

# RANGER

## Transition Training Guidebook

## DOCUMENT REVISION HISTORY

REVISION	DATE	REMARKS
0.0	9/10/2018	Initial draft
0.1	9/26/2018	Added pilot competency standards
0.2	2/7/2018	Edited & added some questions. Updated Pilot Credentials
0.3	3/28/2019	Updated Pilot Competency Standards & Aircraft-Specific Piloting Skills
1.0	4/25/2019	Comprehensive rewrite & update of document questions & content.
1.1	5/21/2019	Further update of document, questions, & content.
1.2	5/28/2019	Updated maneuver limitations per FAA ACS & pilot statements.
1.3	11/13/2019	Edited format
1.4	5/19/2020	Updated content & expectations.
1.5	9/9/2020	Updated questions & content.
1.6	10/23/2020	Updated questions & content.

# INTRODUCTION

CONGRATULATIONS on your purchase, & the pending delivery, of your Vashon Aircraft Ranger R7 aircraft!

Included in the purchase price of your Ranger R7 is up to ten (10) hours of Transition Training. This Transition Training Guidebook is intended to provide a structured approach to familiarizing pilots with the aircraft systems and flight characteristics of the Ranger R7. This guidebook is not a substitute for individual instruction from a flight instructor. It is intended to be used in conjunction with ground & flight training operations.

In order to maximize the time during the transition training, pilots who are transitioning to the Ranger are highly encouraged to thoroughly review the following resources prior to the beginning of the transition training:

1. Vashon Aircraft Ranger R7 Pilot's Operating Handbook (POH)
2. Dynon SkyView User Guide
3. Dynon Skyview (Touch / HDX) resources via:
  - a. Dynonavionics.com
  - b. YouTube.com
4. Airman Certification Standards (ACS); FAA-S-ACS-6B (June 2018); Private Pilot – Airplane

At the end I have provided the AOPA Air Safety Institutes VFR Pilot Person Minimums Contract. Whether or not you complete this document is completely optional. However, I encourage you to review it, decided what your minimums are, share with a friend or CFI, & fly accordingly.

Again, Congratulations on your new Vashon Aircraft Ranger R7!

Sincerely,

Kurt Robertson, CFI/CFII  
Sales Manager / Transition Trainer  
Vashon Aircraft

# AIRCRAFT FAMILIARIZATION QUESTIONNAIRE

Refer to the Pilot's Operating Handbook (POH) & the Dynon SkyView User Guide to complete the following questions.

## AIRCRAFT SYSTEMS

### POWERPLANT

1. The engine model is a \_\_\_\_\_.
2. The engine rated power is \_\_\_\_\_ HP at \_\_\_\_\_ RPM.
3. True / False: The engine in this aircraft employs a carburetor.
4. The only fuel authorized for use is \_\_\_\_\_, which is \_\_\_\_\_ in color?
5. The total fuel capacity is \_\_\_\_\_ gallons.
6. The usable fuel capacity is \_\_\_\_\_ gallons.
7. The total fuel capacity of the Header Tank is \_\_\_\_\_ gallons.
8. The maximum range of the aircraft is approximately \_\_\_\_\_ nautical miles.
9. How many fuel drains does the Ranger have? \_\_\_\_\_
10. Where are the fuel drains located? \_\_\_\_\_
11. The maximum oil capacity is \_\_\_\_\_ quarts.
12. What is the normal cruise oil temperature range? \_\_\_\_\_
13. What is the caution oil temperature range? \_\_\_\_\_
14. What is the normal cruise cylinder head temp. range? \_\_\_\_\_
15. What type of oil should be used for engine break-in? \_\_\_\_\_
16. What weight of oil is recommended afterwards? \_\_\_\_\_
17. In the event of carburetor icing, the \_\_\_\_\_ should be activated.

18. The Fuel Boost Pump should only be used during which 2 emergencies:

- When the engine \_\_\_\_\_
- When the Header Tank is \_\_\_\_\_

### ELECTRICAL

1. The normal operating voltage range in cruise is \_\_\_\_\_ to \_\_\_\_\_ volts.
2. A possible alternator failure is indicated by a voltage indication of less than \_\_\_\_\_ volts.
3. An overvoltage condition is indicated by a voltage indication of more than \_\_\_\_\_ volts.
4. Through what screen would the pilot access the electrical circuits to reset a tripped circuit breaker?
5. What kind of battery does the Ranger R7 use? \_\_\_\_\_
6. True / False: A regular car battery charger can be used to charge the battery?

