

# **VIBRATION MONITORING TECHNOLOGY REDUCES HELICOPTER MAINTENANCE COSTS**

Honeywell vibration monitoring solutions support flight safety and prolong component life.

**“ In our opinion there is no hardware that we have looked at to date that is better than the Honeywell VXP system for track, balance and trend monitoring. I want the best for my own as well as my customers and that’s why we use this system.”**

*Roger Sharkey, President,  
Sharkey’s Helicopters*





#### Overview:

To succeed and remain competitive, Sharkey's Helicopters must provide a reliable and trustworthy service to its maintenance customers and ensure that its own fleet is always airworthy. Effective vibration detection is vital for safe and economical operation so Sharkey's uses the Honeywell Carry-On VXP and the Vibrex 2000 Plus vibration analysis and control systems.

#### Quick Facts

##### Honeywell Solution

- Carry-On VXP test equipment
- Vibrex 2000 Plus

##### Customer Results

- Efficient vibration analysis and control improves flight safety
- Prompt action saves money by prolonging component life
- Streamlined maintenance means more engine starts and flights are available between inspections

##### Why Sharkey's Helicopters Chose Honeywell

- Return on investment means VXP can pay for itself within one year
- Versatile carry-on design can be easily fitted to one helicopter and then removed for use on the next aircraft
- Built-in memory saves valuable data and generates printable reports for future use or in-depth review by skilled technicians

##### Customer

- Name: Sharkey's Helicopters
- Location: Lebanon, New Hampshire, USA
- Industry: Helicopter services
- Website: [www.sharkeys.com](http://www.sharkeys.com)



**Background:**

Based at Lebanon Municipal Airport in Lebanon, New Hampshire, USA, Sharkey's Helicopters began operations in 1973. Specialising in Bell JetRangers, LongRangers and 407s, and all Enstrom models, Sharkey's offers charter services and flight instruction with its own fleet of seven aircraft as well as selling parts and providing helicopter maintenance.

Sharkey's operates mainly across Maine, Massachusetts, New Hampshire and Vermont and also in Connecticut and New York.

"Our company prides itself on reliability and customer satisfaction," said company president, Roger Sharkey. "Our customers are individuals and small companies that buy helicopters, mostly in conjunction with their business, to make them more profitable."

**Business Need:**

To ensure this high level of customer service and to remain competitive, Sharkey's puts great emphasis on the reliability of its maintenance services.

"I believe reliability is how we've lasted almost 40 years," said Sharkey. "It doesn't matter whether it's your car or your helicopter. If you schedule with somebody two or three times to get your car repaired and they don't do it, aren't you going to go somewhere else?"

"The helicopter is no different. If we're not reliable, the phone's not going to keep ringing."

Sharkey's needs to use the latest and most efficient technology to ensure reliability and safety, particularly as it relates to critical vibration analysis.

A helicopter is a complex collection of rotating assemblies and premature wear and failure in those components can be caused by excess vibration levels. Reducing the vibration levels to a minimum is absolutely essential in order to ensure the safety and longevity of the helicopter.

**Solution:**

Sharkey's uses Honeywell's VXP vibration analysis and control system on the more sophisticated Bell 407 and multi-bladed, composite helicopters.

"Instead of permanent installations, we have the portable kit and all of the Honeywell equipment," said Sharkey. "We put the system on after maintenance to perform trend monitoring and to track and balance the main and tail rotors."

Along with associated carry-on equipment and sensors, the Honeywell VXP system consists of two main units.

The Acquisition Unit (AU) collects, processes and records signals from a wide range of vibration and tachometer sensors located throughout the aircraft and also from the optional FasTrak Optical Tracker for the main rotor blade.

The Display Unit (DU) is a ruggedised portable computer with vast data storage capacity. It shows menu selections, calculations carried out on the acquired data and other information, using clear graphics on an active-matrix display.

Checks cover the drive train equipment, including engines, gearboxes, shafts, fans, rotor systems and other dynamic components.

The data is processed by the AU and displayed on the DU. Aircraft specific software is loaded into and resides on the AU.

This includes functionality for trending and advanced predictive maintenance. Results can be retained for more detailed analysis by any skilled technician and the AU has been specifically designed to support technology upgrades as they occur.

Sharkey's Helicopters also uses the Vibrex 2000 Plus vibration analysis and balancing tool. In four easy steps, users are able to complete up to four different balancing jobs simultaneously.

Two channels allow the user to measure from multiple sensors which decrease the number of required flights.



**Benefits:**

Using Honeywell VXP and the Vibrex 2000 Plus brings many benefits, both for Sharkey's Helicopters and for its customers.

"In our opinion there is no hardware that we have looked at to date that is better than the Honeywell VXP system for track, balance and trend monitoring. I want the best for my own aircraft as well as my customers' and that's why we use this system," said Sharkey.

For customers, the system's rigorous testing increases flight safety and saves money by prolonging the life of engine and drive components.

Because maintenance and tests can be completed with fewer engine starts and flights, using Honeywell VXP also means that customers benefit from having less flight time on their aircraft and more operational flight time between inspections.

"There are certain parts in the engine that have to be thrown away when they hit a certain number of starts," explained Randy Collins, chief inspector and lead mechanic who has worked at Sharkey's for 17 years.

"The fewer times we have to start the engine in maintenance, the more times the customer will be able to start it.

"Here at Sharkey's Helicopters we primarily use the VXP system on the Bell 407. It's a very easy system to install and it's very compatible with the aircraft. It goes on very easily and it comes back off easy enough so we can put it on the next aircraft as needed.

"In my experience of using this versus older systems, it cuts down the amount of time you have to use the aircraft during maintenance, including cycle starts, actual flight time and operating time. We've been able to reduce those times by at least half."



*Roger Sharkey, President, Sharkey's Helicopters*

Honeywell VXP is also easy to use and delivers a healthy return on investment as Sharkey explained: "If you're a busy shop you can pay for it in a year. Even if you're not a busy shop, I can't see how you couldn't pay for it in three years at the most.

"I would recommend Honeywell VXP for a lot of reasons. Cost is probably one of the top ones but ease of use is another. I like its ability to generate printable statements and its memory. If we worked on your helicopter five years ago and you came back, the system would remember your helicopter and compare what is worn with how it was five years ago.

"Using Honeywell for trend monitoring and to track rotor balance is also very useful on our own fleet because, being a small company with only seven aircraft, if you have one or two aircraft down in the busy season when the weather's good, it's unbelievably detrimental to the bottom line."

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