

SERVICE BULLETIN NUMBER CT 123	ISSUE 1	PAGE 1 of 4
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TITLE	Inspection of main undercarriage legs for deformation and cracks.
CLASSIFICATION	The CAA have classified this bulletin as Mandatory.
COMPLIANCE	For aircraft with main undercarriage which have in excess of 300 flying hours: within 5 flying hours. For aircraft which have suffered a heavy landing: before further flight.
APPLICABILITY	300+ hour check - All CT2K and CTSW aircraft first registered before 22nd February 2007. Heavy landing check - applies to all CT2K and CTSW.

INTRODUCTION -

The port main undercarriage leg on a CT2K S/N 7921 (Flight Designs No. 02-06-01-04) failed when taxiing. The aircraft was used in the training role for most of it's life and had more than 800 airframe hours including the main undercarriage. The leg failed due to fatigue cracking at the neck, where it plugs into a steel fitting in the fuselage. The leg was also slightly bent and also had a crack at the main pivot hole aft side. The leg is machined from 7075-T6 aluminium alloy. See fig 1 general arrangement.

It was noted that when a new replacement leg was plugged into the steel fitting it did not align well with the main bulkhead pivot attachment hole, causing an untypical bending moment to be applied to the top of the leg. See figs 2 and 3. To achieve alignment, the leg had to be forced upwards, causing a preload to be added to the normal operating loads. The undercarriage leg top steel fitting had been replaced during the life of the aircraft according to modification M134 (addition of vertical shear bolts to the fuselage tunnel).

The undercarriage leg is stepped up in diameter where it enters the steel fitting. It is also bored in 2 diameters for lightness, forming an internal step in the same area.

Fatigue failure of the leg was exacerbated by the preload of the neck. The fatigue crack grew from the external step corner.

From serial no 06-12-18 the larger counterbore in the top of the leg has been omitted, so removing the internal step with a weight penalty of a few grammes.

- ACTION –**
- 1) Support the fuselage on a padded trestle distributing the load across the belly close to the main bulkhead, with the main wheels at least 100mm clear of the ground.
 - 2) Detach the undercarriage fairings and disconnect the brake lines.
 - 3) Remove the M8 bolt connecting the top of the leg to the fitting.
 - 4) Remove the bulkhead composite saddle 4 x M6 nuts and bolts and main M8 undercarriage bolt.
 - 5) Remove each undercarriage leg.
 - 6) Check the leg for straightness. It must be so, within a bend tolerance of length/600. This must be inspected by a BMAA inspector or P&M Aviation factory approved inspector.
 - 7) Dye penetrant check the leg for cracks at the step at the top and also around all the main attachment holes. No cracking is acceptable. This must be inspected by a BMAA inspector or P&M Aviation factory approved inspector.

8) Check the alignment of the undercarriage leg top fitting with the bulkhead pivot bolt. With the leg inserted into the top steel fitting, the main pivot bolt must align without having to use excessive force; this means the pivot bolt must align to within 1mm of the bulkhead mounting holes. If the leg does not align, then it is allowable to adjust the top steel fitting shims until alignment is achieved. Contact P&M Aviation if there is difficulty achieving alignment.

9) If acceptable, refit the leg using new nyloc nuts. Grease the main pivot bolt using LM grease or similar. Use a little Copaslip or similar anti-seize compound where the leg plugs into the top steel fitting.

10) Refit the fairings and brake pipes. Bleed the brakes using pressure to feed fresh fluid upwards through each brake caliper bleed nipple using a pressure bottle. Use a pipe and container on the reservoir to catch expelled fluid. The correct brake fluid is Mineral aviation type or Citroen LHM may be used. Ordinary automotive Dot 4 is NOT suitable.

Replacement of main undercarriage legs should only be carried out by the Factory or approved agents. Agents should contact the factory for fitting instructions.

Continued Airworthiness:

After any heavy landing, items 1 – 10 above must be carried out.

Documentation:

When the above inspections are carried out, the aircraft technical log must be signed off by a BMAA or Factory approved inspector, “service bulletin CT123 (Main undercarriage check) carried out”. Where components have been removed and refitted or replaced a BMAA inspection signature must be provided, independent from the person who carried out the work.

