## Training Curriculum Overview

This training program is created by Flight Check Solutions to provide pilots the training necessary to safely transition into flying the Vans RV-8 aircraft. It is constructed using the “building block” method in which the trainee will accomplish each block in the syllabus at a pace customized for their flying skills. A particular flight lesson may contain one or more blocks depending on the ability of the trainee to complete the standards specified for each block.

### Transition Training Syllabus

LESSON 1 - Pre Flight Discussion & Inspection

LESSON 2 - Ground Operations

LESSON 3 - Takeoff

LESSON 4 - Climb

LESSON 5 - Four Fundamentals of Controlled Flight

LESSON 6 - Flight at critically Low Airspeeds

LESSON 7 - Emergency Operations

LESSON 8 - Approaches

LESSON 9 - Landings

## LESSON 1 - Pre Flight Discussion & Inspection

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Plan safe initial flights for pilots who are new to the aircraft type or who are conducting flights in newly constructed aircraft.
2. Recognize the negative consequences of exceeding safe limits by “showing off” in higher-performance airplanes.

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### Content

1. **Best Practices for Test Flights in Amateur-Built Aircraft**
    - Review recommended procedures for conducting safe and efficient test flights in newly constructed, amateur-built airplanes.
2. **Handling and Performance Differences**
    - Compare the RV used during transition training to the specific RV the trainee plans to fly, highlighting variations in engine power, propeller type, empty weight, and center of gravity location.
3. **Preflight Considerations**
    - Emphasize the importance of standard preflight checks for single-engine, fixed-gear aircraft.
    - Pay special attention to tire condition and pressure, especially when wheel fairings limit visibility.

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### Completion Standards

1. Demonstrate thorough knowledge of planning and conducting safe flights in the aircraft, particularly for pilots transitioning to a new type or flying newly constructed airplanes.
2. Exhibit a solid understanding of the aircraft’s performance and handling characteristics.
3. Confirm that the aircraft is in a suitable and safe condition prior to each flight.
4. Understand and articulate the negative consequences of attempting maneuvers outside safe limits in an effort to “show off.”

## LESSON 2 - Ground Operations

### Expected time - 0.5 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the procedures for starting carbureted and fuel-injected aircraft.
2. Demonstrate the skills required to safely operate the aircraft on the ground.

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### Content

1. **Engine Start**
    - General procedures for starting carbureted and fuel-injected airplanes.
    - Recognize that each RV-8 may have slightly different, aircraft-specific startup procedures.
2. **Taxi Operations**
    - Understand that tailwheel RV-8s have limited forward visibility during taxi, often requiring planning ahead and performing “S-turns.”
    - Emphasize awareness of ground handling, braking, and operating around other aircraft whose pilots may have difficulty seeing the RV-8.

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### Completion Standards

1. Demonstrate knowledge and proficiency in starting the aircraft according to established procedures.
2. Demonstrate safe and effective control of the aircraft while taxiing.
3. Recognize specific limitations and issues that affect safe ground operations in proximity to other aircraft and structures.
4. Employ proper checklist usage throughout startup and taxi operations.

## LESSON 3 - Takeoff

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's takeoff flight characteristics.
2. Demonstrate the skills necessary to safely operate the aircraft during takeoff.

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### Content

1. **Normal Takeoff**
    - Rapid acceleration and the need for increased right rudder pressure to counter high P-factor and torque.
    - Tendency to overcontrol due to light stick forces and quick control response.
2. **Crosswind Takeoff**
    - Principles and best practices.
3. **Short Field Takeoff**
    - Principles and best practices.
4. **Soft Field Takeoff**
    - Principles and best practices.
5. **Short and Soft Field Takeoff**
    - Principles and best practices.
6. **Conventional Landing Gear Performance Characteristics**
    - Differences among the various conventional gear RV series airplanes.
    - Firmness and spring characteristics of the RV-8 main landing gear.
    - Maintaining proper tailwheel steering authority throughout takeoff.

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### Completion Standards

1. Demonstrate knowledge of critical speeds and recommended actions for the takeoff phase of flight.
2. Exhibit an understanding of aircraft control rates and response.
3. Perform the proper procedures for normal, crosswind, short field, and soft field takeoffs.
4. Recognize the effects of landing gear design on aircraft handling.
5. Employ proper checklist usage throughout takeoff.

## LESSON 4 - Climb

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's climb-phase flight characteristics.
2. Demonstrate the skills necessary to safely operate the aircraft during climb.

