

# HAZARDOUS LANDINGS MADE SAFER BY INCREASED SITUATIONAL AWARENESS

Honeywell's Primus Elite Advanced  
Features mean calm approaches,  
even in the mountains

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Case Study

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## **CAPTAIN CARLOS ALBERTO DE AZEVEDO**

"The Honeywell synthetic vision system increases our situational awareness in higher risk landings at airports such as Aspen, or Sion in the Swiss Alps. It gives us comfort, safety and highly advantageous operations."



**Honeywell**

## OVERVIEW

Flying into mountainous locations demands acute situational awareness from the pilot. It's a state of affairs that is all too common for Carlos Alberto de Azevedo, who captains a privately-owned Embraer Legacy 650 jet that is frequently used for ski trips into challenging airports like Aspen, Colorado. That is why the aircraft's standard Honeywell Primus Elite avionics system has been upgraded with Primus Elite Advanced Features (PEAF).

## BACKGROUND

With more than 30 years' aviation experience, including airline and commercial flying, Captain Carlos Alberto de Azevedo has spent the last eight years in the corporate world and has been the chief pilot of a privately-owned Embraer Legacy 650 business jet for over six years.

Based in Sorocaba, Brazil, the aircraft clocks up an average flying time of 300 hours a year, transporting from four to eight passengers to various places in Europe and the USA.

Fort Lauderdale, London and New York are common destinations, and the plane also travels to Greece, Japan and Morocco. However, one of its most frequent uses is to take the owner, his family and guests on ski trips into challenging mountainous locations such as Aspen, Colorado, Chambery in France, Eagle, Utah and Sion in the Swiss Alps.

With 18,000 employees and more than 8,000 planes delivered, Brazilian company Embraer was established in 1969 and is now the third-largest commercial jet manufacturer in the world.

Its super-midsize Legacy 650 is powered by twin Rolls-Royce engines and can carry up to 14 passengers.



It is renowned for its enhanced levels of automation and situational awareness thanks to the Honeywell Primus Elite avionics system, which is fitted as standard.

"Honeywell Primus Elite is the heart of the navigation for this aircraft and all our operational ability is based on the functionality of that equipment. It's very soothing and it's very safe," said Azevedo.

"My experience with Primus Elite is very good and it's very reliable. However, some of the mountain airports we fly to are extremely complicated and you welcome everything you can get to maintain your situational awareness. We needed to increase operational awareness in these higher risk situations."

With this in mind, Azevedo wanted to tune-up the Legacy's cockpit with the most current technology and also wished to improve the performance of the systems.



## QUICK FACTS

### Customer

- Name: Captain Carlos Alberto de Azevedo
- Location: Sorocaba, Brazil
- Industry: Private jet

### Honeywell Solutions

- Primus Elite Advanced Features (PEAF)
- DU 875 high definition liquid crystal displays

### Why Captain Azevedo chose Honeywell

- PEAFF is an upgrade to the original system fitted on the aircraft
- Close ongoing relationship with Honeywell support staff in Brazil
- Cooperation between Honeywell and Embraer
- Technological excellence

### Customer Results

- Increased situational awareness when flying into hazardous locations
- Peace of mind and improved flight safety
- Quicker and more agile performance
- Honeywell DU 875 high definition liquid crystal displays provide greater clarity and reliability



## SOLUTION

It was decided to upgrade to Honeywell's Primus Elite Advanced Features (PEAF). These include a synthetic vision system (SVS) which provides a three-dimensional view of surrounding terrain, airports, runways and obstacles coupled with advanced flight path symbology.

The SVS starts with traditional primary flight display (PFD) flight and navigation data and builds upon it by using aircraft position data and a proven SVS database to create a full-screen synthetic terrain scene. Traffic collision avoidance system (TCAS) symbology is also displayed as an additional overlay on the moving map display.

The retrofit also included Honeywell's DU 875 high definition liquid crystal displays (LCD) that provide more clarity in all cockpit lighting conditions. They are substantially more reliable than existing cathode ray tube displays and each saves about seven pounds of weight.

Enhanced graphical capabilities enable the display of valuable flight information in the pilots' primary field of view.

The upgrade was carried out in the Embraer Service Center at Sorocaba, where the aircraft is maintained and which works closely with Honeywell.

"It's very easy to deal with the service center at Embraer. The staff are extremely receptive, we mingle a lot and there's a lot of friendship in this relationship," said Azevedo.

"Learning to use PEAFF wasn't a big deal because it's very simple. There is a change in layout. Some details are in different positions, but they're all there and the Honeywell documentation is highly explanatory so there are no major difficulties. Anyone moving from one system to the other won't find any operational problems."

## BENEFITS

One of the main advantages in upgrading to PEAf was faster performance of pages and cursors.

“The new system is very agile and highly practical,” said Azevedo.

However, the main benefit is increased situational awareness in higher-risk situations.

“PEAF and the SVS functionality provide comfort and safety particularly in locations such as Aspen which is an extremely congested airport with a very high flow of executive aviation,” explained Azevedo.

“You make your approach facing a wall of rock and a very high mountain ridge and are surrounded by mountains. In my opinion, with more than 30-years aviation experience, I think it’s one of the most challenging airports in the world.

“When you perform this operation utilizing synthetic vision it greatly increases your situational awareness.

As part of flying on instruments, it shows you where the rocks are and the elevations, in conjunction with the Enhanced Ground Proximity Warning System (EGPWS). You’re calm in the approach and it helps you feel safe. Although it cannot be used as a main navigation resource, it really helps to make you comfortable in terms of safety.

“My experience with Honeywell is good. It’s a partnership. At the start of operating the Legacy 650 we detected minor difficulties with some equipment and we worked very productively with Honeywell, pinpointing the solution and developing the equipment. This was very rewarding.

“The PEAf upgrade is faster and more flexible and this is highly important because in aviation, seconds are an eternity. Increased situational awareness is something aviation is always looking for and so I really recommend the Honeywell PEAf upgrade. It’s worthwhile because it’s an investment in safety.

### Honeywell Aerospace

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