ACS HELICOPTER MANEUVER SERIES · 14 OF 24

Rapid Deceleration / Quick Stop

Area of Operation VI — Performance Maneuvers

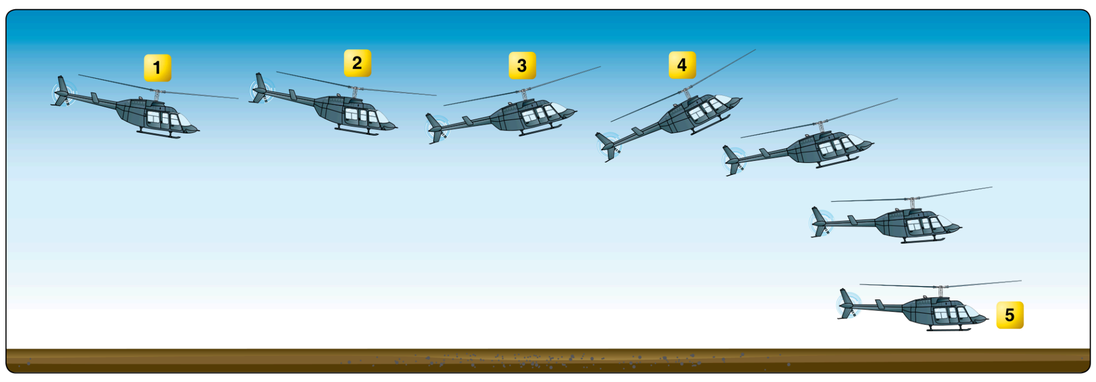
Private Pilot task PH.VI.A **Commercial Pilot task** CH.VI.A

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Objective. To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with rapid deceleration/quick stop and conditions that may require a rapid deceleration/quick stop.

HOW IT IS FLOWN

condensed from the FAA Helicopter Flying Handbook, Chapter 10 — Rapid Deceleration or Quick Stop



HFH Figure 10-3. *Rapid deceleration or quick stop.*

1. Decelerates from forward flight to a hover: abort a takeoff, stop for something blocking the path, or end an air taxi. Practice on a runway or large open area, into the wind (1). Done slowly and smoothly — coordination is the point.
2. Height: enough tail-rotor clearance at the highest pitch attitude, but low enough to stay out of the H/V shaded area and to recover to a hover; completion no higher than the manufacturer's maximum safe hover height. Level off at 25–40 ft and accelerate to entry speed, about 45 kt for most training helicopters (2).
3. At (3) apply aft cyclic to reduce groundspeed while lowering collective to counter the climb. Timing must match: too little down collective → climb; too much → descent. Rapid aft cyclic needs equally rapid down collective.
4. As collective comes down, add pedal to hold heading and throttle to hold rpm. Rotor G-load rises with pitch attitude — too much nose-up can stall the rotor.
5. At the desired speed (4) lower the nose, let the helicopter descend to hover height in level flight with zero groundspeed (5); add collective to stop at hover height, throttle for rpm, pedal for heading. Visualize rotating about the tail rotor's horizontal axis.

COMMON ERRORS — HFH LIST

- Lowering collective without aft cyclic → altitude loss.
- Aft cyclic too fast → ballooning.
- Not controlling the rate of deceleration.
- Stopping in a tail-low attitude.
- Not holding rpm.
- Waiting too long to add collective → over-torque on recovery.
- Unsafe terrain clearance; erratic heading from pedals.
- Excessively nose-high attitude.

SKILLS — THE STANDARD

the applicant exhibits the skill to:

	PRIVATE · ACS-15	COMMERCIAL · ACS-16
S1	Complete the appropriate checklist(s).	
S2	Maintain powerplant and main rotor (Nr) speed within normal limits.	
S3	Coordinate all controls throughout the execution of the maneuver to terminate in a hover at an appropriate hover height.	
S4	Maintain an altitude that permits safe clearance between the tail boom and the surface.	
S5	**Maintain heading throughout the maneuver, ±10°.**	**Maintain heading throughout the maneuver, ±5°.**

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

KNOWLEDGE

PH.VI.A.K1–K3 · the applicant demonstrates understanding of:

- Purpose of the maneuver.
- Effects of atmospheric conditions on a rapid deceleration/quick stop.
- Wind correction techniques during rapid deceleration/quick stop.

RISK MANAGEMENT

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

- Recognition of the need for a rapid deceleration/quick stop.
- Powerplant and rotor management.
- Vortex ring state (VRS).
- Collision hazards.
- 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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