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### Content

1. **Climb Profiles**
    - Recognize the proper speeds, configuration, and sight picture during climb.
    - Understand performance limitations in the event of power loss, canopy failure, bird strike, or other emergency conditions.
2. **Control Inputs and Visibility**
    - Explain and demonstrate conditions of high P-factor, which require increased right rudder input compared to typical low-power trainers or touring aircraft.
    - Explain and demonstrate the limited over-the-nose visibility due to steep climb angles under full power.
3. **Reconfiguration and Monitoring**
    - Transition smoothly from takeoff to climb phase.
    - Monitor critical systems such as engine temperatures.
    - Transition from climb to cruise.

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### Completion Standards

1. Demonstrate knowledge of critical speeds and recommended actions during the climb phase of flight.
2. Exhibit an understanding of and appropriate response to emergency conditions.
3. Show proficiency in aircraft control during climb.
4. Recognize and manage issues such as elevated engine temperatures.
5. Use checklists or other established procedures to manage transitions between flight regimes.
6. Maintain consistent, proper checklist usage throughout the climb phase.

## LESSON 5 - Four Fundamentals of Controlled Flight

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's flight characteristics in the controlled flight regime.
2. Demonstrate the skills necessary to safely operate the aircraft during climb, descent, level flight, and constant altitude turns.

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### Content

1. **Climb**
    - Explain how steep climb angles under full power limit over-the-nose visibility.
    - Explain and demonstrate management of flight loads (limiting G), especially in aircraft with tandem seating/aft loading when a rear seat occupant is present.
2. **Descent**
    - Explain and demonstrate handling techniques for high descent rates and/or high airspeed conditions.
3. **Level Flight**
    - Explain and demonstrate proper nose attitude control to maintain level flight.
4. **Constant Altitude Turns**
    - Explain and demonstrate the importance of accurate altitude control.
    - Address how high speed, high power, and light controls can lead to excessive altitude excursions if not managed properly.

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### Completion Standards

1. Demonstrate knowledge of the critical actions required for each phase of flight.
2. Employ proper checklist usage.
3. Exhibit consistent control of the aircraft during each subphase of controlled flight maintaining assigned altitude within +/- 100-feet, bank angles within +/- 10-degrees, and airspeeds within +/- 10-knots.

## LESSON 6 - Flight at Critically Low Airspeeds

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand specific aircraft flight characteristics, required recovery methods, and the mindset needed to operate at or near stall speeds.
2. Demonstrate the skills necessary to safely operate the aircraft during slow flight and stall maneuvers.

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### Content

1. **Slow Flight at Minimum Controllable Airspeed**
    - Explain and demonstrate procedures similar to those used in other general aviation aircraft.
    - Emphasize holding airspeed within 5 mph above the stall buffet.
    - Highlight that aerodynamic stall warning may be subtle.
2. **Turns, Climbs, and Descents at Minimum Controllable Airspeed**
    - Emphasize precise airspeed management while maintaining all other flight parameters.
3. **Power-Off Stalls**
    - Emphasize stall recognition, particularly given the aircraft's subtle aerodynamic stall warnings.
    - Understand that stall recovery should involve minimal control movement and an appropriate attitude change.
4. **Power-On Stalls**
    - Familiarize the trainee with higher-than-normal pitch attitudes and reduced forward visibility.
    - Emphasize that stall recovery requires minimal control movement and an appropriate attitude change.
5. **Accelerated Stalls**
    - Introduce the trainee to stalls occurring under increased load factors.
    - Address the associated pitch attitudes and reduced forward visibility.

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### Completion Standards

1. Demonstrate knowledge of critical actions for each phase of flight near or at stall speeds.
2. Show proficiency in proper recovery techniques for critically low airspeed events.
3. Employ the proper use of checklists throughout these maneuvers.

## LESSON 7 - Emergency Operations

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's flight characteristics related to emergency operations.
2. Demonstrate the skills necessary to manage emergency situations in the aircraft.

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### Content

1. **Loss of Power on Takeoff**
    - Discuss the "Impossible Turn" scenario and its associated risks.
2. **Loss of Power at Altitude**
    - Review immediate actions and best practices.
3. **Malfunctions, Partial System Failures, and Structural Failures**
    - Identify and manage various types of mechanical or structural emergencies.
4. **Fire or Smoke in the Cockpit**
    - Recognize appropriate procedures and address in-flight hazards.

