SUBJECT: **CONDUCTING A HELICOPTER FLIGHT REVIEW**

REFERENCES

- FAA "Conducting an Effective Flight Review"
- AOPA "Pilot's Guide to the Flight Review"
- 14 CFR Part 43,61,91 and potentially 119/135
- "Flight Review Preparation Course" (www.faasafety.gov)
- AC 61-98B
- AC 61-65E
- FAA-S-8081-15A (PVT PTS)
- FAA-S-8081-16B (COM PTS)

SCHEDULE:

- Introduction/Overview	approx.	30 min.
- Mental Helicopter Skills	min.	60 min. (recommended 3h)
- Physical Helicopter Skills	min	60 min. (recommended 1.5h)
- Debriefing/Follow-up plan for additional training	approx.	30 min.

OBJECTIVES :

To provide an instructional service designed to assess a pilot's knowledge and skills.

According to 14 CFR 61.56 which states the person giving the flight review has the discretion to determine the maneuvers and procedures necessary for the pilot to demonstrate "safe exercise of the privileges of the pilot certificate".

COMPLETION STANDARDS :

A flight review is satisfactory when a pilot demonstrated safe exercise of the privileges of the pilots' certificate.

When the applicant has successfully completed the review, the CFI should endorse the pilots' logbook to certify that the pilot has satisfactory accomplished the flight review. The CFI should make the endorsement for a satisfactory review in accordance with AC 61-65. The flight and ground time must also be logged in the pilot's logbook in accordance with 14 CFR 61.51 (a)(1).

Completion Standards :

Task	PVT Standards	COM Standards
Vertical Takeoff / Landing to/from a Hover		
Heading	±10°	±10°
Altitude	±1/2 within 10 feet, above 10 feet, ±5 feet	±1/2 within 10 feet, above 10 feet, ±5 feet
Position	4 feet	2 feet
Hazard	Avoid conditions for LTE	Avoid conditions for LTE
Hovering Maneuver		
Heading	±10°	±10°
Altitude	±1/2 within 10 feet,	±1/2 within 10 feet,
Position	above 10 feet, ±5 feet	above 10 feet, ±5 feet
Hazard	Avoid conditions for LTE	Avoid conditions for LTE
Slope Operations		
Heading	±10°	±5°
Hazard	Avoid conditions for Dynamic Roll Over	
Normal Takeoff		
Airspeed	±10 KIAS	±5 KIAS
Max Performance Takeoff		
Airspeed	±10 KIAS	±5 KIAS
Normal Approach		
Hazard	Avoid conditions for SWP	Avoid conditions for SWP
Termination Point	±4 feet	±2 feet
Steep Approach		
Hazard	Avoid conditions for SWP	Avoid conditions for SWP
Termination Point	±4 feet	±2 feet
Approach Angle	max. 15°	max. 15°
Shallow Approach-Running Ldg.		
Heading	Landing Gear parallel to Ground Track	
Airspeed	Advantage of ETL	Advantage of ETL
Go-Around Procedure		
Altitude	Positive Climb Rate	Positive Climb Rate
Airspeed	Climb Airspeed ±10 KIAS	Climb Airspeed ±5 KIAS
Straight and Level Flight & Traffic Pattern		
Airspeed	±10 KIAS	±10 KIAS
Altitude	±100 feet	±100 feet
Normal Climbs and Descent		
Airspeed	±10 KIAS	±5 KIAS
Level Off Altitude	±100 feet	±50 feet
Heading	±10°	±5°
Rapid Deceleration		
Heading	±10°	±5°
Hazard	Safe clearance between the tail boom and the surface	

Resource	FAA-S-8081-15A	FAA-S-8081-16B
Check for updates! – Jan 2014		

Completion Standards :

Task	PVT Standards	COM Standards
Straight-In Autorotation		
Predetermined Spot	±200 feet	±100 feet
Airspeed	±5 KIAS	±5 KIAS
RPM	Normal limits	Normal limits
180-Degree Autorotation		
Predetermined Spot	±200 feet	±100 feet
Airspeed	±5 KIAS	±5 KIAS
RPM	Normal limits	Normal limits
Power Failure at a Hover (Hovering Autorotation)		
Heading	±10°	±5°
Touchdown	Minimum Sideward Movement	Minimum Sideward Movement
	No Rearward Movement	No Rearward Movement
Power Failure at Altitude (Forced Landing / Throttle closure)		
Establishes an Autorotation and selects a suitable landing area.		
Airspeed	±5 KIAS	±5 KIAS
Settling With Power		
The student must thoroughly understand and recognize the settling with power conditions and be able to safely recover at an altitude no less than 1000' AGL.		
Low Rotor RPM		
The student should be able to recognize and recover from low rotor RPM.		
Confined Area / Pinnacle Operation		
Approach Angle	No more than 15°	No more than 15°
RPM	Normal limits	Normal limits
Hazard	Avoid conditions for settling with power	Avoid conditions for settling with power

