and the center section spar for enlargement or elongation as a result of deformation or wear on the shoulder bolts. The maximum allowable diameter for the mounting holes in the wing and center section spar is **0.380** inch. If either of these mounting holes exceed this dimension, ream and bush the holes in accordance with the Tiger Aircraft/Gulfstream Aerospace AA-5 Series Maintenance Manual Revision 5: dated March 1, 2004, Chapter 57, pages 209 and 210 (or Tiger Aircraft AG-5B Maintenance Manual, dated September 1, 2003, Chapter 57, pages 57-11 and 57-12).
6. Reinstall the shoulder bolts as follows:
- a. Through the access panel under the wing root fairing, install the shoulder bolt and washer and tighten until the head of the bolt contacts the spar.
  - b. Rotate the bolt counter clockwise two full turns then using a torque wrench, determine the friction drag on the bolt.
  - c. Add the friction drag to 85 inch pounds to establish the total torque value and torque the shoulder bolt.
  - d. Repeat steps (a), (b), and (c) for each of the remaining shoulder bolts.
7. Reinstall the wing root access covers.
8. Reconnect the battery.
9. Record compliance in the aircraft log book and return the aircraft to service.
10. Complete the attached compliance card and return to:
- TIGER AIRCRAFT LLC  
226 PILOT WAY  
MARTINSBURG, WV 25401

PARTS AND LABOR CREDIT:

Service Bulletin 185A implements a normal recurring inspection and is considered to be a normal maintenance practice. No parts or labor credit will be allowed.

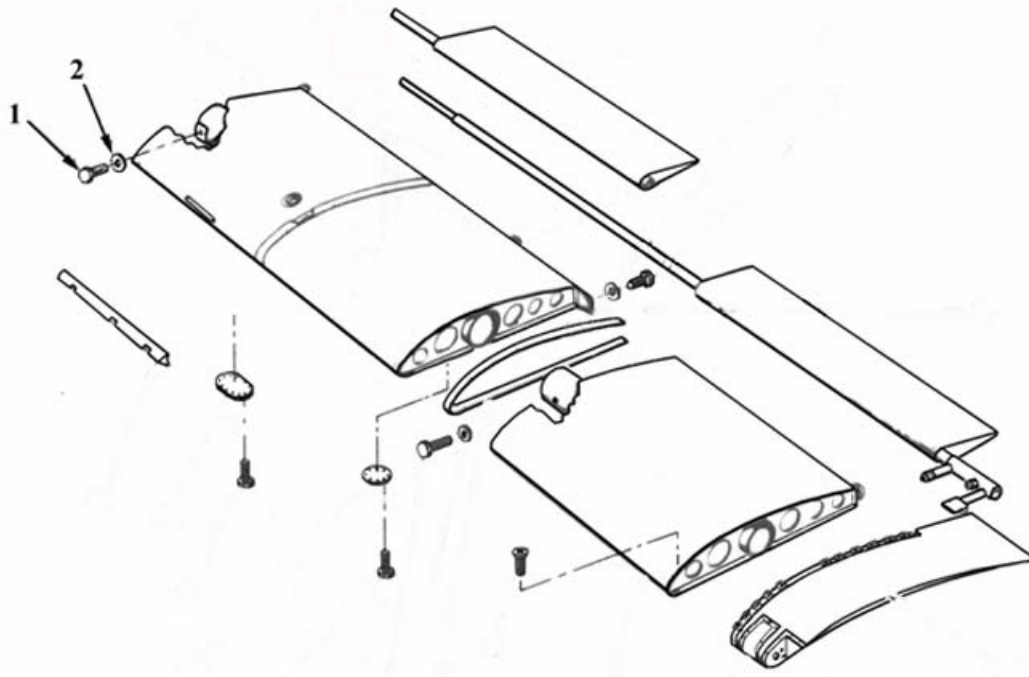
NOTE

The Tiger Aircraft LLC AG-5B Maintenance Manual has been revised and reflects the information from this Service Bulletin for aircraft serial number 10201 and subsequent.



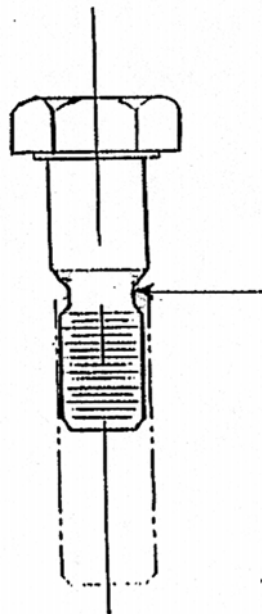
1. Screw
2. Access Panel
3. Wing Root Fairing

**FIGURE 1**



- 1. Shoulder Bolt
- 2. Washer

**FIGURE 2**



P/N 901044-3  
Shoulder Bolt

Machined Area

NOTE: Bolt not to scale

**FIGURE 3**