

SERVICE BULLETIN

PITTS SPECIAL

DATE: 20th March, 1996
REVISED: 22nd November, 1996

SERVICE BULLETIN NO.24

SUBJECT: Fuselage Upper Longerons
P.N. 2-2100-021/022

1. EFFECTIVITY

All Pitts Model S-2A and S-2S aircraft. Model S-2B Serial Number 5000 to 5350.

2. PURPOSE

To inspect the fuselage upper longerons for cracks in the region of the rear cabane struts.

3. BACKGROUND

There have been a few instances, with the Model S-2B, of fatigue cracking of the upper longerons just aft of the rear cabane struts and forward of the front instrument panel. Continued operation following the failure of one longeron is characterized by airframe noises and the possible early failure of the other longeron with subsequent difficulty in controlling the airplane.

In flight strain gauge tests of the longerons have been conducted which confirmed that fatigue cracking in this area should not occur if the airplane is operated within the flight manual limits of +6g/-3g and the recommended entry speeds for maneuvers. Inside snap rolls, in particular, cause relatively high stresses in these longerons and entry speeds must be kept below 140 mph in accordance with the cockpit placard.

A modified forward upper longeron is now fitted to production aircraft to reduce the local stresses and provide an enhanced margin of safety. A reinforcement kit is available from Aviat Aircraft Inc to provide a similar enhanced margin of safety to airplanes in service.

4. COMPLIANCE

Mandatory.

- A. Inspection - For those airplanes which have exceeded 300 hours time in service, within the next 25 hours of operation or 30 days, whichever occurs first. Subsequent inspections are to be performed at intervals of 25 hours unless the airplane is modified as per 6B below.
- B. Repair - Cracked longerons shall be repaired before further flight.

5. MATERIAL AVAILABILITY

<u>Kit/Part No.</u>	<u>Description</u>	<u>Availability</u>
S-2-513	Longeron Reinforcement	Aviat Aircraft Inc.
2-7604-49	Placard	Aviat Aircraft Inc.

6. ACCOMPLISHMENT INSTRUCTIONS

A. The inspection should be accomplished in the following manner:

- 1.) Remove fuselage quarter panels next to the cabane struts. Remove the screws from the forward and aft edges of the fuselage side panels.
- 2.) On the S-2A and S-2B only, remove the pivot bolt from the front cockpit throttle lever assembly. Remove front throttle plate. On older S-2A's that have fabric up to the rear cabane, carefully cut a small section of the fabric that is wrapped around the top and inboard side of longeron, and peel off to expose the longeron.
- 3.) Thoroughly inspect the upper longerons on both sides of the fuselage for cracks in the region just aft of the weld attaching the rear cabane strut to the longeron, using a 10X magnifying glass. Typical crack locations on both left and right longerons are shown in Figure 1.
- 4.) If no cracks are found, reassemble the aircraft and make a suitable log book entry.
- 5.) If cracks are found, ground the aircraft immediately and contact Aviat Aircraft Inc. for repair instructions.

B. Terminating action for the repetitive inspections is by incorporation of the following changes:

- 1.) Install the 2-7604-49 or equivalent placard "AEROBATIC g LIMITS +6 & -3" on the instrument panel above the accelerometer, and mark the accelerometer face with red lines at +6g and -3g as shown in Figure 2.
- 2.) Insert the appropriate revision to the Airplane Flight Manual as follows:
 - Pitts S-2A - Revision I
 - Pitts S-2S - Revision A
 - Pitts S-2B - Revision C1 or Revision I

3.) Replace step 1 of the 100 HOURLY INSPECTION of the Owner's and Maintenance Manual with:

1. Remove all upholstery, seats and panels as necessary for inspection of the structure. Thoroughly inspect the upper longerons for cracks in the region just aft of the welds attaching the rear cabane struts (Ref SB24).

4.) Make an entry in the airplane log book stating compliance with this Revision to the Service Bulletin and the method of compliance.

