

# Helicopter Task Group update

## Briefing on S-92 helicopter fleet

13 October 2009



Last week Sikorsky, the manufacturer of the S-92 helicopter, issued a letter to all helicopter operators concerning some occurrences of cracking which had been detected in one of the four feet which mount the S-92 Main Gearbox (MGB) to the aircraft.

The helicopter operators and the task group have now understandably received a number of questions from passengers concerning this matter. In the Q&A briefing below, we will provide as much information as possible on the current situation with the S-92 fleet.

**1. Is there a link between the S-92 accident in Newfoundland and the cracking now detected in the S-92 gearbox feet?**

No, there is no link between the Newfoundland accident and the cracking now detected in the gearbox feet.

**2. Are these cracks in the same area of the gearbox as was modified following the accident in Canada?**

No. The earlier modification replaced titanium studs on the Oil Filter Housing with steel items; that modification is not connected to this issue.

**3. Will the winter weather have any impact on the reliability of the S-92 and is any additional maintenance required?**

No. The aircraft's flight manual sets out the conditions in which the S-92 can fly. Helicopter operators always operate within these criteria. The manufacturer's maintenance procedures are already designed to cater for differences in the climate that the helicopter may encounter in a particular role.

**4. Is vibration causing the issue with the MGB feet and do other helicopter types have the same problem?**

Sikorsky does not believe that vibration felt in the cabin is a contributor in any way to the loads on the transmission feet. They have conducted actual flight tests with instrumentation (strain gauges) on the feet and know that the loads in the foot are primarily the result of the lifting and torque loads of the main rotor.

**5. How did Sikorsky decide upon a 10 hour inspection regime?**

Sikorsky develops inspections of this type by testing and analysing the structure and determining the amount of time it would take for a crack to occur and grow. They then apply very conservative reductions to set the inspection interval so that it is effective at finding a problem with plenty of margin and would even account should it be missed during any particular inspection. This process was used by Sikorsky to determine the 10-hour interval specified in the Service Bulletin. In addition, Sikorsky showed during certification that the attachment of the gearbox to the airframe is secure for a period of time even if one of the 4 feet is completely severed from the gearbox.

**6. If a bolt fails, could it collide with the main or tail rotor?**

A small number of bolts have been found broken over the last few years and this is the reason that they are now replaced every 500 hours for good measure. To Sikorsky's knowledge in all of these cases the bolt head stayed in place in its hole. One reason is that the bolt is caulked after installation to prevent water ingress, and this caulking would hold any broken piece in place. In addition, the area in which the bolts are located is enclosed from the outside environment under the crowling areas and so contact with the main blades or the tail rotor would effectively be impossible.

## **7. How are the cracks detected?**

The gearbox feet are inspected every 10 flight hours in accordance with ASB92-63-020. Cracks are first identified visually and then confirmed through Non-Destructive Testing (NDT). This technique reveals flaws and defects in a material or device without damaging or destroying the test sample.

## **8. Does the 10 hours inspection include an NDT check?**

The 10-hour check includes the use of NDT procedures if a crack is believed to exist through visual inspection.

## **9. Would reducing the number of take offs and landings help to prevent the cracking?**

Sikorsky is conducting a thorough technical investigation now and as soon as they have reached conclusions that information will be made available; at this time there is no Sikorsky-recommended restriction on the number of take offs or landings that can be conducted on a particular flight. This is based on their analysis and testing.

## **10. Would reducing the payload help to prevent the cracking?**

Sikorsky is conducting a thorough technical investigation now and as soon as they have reached conclusions that information will be made available; at this time there is no payload restriction in place.

The inspection procedures introduced through Sikorsky's Alert Service Bulletin, and in place with all helicopter operators, will identify and anomalies in the unlikely event that they appear.

## **11. The S-92 door vibrates in flight. Could this be contributing to the cracks?**

Sikorsky is conducting a thorough technical investigation now and as soon as they have reached conclusions that information will be made available; it is very unlikely that any vibration in the door assembly is a contributory factor to this phenomena. See also the response to question 4.

## **12. Could the relative inexperience of the flight crews with the S-92 be a contributing factor?**

No, not at all. The crews are all fully qualified to operate the aircraft and their continuous training regime ensures that standards are monitored at very regular intervals. In addition, the aircraft has a system called HUMS (Health Utilisation & Monitoring System) which monitors a wide range of aircraft parameters and warns if the aircraft is operated outside of design limitations.

## **13. Are the S-92s in Norway and other regions experiencing similar problems and do they fly similar flight patterns?**

Yes, and the update letter recently issued by Sikorsky went to all operators world-wide.

## **14. Can safety reps be invited to see the actual failed equipment/ components and can they have pictures or presentation of what the failure looks like?**

Sikorsky will provide photographs of the broken foot from their Materials Laboratory some time next week.

## **15. Could pilots and engineers come offshore to reassure the population? Where can passengers get further information?**

All helicopter operators will work closely with their clients' aviation departments to ensure that the fullest information is available for briefing passengers travelling offshore in whatever form that has to take. Passengers that have concerns which could not be answered by this briefing should contact their employer's aviation / logistics department in the first instance. If questions remain after this, passengers can send an e-mail directly to the Helicopter Task Group which will seek to provide an answer as soon as possible. [helitaskgroup@oilandgasuk.co.uk](mailto:helitaskgroup@oilandgasuk.co.uk)

**If you would like to find out more about any of the issues outlined above, please contact the helicopter task group on [helitaskgroup@oilandgasuk.co.uk](mailto:helitaskgroup@oilandgasuk.co.uk)**