Pinnacle Operations

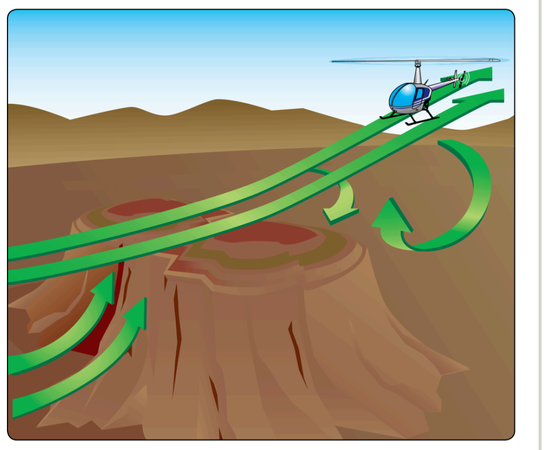
Area of Operation V — Takeoffs, Landings, and Go-Arounds (Commercial: Area IX — Special Operations)

Private Pilot task PH.V.G **Commercial Pilot task** CH.IX.B

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

HOW IT IS FLOWN

condensed from the FAA Helicopter Flying Handbook, Chapter 10 — Pinnacle and Ridgeline Operations



HFH Figure 10-9. *When flying an approach to a pinnacle or ridgeline, avoid the areas where downdrafts are present, especially when excess power is limited. If downdrafts are encountered, it may become necessary to make an immediate turn away from the pinnacle to avoid being forced into the rising terrain.*



HFH Figure 10-8. *If the wind velocity is 10 knots or greater, expect updrafts on the windward side and downdrafts on the lee side of obstacles. Plan the approach with these factors in mind, but be ready to alter plans if the wind speed or direction changes.*

1. A pinnacle drops away steeply on all sides; a ridgeline on one or two sides. No obstacles does not mean easy: updrafts, downdrafts, turbulence and poor forced-landing terrain remain.
2. Climb to the pinnacle on the upwind side to use updrafts. Fly the approach parallel to the ridgeline and into the wind as much as possible (Figure 10-9).
3. Load, altitude, wind and terrain set the final approach angle: the stronger the wind, the steeper the approach to stay above turbulence and downdrafts. Stay clear of the lee side; if a crosswind landing is hazardous, make a low coordinated turn into the wind just before terminating.
4. Groundspeed is hard to judge because references are far away — judge closure by the apparent change in size of landing-zone features; aim for a brisk-walk rate of closure.
5. Land in the forward portion using the long axis; keep the tail rotor out of any personnel walkway (rooftop pads). Stability check before reducing rpm: move cyclic and pedals slowly while lowering collective; if the helicopter moves, reposition.
6. Takeoff is airspeed over altitude: as the helicopter moves out of ground effect, hold altitude and accelerate to normal climb airspeed, then set climb attitude. Never dive down the slope after clearing the pinnacle; higher airspeed shortens time in the H/V avoid area and gives a better glide and flare if the engine fails.

COMMON ERRORS — HFH LIST

- Poor or no high/low reconnaissance.
- Approach angle too steep or too shallow.
- Not holding rpm.
- Ignoring emergency landing areas and wind/turbulence.
- Not maintaining pinnacle elevation after takeoff (diving).
- Wrong rate of closure.
- Not reaching climb airspeed in a timely manner.

SKILLS — THE STANDARD

the applicant exhibits the skill to:

	PRIVATE · ACS-15	COMMERCIAL · ACS-16
S1	Complete the appropriate checklist(s).	
S2	Confirm power available meets or exceeds the power required for the selected arrival or departure profile(s).	
S3	Make radio calls as appropriate.	
S4	Accomplish high and low reconnaissance.	
S5	Determine wind direction with or without visible wind direction indicators.	
S6	Select a suitable approach path, termination point, and departure path.	
S7	Select an approach path considering wind direction.	
S8	Track the selected approach path at an acceptable approach angle and rate of closure to the termination point.	
S9	Maintain powerplant and main rotor (Nr) speed within normal limits.	
S10	Accomplish a proper ground reconnaissance.	
S11	Terminate in a hover or on the surface, as appropriate.	
S12	Select a suitable takeoff point and consider factors affecting takeoff and climb performance under various conditions.	

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

KNOWLEDGE

PH.V.G.K1–K5 · the applicant demonstrates understanding of:

- Elements of pinnacle/platform operations.
- Effects of wind, weight, temperature, and density altitude.
- Suitable takeoff point and departure flight path during climb.
- Situations when a pinnacle/platform approach, landing and takeoff is recommended and factors related to aircraft performance.
- Elements of a high and low reconnaissance.

RISK MANAGEMENT

PH.V.G.R1–R19 · identify, assess and mitigate risk associated with:

- Selection of approach path, termination point and departure path based on aircraft performance and limitations, and wind.
- Effects of:
  a. Wind Direction
  b. Windshear
  c. Turbulence
- H/V diagram information.
- Go-around.
- Powerplant failure during approach/landing phase of flight.
- Collision hazards.
- Vortex ring state (VRS).
- Landing surface.
- Low rotor rpm.
- Dynamic rollover.
- Ground resonance.
- Loss of tail rotor effectiveness (LTE).
- Aircraft limitations.
- Distractions, task prioritization, loss of situational awareness, or disorientation.
- Main and tail rotor hazards for passengers.
- Forced landing.

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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