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## SERVICE BULLETIN

#0001

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**The Airplane Factory (Pty) Ltd considers compliance with all Service Bulletins mandatory**

**RELEASE DATE:** 8 April 2014

**EFFECTIVE DATE:** 8 April 2014

**SUBJECT:** Longitudinal cracks appearing in the main landing gear.

**MODELS AFFECTED:** Sling LSA, Sling 2, Sling Taildragger, Sling 4

**COMPLIANCE TIME:** No compliance time is imposed. The main gear leg must be replaced immediately if and when a crack should be detected.

If the gear does crack as a consequence of the shortcoming identified, it will not break but may result in the gear bending slightly more than usual. This could result in the aircraft sagging to one side slightly. The increased risk of cracking is not considered to constitute a significant safety risk. Visually inspect the landing gear at every preflight inspection.

See the photograph below for an indication of what to look for.  
Contact the factory for further details if necessary.

**PURPOSE:** A limited number of the main landing gear legs manufactured between the 1<sup>st</sup> August 2013 and the 7<sup>th</sup> April 2014 have a slight deviation in the layup of the glass fibre which could result in longitudinal cracking of the outer section of the gear legs. Where such cracking is identified the gear leg must be replaced immediately according to the instructions below,

**PARTS/EQUIPMENT LIST:**

- Fuselage and wing stands
- Electric or air powered drill
- 1 x 3.2 mm dia (1/8") drill bit
- 1 x 4.0 mm dia (5/32") drill bit
- 8 mm Allen key
- 2.5 mm Allen key
- 17 mm ring / flat spanner (wrench)
- Torque wrench with a 17 mm claw foot (crowfoot) wrench end
- Sling 2 or Sling 4 main gear
- Small tube of Super glue
- Medium strength Loctite (or equivalent)
- 10 x 3.2 mm x 8 (1/8" x 5/16") multi-grip pop rivets
- 70 x 4.0 mm x 10 (5/32" x 3/8") multi-grip pop rivets
- 8 x AN4 lock nuts
- 4 x M10 lock nuts
- 2 x Split pins and locking wire

Pneumatic or hand operated pull riveter  
Silicon grease  
Wheel bearing grease  
Touch-up paint  
This work needs 2 people

**INSTRUCTIONS:** The Airplane Factory will undertake the work of replacing the landing gear, however kit builders and owners of Slings far from the factory will need the following instructions in order to undertake the necessary work.

Replace the cracked landing gear by doing the following:

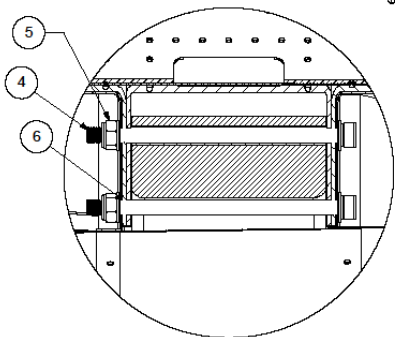
1. Raise the front wheel by approximately 100 mm (4") and place on a very solid surface such as bricks with a wooden board on top and then lock the front wheel (front and rear).
2. Raise the rear of the fuselage until the main wheels are approximately 100 mm (4") off the ground and place a padded stand under rear fuselage. Make sure the weight is taken on the rear spar and not just on the skin. Ensure the stand (you can use a padded robust table or work bench) can carry 700 kg (1550 lbs).
3. Balance the sideways movement of the aircraft by placing padded stands under the wings at hard points (the main spar).
4. Remember to make a note of the exact sequence of disassembly and which parts fit where so that the re-assembly is done correctly.
5. Remove the cover plates on the underside of the fuselage (cover plates between the wings and the centre fuselage).
6. Remove the landing gear covering skin (CF-SKN-003) from the underside of the fuselage by drilling out the 2 rows of rivets. The procedure for drilling rivets out of skins so that the holes are not enlarged (and you don't drill into underlying components) must be followed carefully.
7. Remove the wheel spats, wheels and axles from the main gear – see the drawings attached.
8. Do not remove the brake pipe from the calipers – just pull the brake pipe out of the groove in the gear.
9. Remove the front seats and in the case of the Sling 4 the rear floor skins as well.
10. Undo the four M10 nuts that hold the gear in place. In the case of the Sling 4 it may be necessary to first undo and slide the aileron pushrod out of the way.
11. Pull the four M10 bolts out sideways and drop the gear out of the fuselage.
12. Place a small amount of silicon grease into the mounting holes of the new landing gear and also onto both sides of the gear in the vicinity of the mounting holes.
13. Slide the new landing gear into place and replace the four M10 bolts. Use four new M10 nuts and tighten to a torque of 25 Nm (18 ft lbs).
14. The bolts and nuts must be inspected by an Approved Person before the rear floor and seats are replaced.
15. Refit the axles, wheels and brakes in the opposite sequence to how they were removed. Make sure the bearings have ample grease on them before assembly. Use new locknuts and torque the AN4 axle mount bolts to 9 Nm (7 ft lbs).
16. To tighten the large black axle nut – place a little grease on the seal and then tighten the nut until it is properly finger (hand) tight (check this) and then TIGHTEN it further until the split pin (cotter pin) holes line up for insertion of the split pin or the locking wire.
17. Use new split pins or locking wire.
18. Using Super glue, glue the brake lines into the grooves at the rear of the landing gear.
19. The axle bolts and nuts, and main axle nuts must be inspected by an approved person before the wheel spats and covers are replaced.
20. The screws and bolts holding the wheel spats on must be fitted with a small drop of Loctite.
21. The Approved Person doing the inspection must also do the necessary log book entries.



