

WORST-CASE SCENARIO®

HOW TO LAND A HELICOPTER IF THE ENGINE FAILS

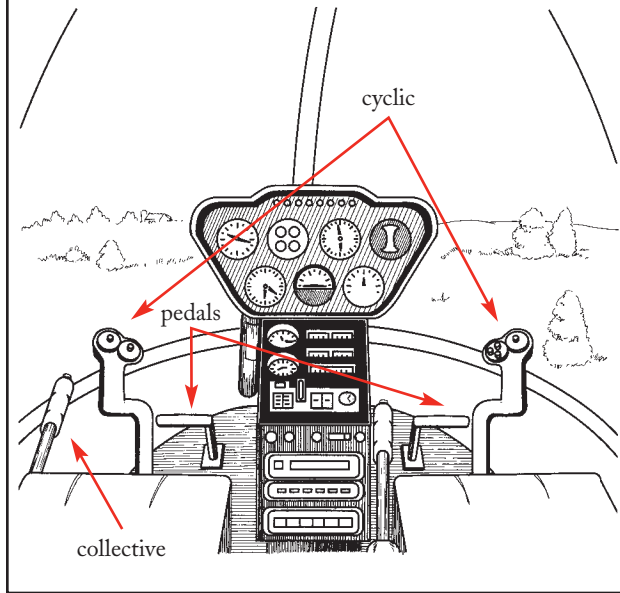
When a helicopter's engine stalls, it cannot be restarted in mid-flight. The helicopter's low flying altitude (usually 500 to 1,000 feet) means you will have just seconds to react before it crashes to earth. A controlled emergency landing after engine failure, called autorotation, uses the weight of the helicopter and its downward trajectory to move air across the blades. The air causes the main rotor to rotate enough to give you some lift and slow your descent to a controlled rate. At an elevation of 500 feet, you will hit the ground in about 20 seconds. You will not have time to use the radio to call for help. Perform the following steps carefully but immediately.

1

Locate the critical flight controls.

- **COLLECTIVE.** This is a lever to the pilot's left that controls the helicopter's altitude. Moving the collective slightly changes the pitch angle of the blades, which in turn changes the helicopter's angle of attack, allowing it to climb or descend.
- **PEDALS.** The two pedals (left and right) control the pitch of the tail rotor, which prevents the helicopter body from spinning in the opposite direction from the main rotor. The pedals are used to move the helicopter left and right during flight.

Helicopter Cockpit Controls



- **CYCLIC.** This stick, directly in front of the pilot, controls the tilt of the rotor disk, which allows the helicopter to move forward or backward.

2 Lower the collective.

Move the collective lever all the way down to its lowest position. This will cause the helicopter to descend (if it isn't already), but it will allow the air moving over the blades to turn the rotor. You will have only about one second to fully lower the collective after engine cutout before the helicopter becomes completely uncontrollable.

3 Place your feet on the pedals.

The left pedal will move the helicopter to the left, the right will move it right. Though you will have minimal forward motion, you should be able to use the pedals to move the helicopter in either direction to position it for a safer landing. The pedals are extremely sensitive, so do not put too much pressure on them.

4 Glide.

While an airplane will glide forward about 20 feet for every 1 foot it descends (a glide ratio of 20:1), a helicopter's glide ratio is just 4:1, so you will not be able to move forward very far before hitting the ground. Look for a smooth surface and keep a slow forward speed. Ideally, you should set the helicopter down in an empty parking lot or other paved, open space free of people, cars, power lines, and other obstructions. Avoid landing in a field: The landing skids may catch on rocks, stumps, or mud, causing the helicopter to slide or flip over. Do not attempt a water landing. Make sure you are strapped in to the seat.

5 Pull the collective all the way up.

At about 50 feet above the ground, keep the helicopter level and pull the collective all the way up to cushion the ground contact as much as possible.

6 Prepare for impact.

When properly executed, an autorotation will bring the helicopter to the ground at about 20 mph, slow enough for the impact to be easily survivable. However, the blades on the main rotor will bend downward from the impact, and may slice through the tail boom and/or hit the ground and snap off. Get on the floor of the cabin as soon as you feel impact, then run from the cabin, which may explode, as soon as there is no danger of being hit by the rotor blades.

Be Aware

Performing an autorotation above and then landing in tall trees (which offer a relatively flexible and cushioned landing surface) may protect occupants, but will probably destroy the helicopter.

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