ACS HELICOPTER MANEUVER SERIES · 9 OF 24

Steep Approach

Area of Operation V — Takeoffs, Landings, and Go-Arounds

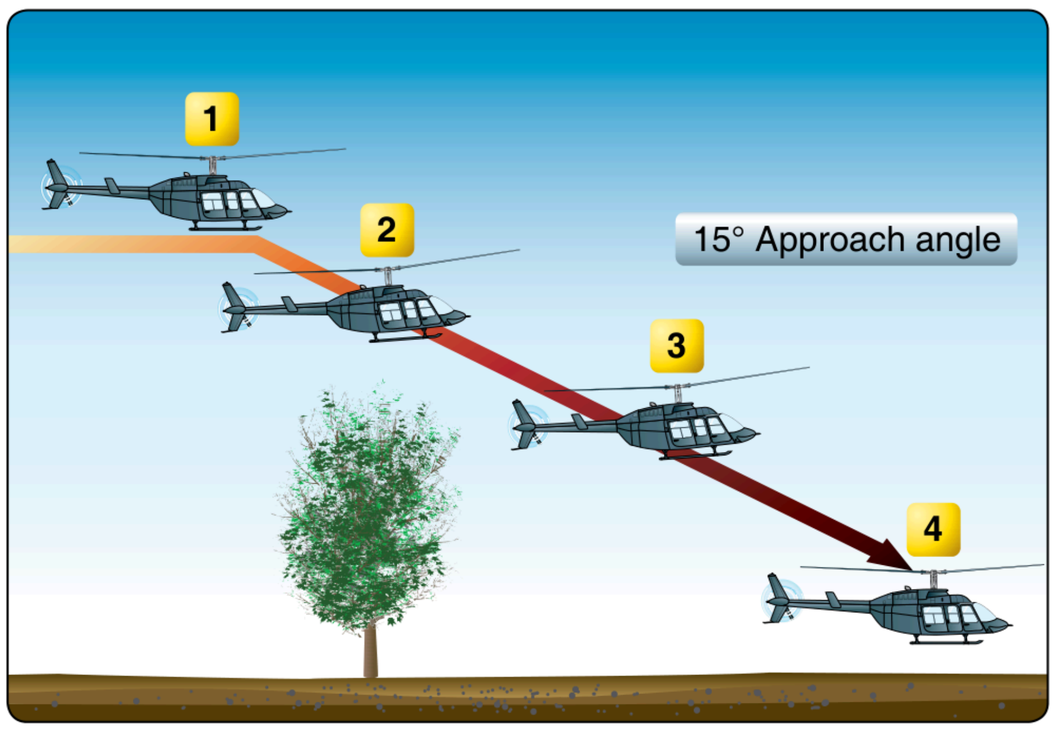
Private Pilot task PH.V.D **Commercial Pilot task** CH.V.D

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Objective. To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep approach.

HOW IT IS FLOWN

condensed from the FAA Helicopter Flying Handbook, Chapter 10 — Steep Approach



HFH Figure 10-4. *Steep approach to a hover.*

1. Used when obstacles in the approach path are too high for a normal approach; enters most confined areas. Approach angle about 13°–15°.
2. Avoid vortex ring state parameters: 20–100% power, airspeed under 10 kt, descent over 300 fpm.
3. On final (1), on track and into the wind at approach airspeed. Intercepting 13°–15°, lower collective enough to start down the angle and decelerate (2) — more collective reduction than a normal approach. Pedal for trim.
4. Decelerate with slight aft cyclic and lower collective smoothly to hold the angle. Collective = angle and rate of descent; cyclic = rate of closure; pedals = trim. Aft cyclic is needed sooner than on a normal approach.
5. Keep the helicopter in trim before loss of ETL (about 25 kt). Below 100 ft AGL align the helicopter with the touchdown point. Visualize the tail rotor and fly the skids to 3 ft above the landing point.
6. ETL is lost higher on a steep approach (3): add collective to prevent settling and forward cyclic for the closure rate. Terminate at a hover with zero groundspeed over the spot (4) — about 3 ft, with little extra power needed if flown well. Below the barriers the wind effect is lost and the helicopter settles faster.

COMMON ERRORS — HFH LIST

- Not holding rpm.
- Using collective improperly for the selected angle.
- No pedal correction for collective changes.
- Slowing excessively to stay on the angle.
- Not recognizing loss of ETL.
- Not arriving at hover height, attitude and zero groundspeed together.
- Low rpm in the transition to hover.
- Too much aft cyclic near the surface → tail rotor strike.
- Skids not aligned with direction of travel by loss of ETL.

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	Consider the wind direction and conditions, landing surface, and obstacles.	
S4	Select a suitable termination point.	
S5	Establish and maintain a steep approach angle, (15° maximum) and proper rate of closure.	
S6	Maintain proper ground track with crosswind correction, if necessary.	
S7	Maintain powerplant and main rotor (Nr) speed within normal limits.	
S8	**Arrive at the termination point, on the surface or at a stabilized hover, ±4 feet.**	**Arrive at the termination point, on the surface or at a stabilized hover ±2 feet.**
S9	Use runway incursion avoidance procedures, if applicable.	

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

KNOWLEDGE

PH.V.D.K1–K6 · the applicant demonstrates understanding of:

- A stabilized steep approach.
- Approach techniques and applicability.
- Performance data and the height velocity (H/V) diagram.
- Effects of atmospheric conditions on approach and landing performance.
- Wind correction techniques.
- Aircraft performance and limitations.

RISK MANAGEMENT

PH.V.D.R1–R15 · identify, assess and mitigate risk associated with:

- Selection of approach path and landing based on aircraft performance and limitations, and wind.
- Effects of:
  a. Wind Direction
  b. Windshear
  c. Turbulence, including wake turbulence
- Planning for.
  a. Rejected landing and go-around
  b. Powerplant failure during the approach
- Collision hazards.
- Vortex ring state (VRS).
- Landing surface.
- Aircraft limitations.
- Distractions, task prioritization, loss of situational awareness, or disorientation.
- Loss of tail rotor effectiveness (LTE).
- Degraded Visual Environment (DVE) and flat light conditions.

Standards: FAA-S-ACS-15 Private Pilot Helicopter and FAA-S-ACS-16 Commercial Pilot Helicopter (text reproduced from the current ACS). **References:** AIM; 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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