

## **Briefing from Werner Kleine-Beek, EASA**

### **Agenda item 3: EASA managed rotorcraft projects**

- HELMGOP II (Helicopter Main Gearbox loss of Oil Performance optimisation).

This is a continuation of HELMGOP which was presented last year at the EASA rotorcraft symposium. Now, building on the results HELMGOP (where a back-to-back drive was used for test and demonstration) the objective of HELMGOP II is to ascertain the effectiveness of using thio-ether to prolong operation of a helicopter main rotor gearbox in the event of a lubrication system failure resulting in total loss of oil. This means that the experimental investigation will involve a representative helicopter MGB, operating for prolonged test periods ranging from 30 minutes to several hours. For the purposes of this investigation “representative of a helicopter main gearbox” means that the gearbox input speed is high (i.e. around 20,000 rpm) and that it also contains an epicyclic stage.

It turned out that the MGB which Cranfield University had in mind (had access to) was not appropriate for the testing envisaged. The project was on hold until we found, with the help of the UK MoD, a Super Puma MGB. The MGB has arrived at Cranfield and been disassembled and checked – Eurocopter have a great interest in the project and offered support to Cranfield with mechanics, manuals and tools. The project has been rescheduled and will be completed by August 2014; tests will take place in spring 2014.

- VHM project (Vibration health or alternative monitoring technologies for helicopters).

The objective of the project is to investigate new fault detection techniques and associated technologies for monitoring (e.g. through the use of Radio-Frequency Identification (RFID) sensors located directly on rotating parts) the health of helicopter rotor and transmission systems in comparison to existing VHM techniques (used for large helicopters), and considering the use of Health and Usage Monitoring Systems (HUMS) data. A particular focus concerns the main gearbox and the epicyclic module. The scope of the project covers the provision of health monitoring information to pilots during operations and data to support maintenance actions. The project builds upon previous similar studies, such as the UK CAA dedicated projects. In addition the work is being carried out in conjunction with the existing research initiatives at industries and research centres, including for instance the joint Rotor Technology Validation Programme (RTVP) led by Agusta-Westland.

However, the project suffers the same problem as HELMGOP II since the same MGB was intended to be used for both test programmes. VHM will be delayed as well and we are just trying to align the two plans for the test periods.

- HELOAS (Helicopter Low Airspeed and Warning Device).

We did not receive a proposal in our 2012 call for tender for this work but it is still high priority (especially in view of recent accidents), and will be included in new Research Plan 2014-2016.

- The HSRMC might be interested in a project we completed recently MASH - Metallurgical Analysis of Standard Hardware parts which is not a helicopter specific project but many cases where defects were found in standard hardware (self-locking nuts) were on helicopters. The final report is published here: <http://easa.europa.eu/safety-and-research/research-projects/miscellaneous.php>
- 2014 EASA research in addition to projects launched in 2013: For 1 framework contract launched in 2013 some budget is reserved for the 2<sup>nd</sup> specific contract in 2014, but that is it. The new EASA ED Patrick Ky has advised to make more use of the tool of framework contracts – which of course will help us to overcome the annuality problem of the EU budget. So we are planning now to launch several calls for tender for framework contracts in 2014, but awarding any specific contracts will depend on whether additional research budget becomes available.

#### Agenda item 4: Status of UK CAA/EASA MoU

As previously advised this is on hold until the safety annex to the EU-US MoC on research cooperation is approved/accepted/signed. Currently the version (initially developed by me) coordinated with the EC is under review by the FAA (made it shorter and simplified it). The next step is likely to be a joint meeting. Once the EU-US MoC is in place I would use it as a template to draft an NAA-EASA MoC on research cooperation and offer it to the NAAs through the NAA partnership group for signature if they wish. However, since we are now looking at framework contracts for the EASA projects, I have some difficulties to see how such a MoC can be implemented. Another option might be that the interested NAA joins the consortium of a framework contract.