Where new legs are fitted, the batch numbers of the legs must be recorded in the technical log.

Main Landing Gear

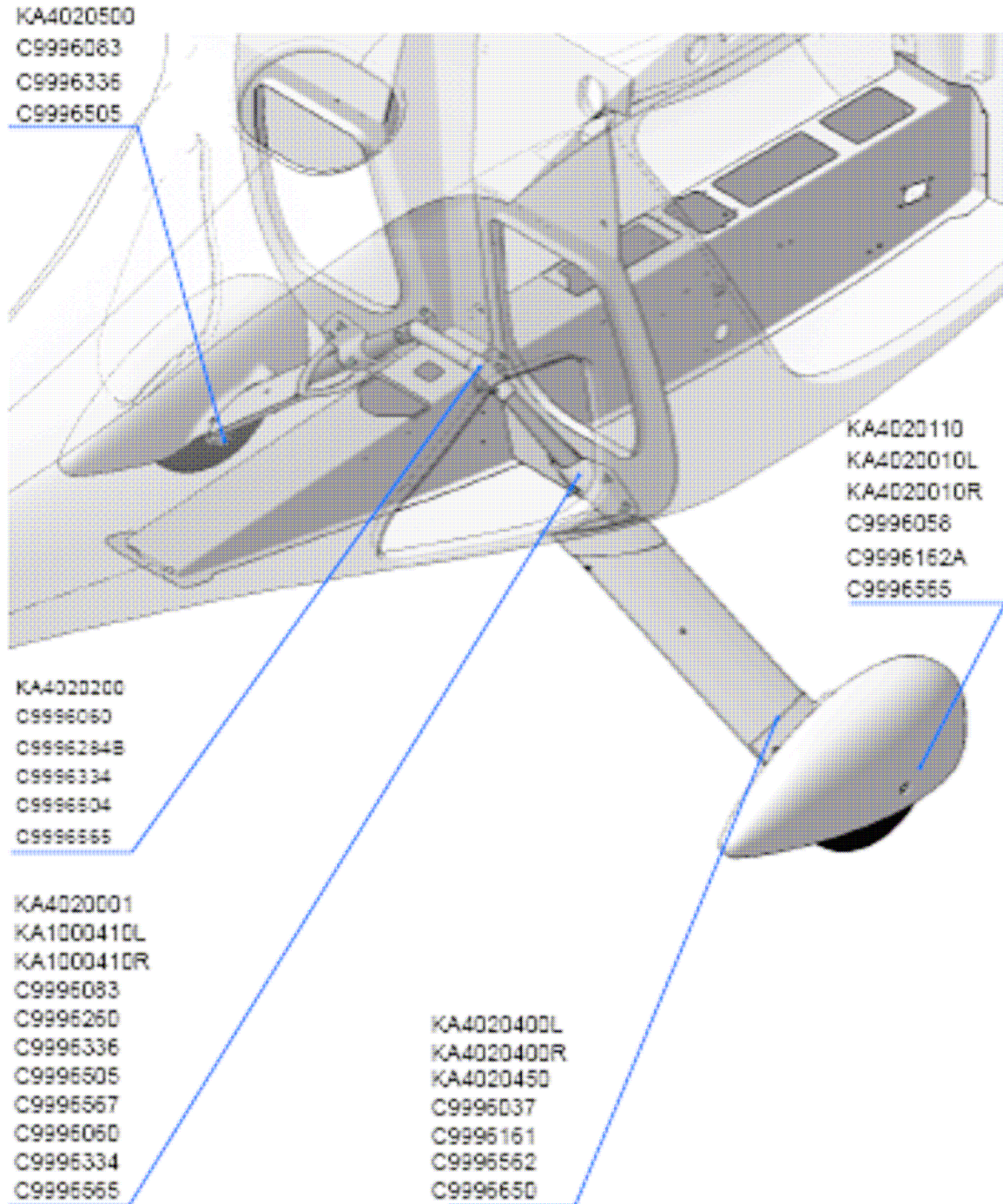
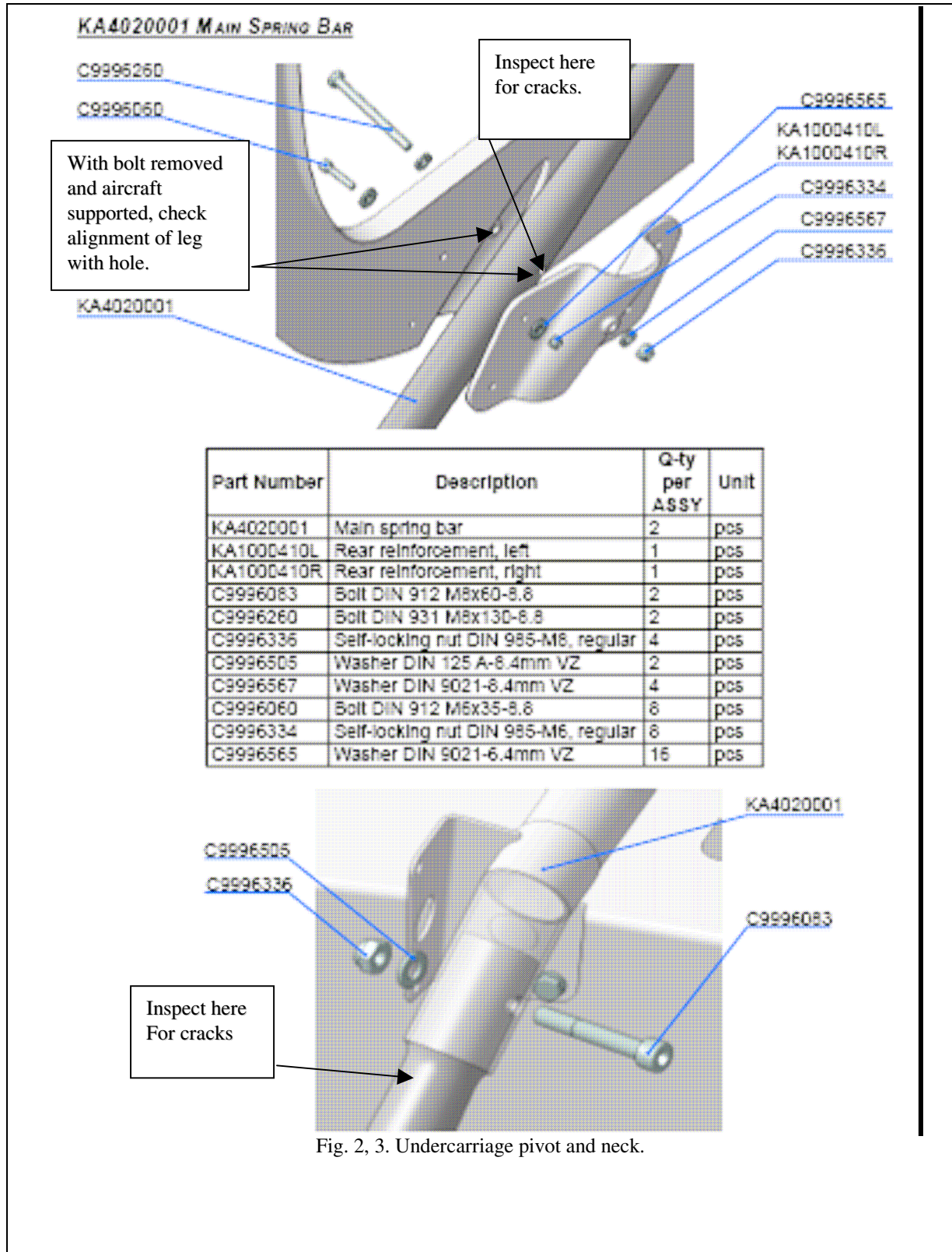
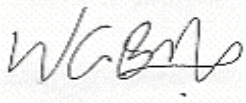



Fig. 1. General arrangement.



ISSUED BY **W.G.Brooks** DATE **23/02/07**

Approved  Date 23/02/07

Checked  Date 27/02/07