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.
1.7	5/27/2023	Update Transition Training info, layout, & content

INTRODUCTION

CONGRATULATIONS on your purchase, & the upcoming delivery, of your Vashon Aircraft Ranger R7 aircraft! Thank you so much for your confidence in Vashon Aircraft, our Ranger R7, & for your business.

Included in the purchase price of your Ranger is a structured Transition Training which consists of both Ranger Ground Training & Ranger Flight Training. Vashon Aircraft will provide up to ten (10) hours of flight time, & an unlimited amount of ground time, with a qualified Certificated Flight Instructor (CFI) for the Transition Training (additional charges may apply). The ground & flight training is designed to prepare the pilot(s) that go through this course to be safely & confidently signed off to act as Pilot-in-Command (PIC) in your Vashon Ranger R7 aircraft.

This Transition Training Guidebook is intended to outline the 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 Ranger Abbreviated Checklist
2. Vashon Aircraft Ranger R7 Pilot's Operating Handbook (POH)
3. Dynon SkyView HDX User Guide
4. Dynon Skyview HDX resources via:
    a. Dynonavionics.com
    b. YouTube.com
5. Airman Certification Standards (ACS) – Depending on the pilots certification
    a. FAA-S-ACS-6B (June 2018); Private Pilot – Airplane
    b. FAA-S-ACS-7A (June 2018); Commercial Pilot - Airplane

The AOPA Air Safety Institute's VFR Pilot Personal Minimums Contract has been provided at the end of this Guidebook. Whether or not you complete this document is completely optional. However, we encourage you to review it, decided what your personal minimums are, complete the document with a pilot friend or CFI, then keep it with you & fly accordingly.

Again, Congratulations on your new Vashon Aircraft Ranger R7 & we eagerly look forward to having you as a Ranger Owner!

Sincerely,

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

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 the 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.

Please keep in mind that:

- 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 questions is highly encouraged.

In preparation for your Transition Training please be aware of the following:

- Most insurance companies require 5 – 10 hours of transition training 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. The share this information with Vashon Aircraft, please.

- This Training Syllabus provided later in this guidebook is intended as a guide only & subject to change based on pilot performance & training environment (weather, airport conditions, etc.)

- Day 1 of the Transition Training will be an intense & fact filled Ground School that will **last about 8 hours**. Please find a quiet "office like" or conference room environment with an overhead or table LCD projector, or a large screen TV, that can be used to show the PowerPoint Presentation that is key to the ground school. The LCD projector or TV must have an HDMI cable connection. Most FBO's or Airport Managers will have something available or can direct you where you can locate such resources. Please advise me as soon as possible before your scheduled training if you are not able find something suitable.

- The Aircraft Familiarization Questionnaire (see below) **must be completed prior to Day 1 of the Transition Training** as it is an integral part of the ground school. Please use the Ranger

Abbreviated Checklist as the primary source of information for the questionnaire, as well as the Ranger POH & the SkyView HDX User Guide.

- A thorough Pre-Flight will be done before every first flight of the day. The Abbreviated Checklist will be used, & step by step use of the Checklist is expected.

- The Ranger is an extremely capable & very steady aircraft, & it is our intention that you spend more time getting a feeling for flying the Ranger, instead of flying the weather. Therefore, to ensure a better Transition Training flight experience, **Minimum Flight Weather Condition** will be:

    1) Cloud ceilings (BKN, OVC, etc.) must be more than 2500 AGL.
    2) Visibility must be more than 8 NM.
    3) Sustained surface winds must be no more than 12 kts.
    4) Gusting surface winds must be no more than 15 kts.
    5) Winds of more than 10 kts. must be within 30° left or right of the centerline of one of the runways at the chosen airport (eg. Between 330° - 030° for Rwy 36).

- During the Ranger Flight Training you will be the Pilot Flying, & the Transition Trainer will be Pilot-in-Command (PIC). You will actively participate in the flying of the Ranger, to the extent that you are comfortable flying the maneuvers, landing the aircraft, etc.

- The PIC will be responsible for all flight operations, & the safety of the flight. Therefore, any decisions regarding the training schedule, training syllabus, hangar/tie down, fueling, go/no go, and overall safe operation of the aircraft & the Transition Training will be entirely at the discretion of the PIC.