Resource	FAA-S-8081-15A	FAA-S-8081-16B
	Check for updates! - Jan 2014	

Introduction :

Pilot :

- Name
- "Pilots aeronautical history for flight review" (see page 5)
- Pilot certificate and ratings, logbook, medical and picture ID.
- Expectations of flight review
- Expectations of flight operations after flight review

Flight Instructor :

- Name
- Aeronautical history
- History with the company
- Expectations of flight review
    - PTS
    - NTSB accident report review
    - Potential self study assignment as preparation for flight review
    - Potential suggestion on CFR14 61.56 endorsement
        - Dual rated pilots
            - flight review is valid for anything the pilot is rated for
            - highly recommended to suggestion flight review for each rating
                - Rotorcraft vs. Airplane
        - multiple make and models
            - Be aware of potential special requirements (e.g. SFAR #73 for R-22 or R44)

Pilot's Aeronautical History for Flight Review

Pilot's Name:_____ CFI:_____
Address:_____
Phone(s):_____
e-mail:_____

Type of Pilot Certificate(s):

Private_____ Commercial_____ ATP_____ Flight Instructor_____

Rating(s):

Instrument_____ Instrument Instructor _____

Experience (Pilot):

Total time_____ Last 6 months_____ Avg hours/month_____
Time logged since last flight review_____ Since last IPC_____

Experience (Aircraft):

Aircraft type(s) you fly_____
_____
Aircraft used most often_____
For this aircraft:
Total time_____ Last 6 months_____ Avg hours/month_____

Experience (Flight environment):

Since your last flight review, approximately how many hours have you logged in:
Day VFR_____ Day IFR_____ IMC_____
Night VFR_____ Night IFR_____

Mountainous terrain_____ Overwater flying_____
Airport with control tower_____ Airport w/o control tower_____

Type of Flying (External factors):

What percentage of your flying is for:
Pleasure_____Business_____ Local_____ XC_____

Personal Skills Assessment:
What are your strengths as a pilot?_____
What do you most want to practice/improve?_____
What are your aviation goals?_____

NTSB Identification: MIA04CA048.
The docket is stored in the Docket Management System (DMS). Please contact Records Management Division
Accident occurred Friday, January 23, 2004 in Vero Beach, FL
Probable Cause Approval Date: 04/28/2004
Aircraft: Robinson R44, registration: N77KK
Injuries: 1 Uninjured.

On January 23, 2004, about 0500 eastern standard time, a Robinson R44, N77KK, listed with the Federal Aviation Administration (FAA) as "Registration Pending", rolled over while hover taxiing at the Vero Beach Municipal Airport, Vero Beach, Florida. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 personal flight. The heliocopter was substantially damaged and the private-rated pilot, the sole occupant, was not injured. The flight was originating at the time of the accident.

The pilot stated he went out to warm up the helicopter about 0500, and while hover taxiing north to reposition the helicopter for a planned flight at 0730, the left skid contacted a hedge bush row and the helicopter rolled onto its left side. He further stated there was no mechanical failure or malfunction. His biennial flight review expired February 28, 2003.

NTSB Identification: **CEN12FA139**
14 CFR Part 91: General Aviation
Accident occurred Thursday, January 19, 2012 in Centerville, LA
Probable Cause Approval Date: 08/15/2012
Aircraft: ROBINSON R44 II, registration: N369TL
Injuries: 2 Fatal.

NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report.
Witnesses saw the helicopter circling at a low altitude and saw the pilot wave at them. None of the witnesses saw the impact, but they heard the impact and saw smoke. They responded to the site and used portable fire extinguishers to extinguish the fire. Examination of the accident site revealed that the helicopter struck several trees and fell straight to the ground in a nose-low attitude, coming to rest on its right side. Examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. Impact signatures were consistent with the engine developing power at impact, and it is likely that, at the time of impact, the helicopter was in a steep descent consistent with settling with power.
The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot allowed the helicopter to settle with power while maneuvering at low altitude.

PERSONNEL (CREW) INFORMATION

According to the helicopter owner/operator the pilot-in-command, age 40, was seated in the left seat. He held an airline transport pilot certificate with airplane multiengine land rating, commercial pilot privileges with airplane single-engine land and rotorcraft-helicopter ratings, and a flight instructor certificate with airplane single/multiengine and instrument ratings. He was type rated in the Beech 300/350 King Air, Hawker Beechjet 400, Cessna 500 Citation, and the Mitsubishi MU-300 Diamond. He held a first class airman medical certificated, dated June 24, 2011, with no restrictions or limitations. According to his employer, the pilot had logged 8,700 total flight hours and 260 hours in the Robinson R44, of which 215 hours were as pilot-in-command. His list flight review was accomplished in the Beech 350 King Air on December 6, 2011.