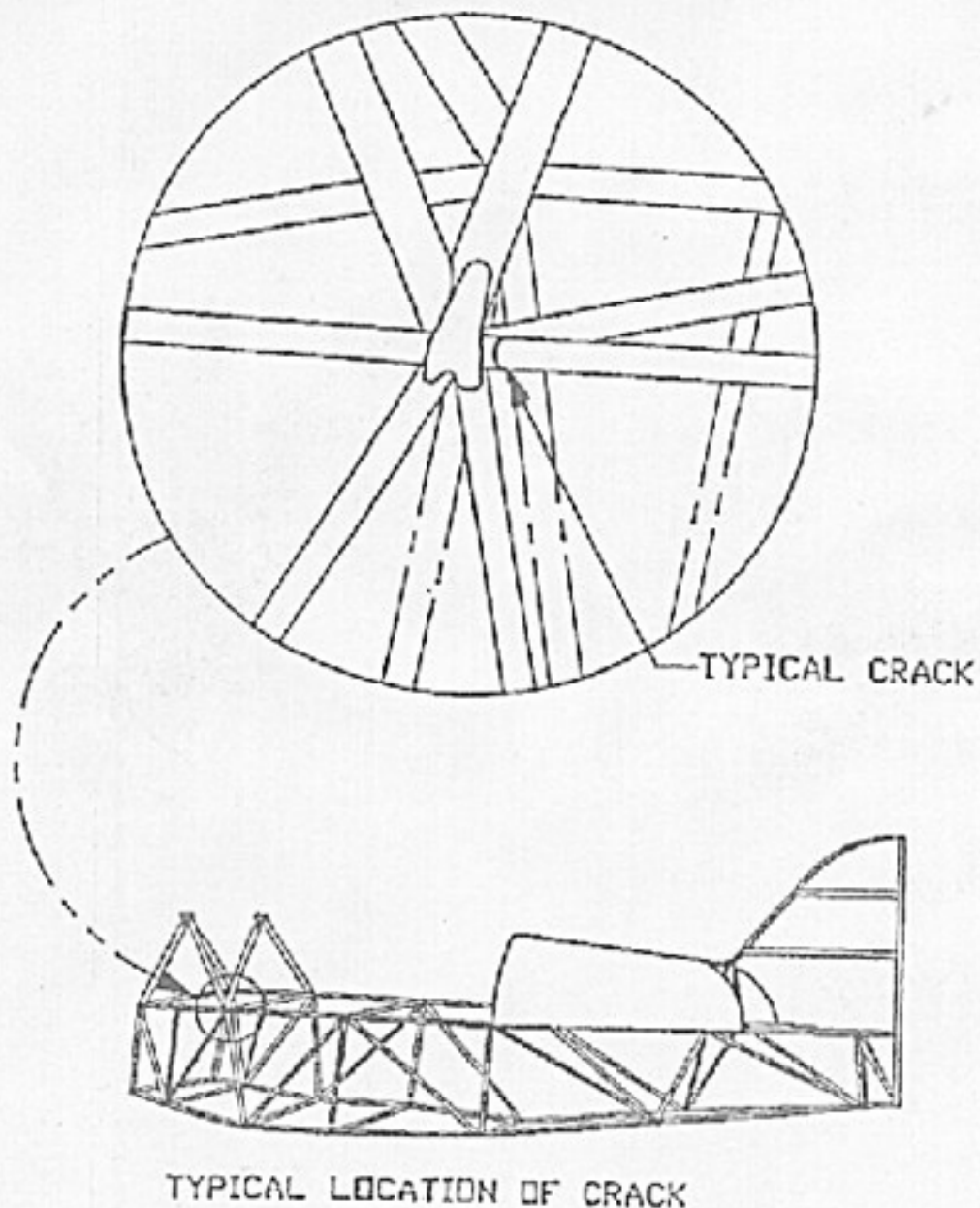
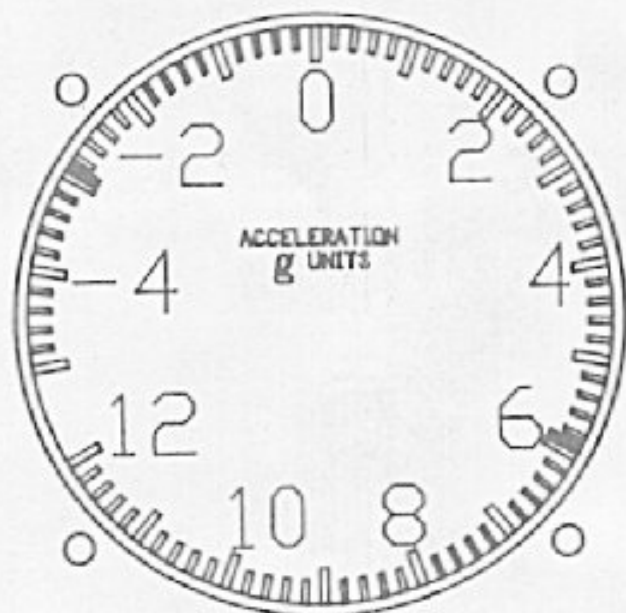


Figure 1

REAR INSTRUMENT PANEL

2-7604-49 PLACARD

AEROBATIC g LIMITS
+6 & -3



AN 5745 ACCELEROMETER
PERMANENTLY MARK THE GLASS
OR FACE OF THE INSTRUMENT
WITH RED MARKS $\frac{3}{16}$ X $\frac{1}{16}$
AT +6 g AND -3 g
EDGE OF RED MARKS TO BE ON
CENTER LINE OF EXISTING WHITE
MARKS AS SHOWN.

Figure 2