To Properly Prepare

- **Thoroughly review** the Abbreviated Checklist, paying special attention to:
    - Pre-Flight Inspection
    - Normal Procedures
    - Emergency Checklist

- Ensure that you have:
    - An Active Noise Reducing (ANR) headset (recommended but not required)
    - Your current Pilot Logbook, Pilot Certificates, Medical, & Drivers License
    - A Kneeboard with notepad, iPad or Tablet with ForeFlight, FlyQ (recommended but not required)

- Wear comfortable clothing for the flight, ensuring they are appropriate for the weather conditions expected. Please do not wear sandals or flip flops.

AIRCRAFT FAMILIARIZATION QUESTIONAIRE

Please use the Ranger Abbreviated Checklist as the primary source of information for this questionnaire, as well as the Ranger POH & the SkyView HDX User Guide.

AIRCRAFT SYSTEMS

POWERPLANT

1. The engine model is a O-200-D.
2. The engine rated power is 100 HP at 2750 RPM.
3. True / ~~False~~: The engine in this aircraft employs a carburetor.
4. The only fuel authorized for use is 100LL, which is Blue in color?
5. The total fuel capacity is 28.1 gallons.
6. The usable fuel capacity is 27.6 gallons.
7. The total fuel capacity of the Header Tank is 2.5 gallons.
8. The maximum range of the aircraft is approximately 501 nautical miles.
9. How many fuel drains does the Ranger have? 3
10. Where are the fuel drains located? Wing, Wing, Belly
11. The maximum oil capacity is 5 quarts.
12. What is the normal cruise oil temperature range? 170-220
13. What is the caution oil temperature range? 220-240
14. What is the normal cruise cylinder head temp. range? 205-385
15. What type of oil should be used for engine break-in? Straight Mineral Oil
16. What weight of oil is recommended afterwards? SAE 50 or Multi Vis
17. In the event of carburetor icing, the Carb Heat should be activated.

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

- When the engine Malfunction.
- When the Header Tank is The only fuel source.

ELECTRICAL

1. The normal operating voltage range in cruise is 13.8 to 14.4 volts.
2. A possible alternator failure is indicated by a voltage indication of less than 13.5 volts.
3. An overvoltage condition is indicated by a voltage indication of more than 14.8 volts.
4. Through what screen would the pilot access the electrical circuits to reset a tripped circuit breaker? Engine VP-X
6. What kind of battery does the Ranger R7 use? Lithium Iron Phosphate
7. ~~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: Stick
2. The rudder and brakes in this airplane are controlled with the: Rudder Pedals
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 Switch on the instrument panel.
5. The maximum flap angle is 40 degrees.
6. The maximum flap extension speed is 90 KIAS.
7. Where is the elevator trim control switch located? Control Stick Hat Switch
8. What system is used to steer the Ranger on the ground, when taxiing at low speed?
   - Brakes

FLIGHT CHARACTERISTICS

LIMITATIONS

1. True / ~~False~~: This aircraft approved for flight under Instrument Flight Rules (IFR)?
2. The maximum demonstrated crosswind component is 15 kts.
3. The maximum wind limitation speed is: 30 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: 1320 lbs.
7. The maximum flight load factors on the aircraft are: + 4 / - 2 g.

GENERAL

1. **In feet**, what is the wingspan of the Ranger? 29' 6"
2. **In feet**, what is the height of the Rangers tail section? 8'4"
3. **In feet**, what is the length of the Ranger? 21'9"
4. In cruise, the mixture should be leaned below 75 % power.
5. Where on the EFIS screen are the engine power & peak indications found?
   Bottom
6. During gusty wind conditions, the landing approach should be flown at approximately 5 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?
   - Audible
   - Visual
   - 5 knots
8. The normal RPM range is: 900 - 2750 RPM

AIRSPEEDS

Complete the following table:

V_{NE} - Never Exceed Speed	131	KIAS
V_A - Maneuvering Speed	90	KIAS
V_{S0} - Stall Speed, Flaps Down	41	KIAS
V_{NO} - Maximum Structural Cruising Speed	103	KIAS
V_{GLIDE} - Best Glide Speed, Flaps Up	63	KIAS
V_X - Best Angle Of Climb	60	KIAS
V_Y - Best Rate Of Climb	75	KIAS
Normal Speed on Downwind	80	KIAS
Normal Speed on Base Leg	70	KIAS
Normal Speed on Final	60	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?
   - 65-75 kts.