The second pilot, age 43, was seated in the right seat. He held a private pilot certificate with a rotorcraft-helicopter rating. He also held a third class airman medical certificate, dated April 15, 2010, with the restriction that he wear corrective lenses while exercising the privileges of his airman certificate. According to his employer, the pilot had logged 450 total flight hours, the majority of which was in the Bell 47 helicopter. He had logged 18.9 hours in the Robinson R44, his last flight being on May 5, 2011. He had also flown the Brantley helicopter.

Pilot	• Experience:
	  ○ Recent flight experience (61.57)
	• Responsibility:
	  ○ Authority (91.3)
	  ○ ATC Instructions(91.123)
	  ○ Preflight action (91.103)
	  ○ Safety belts (91.107)
	  ○ Flight crew at station (91.105)
	• Cautions:
	  ○ Careless or reckless operation (91.13)
	  ○ Dropping objects (91.15)
	  ○ Alcohol or drugs (91.17
	  ○ Supplemental oxygen (91.211)
	  ○ Fitness for flight (AIM Chapter 8, Section 1)

Aircraft	• Airworthiness:
	  ○ Basic (91.7)
	  ○ Flight manual, markings, placards (91.9)
	  ○ Certifications required (91.203)
	  ○ Instrument & equipment requirements (91.205)
	  ▪ ELT (91.207)
	  ▪ Position lights (91.209)
	  ▪ Transponder requirements (91.215)
	  ▪ Inoperative instruments and equipment (91.213)
	• Maintenance:
	  ○ Responsibility (91.403)
	  ○ Maintenance required (91.405)
	  ○ Maintenance records (91.417)
	  ○ Operation after maintenance (91.407)
	• Inspections:
	  ○ Annual, Airworthiness Directives, 100-Hour (91.409)
	  ○ Altimeter & Pitot Static System (91.411)
	  ○ VOR check (91.171)
	  ○ Transponder (91.413)
	  ○ ELT (91.207)

enViroment	• Airports :
	  ○ Markings (AIM Chapter 2, Section 3)
	  ○ Operations (AIM 4-3; 91.126, 91.125)
	  ○ Traffic Patterns (91.126
	• Airspace :
	  ○ Altimeter Settings (91.121; AIM 7-2)
	  ○ Minimum Safe Altitudes (91.119, 91.177)
	  ○ Cruising Altitudes (91.159, 91.179; AIM 3-1-5)
	  ○ Speed Limits (91.117)
	  ○ Right of Way (91.113)
	  ○ Formation (91.111)
	  ○ Types of Airspace (AIM 3)
	  ▪ Controlled Airspace (AIM 3-2; 91.135, 91.131, 91.130, 91.129)
	  ▪ Class G Airspace (AIM 3-3)
	  ▪ Special Use (AIM 3-4; 91.133, 91.137, 91.141. 91.143, 91.145)
	  ○ Emergency Air Traffic Rules (91.139; AIM 5-6)
	• Air Traffic Control & Procedures :
	  ○ Services (4-1)
	  ○ Radio Communications (4-2 & Pilot/Controller Glossary)
	  ○ Clearances (4-4)
	  ○ Procedures (AIM 5)
	• Weather :
	  ○ Meteorology (AIM 7-1)
	  ○ Wake Turbulence (AIM 7-3)

External pressure	• Personal Minimums Checklist • Risk Management (3-P model) • PTS Special Emphasis Items • Discuss Scenario of External pressures that this individual could face in their flight experience ie: Personal flights, work related. Or bring up own scenario • ADM and SRM

Aerodynamics	• Transverse flow • Effective translational lift • Dissymmetry of lift • Translating tendency • IGE vs. OGE
Hazards	• Aerodynamic hazards : (Use "DIRCP-Model"; Definition, Indications, Recovery, Causes, draw Picture) o Retreating blade stall o Low RPM decay o Low rotor RPM blade stall o Low G hazards / must bumping o LTE o Settling with power • General Hazards : o Ground resonance o Dynamic / static roll over o Stuck pedal o Wire strike avoidance
Performance	• Height – Velocity curve • High altitude performance • Engine limitations • Weight limitations • Preflight performance planning
Emergencies	• Engine failure at altitude • Engine failure in a hover • Engine fire, run up and in flight • Electrical fire • Clutch • Low fuel light • MR/TR chip and temp lights • Oil light • IMC avoidance and inadvertent IMC • Hydraulic failure

NOTE:
The above mentioned emergency situations are only suggestions and the questions/scenarios should NOT be limited to the ones mentioned above.
It is highly recommended to review the emergency procedure section from the aircraft's flight manual with the pilot.