### FLIGHT CONTROLS

1. The elevator and ailerons on this airplane are controlled with the: \_\_\_\_\_
2. The rudder and brakes in this airplane are controlled with the: \_\_\_\_\_
3. True / False: The flaps & the elevator trim are the only pilot operated electrically driven flight control surfaces on the aircraft?
4. The flaps are controlled using a \_\_\_\_\_ on the instrument panel.
5. The maximum flap angle is \_\_\_\_\_ degrees.
6. The maximum flap extension speed is \_\_\_\_\_ KIAS.
7. Where is the elevator trim control switch located? \_\_\_\_\_
8. What system is used to steer the Ranger on the ground, when taxiing at low speed?
  - \_\_\_\_\_

# FLIGHT CHARACTERISTICS

## LIMITATIONS

1. True / False: This aircraft approved for flight under Instrument Flight Rules (IFR)?
2. The maximum demonstrated crosswind component is \_\_\_\_\_ kts.
3. The maximum wind limitation speed is: \_\_\_\_\_ kts.
4. True / False: Intentional spins are permitted in this aircraft.
5. True / False: This aircraft is equipped for night flight.
6. The maximum gross weight restriction is: \_\_\_\_\_ lbs.
7. The maximum flight load factors on the aircraft are: + \_\_\_\_\_ / - \_\_\_\_\_ g.

## GENERAL

1. In feet, what is the wingspan of the Ranger? \_\_\_\_\_
2. In feet, what is the height of the Rangers tail section? \_\_\_\_\_
3. In feet, what is the length of the Ranger? \_\_\_\_\_
4. In cruise, the mixture should be leaned below \_\_\_\_\_% power.
5. Where on the EFIS screen are the engine power & peak indications found?
6. During gusty wind conditions, the landing approach should be flown at approximately \_\_\_\_\_ kts. Above normal landing speed.
7. As the Ranger approaches a stall, what two (2) types of warnings will the pilot receive, & at how many knots above stall speed?
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_ knots
8. The normal RPM range is: \_\_\_\_\_ - \_\_\_\_\_ RPM

## AIRSPEEDS

Complete the following table:

V <sub>NE</sub> - Never Exceed Speed		KIAS
V <sub>A</sub> - Maneuvering Speed		KIAS
V <sub>S0</sub> - Stall Speed, Flaps Down		KIAS
V <sub>NO</sub> - Maximum Structural Cruising Speed		KIAS
V <sub>GLIDE</sub> - Best Glide Speed, Flaps Up		KIAS
V <sub>X</sub> - Best Angle Of Climb		KIAS
V <sub>Y</sub> - Best Rate Of Climb		KIAS
Normal Speed on Downwind		KIAS
Normal Speed on Base Leg		KIAS
Normal Speed on Final		KIAS

1. If the airframe is overstressed in flight, due to exceeding airspeed &/or load limits, what reduced airspeed range (IAS) should be maintained until able to land?
  - \_\_\_\_\_ kts.

## EMERGENCIES

1. What indicated airspeed should be maintained for emergencies? \_\_\_\_\_ kts.
2. In the event of an engine fire during start the throttle should be \_\_\_\_\_ and the mixture should be \_\_\_\_\_.
3. The first action item during an in-flight engine fire is to \_\_\_\_\_.
4. True / False: An engine air restart should automatically be attempted after an in-flight engine fire?

5. In the event of a trim motor runaway, the \_\_\_\_\_ switch should be turned off.

6. Describe the procedure for spin recovery:

- Throttle:
- Rudder:
- Elevators:
- Ailerons:

When the spin rotation stops then:

- Rudder:
- Nose Attitude:

7. Describe the engine air restart procedure:

- Airspeed:
- Ignition Switch:
- Fuel Shut Off Valve:
- Mixture:
- Fuel Pump:
- Carb Heat:

If restart is not possible, then:

- Throttle &/or Mixture:
- Next Check-list:

8. True / False: This aircraft is designed to float.

8. If the aircraft is being prepared for an emergency landing in water (ditching) what should be done with the:

- Flaps:
- Doors:



## AVIONICS

These questions are relevant to the Dynon Avionics SkyView system.

