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**CONCOURS EXTERNE
POUR L'EMPLOI DE CONTROLEUR DES DOUANES ET DROITS INDIRECTS**

**BRANCHE DE LA SURVEILLANCE
SPÉCIALITÉ « AÉRONAUTIQUE : PILOTE D'AVION »**

DES 3, 4 ET 5 MARS 2015

ÉPREUVE ORALE D'ADMISSION N°3

(DURÉE : 10 MINUTES - COEFFICIENT 2)

**Langue étrangère :
Traduction orale en français d'un texte technique rédigé en anglais**

Crew interaction capability

Flight crew communication relies on the use of audio, visual, and tactile methods. All these methods must be used appropriately in the communication that takes place during flight. This includes crewmember-to-airplane, crewmember-to-crewmember, and airplane-to-crewmember communication. Consequently, the duplicated flight controls of all Boeing airplanes are also interconnected. Both control wheels turn together when either is moved so that the control inputs of each flight crew member are immediately obvious to the other. The same is true for column movements. The tactile and visual feedback provided by interlinkage is much more immediate than verbal coordination and better enables pilots to help each other in time-critical emergencies.



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The Pascan Aviation Inc. Beechcraft B100 (...) operating as flight XX123 departed the Montréal/Saint-Hubert Airport, Quebec, at 0907 Eastern Standard Time on a chartered flight to Bagotville, Quebec, with 2 passengers and 2 flight crew members on board. During the climb out, through 15 400 feet above sea level, the flight crew noticed very light smoke in the cabin. At 0928, the flight crew declared an emergency and requested a return to the Montréal/Saint-Hubert Airport. The aircraft touched down at 0951 on Runway 24R with emergency services in attendance. There were no injuries and there was no fire.

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By 1988, Beechcraft had begun work on the replacement for the 300. The fuselage of the 300 was stretched by nearly three feet with two extra cabin windows on each side and winglets added to the wingtips to create the Model B300, introduced in 1990 and initially marketed as the Super King Air 350. MTOW was increased again to 15,000 lb (6,750 kg); as the same regulatory situation that led to the development of the 300LW still existed, that model continued to be produced until 1994. Like the 200 and B200 before it, a version with a large cargo door was developed, the Model B300C marketed as the "Super King Air 350C". The first deliveries of this model also took place in 1990. In 1998, the UltraQuiet active noise canceling system, made by Elliott Aviation, was added as standard equipment on all B300s. In October 2003, Beechcraft announced that it would deliver future B300 and B300C King Airs with the Rockwell Collins Pro Line 21 avionics suite.

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Turbojet :

A turbojet is a type of gas turbine engine that was originally developed for military fighters during World War II. A turbojet is the simplest of all aircraft gas turbines. It consists of a compressor to draw air in and compress it, a combustion section where fuel is added and ignited, one or more turbines that extract power from the expanding exhaust gases to drive the compressor, and an exhaust nozzle that accelerates the exhaust gases out the back of the engine to create thrust. When turbojets were introduced, the top speed of fighter aircraft equipped with them was at least 100 miles per hour faster than competing piston-driven aircraft. In the years after the war, the drawbacks of the turbojet gradually became apparent. Below about Mach 2, turbojets are very fuel inefficient and create tremendous amounts of noise.



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On June 13, 2005, Beechcraft announced at the Paris Air Show that it was developing the King Air 350ER version of the B300, an equivalent to the earlier Model 200T and B200Ts of the 200 series. Changes include an increase of MTOW to 16,500 lb (7,430 kg), provision for surveillance equipment in a belly pod, the landing gear of the Beechcraft 1900 to handle the increased weight and provide ground clearance for the belly pod, and extra fuel capacity in the engine nacelles to increase range (because of the B300s winglets, it was unfeasible to fit wingtip fuel tanks as found on the 200T and B200T). On November 11, 2007, Hawker Beechcraft announced that the 350ER had been certified by the FAA.

In October 2008, Beechcraft announced updated versions of the B300 series, the King Air 350i, with improvements to the passenger cabin. The manufacturer claims that the noise level and overall comfort of the King Air 350i, 350iER, 350iC and 350iCER are now competitive with those of light jets.



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At 0907, the aircraft took off from Runway 24R at the Montréal/Saint-Hubert Airport (CYHU) and turned right (northeast) towards Bagotville, Quebec. The pilot-in-command (PIC) was the pilot flying (PF), while the second-in-command (SIC) was the pilot not flying (PNF). During the climb, the cabin temperature became too warm, so the flight crew moved the cabin temperature control knob (CABIN TEMP-INCR) from the middle position toward the lower position. As the temperature in the cabin remained high, the flight crew then moved the cabin temperature mode (CABIN TEMP MODE) switch from the AUTO to the OFF position, and the blower switch was set to the high (HIGH) position to cool the cabin.

Approximately 27 nautical miles (nm) north of CYHU, the flight crew noticed very light smoke, which was barely visible in the sunlight. There was no perceptible odor.