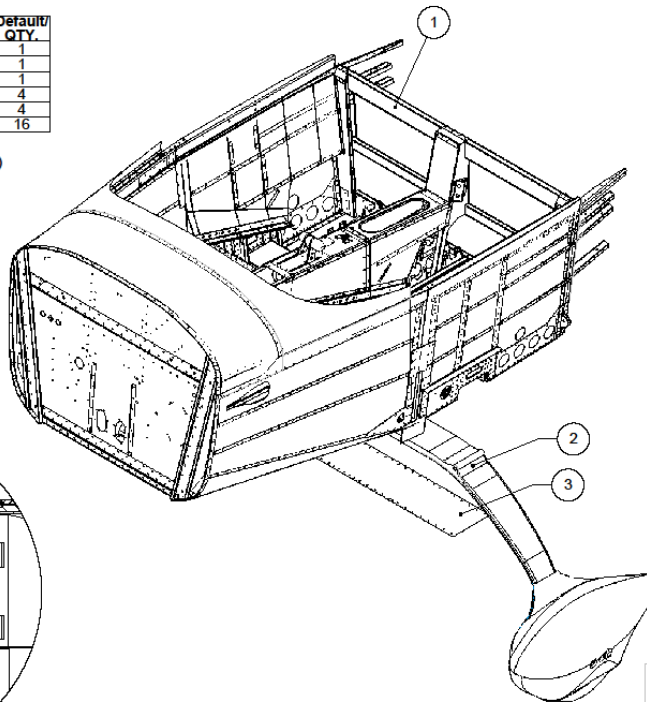
ITEM NO.	PART NUMBER	Default/ QTY.
1	CF-ASS MAIN-016-C-A-0	1
2	UN-ASS MAIN GEAR-001-X-A-0	1
3	CF-SKN-003-C-A-0	1
4	HW-MTB-116-X-X-0	4
5	HW-MTL-010-X-X-0	4
6	HW-MTW-010-X-X-0	16

Step 1  
Bolt part 2 onto part 1 using parts 4-6.(see DETAIL A)

