ACS HELICOPTER MANEUVER SERIES · 17 OF 24

Powerplant Failure in a Hover

Area of Operation VIII — Emergency Operations

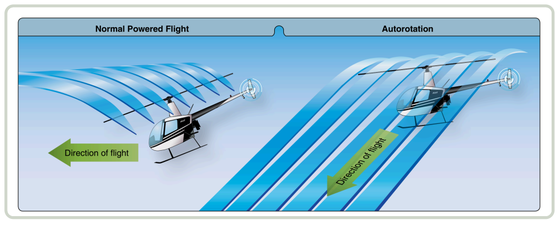
Private Pilot task PH.VIII.A **Commercial Pilot task** CH.VIII.A

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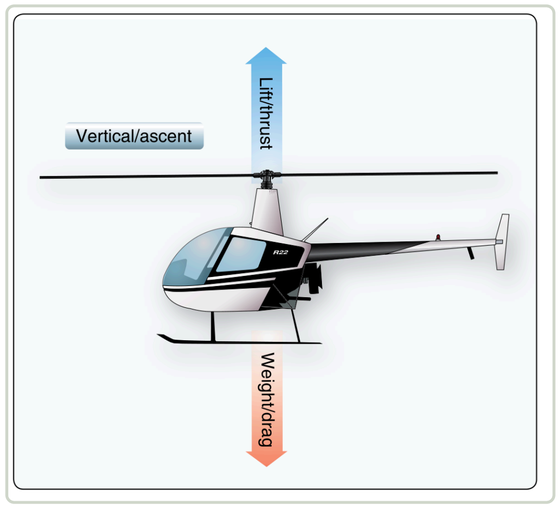
Objective. To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with powerplant failure in-ground effect (IGE) hover

HOW IT IS FLOWN

condensed from the FAA Helicopter Flying Handbook, Chapter 11 — Practicing Power Failure in a Hover (Hovering Autorotation)



HFH Figure 11-1. *During an autorotation, the upward flow of relative wind permits the main rotor blades to rotate at their normal speed. In effect, the blades are "gliding" in their rotational plane.*



HFH Figure 2-32. *Balanced forces: hovering in a no-wind condition.*

1. Practiced so the correct response is automatic when the engine stops at a hover. Establish a normal hover height (about 2–3 ft skids) into the wind at maximum allowable rpm.
2. Simulate the failure by firmly rolling the throttle to idle. As the throttle closes, apply pedal to hold heading; a little right cyclic is usually needed to stop the left drift that comes with losing tail rotor thrust. Do not adjust the collective on entry.
3. Keep a level attitude and a vertical descent with cyclic, heading with pedals. Avoid any lateral movement — dynamic rollover risk. As rpm decays, cyclic response drops, so wind corrections need more input.
4. At about 1 ft AGL apply up collective to slow the descent and cushion the landing — usually full collective arrives just as the skids touch. Hold the throttle in the idle detent so the engine does not re-engage.
5. When the full weight is on the skids stop raising collective; once fully stopped lower collective full down. Too early → not enough rpm for a soft landing; too late → ground contact before the pitch is in. Never hold the helicopter off the surface with collective — blade stall and a fall to the ground.

COMMON ERRORS — HFH LIST

- Insufficient pedal when power is reduced.
- Not stopping all sideward or backward movement before touchdown.
- Mistimed collective → hard touchdown.
- Not touching down level.
- Not rolling the throttle fully to idle.
- Hovering too high or too low for type, conditions and proficiency.
- Not going around when outside limits.

SKILLS — THE STANDARD

the applicant exhibits the skill to:

	PRIVATE · ACS-15	COMMERCIAL · ACS-16
S1	Complete the appropriate checklist(s).	
S2	Make radio calls as appropriate.	
S3	Clear the area.	
S4	Select a suitable landing area.	
S5	Establish a stationary or forward hover into the wind.	
S6	Simulate powerplant failure.	
S7	**Maintain a heading, ±10°, throughout the maneuver.**	**Maintain a heading, ±5°, throughout the maneuver.**
S8	Touchdown with minimum sideward movement and no rearward movement.	
S9	Use appropriate flight control inputs to cushion the touchdown.	
S10	After touchdown, lower collective and neutralize flight controls.	

▢ Shaded rows are where the Commercial standard is tighter than Private. Unshaded rows apply to both certificates.

KNOWLEDGE

PH.VIII.A.K1–K5 · the applicant demonstrates understanding of:

- Elements related to powerplant failure in a hover, including energy management concepts.
- Effects of wind, weight, temperature, and density altitude.
- High and low inertia of rotor systems.
- Aerodynamics associated with powerplant failure in a hover.
- Proper orientation, division of attention, and proper planning.

RISK MANAGEMENT

PH.VIII.A.R1–R5 · identify, assess and mitigate risk associated with:

- Powerplant failure in a hover.
- Flight control inputs.
- Helicopter movement.
- Dynamic rollover.
- Distractions, task prioritization, loss of situational awareness, or disorientation.

Standards: FAA-S-ACS-15 Private Pilot Helicopter and FAA-S-ACS-16 Commercial Pilot Helicopter (text reproduced from the current ACS). **References:** FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; POH/RFM.
Figures and technique: FAA Helicopter Flying Handbook, FAA-H-8083-21B — figures reproduced unmodified.
Always confirm tolerances against the ACS in force on your checkride date and procedures against the R44 POH/RFM.

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