Eurocopter demonstrates new emergency backup electric motor for helicopters

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(PhysOrg.com) -- Normally, when a helicopter loses power in flight due to engine failure, the pilot reverts to using a technique called autorotation to avoid crashing. What happens is the rotors keep spinning automatically due to the air rushing past as the aircraft descends, which prevents the aircraft from picking up speed as it descends, eventually leading to a reasonably safe landing. The problem though, is that controlling such a descent is quite difficult due to the lack of power adjustments to the angle of the rotors, which can lead to pitching. In a

sense it's much like the difference between regular and power brakes. The pilot is forced to rely on a lot of muscle power. To make things easier for pilots, and thus safer for all concerned, Eurocopter, the biggest maker of helicopters in the world, has come up with a way to allow a pilot to more easily maintain control of the rotors while descending and landing using an electric motor add-on.

Traditionally, the most difficult parts of using the autorotation technique, is the beginning of the event and the landing. The beginning is difficult because more often than not the helicopter is leaning towards its destination to head forward in that direction, thus the aircraft needs to be leveled off. Landing is always the most difficult part of flying a helicopter because of the many tiny adjustments that need to be made just as the aircraft touches the ground; doing so with no engine power is far more complicated due to the inability to alter the speed of descent and the difficulty in changing the rotor angle. Plus, the pilot only gets one shot.

To help in both cases, the engineers at Eurocopter have developed an electric motor and battery system that can be used in the event of engine failure. It appears that the backup motor doesn't actually make the rotors go around, but instead allows the pilot to effortlessly adjust the rotor angle, which allows for much easier stabilization both during the initial switchover and during landing.
In the demonstration, a AS350 helicopter outfitted with the new motor was able to land very nearly as easily as it would have using its normal gas engine.

Eurocopter is a global company with main offices in France, Germany and Spain. It makes both commercial and military helicopters. As part of its announcement, the company said it plans to implement the new technology in all of its aircraft and will continue to look into using what it's learned with the electric motor to help in the development of true

hybrid helicopter technology to help cut fuel consumption.