

YELLOWHEAD HELICOPTERS PRAISES PERFORMANCE AND RELIABILITY OF EAGLE 407 HP

Honeywell HTS900 engine shows its strength during hot-and-high missions

Case Study

**SEAN RICKARDS,
DIRECTOR OF OPERATIONS,
YELLOWHEAD HELICOPTERS**

“Now that our customers have actually seen how the aircraft performs, it’s changed their way of thinking from what aircraft will best suit them. In a lot of cases now, it’s the 407HP. It fits perfectly into our fleet.”

Honeywell

**EAGLE
407TM
HP**

OVERVIEW

Yellowhead Helicopters has flown its two Honeywell HTS900-powered Eagle 407HPs for more than 1,000 hours in total. The engine's performance is delivering benefits to a range of hot-and-high altitude missions, with the HTS900 found to be both reliable and easy to maintain.

BACKGROUND

Yellowhead Helicopters is a privately-held Canadian company that has been providing commercial helicopter solutions to the public, industry and government since 1975.

From bases throughout British Columbia and Alberta, Yellowhead Helicopters has supported the forestry, mining, petroleum, utility and tourism industries for more than 40 years.

Yellowhead Helicopters' missions include long lining, drip torching, cone harvesting, aerial seeding, airborne geophysics, sock line towing, power line and pipe line patrols, drill moving, fire suppression and heli-skiing.

The company operates a large and diverse fleet of aircraft, all of which are maintained to the highest standard by its Transport Canada and Bell Helicopter approved maintenance and overhaul department.

Included within the fleet are Astar AS350, Bell 205, Bell 206 JetRanger and LongRanger, Bell 212, Bell 407, Bell 427 and Eagle 407HP helicopters.

BUSINESS NEED

Yellowhead Helicopters acquired its first Bell 407 in 2005. It found the helicopter to be a robust and reliable workhorse and over the next five years another three were added to the fleet.

However, as customer needs evolved, the Bell 407 played a smaller role in the company's operations and the fleet was downsized to two.



QUICK FACTS

Honeywell Solution

- HTS900 turboshaft helicopter engine
- Enhanced safety of the dual channel FADEC
- Installation and completion by Eagle Copters
- Fuel savings and resultant reduction in CO2 emissions

Customer Results

- Increased hot and high performance
- Ability to carry additional loads
- Easier maintenance

Why Yellowhead Helicopters chose Honeywell

- Need for additional power and payload

Customer

- Name: Yellowhead Helicopters
- Location: Prince George, Canada
- Industry: Helicopter services
- Website: www.yhl.ca

Yellowhead Helicopters' appetite for the Bell 407 increased again when it came across the Eagle 407HP, developed by Calgary-based Eagle Copters and powered by Honeywell's ground-breaking HTS900 engine.

SOLUTION

The HTS900 is the result of years of combined effort in conjunction with Bell and Eagle Copters. This technology increases power output, reduces fuel consumption and allows for future engine growth with the same compressor architecture.

Eagle Copters' version of the original Bell 407 takes the best of the rock solid airframe and replaces the original 813 shaft horsepower (shp) Rolls-Royce 250-C47 turboshaft engine with the more muscular 1,020 shp Honeywell HTS900 turboshaft.

The HTS900 engine delivers game-changing performance and substantial operational efficiency improvements:

- It is based on a new dual-centrifugal compressor architecture that allows for higher power output and lower fuel consumption.
- It delivers up to 22 percent more takeoff power and significantly improved hot-and-high performance, as well as improved payload, speed and operating costs, the Eagle 407HP can lift 500 pounds more than the standard Bell 407.
- It provides an improved hover ceiling, with a 19 percent increase in gross weight capability at 10,000 feet, and a 40 percent increase in payload at 12,000 feet.
- Fuel burn is reduced by up to 17 percent, while direct maintenance costs are around 12 percent less than those for the original Bell 407 model.

BENEFITS

Yellowhead Helicopters is now operating two Eagle 407HPs for a range of missions, including heli-skiing, firefighting and exploration

work. It is finding the extra performance beneficial for all its missions.

When heli-skiing, Yellowhead Helicopters can carry an extra paying passenger in the HTS900-powered helicopter compared to the Eurocopters, with safety also increasing.

"Typically, with heli-skiing you have six people getting in after an aggressive ski run," said Yellowhead Helicopters' director of operations, Sean Rickards. "They're sweaty, they're hot and they've got wet snow on their clothes. As soon as they get in the aircraft it fogs up.

"With the HTS900 engine not running as hot as the original 407, we're allowed to run our anti-ice and our heat all day long which, in my mind, has increased safety ten-fold." However, the performance benefits of the Eagle 407HP become most noticeable at hot-and-high altitudes.

Yellowhead Helicopters says that when firefighting, the Eagle 407HP has been able to operate at higher temperatures and altitude.





“It’s allowing us to take a full bucket load all the time,” added Rickards. “Last summer we had the opportunity to operate against an Astar B3. We were able to continue walking away with the bucket whereas the B3 struggled to get the bucket out of the water.”

The performance is also helping with exploration work – Yellowhead Helicopters can now lift loads continuously up to high altitudes. “We can typically go heavier on fuel and go longer on our cycles,” said Rickards.

Before deciding to convert its Bell 407s, Yellowhead Helicopters was concerned about the additional weight that would be added to the airframe. Fortunately, the company was able to work with Honeywell and Eagle Copters to achieve weight reductions.

“The detriment isn’t as bad as we thought,” said Rickards.

“We’re working on exploration projects in the middle of summer. The pilots are actually able to put a little bit more fuel in and do longer cycles, and the benefit of being able to lift drills right through altitude has been huge.”

Yellowhead Helicopters has now flown a total of more than 1,000 hours in its two Eagle 407HPs and they have proven to be reliable and easy to maintain.

“The support that we’re receiving from Honeywell and Eagle Copters is very good,” said Yellowhead Helicopters’ aircraft maintenance engineer, Robert Wittmack.

“We’re all new to it and the support has been excellent. I would recommend the Eagle 407HP to other operators. I believe from a maintenance standpoint, they are easy to work with and easier to maintain.”

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