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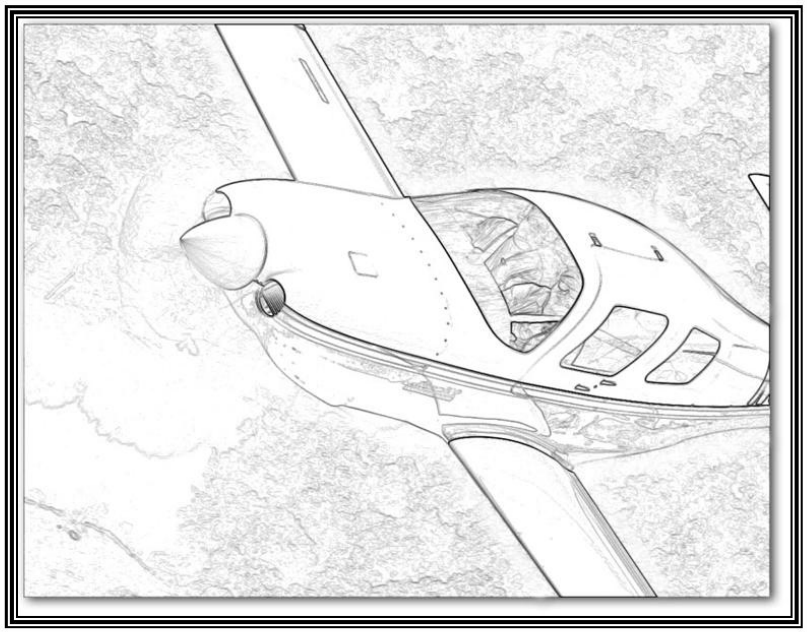

FAA Industry Training Standards

LANCAIR INITIAL TRAINING
Instructor Guide

Version 1.0 dated 3-13-2009

This document is intended for use by Certified Flight Instructors and Lancair Pilots for use in a course of instruction to train pilots new to the Lancair series aircraft. The documentation for this course material is not complete without:

- LOBO Initial Training Instructor Guide (this document)
- LOBO Initial Training Student Guide
- LOBO Training Manual Lancair (model specific)
- LOBO Master Training Record

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Introduction

This Lancair initial transition flight training syllabus is based on modern FAA/Industry Training Standards (FITS) that train to proficiency utilizing scenario based training modules as well as classic maneuver based training. Sound aeronautical decision making, single pilot resource management and risk management is emphasized throughout this program. This training syllabus provides initial flight and ground transition training for a pilot who has no prior Lancair experience. This training prepares a proficient certificated pilot to fly the Lancair series aircraft. It does not teach basic flying skills.

This course is designed to be completed in four to five days. Completion is dependent on pilot proficiency and prior experience in flying complex, high-performance aircraft, the application of sound ADM and completion of prerequisite training material. The course is comprised of approximately 12 hours of ground training over three lessons, and 12 hours of flight training over six lessons. All training times are estimated as the factors determining the total required training time (pilot knowledge, skill and preparation) cannot be determined prior to the start of training.

This training program teaches normal as well as emergency procedures with an emphasis on sound aeronautical decision making.

> ***NOTE**: This syllabus does not teach VFR-only pilots the instrument flying skills necessary to safely fly in Instrument Meteorological Conditions (IMC). VFR-only pilots are encouraged to seek appropriate instruction to earn an instrument rating.*

Training Prerequisites

The PT must hold at least a private pilot airplane single engine land certificate and have a current valid airman's medical certificate. The PT must complete all prerequisite course material before beginning the flight and ground training syllabus below. The PT will be the Pilot in Command per 14 CFR 91.3 for all flights, if qualified.

Syllabus

Lesson G1: this ground lesson covers scenario-based training, normal and emergency procedures in Lancair aircraft and aircraft systems.

Lesson F1: this flight lesson is an introduction to the aircraft and comprises pre- and post-flight procedures as well as classic maneuver-based training in the local practice area exploring the Lancair flight characteristics. The lesson also concentrates on the Lancair in the takeoff and landing pattern.

Lesson G2: this ground lesson consists of discussion on the implications of the Lancair as an experimental amateur-built aircraft and aircraft limitations and performance issues.

Lesson F2: this flight lesson will comprise a short three leg cross-country utilizing EFIS/GPS with an approach at the two destinations for instrument rated pilots or a VFR arrival for non instrument rated pilots.

