Bell 407 HUMS Webinar Questions and Answers

- The Kit
  - Is this an STC kit?
    - Yes
  - What types of Bell 407 helicopters does the STC cover?
    - The current STC covers the Bell 407GX and 407GXP. The 407GXi is currently in-work and expected to be available by March 2019. The analog 407 will follow later in 2019.
  - Is the STC certified outside of the US?
    - The 407GX / 407GXP kit already has several foreign validations with others in-work. Please check with your Aeronautical Accessories representative for the latest status.
  - What is the pricing structure?
    - The list price of the kit is $88,000 (US). A yearly subscription is also required.
  - Please describe the retrofit process on an existing 407 and how long it takes. Does it have to be done at a Bell facility?
    - Installation time is approximately 80-100 man hours based on experience from field installations. Bell will offer installation services for those who want it, but the operator is free to make other arrangements.
  - What are the economics behind using HUMS?
    - HUMS significantly reduces rotor track and balance time by removing the need to install and remove a carry-aboard system. It also automatically gathers data on every flight, so the initial flight to gather baseline data is no longer required. Additionally, HUMS can detect mechanical problems early and avoid events like chip detections. In some cases, HUMS may reduce collateral damage to other components.
  - Is there any routine maintenance or calibration required on the HUMS system?
    - No
  - Will Bell allow use of HUMS data to extend recommended intervals?
    - Initially, no, but we will evaluate as we get field experience.
- Rotor Track and Balance (RTB)
  - What kind of interface does the pilot or crew have in order to command the system to take rotor track and balance data (like the CADU for RADS)?
    - No interface is required; the system will take data automatically.
  - Is there a function to initiate a manual acquisition by the pilot and/or mechanic, instead of waiting for regime recognition?

- ▪ Yes (for RTB).
  - o How long does it take to do a full data acquisition for RTB data analysis?
    - ▪ Generally, 3 to 5 minutes in each regime will give you 2 to 4 acquisitions. If manually taken, 3 to 4 acquisitions per minute.
  - o Is there a blade tracker? What trackers are supported?
    - ▪ The system supports the GE RADS (EUTD/UTD) tracker (not included in the kit). Other trackers are not currently supported but could be made compatible if desired.
- • Downloading / Viewing Data
  - o How can the technician pull (download) the data from the aircraft?
    - ▪ Both wireless (Wi-Fi) and wired (Ethernet) downloads are available. Cellular download will be available soon.
  - o What software is required to analyze the data?
    - ▪ Just a web browser – the GPMS portal is web-based, and it can be accessed from any internet-connected device. Software may be used to move data from a local computer up to the server, however.
  - o Is there a ground station to view the data when you are off-line?
    - ▪ A separate ground station application is in-work, but it is not available currently.
- • Technology
  - o How does the GPMS HUMS compare to other HUMS systems on the market? Is it different/better?
    - ▪ One of the biggest differences is how fast we process data – this allows us to take 7 to 10 times more CI data than competing systems, meaning that it just take less time to give full regime for RTB, and you are assured that even on the shortest flights, there is diagnostic data.
    - ▪ Signal processing includes patented algorithms that reduce noise and improve fault detection.
    - ▪ The system is designed to be easily updated. Software changes can be quickly deployed as improvements are made
  - o After a component change, is there a learning period before vibrations thresholds are established?
    - ▪ No, the system does not need to re-learn thresholds after component changes. A fixed threshold is used.
  - o Does the system self-test and diagnose problems? How are data quality checks carried out? Accuracy, false positives?
    - ▪ The sensors are configured for the minimum amount of synchronous vibration (e.g. shaft or gear vibration) that should be present at a location – if the measured vibration is less than that (measured over four acquisitions) – it implies that the accelerometer is dead, or the sensor is loose. If a unit does not respond to a command, the event is logged and downloaded at the end of the flight.
- • Subscription
  - o What is the cost of the subscription?
    - ▪ $2400 per aircraft per year.

- What does it cover?
  - Access to the GPMS portal, Bell MissionLink, email notifications, and Bell's award-winning customer support. Also included are the continuous system updates that will improve capability.
- Do you need a subscription to view the data?
  - Yes.

- Bell Support
  - Does Bell Customer Support Engineering interpret all the data or just when there is a warning?
    - The operator has the primary responsibility to review the data. Bell will respond to requests from the operator. If an operator has an interest in additional services, please contact your Aeronautical Accessories representative at **800-251-7094** or sales@aero-access.com.
  - Will you be updating the software as Bell learns about faults that are found?
    - Absolutely. Field experience from the entire fleet makes us all smarter. Please send us your findings as you use your 407 HUMS so the whole fleet can benefit from the knowledge.
  - You are endorsing your product, but what about the customer that already has brand "Y" HUMS. Will Bell honor warranty to customers if data is provided by another system already installed?
    - Bell has not previously offered a HUMS for 407. We have very little insight into these other systems. We can review data on a case-by-case basis relative to warranty.
  - What customer training is offered on HUMS interpretation?
    - None currently, but we are considering it. Please tell us more about what you would need in terms on content, duration and location.