NOTE:

Maneuvers should be performed at instructor's discretion. Maneuvers and emergency procedures should be performed specific to the aircraft to being flown. A plan of action should be established prior to the flight.

AREAS OF OPERATION from Private Pilot Rotorcraft Helicopter PTS:

I. PREFLIGHT PREPARATION	• WEATHER INFORMATION • CROSS-COUNTRY FLIGHT PLANNING • PERFORMANCE AND LIMITATIONS • OPERATION OF SYSTEMS
II. PREFLIGHT PROCEDURES	• PREFLIGHT INSPECTION • COCKPIT MANAGEMENT • BEFORE TAKEOFF CHECK
III. AIRPORT AND HELIPORT OPERATIONS	• RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS • AIRPORT/HELIPORT RUNWAY, HELIPAD, AND TAXIWAY SIGNS, MARKINGS, AND LIGHTING
IV. HOVERING MANEUVERS	• VERTICAL TAKEOFF AND LANDING • SLOPE OPERATIONS • HOVER TAXI • AIR TAXI
V. TAKEOFFS, LANDINGS, AND GO-AROUNDS	• NORMAL AND CROSSWIND TAKEOFF AND CLIMB • NORMAL AND CROSSWIND APPROACH • MAXIMUM PERFORMANCE TAKEOFF AND CLIMB • STEEP APPROACH • CONFINED AREA OPERATION • PINNACLE/PLATFORM OPERATIONS • SHALLOW APPROACH AND RUNNING/ROLL-ON LANDING • GO-AROUND
VI. PERFORMANCE MANEUVERS	• RAPID DECELERATION • STRAIGHT IN AUTOROTATION • 180° AUTOROTATION
VII. NAVIGATION	• PILOTAGE AND DEAD RECKONING • NAVIGATION SYSTEMS AND RADAR SERVICES • DIVERSION • LOST PROCEDURES
VIII. EMERGENCY OPERATIONS	• POWER FAILURE AT A HOVER • POWER FAILURE AT ALTITUDE • SYSTEMS AND EQUIPMENT MALFUNCTIONS • SETTLING-WITH-POWER • LOW ROTOR RPM RECOVERY
X. POST-FLIGHT PROCEDURES	• AFTER LANDING AND SECURING

Post Flight Discussion and Debriefing

- Reflect the flight
  - What was the most important thing you learned today?
  - What part of the session was easiest for you? What part was hardest?
  - Did anything make you uncomfortable? If so, when did it occur?
  - How would you assess your performance and your decisions?
  - Did you perform in accordance with the practical test standards?

- Avoid critique from the CFI only
  - Involve pilot, self critique
  - Ask the pilot verbally replay the flight for you rather than starting with a laundry list of areas for improvement

- Review maneuvers
  - Use the PTS as back up

- Suggestions/Recommendations
  - Potential additional training (Personal Proficiency Practice Plan)
    - Even if flight review was satisfactory
  - Review personal minimums

Completion of a Flight review: Section 61.56(a) and (c).
I certify that _____ (F/M/L name),
_____ (pilot certificate), _____ (certificate number)
has satisfactorily completed the flight review required in paragraph 61.56 (a)
on _____ (date).
A review must be completed by _____ (24 month from current date)
Recommendation: A flight review should be completed for each rating held.

_____ date ___ / ___ / ___ _____ ____ exp. ___ / ___

Robinson R22 Flight Review

R22 Flight Review 61.56 and SFAR 73
I certify that _____ (F/M/L name),
_____ (pilot certificate), _____ (certificate number)
has satisfactorily completed the flight review required in paragraph 61.56 and SFAR 73 (2)(c)(1) and (3) in a **Robinson R22** on _____ (date).
A review must be completed by _____ (24 month from current date)
Recommendation: A flight review should be completed for each rating held.

_____ date ___ / ___ / ___ _____ ____ exp. ___ / ___

Robinson R44 Flight Review

R44 Flight Review 61.56 and SFAR 73 (2)(c)(2) and (3)
I certify that _____ (F/M/L name),
_____ (pilot certificate), _____ (certificate number)
has satisfactorily completed the flight review required in paragraph 61.56 and SFAR 73 (2)(c)(2) and (3) in a **Robinson R44** on _____ (date).
A review must be completed by _____ (24 month from current date)
Recommendation: A flight review should be completed for each rating held.

_____ date ___ / ___ / ___ _____ ____ exp. ___ / ___