Lesson G3: this ground lesson consists of a review of Lancair accident statistics with an emphasis on Single-Pilot Resource Management (SRM) including Aeronautical Decision Making (ADM) and Risk Management (RM).

Lesson F3: this flight lesson consists of a short cross-country flight to a nearby airport with emphasis checklist use and an introduction to electrical and engine-related emergencies. A diversion may become necessary. Instrument-rated pilots will accomplish approaches while non-instrumented pilots will perform VFR arrivals.

Lesson F4I: this flight lesson for instrument-rated pilots consists of a three-leg, cross-country flight under simulated IMC to nearby airports with emphasis on checklist, EFIS and autopilot use (if installed). Selected equipment malfunctions require the Pilot in Training (PT) to accomplish abnormal/emergency procedures. All flights will terminate with an approach with emphasis on terrain awareness.

Lesson F4V: this flight lesson for non-instrument-rated pilots consists of a three-leg, cross-country flight under VMC to nearby airports with emphasis on checklist, EFIS and autopilot use (if installed). Selected equipment malfunctions require the PT to accomplish abnormal/emergency procedures. All flights will terminate with VFR arrivals with emphasis on terrain awareness.

Lesson F5I: this flight lesson for instrument-rated pilots consists of a medium-distance, IFR cross-country flight under simulated IMC with an emphasis on checklist use, weather evaluation and risk management. If appropriately equipped, the PT plans and executes the flight above FL 180. The PT is expected to use all skills and procedures learned during earlier training flights. The flight will end with an instrument approach.

Lesson F5V: this flight lesson for non-instrument-rated pilots consists of a medium-distance high altitude VFR cross-country flight under VMC with and emphasis on checklist use, weather evaluation and risk management. The PT is expected to use all skills and procedures learned during earlier training flights. The flight will terminate with a VFR arrival and a full-stop landing.

Lesson F6I: this flight lesson for instrument-rated pilots is a medium-distance IFR cross-country flight under simulated IMC with an emphasis on checklist use. If appropriately equipped, the PT plans and executes the flight above FL 180. The PT is expected to use all skills and procedures learned during earlier training flights. The flight will end with an instrument approach to a missed approach, followed by a hold and another approach to a full-stop landing.

Lesson F6V: this flight lesson for non-instrument-rated pilots consists of a short high altitude VFR cross-country flight to a nearby airport with an emphasis on sound aeronautical decision making. A VFR arrival is completed for non instrument rated pilots. The PT is expected to use all skills and procedures learned during earlier training flights. The flight will terminate with a VFR arrival and a full-stop landing.

FITS Terminology

In an effort to develop a common training vocabulary, below you will find several terms describing known, but perhaps not previously defined, training concepts.

Aircraft Automation Management – The demonstrated ability to control and navigate an aircraft by means of on-board automated systems.

Automated Navigation Leg – A flight of 30 minutes or more conducted between two airports in which the aircraft is controlled primarily by the autopilot and the on-board navigation systems.

Automation Competence – The demonstrated ability to understand and operate the automated systems installed in the aircraft.

Automation Surprise – An automated system's ability to provide different cues to pilots when compared to the analog systems they replace, especially in time-critical situations.

Automation Bias – The relative willingness of the pilot to trust and utilize automated systems.

Candidate Assessment – A system of critical thinking and skill evaluations designed to assess a PT's readiness to begin training at the appropriate level.

Critical Safety Tasks/Events – Those mission-related tasks/events that if not accomplished quickly and accurately, may result in aircraft damage, injury, or loss of life.

Datalink Situational Awareness (SA) Systems – Systems that provide real-time weather, traffic, terrain, and/or flight planning information to the cockpit. This information may be displayed on the Primary Flight Display (PFD), Multi-Function Display (MFD), or other related cockpit displays.

Emergency Escape Maneuver – A maneuver (or series of maneuvers) performed manually or with the aid of the aircraft's automated systems that allows a pilot to successfully escape from an unanticipated flight into Instrument Meteorological Conditions (IMC) or other life-threatening situation.

FAA/Industry Training Standards (FITS) – A non-regulatory system of training jointly developed by the FAA and training experts in the general aviation industry. Instead of training pilots to pass a practical test, FITS trains pilots to manage real-world challenges with scenario-based training. The primary goals of FITS-based training scenarios is to enhance GA pilots' aeronautical decision making, risk management, and single pilot resource management skills without compromising basic stick and rudder skills.