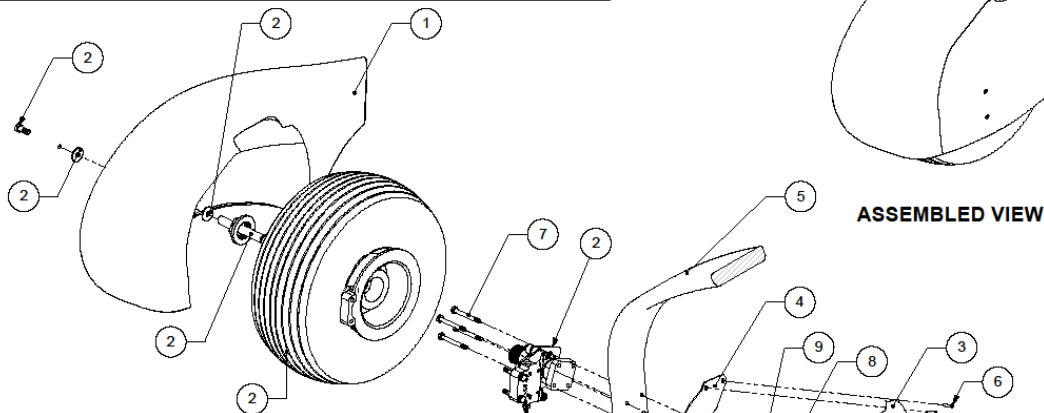
Step 2  
Cleco and then rivet part 3 onto part 1.



**DETAIL A**



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	UN-CMP-002-R-A-0	Main Spat Composite - Right	1
2	UN-ASS MAIN WHEEL-001-X-A-0	Wheel	1
3	UN-CMP-001-R-A-0	Main Spat Cover Composite - Right	1
4	UN-ASS BKT-001-R-A-0	Mounting Bracket for Main Spat Composite	1
5	UN-CMP-003-C-A-0	Composite Landing Gear	1
6	HW-SBM-400-X-X-0	Button Head Screws - M4 x 16mm Long	4
7	HW-ANB-422-X-X-0	AN4 - 22A Bolt	4
8	HW-ANL-400-X-X-0	AN 4 Locknut	4
9	HW-ANW-400-X-X-0	AN 4 Washer - Thick	4
10	HW-GRM-003-X-X-0	ID 6mm Grommet	1



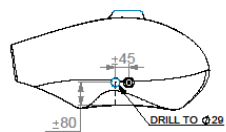
Step 1  
Bolt the mounting bracket (part 4) onto the landing gear (part 5) & wheel (part 2) using the bolts (part 10), nuts (part 11) and washers (part 12).

Step 2  
Insert a split pin onto the large axle bearing retaining nut in place

Step 3  
Insert the bolt and washer (parts 2) through the spat composite (part 1) and spacer bush (part 2). The bolt can now be tightened onto the outside of the wheel (part 5).

Step 4  
Mark and drill the mounting holes and screw the cover (part 3) on using the button head screws (part 6)

