ACS HELICOPTER MANEUVER SERIES · 2 OF 24

Vertical Takeoff and Landing

Area of Operation IV — Hovering Maneuvers

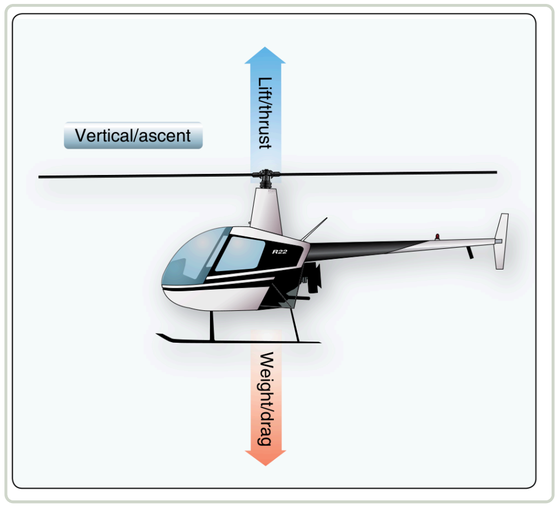
Private Pilot task PH.IV.A **Commercial Pilot task** CH.IV.A

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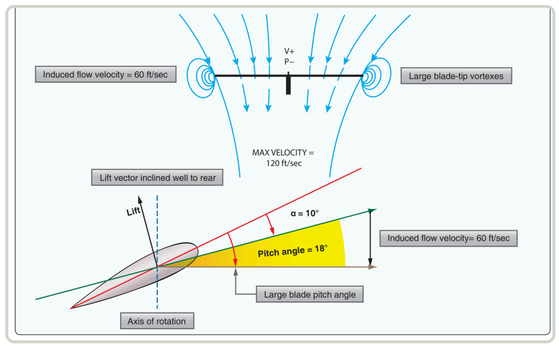
Objective. To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with vertical takeoff and landing from a hover.

HOW IT IS FLOWN

condensed from the FAA Helicopter Flying Handbook, Chapter 9 — Vertical Takeoff to a Hover, Hovering



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



HFH Figure 2-22. *In ground effect (IGE).*

1. Clear left, right and above; stay focused outside. Collective full down, cyclic neutral or slightly into the wind.
2. Very slowly raise collective until light on the skids. As torque rises, add pedal to hold heading; coordinate cyclic for a vertical ascent.
3. As the skids leave the ground check control response, attitude and CG. A slow ascent lets you stop if anything is wrong (hung skid, CG, controls). If a roll or tilt starts: lower the collective and find the cause.
4. At hover height (about 2–3 ft skid height) adjust the controls to hold position. Expect the helicopter to hover slightly left-side low. Check engine instruments and note hover power.
5. Collective = height and rate of climb/descent; pedals = heading; cyclic = position; throttle/governor = rpm. Small, smooth, coordinated corrections — remove each correction as it takes effect.
6. Landing: lower collective slowly for a vertical descent, hold heading with pedals and position with cyclic, no drift at touchdown; continue lowering collective until the full weight is on the skids.

COMMON ERRORS — HFH LIST

- Failing to ascend vertically; pulling excess collective and ballooning.
- Overcontrolling the pedals (changes heading and rpm).
- Failing to ascend slowly.
- Hovering too high (check the H/V diagram) or too low with occasional touchdown.
- Overconfidence on level surfaces — dynamic rollover usually happens on level ground.
- Looking too close or straight down → overcontrolling.

SKILLS — THE STANDARD

the applicant exhibits the skill to:

	PRIVATE · ACS-15	COMMERCIAL · ACS-16
S1	Complete the appropriate checklist(s).	
S2	Comply with air traffic control (ATC) or evaluator instructions and make radio calls as appropriate.	
S3	Maintain powerplant and main rotor (Nr) speed within normal limits.	
S4	Ascend to and maintain recommended hovering altitude, and descend from recommended hovering altitude in headwind, crosswind, and tailwind conditions, without drift.	
S5	Maintain recommended hovering altitude, **±1/2 of that altitude** within 10 feet of the surface, if above 10 feet, **±5 feet**.	
S6	**Maintain position within 4 feet of a designated point with no aft movement.**	**Maintain position within 2 feet of a designated point with no aft movement.**
S7	**Descend vertically to within 4 feet of the designated touchdown point.**	**Descend vertically to within 2 feet of the designated touchdown point.**
S8	Maintain specified heading, **± 10°**.	

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

KNOWLEDGE

PH.IV.A.K1–K4 · the applicant demonstrates understanding of:

- Elements related to a vertical takeoff to a hover and landing from a hover.
- Effect of wind on flight control inputs.
- Effect of weight and balance and various centers of gravity.
- Ground effect.

RISK MANAGEMENT

PH.IV.A.R1–R4 · identify, assess and mitigate risk associated with:

- Loss of tail rotor effectiveness (LTE).
- Dynamic rollover.
- Ground resonance.
- Powerplant failure during hover.

Standards: FAA-S-ACS-15 Private Pilot Helicopter and FAA-S-ACS-16 Commercial Pilot Helicopter (text reproduced from the current ACS). **References:** 14 CFR part 91; AC 90-95; 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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