Generic FITS – These standards cover broad categories of training functions, such as flight reviews, complex/high-performance training, tail wheel training, and instructional exercises. Individual training entities (e.g. flight instructors, pilot schools) may adapt them for a particular aircraft or other scenarios.

Mission Related Tasks – Those tasks required for the safe and effective accomplishment of the flight.

Multi-Function Display (MFD) – A device that combines primarily navigation, systems, and situational awareness (SA) information onto a single electronic display.

Primary Flight Display (PFD) – A device that combines the primary six flight instruments plus other related navigation and situational awareness (SA) information into a single electronic display.

Proficiency Based Qualification – A qualification based on demonstrated performance rather than other flight time or experience.

Pilot in Training (PT) – The qualified pilot receiving training in a specified training program. Also referred to as "learner".

Scenario-based Training (SBT) – Training programs built around highly structured scripts of "real-world" experiences to address flight-training objectives in an operational environment. Such training can include initial training, transition training, upgrade training, recurrent training, and special training. The appropriate term should appear with the term "Scenario-based," e.g., "Scenario-based Transition Training," to reflect the specific application.

Simulation – The use of animation and/or actual representations of aircraft systems to faithfully replicate the flight environment.

Single-Pilot Resource Management (SRM) – The "art and science" of managing all available resources to ensure the successful outcome of the flight.

Specific FITS – A FITS program tailored for a specific aircraft or technology.

Technically Advanced Aircraft (TAA) – A general aviation aircraft that contains a GPS navigator with a moving map display, plus any additional systems. Traditional systems, such as autopilots, are included when combined with GPS navigators. Aircraft used in both VFR and IFR operations, with systems certified for either VFR or IFR flight, are also included.

Training-Only Tasks – Training maneuvers that while valuable to the pilot's ability to understand and perform a mission related task, are not required when demonstrating proficiency. Flight instructors are required to be proficient in Training-Only Tasks.

Learner Centered Grading

Desired Pilot in Training (PT) Scenario Outcomes- The object of scenario-based training is a change in the thought processes, habits, and behaviors of the PT during the planning and execution of each scenario. Since the training is learner centered, success is measured in the following desired PT outcomes:

Maneuver, Skill or Task Grades

- **Describe (D)** – At the completion of the scenario, the PT will be able to describe the physical characteristics and cognitive elements of the scenario activities. *Instructor assistance is required to successfully execute the maneuver.*
- **Explain (E)** – At the completion of the scenario the PT will be able to describe the scenario activity and understand the underlying concepts, principles, and procedures that comprise the activity. *Instructor assistance is required to successfully execute the maneuver.*
- **Practice (Pr)** – At the completion of the scenario the PT will be able to plan and execute the scenario. *Some coaching, instruction, and/or assistance from the instructor are required to correct deviations and errors.*
- **Perform (Pe)** – At the completion of the scenario, the PT will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the PT in an expeditious manner.* At no time will the successful completion of the activity be in doubt. "Perform" will be used to signify that the PT is satisfactorily demonstrating proficiency in piloting and systems operation skills.
- **Not Observed (No)** – Any event not accomplished or required.

Single-pilot Resource Management (SRM) Grades

- **Explain (E)** – The PT can verbally identify, describe, and understand the risks inherent in the flight scenario. *The* PT *will need to be prompted to identify risks and make decisions.*
- **Practice (Pr)** – The PT is able to identify, understand, and apply SRM principles to the actual flight situation. *Coaching, instruction, and/or assistance from the instructor will quickly correct minor deviations and errors identified by the instructor.* The PT will be an active decision maker.
- **Manage/Decide (MD) –** The PT can correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. *Instructor intervention is not required for the safe completion of the flight.* "Manage/Decide" will be used to signify the PT is satisfactorily demonstrating acceptable SRM skills
- **Not Observed (No)** – Any event not accomplished or required.

***NOTE**: Both the Pilot in Training (PT) and the instructor must grade independently and compare during the post flight critique.*

Learner-centered grading is a vital part of the FITS concept. Traditional syllabi and curriculum have depended on a grading scale designed to maximize PT management and ease of instructor use. Thus the traditional "**excellent**, **good**, **fair**, **poor**" or "**exceeds standards**, **meets standards**, **needs more training**" grading scale often meets the instructor's needs, but not the PT's. The learner-centered grading described above is a way for the instructor and PT to determine the PT's level of knowledge and understanding. "**Perform (Pe)**" is used to describe proficiency in a skill item such as an approach or landing. "**Manage/Decide (MD)**" is used to describe proficiency in the SRM area such as Aeronautical Decision Making (ADM). Grading should be progressive. During each flight, the PT should achieve a new level of learning.