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### Completion Standards

1. Demonstrate knowledge of critical steps during emergency conditions.
2. Perform appropriate actions for various simulated emergency scenarios.
3. Use checklists properly throughout all emergency procedures.

## LESSON 8 - Approaches

### Expected time - 1 hour

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's flight characteristics related to approach and landing phases.
2. Demonstrate the skills necessary to manage normal and special approach procedures safely and effectively.

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### Content

1. Normal Landings
    - Ideal landing approach speeds are slightly higher than the traditional 1.3 Vso (use 1.35 or 1.4 Vso).
    - The RV-8's spring steel landing gear is less tolerant of bounces and unarrested impacts than typical light trainers.
2. Crosswind Landings
    - Use typical light-plane control procedures.
    - Note that slips with flaps are acceptable in an RV.
3. Go-Around Procedures
    - Emphasize that RVs climb well, even with full flaps.
    - Require heavy P-factor correction for coordinated climb.
4. Short and Soft Field Landings
    - Emphasize the limited ground effect of the short RV wings.
5. Wheel Landings
    - The sensitive rebound characteristics of the RV landing gear require precise touchdown control.
    - Review prop/ground clearance considerations.

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### Completion Standards

1. Demonstrate knowledge of recommended approach speeds and landing techniques for various conditions.
2. Safely and accurately perform crosswind, short, and soft field landings.
3. Execute proper go-around procedures, including correct climb-out and directional control.
4. Demonstrate proficiency in performing wheel landings with due regard for landing gear characteristics.
5. Use checklists correctly throughout all approach and landing operations.

## LESSON 9 - Landings

### Expected time - 2 hours

### Objectives

By the end of this lesson, the trainee will be able to:

1. Understand the aircraft's landing characteristics across different conditions and landing techniques.
2. Demonstrate the skills necessary to conduct normal, crosswind, short, soft, and wheel landings safely.
3. Execute proper go-around procedures when required.

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### Content

1. **Normal Landings**
    - Ideal landing approach speeds are slightly higher than the traditional 1.3 × Vso (use approximately 1.35 to 1.4 x Vso).
    - The RV's spring steel landing gear is less tolerant of bounces and unarrested impacts than typical light trainers.
2. **Crosswind Landings**
    - Typical light-plane control procedures.
    - Slips with flaps are acceptable in an RV.
3. **Go-Around Procedures**
    - RVs will climb well even with full flaps.
    - Heavy P-factor correction is necessary for coordinated climb.
4. **Short and Soft Field Landings**
    - Emphasize the limited ground effect of the short RV wings.
    - Adjust technique accordingly for reduced float and flare distances.
5. **Wheel Landings**
    - Sensitive rebound characteristics of the RV landing gear require precise touchdown control.
    - Review prop/ground clearance considerations.

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### Completion Standards

1. Demonstrate knowledge of recommended approach and landing speeds for varying runway and wind conditions.
2. Safely perform crosswind, short, soft, and wheel landings with appropriate control inputs.
3. Correctly execute go-arounds, maintaining aircraft control and coordination.
4. Employ proper checklist usage throughout all landing procedures.

**Attachment 7: INSTRUCTOR QUALIFICATIONS**

Flight instructor(s) providing instruction under Flight Check Solutions's LODA are required to meet, at a minimum, the following:

1. Hold an FAA-issued certified flight instructor certificate for Airplane Single Engine (ASE) and a commercial certificate with Airplane Single Engine Land (ASEL) category and class rating.
2. Hold an appropriate endorsement in accordance with § 61.31.
3. Be authorized by Flight Check Solutions to provide instruction in accordance with the LODA issued under § 91.326.
4. Additional qualifications, as specified by Flight Check Solutions:
    a. Minimum flight hours: 1,000 hours.
    b. Minimum dual instruction given: 200 hours
    c. Minimum time in Vans RV-8: 200 hours

**PREREQUISITES FOR THOSE PERSONS RECEIVING TRAINING**

All persons receiving training must meet the following minimum prerequisites:

1. Private Pilot Certificate, ASEL
2. Hold a tailwheel endorsement in accordance with § 61.31(i)

**FLIGHT SIMULATOR**

- None used

**TEACHING AIDS**

1. Curriculum guide (provided by Flight Check Solutions)
2. JONES BRYAN D RV-8 Aircraft Flight Manual (AFM)
3. Airplane Flying Handbook (FAA-H-8083-3C)
4. N8ZN aircraft operating limitations

**SPECIAL EQUIPMENT**

- None used

**ADDITIONAL EQUIPMENT**

- Not applicable