#### DRILLING DETAIL FOR INFLATION OF TYRE

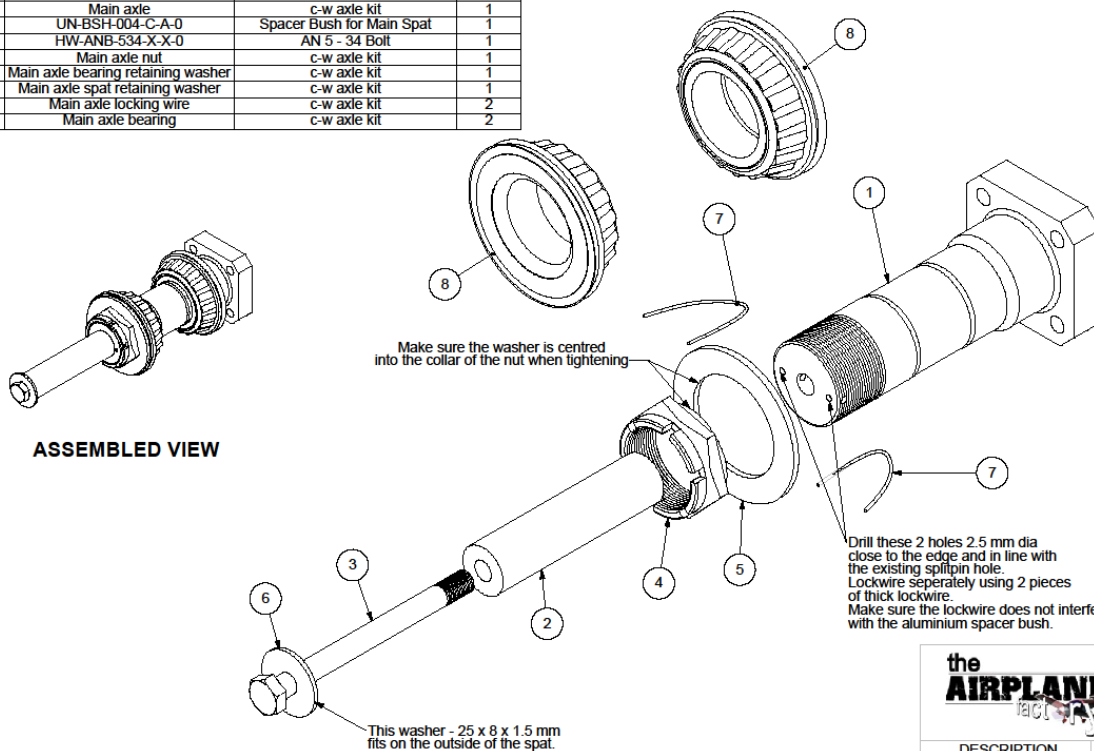


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#### MAIN SPAT INSTALLATION

Sling 4 Date:2013/11/08 Revision 0

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Main axle	c-w axle kit	1
2	UN-BSH-004-C-A-0	Spacer Bush for Main Spat	1
3	HW-ANB-534-X-X-0	AN 5 - 34 Bolt	1
4	Main axle nut	c-w axle kit	1
5	Main axle bearing retaining washer	c-w axle kit	1
6	Main axle spat retaining washer	c-w axle kit	1
7	Main axle locking wire	c-w axle kit	2
8	Main axle bearing	c-w axle kit	2

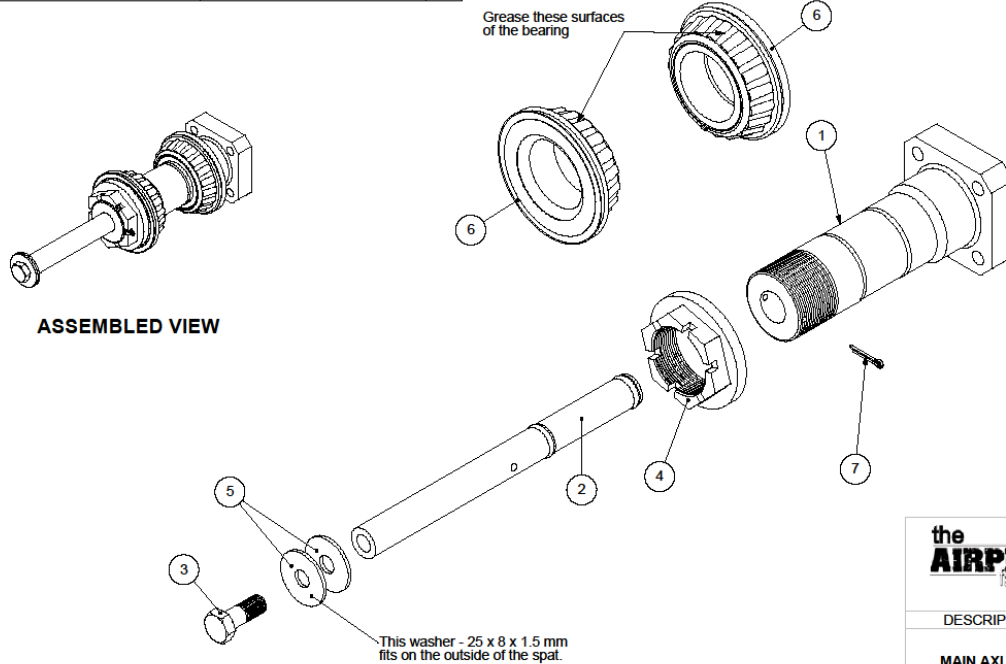


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#### MAIN AXLE ASSEMBLY

Sling Date:2011/11/29 Revision 0

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Main axle	c-w axle kit	1
2	UN-BSH-008-C-A-0	Spacer Bush O-Ring For Main Spat	1
3	HW-ANB-506-X-X-0	AN 5 - 7 Bolt	1
4	Main axle nut	c-w axle kit	1
5	Main axle spat retaining washer	c-w axle kit	2
6	Main axle bearing	c-w axle kit	2
7	HW-SPP-001-X-A-0	Split Pin	1



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MAIN AXLE ASSEMBLY

Sheet 4 Date:2013/11/07 Revision 0