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Lesson G1 – Ground (approximately 4.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- FAR/AIM
- Airplane Flying Handbook (FAA-H-8083-3, as amended)
- The Aviation Instructor's Handbook (FAA-H-8083-9, as amended)
- Certification and Operation of Amateur-Built Aircraft AC 20-27, as amended
- Aerodynamics For Naval Aviators (NAVIAR 00-80T-80)

Lesson Objectives

During this lesson the PT will learn fundamental aircraft operation, systems, description and operation of the constant speed propeller, avionics, engine, weight and balance, emergency procedures, normal procedures, situational awareness, performance issues, and handling unique to the Lancair type aircraft.

Training Elements

Training Program	*Normal Procedures*	*Emergency Procedures/ Flight Safety*	*High-Perf. Systems(if installed)*
❑ FITS & SBT ❑ ADM, Risk Mgmt, SRM ❑ Systems ❑ Airframe Description ❑ Fuel ❑ Electrical ❑ Flight Controls ❑ Landing Gear ❑ Flaps ❑ Speed Brakes ❑ Hydraulic ❑ Wheel & Brakes ❑ Avionics ❑ Pitot Static ❑ Propeller ❑ Engine ❑ Pressurization & Air Conditioning (if installed)	❑ Checklist Usage ❑ Preflight ❑ Taxi ❑ Before Takeoff ❑ Takeoff ❑ Climb ❑ Cruise ❑ Descent ❑ Before Landing ❑ After Landing ❑ Chocks	❑ Engine Failure/Forced Landings ❑ Fires ❑ Icing ❑ T/O & Landing EP's ❑ Brake Failure ❑ Electrical ❑ Single-pilot Resource Management ❑ Aeronautical Decision Making ❑ Risk Management	❑ Turbo Engine Operation ❑ Turbine Engine Operation ❑ Autopilot Operation ❑ Pressurization & Air Conditioning

Completion Standards

Demonstrate fundamental understanding of the training program, aircraft systems and operation, normal and emergency procedures, high performance systems, and SRM concepts including ADM and RM.

NOTE: The asterisk (*) indicates the desired pilot performance level.

ELEMENTS	Grade							
	Pilot				Instructor			
	E*	Pr	MD	NO	E*	Pr	MD	NO
Training Program								
Aircraft Systems								
Normal Procedures								
Emergency Procedures								

Single Pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E*	PR	MD	NO	E*	Pr	MD	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								

Lesson F1 – Flight (approximately 1.5- 2.0 Hours)

Reference

- Lancair Flight Training Manual
- Airplane Flight Manual
- FAR/AIM
- Airplane Flying Handbook (FAA-H-8083-3, as amended)

Lesson Objectives

During the lesson, the PT will become acquainted with the Lancair. Additionally, the PT will learn the power, attitude, and configuration (PAC) required to successfully perform the listed maneuvers and procedures. The PT will review certificates, documents, and checklists required by 14 CFR Part 91. The PT will learn how to conduct the necessary preflight activities. The flight will depart a local field and proceed under VMC to a practice area for a maneuver-based training flight practicing the maneuvers described below. The PT will complete all start, taxi, takeoff and departure, cruise arrival and landing checklists. During the flight, the PT will utilize basic GPS navigation skills. If equipped, the instructor will familiarize the PT with EFIS use. The PT will practice takeoffs and landings. All landings will be made to a full stop.

Training Elements

❑ Single-pilot Resource Management	❑ Climb
❑ Aeronautical Decision Making	❑ Engine Operations/Monitoring/Cooling
❑ Risk Management	❑ Steep Turns
❑ Checklist Use	❑ Slow Flight
❑ Operation of Airplane Systems	❑ Straight and Level Turns
❑ Determining Performance & Limitations	❑ Descents Straight and Turning
❑ Emergency Procedures	❑ Straight & Turning Stall Recognition/Recovery
❑ Ground Operations	❑ Traffic Pattern Procedures
❑ Engine Starting and warm-up	❑ Normal Landing
❑ Taxiing: Normal & Crosswind	❑ After Landing Procedures
❑ Normal Takeoff	❑ Stall Recognition

Scenario

You have a friend who is also a pilot. He is considering the purchase of an airplane. The friend has less flight experience than you, so he asks you to conduct an airplane performance flight and give him a recommendation. In order to help your friend make the best decision, you will really have to put the airplane through its paces – exploring some specific areas of flight performance in particular. The areas you have special interest in are: slow flight characteristics, stall recognition, and takeoff and landing performance. You get started when the current owner of the airplane allows you to take the airplane for a “test drive.”