1. To make the PFD appear on a display open the \_\_\_\_\_ menu and select PFD.
2. To activate the LEVEL autopilot mode, press the \_\_\_\_\_ button on the autopilot panel.
3. How can the pilot determine what mode the autopilot is current set to?
4. Describe two ways in which the autopilot can be disconnected.
5. After fueling the aircraft, how does the pilot access the fuel menu to adjust the fuel computer?
6. How does the pilot make use of the radio hotkeys for ATIS, GND, TWR, etc?
7. How does the pilot find the nearest airport?
8. How does the pilot access the Flight Plan (FPL) menu to enter a flight plan?
9. In order to fly along a set of waypoints in a flight plan, the autopilot should be set to what mode?
10. How does the pilot set the altimeter setting?

11. What menu does the pilot use to set the transponder to ALT mode?
  
12. How does the pilot set a squawk code?
  
13. There are two ways for the pilot initiate a transponder IDENT. What are they?
  
14. What button does the pilot use to control the static heard on the intercom & the radio, & where is it located?

# Pilot Competency Standards

To improve safety Vashon Aircraft requires that all new aircraft owners provide a competent pilot to accept delivery of the aircraft. This may be the aircraft owner, or another pilot authorized by the aircraft owner to accept delivery. Even though this is not a check ride, the following areas of operations standards are going to be used in determining if a pilot is competent to operate the aircraft.

Vashon aircraft will not sign off & release an aircraft for delivery unless that aircraft has assigned to it a pilot who has demonstrated they meet these competency standards at the time of delivery.

## Aircraft-Specific Systems Knowledge

- Pilot demonstrates understanding of powerplant systems to include:
  - a. Fuel system
  - b. Ignition system
  - c. Induction system
  - d. Lubrication system
  - e. Powerplant cockpit controls and operation
- Pilot demonstrates understanding of flight control systems to include:
  - a. Ailerons
  - b. Elevator
  - c. Rudder
  - d. Flaps
  - e. Elevator trim
- Pilot demonstrates understanding of electrical systems to include:
  - a. Battery and alternator system
  - b. Circuit protection devices
  - c. Electrically-driven flight controls
- Pilot demonstrates understanding of operating limitations to include:
  - a. Types of flight authorized
  - b. Airspeed limitations
  - c. Weight and balance limitations
  - d. Types of maneuvers authorized
- Pilot demonstrates basic understanding of Dynon SkyView systems to include:
  - a. COM radio
  - b. Transponder
  - c. Primary Flight Display (PFD)
  - d. Engine Monitoring System (EMS)
  - e. Basic map navigation including “direct-to” and “nearest” functionality
  - f. Entering a Flight Plan (FPL)

- Pilot demonstrates understanding of safety equipment to include:
  - a. Seatbelt use and operation

## **Aircraft-Specific Piloting Skills**

The pilot will demonstrate safe and efficient command of the aircraft to include the following:

- A thorough preflight inspection.
- Ground handling skills to include:
  - a. Moving or towing procedures
  - b. Tie-down and securing procedures
- Pre-Flight & Aircraft Checklists throughout the flight, as appropriate.
- Engine starting procedures.
- Taxiing to include:
  - a. Taxiing
  - b. Crosswind taxiing
- Takeoffs to include:
  - a. Normal takeoffs
    - Establish & maintain  $V_y +10/-5$  kts to a safe maneuvering altitude.
  - b. Short field takeoffs with obstacle
    - Demonstrate proper technique; establish  $V_x +10/-5$  kts until clear of obstacle, then  $V_y +10/-5$  kts to a safe maneuvering altitude.
  - c. Soft field takeoffs with obstacle
    - Demonstrate proper technique; establish  $V_x +10/-5$  kts until clear of obstacle, then  $V_y +10/-5$  kts to a safe maneuvering altitude.
- Landings to include:
  - a. Normal landing
    - Using published approach speeds; maintain  $+10/-5$  kts. on approach.
  - b. Short field landing
    - Utilize pitch & power settings to maintain published airspeed  $+10/-5$  kts in the landing configuration, for a stabilized approach.
  - c. Soft field landing
    - Utilize pitch & power settings to maintain published airspeed  $+10/-5$  kts in the landing configuration, demonstrate proper technique.
  - d. Balked landing (Go Around)
    - Demonstrate proper technique; smoothly apply power, retract flaps after positive rate, then  $V_y +10/-5$  kts to a safe maneuvering altitude.
- Maintain straight & level flight.
  - Maintain altitude  $\pm 100$  feet, heading  $\pm 20^\circ$ , and airspeed  $\pm 10$  knots.