EMERGENCIES

1. What indicated airspeed should be maintained for emergencies? 60 kts.

2. In the event of an engine fire during start the throttle should be open and the mixture should be closed.

3. The first action item during an in-flight engine fire is to shut of fuel valve.

4. xxxxxx 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 auto pilot switch should be turned off.

6. Describe the procedure for spin recovery:
   - Throttle: closed
   - Rudder: opposite
   - Elevators: forward of neutral
   - Ailerons: neutral

   When the spin rotation stops then:
   - Rudder: neutral
   - Nose Attitude: raise smoothly

7. Describe the engine air restart procedure:
   - Airspeed: 60
   - Ignition Switch: both
   - Fuel Shut Off Valve: on
   - Mixture: full rich
   - Fuel Pump: on
   - Carb Heat: on

   If restart is not possible, then:
   - Throttle &/or Mixture: closed
   - Next Check-list: forced landing

8. xxxx / 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: up
   - Doors: unlatch

AVIONICS

These questions are relevant to the Dynon Avionics SkyView system.

1. To make the PFD appear on a display open the display menu and select PFD.
2. To activate the LEVEL autopilot mode, press the level button on the autopilot panel.
3. How can the pilot determine what mode the autopilot is current set to?

   Top bar autopilot status area

4. Describe two ways in which the autopilot can be disconnected.

   Autopilot Button on Panel or Disconect on back of stick.

5. After fueling the aircraft, how does the pilot access the fuel menu to adjust the fuel computer?

   Fuel Icons on Engine toools page see page 6-10

6. How does the pilot make use of the radio hotkeys for ATIS, GND, TWR, etc?

   Load the airport

7. How does the pilot find the nearest airport?

   Nearest Button

8. How does the pilot access the Flight Plan (FPL) menu to enter a flight plan?

   FPL button

9. In order to fly along a set of waypoints in a flight plan, the autopilot should be set to what mode? HSI, ALT
10. How does the pilot set the altimeter setting?

    Touch altimeter setter and turn the knob

11. What menu does the pilot use to set the transponder to ALT mode?
Press ALT button on transponder menu

12. How does the pilot set a squawk code?
Type in the numbers on transponder menu

13. There are two ways for the pilot initiate a transponder IDENT. What are they?
Press Ident Button,

14. What button does the pilot use to control the static heard on the intercom & the radio, & where is it located?
Squelch Button , Audio Panel

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 Vy +10/-5 kts to a safe maneuvering altitude.
    b. Short field takeoffs with obstacle
        - ➢ Demonstrate proper technique; establish Vx +10/-5 kts until clear of obstacle, then Vy +10/-5 kts to a safe maneuvering altitude.
    c. Soft field takeoffs with obstacle
        - ➢ Demonstrate proper technique; establish Vx +10/-5 kts until clear of obstacle, then Vy +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 Vy +10/-5 kts to a safe maneuvering altitude.
- ❑ Maintain straight & level flight.
        - ➢ Maintain altitude ±100 feet, heading ±20°, and airspeed ±10 knots.

- ❑ Steep Turns to include:
    - ➢ Maintain specified altitude ±100 feet, airspeed ±10 knots, bank angle ±5˚, and roll out on the entry heading ±10˚.
    a. Bank angle of 30˚
    b. Bank angel of 45˚

- ❑ Flight at minimum controllable airspeed (slow flight) to include:
    - ➢ Maintain specified altitude ±100 feet; specified heading ±10˚; 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 from (if not previously submitted).

Transition Training Syllabus

Day 1: Ground School (8 Hours)

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.

Maneuver	Page
1) Aircraft Taxiing	15
2) Cross Wind Taxiing	NA
3) Pre-flight	17
4) Normal Takeoff	20
5) Short Field Takeoff	24
6) Short Field Takeoff over an obstacle	24
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