Completion Standards

At the completion of this lesson the PT can perform the listed ground & flight operations with a minimum of instructor assistance. The PT will demonstrate knowledge of the power, attitude, and

configuration (PAC) necessary to perform the listed maneuvers and procedures while maintaining altitude within the 200 feet, heading within 15 degrees and airspeed within 10 knots. The PT will learn how to manage the aircraft using sound ADM skills.

NOTE: The asterisk (*) denotes the desired PT performance level.

Single-pilot Resource Management

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	E	***Pr****	***M/D***	***NO***	***E***	***Pr****	***M/D***	***NO***
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Usage								
Performance & Limitations								

Pre-Takeoff

ELEMENTS	***Desired Outcome***							
	Pilot				***Instructor***			
	D	***E***	***Pr***	***Pe****	***D***	***E***	***Pr***	***Pe****
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist								

Takeoff & Climb

ELEMENTS	Desired Outcome							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Normal/Crosswind Takeoff								
Climb								
Checklist								

Cruise

ELEMENTS	Desired Outcome							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Initial Cruise								
En route Cruise								
Checklist								
Slow-flight Maneuvers								
Stall Recognition & Recovery								
Steep Turns								
Autopilot Stall Recognition & Recovery								

Descent & Landing

ELEMENTS	Desired Outcome							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Descent & Arrival Procedures								
Traffic Pattern								
Normal/Crosswind Landing								
Zero-flap Landing								
Power-off Landing								
Go Around								
After Landing								
Shutdown								
Checklist								

Post Flight

ELEMENTS	Desired Outcome			
	Pilot		Instructor	
Post-flight Critique & Discussion				

NOTES TO THE INSTRUCTOR Lesson F1 is a traditional maneuver based training flight demonstrating and practicing PTS maneuvers including slow flight, steep turns, stall recognition and takeoff s and landings. The PT should be given a thorough orientation on the aircraft takeoff and landing characteristics.

> ***NOTE**: Due to the experimental, amateur-built nature of the Lancair, stall characteristics – and more importantly stall recovery techniques – have not been determined for each and every Lancair. Therefore, **at no time will the instructor or PT intentionally stall the aircraft!***

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Lesson G2 – Ground (approximately 2.0- 2.5 hours)

Reference Text

- Airplane Flight Manual
- Lancair Training Syllabus
- Instrument Flying Handbook (FAA-H-8083-15, as amended)

Lesson Objective

The PT will gain a fundamental understanding of the flight and engine instruments with emphasis on their use and limitations. The instructor will enhance the PT's understanding of the practical use of advanced avionics, the practical application of aircraft performance, weight and balance computation and aircraft limitations. Additionally, the instructor will familiarize the PT with experimental/amateur-built aircraft issues with emphasis on the value and necessity of proper aircraft inspections.

Training Elements

Experimental/Amateur-built Aircraft	***Aircraft Performance***	***Advanced Avionics***
❑ Condition Inspection ❑ Repairman ❑ Maintenance Issues ❑ Flight Tests ❑ Aircraft inspections	❑ Weight and Balance ❑ Performance Factors ❑ Performance Charts ❑ Aircraft Limitations ❑ V_n Diagram	❑ GPS Understanding & Use ❑ EFIS, AHARS & ADHARS ❑ Autopilot Use

Completion Standards

The PT demonstrates a working knowledge of aircraft avionics, instruments, systems and their limitations. The PT demonstrates an understanding of weight and balance calculations, aircraft limitations and performance. Additionally, the PT will demonstrate understanding of experimental/amateur-built aircraft issues.