- Steep Turns to include:
  - Maintain specified altitude  $\pm 100$  feet, airspeed  $\pm 10$  knots, bank angle  $\pm 5^\circ$ , and roll out on the entry heading  $\pm 10^\circ$ .
  - a. Bank angle of  $30^\circ$
  - b. Bank angle of  $45^\circ$
  
- Flight at minimum controllable airspeed (slow flight) to include:
  - Maintain specified altitude  $\pm 100$  feet; specified heading  $\pm 10^\circ$ ; airspeed  $+10/-0$  knots.
  - a. With flaps
  - b. Without flaps
  
- Stalls and stall recovery to include:
  - a. With flaps (power off; landing configuration)
    - Recognize cues of the impending stall and recover promptly after a full stall occurs.
  - b. Without flaps (power on; takeoff configuration)
    - Recognize cues of the impending stall and recover promptly after a full stall occurs.
  
- Ability to operate autopilot to include:
  - a. Disconnect procedures
  - b. LEVEL mode
  - c. Heading hold mode
  - d. Altitude hold mode
  - e. Navigating via Flight Plan
  
- Ability to respond to simulated engine failure to include:
  - a. Establishing aircraft in a best-glide configuration
  - b. Navigating toward a landing site
  - c. Executing engine failure checklist
  
- Make radio calls throughout the flight, as appropriate.

## Pilot Credentials

- Pilot presents valid and applicable pilot certificate, medical, & proof of ID.
- Pilot presents valid and applicable proof of PIC currency.
- Pilot presents Pilot's Aeronautical History form (if not previously submitted).

# Ranger R7 Transition Training

## What to expect.

The primary objective of our transition training is to encourage a fun & enjoyable learning environment. However, the three (3) pillars upon which this will be based on are:

- 1) Safety: Observing, discussing & adhering to best practices of safety will ensure that this most important pillar is achieved.
- 2) Comfort: All efforts will be made to make sure that the pilot gains a high level of comfort with the handling, flying characteristics, & the systems of the Ranger,
- 3) Proficiency: Through time spent flying the Ranger, working with its systems, & repeated scenarios, proficiency will be achieved.

- This is not a check ride!
  - There is no pass or fail, only an evaluation of the pilot's safe operation of the aircraft.
  - As this is a new aircraft to the pilot, the use of aircraft checklists is required.
  - When necessary, suggestions regarding the safe operation of the aircraft will be made.
  - Scenario Based Training (SBT) will be used when applicable.
  - Asking of questions is highly encouraged.
- 
- Most insurance companies require 5 – 10 hours of transition training in order to qualify for coverage. Please consult your individual aircraft insurance policy to determine exactly how many hours of transition training your insurance company requires, and any other terms & stipulations that they may have.
  - This Training Syllabus (see below) is intended as a guide only & subject to change based on pilot performance & training environment (weather, airport conditions, etc.)
  - The Introduction / Day 1 portion of the syllabus will be intense & **will last about 6 – 8 hours**. A quiet "office like" environment will need to be found for this step.

# Transition Training Syllabus

## Introduction / Day 1:

- 1) Introductions
- 2) The following will be discussed in detail & at length
  - Pilot Credentials
  - Aircraft Familiarization Questionnaire & answer pilot questions
  - Pilot Experience (Aeronautical History Doc)
  - Items in the “bin”
  - Aircraft Systems
  - SkyView System
  - Autopilot features
  - V-speeds
  - Engine performance
  - Abbreviated & Emergency Checklists
  - Best practices for various stages of flight
  - Tie-down & hangar of the aircraft
- 3) Brief the upcoming ground & flight sessions
- 4) Establish transition training schedule
- 5) Establish PIC vs. Pilot Flying
- 6) Discuss positive exchange of controls
- 7) Discuss local practice areas & practice area protocols
- 8) Discuss local non-towered airports
- 9) Discuss potential Cross-country routes & airports

