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RÉPUBLIQUE FRANÇAISE

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

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

DES 1, 2 ET 3 MARS 2011

ÉPREUVE ÉCRITE D'ADMISSIBILITÉ N°4

(DURÉE : 1 HEURE - COEFFICIENT 2)

LANGUE ÉTRANGÈRE

Traduction d'un texte technique rédigé en anglais

AVERTISSEMENTS IMPORTANTS

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Traduire en français

Tail Rotor failure in flight

If the tail rotor fails in flight, engine torque can no longer be countered by the tail rotor, and uncontrolled spinning of the aircraft is a possibility. Most manufacturers call for an immediate autorotation. Some call for a running landing, instead. At higher speeds, most aircraft have enough weathercock stability so that limited amounts of power can be used to stretch the glide or even to maintain altitude until a suitable landing area is reached.

Autorotating

An autorotation is a natural way to deal with an in flight tail rotor failure since it reduces torque to zero. One problem with an autorotation is that it will be difficult or impossible for the pilot to align the landing gear with ground track during touchdown. If the helicopter touches down with forward speed, this could cause a rollover. In calm wind, it is often very difficult to not have some slide.

One possible solution is for the pilot to use the throttle to help align the landing gear. The major problem is that throttle manipulation is tricky, and very slow in a turbine aircraft. Meanwhile, the touchdown phase happens very quickly, giving the pilot little time to use the throttle.

Running Landing

A running landing can be used to land the helicopter at very low power settings. If the approach can be set up with a left crosswind, that will allow even more power to be used without inducing a right yaw. The throttle can be used to align the skids, and because everything is happening very slowly, the pilot has more time to react with the throttle.

One negative point to this sort of a landing is that pilots tend to practice autorotations more often than running landings. Touchdown speed in a running landing with no tail rotor is on the order of 10-20 knots.