## Ground #1:

- 1) Discuss the SkyView System
- 2) Discuss Aircraft Systems
- 3) Discuss takeoff / climb out speeds
- 4) Discuss flight / cruise speeds
- 5) Discuss pattern / landing speeds
- 6) Brief Flight #1

## Flight #1:

- 1) Preflight Inspection
- 2) Engine start
- 3) Taxiing
- 4) Normal Takeoff & climb out
- 5) Straight & level flight
- 6) Constant airspeed climbs & descents.
- 7) Standard rate turns

- 8) First landings (full stop & taxi back) at nearby non-towered airport
- 9) Tie down / hangar
- 10) Debrief flight #1
- 11) Discuss any questions
- 12) Review Flight #2

### **Ground #2:**

- 1) Brief Flight #2
- 2) Discuss landings, landing procedure, airspeeds, etc.
- 3) Discuss traffic pattern & landing expectations
- 4) Discuss the info to pay attention to on the SkyView System

### **Flight #2:**

- 1) Preflight Inspection
- 2) Engine start
- 3) Taxiing
- 4) Normal Takeoff & climb out
- 5) Normal landing (full stop & taxi back)
- 6) Normal takeoff & landing (touch & go)
- 7) Tie down / hangar
- 8) Debrief the flight
- 9) Discuss any questions
- 10) Review Flight #3

### **Ground #3**

- 1) Brief Flight #3
- 2) Discuss maneuvers, airspeeds, etc.
- 3) Discuss expectations
- 4) Discuss the SkyView System

### **Flight #3**

- 1) Preflight Inspection
- 2) Engine start
- 3) Taxiing
- 4) Steep turns
- 5) Slow flight
- 6) Power off & power on stalls
- 7) Forward Slip to Landing
- 8) Soft field landing & take off
- 9) Short field landing & take off
- 10) Tie down / hangar



- 11) Debrief the flight
- 12) Discuss any questions
- 13) Review Flight #4

#### **Ground #4**

- 5) Brief Flight #4
- 6) Discuss maneuvers, airspeeds, etc.
- 7) Discuss expectations
- 8) Discuss the SkyView System

#### **Flight #4**

- 1) Preflight Inspection
- 2) Engine start
- 3) Taxiing
- 4) Soft field takeoff
- 5) Emergency Procedures
  - Engine Fire In Flight
  - Engine Air Restart
  - Forced Landing (Complete Power Failure)
- 6) Touch & go's (including short field landing)
- 7) Tie down / hangar
- 8) Debrief the flight
- 9) Discuss any questions
- 10) Review Flight #5

#### **Ground #5**

- 1) Review & brief the cross-country route, waypoints, airports, terrain, etc.
- 2) Review the weather for the cross-country flight
- 3) Discuss scenarios & options
- 4) Discuss entering a Flight Plan in the SkyView System

#### **Flight #5**

- 1) Preflight Inspection.
- 2) Engine start
- 3) Entering Flight Plan
- 4) Taxiing
- 5) Fly the cross-country route of:
  - At least 160 nm total distance
  - With a minimum of 3 full stop landings
  - One leg being at least 60 nm between a take-off & a landing
- 6) Tie down / hangar

## **Conclusion**

- 1) Debrief cross-country flight
- 2) Discuss any questions
- 3) Review of Pilot VFR Personal Minimums
- 4) Review of the Transition Training
- 5) Instructor & Pilot Statement sign off

# APPENDIX: I

## Minimum Evaluation Standards

Unless otherwise specified, all page references relate directly to the Private Pilot – Airplane; Airman Certification Standards (ACS); FAA-S-ACS-6B (June 2018). This ACS is available for download from [www.faa.gov](http://www.faa.gov).

Maneuver	Page
1) Aircraft Taxiing	15
2) Cross Wind Taxiing	NA
3) Pre-flight	17
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7) Soft Field Takeoff	22
8) Normal Landing	20
9) Short Field Landing	25
10) Soft Fielding Landing	23
11) Balked Landing (Go Around)	33
12) Steep Turns	34
13) Slow Flight	40
14) Stalls (Power Off; with flaps)	41
15) Stalls (Power On; no flaps)	42
16) Emergency Procedures:	
▪ Engine Fires	POH pg. 3-3 – 3-4
▪ Engine Out	POH pg. 3-6 – 3-10
▪ Emergency Descent	50