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	E*	***Pr***	***Md***	***NO***	***E****	***Pr***	***MD***	***NO***
Advanced Avionics								
Systems								
Instruments								
Performance & Limitations								
Weight & Balance								
Experimental/Amateur-built Aircraft Issues								

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Lesson F2—Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)

Lesson Objectives

During the lesson, the PT will enhance their understanding of the Lancair. Additionally, the PT will learn the power, attitude, and configurations required for the performance of the listed maneuvers and procedures. The PT will demonstrate how to conduct the necessary preflight activities. The flight will originate at a local field and proceed via day VMC, cross-country flight to a nearby non-towered airport (approximately 50-80 nm / 30-45 minutes leg length). The PT will complete all start, taxi, takeoff and departure, cruise, arrival and landing checklists as well as utilize advanced GPS navigation skills. The instructor will review practical use of EFIS (if installed) and/or autopilot (if installed). The instrument-rated PT will complete an instrument approach and full-stop landing at destination #1. The non-instrument-rated PT will complete a VFR arrival to a full-stop landing. The PT will depart destination #1 and proceed to destination #2 using the above procedures. Repeat to point of origin.

Training Elements

❑ Single-pilot Resource Management	❑ Cruise
❑ Risk Management	❑ Alternator Failure
❑ Systems Operation	❑ Total Electrical Failure
❑ Determining Performance & Limitations	❑ Landing Gear Malfunctions/Emergency Gear Extension
❑ Performance Maneuvers	❑ Descent & Descent Planning
❑ Ground Operations	❑ Approach (instrument-rated pilots)
❑ Engine Start & Warm-up	❑ Turbulent air penetration (V_a)
❑ Taxiing: Normal and Crosswind	❑ After Landing Procedures
❑ Takeoff	❑ Normal Landings
❑ Climb, V_x, V_y	❑ No-flap Takeoff
❑ Engine Operation/Monitoring/Cooling	❑ Go Around/Rejected Landing
❑ Oil Pressure/Temp Out of Limits	❑ Rejected Takeoff
❑ Cruise Climb	❑ Emergency 180° Turn
❑ EFIS/Autopilot Operation (if installed)	

Scenario

You are a Commercial Pilot but you are not employed at this time by any FBO. Your sister is running for the State Legislature. She asks you to fly from your home airport, pick her up at a nearby airport, and fly her to another city to make a campaign speech. The flight will be flown in VFR daytime conditions, but you must get her (the candidate) to the speech location on time, otherwise she and her campaign manager will not be pleased. She must return immediately after the speech to the home airport.

Completion Standard

At the completion of this lesson, the PT can perform the listed ground operations with a minimum of instructor assistance. The PT will demonstrating a knowledge of the PAC necessary to perform the listed maneuvers and procedures while maintaining altitude within the 200 feet, heading within 15 degrees, and airspeed within 10 knots.

Single Pilot Resource Management

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	E	***Pr***	***MD****	***NO***	***E***	***Pr***	***MD****	***NO***
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								

Pre-Takeoff

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	D	***E***	***Pr***	***Pe****	***D***	***E***	***Pr***	***Pe****
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	D	***E***	***Pr****	***Pe***	***D***	***E***	***Pr****	***Pe***
No-flap Takeoff								
Rejected Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	***Grade***	
	Pilot	***Instructor***

	D	E	Pr*	Pe	D	E	Pr*	Pe
Initial Cruise								
En route Cruise								
Checklist Use								
Engine Operations/Limitations								
Emergency Procedures (oil press.)								
Emergency Landing								
EFIS/Autopilot Operation (if equipped)								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Descent & Arrival Procedures								
Traffic Pattern								
Approach								
Normal/Crosswind Landing								
Power-off Landing								
Go Around								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post-flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F2 is a scenario-based three leg, short cross-country flown under VMC conditions. The PT will program a GPS course to a close by airport allowing 20 to 30 minutes enroute. Following a normal takeoff and departure the PT should navigate to the destination at a median altitude. Engine instrumentation should be analyzed to determine CHT, EGT and fuel flow correlation. Oil pressure and temperature should also be monitored. The PT should be knowledgeable about engine limitations and observant of same. Following a simulated high oil temperature/low pressure scenario, the PT should divert to closest airport. A simulated engine failure will require the PT perform an engine-out glide from altitude to the selected divert airport followed by a landing on the runway. The second leg will begin with a no-flap takeoff. The flight profile will mirror the first leg, with the instrument-rated PT making an instrument approach at the planned destination. The third leg returning to the originating airport will be similar with a simulated en route electrical failure requiring alternate landing gear extension and a no-flap landing.

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Lesson G3 – Ground approximately 1.5- 2.0 hours

Text Reference

- Airplane Flight Manual
- Lancair Training Syllabus
- Lancair Aircraft Accident Review
- Aeronautical Decision Making AC 60-22, as amended
- FAR/AIM

Lesson Objectives

At the end of the lesson the PT will have gained a fundamental understanding of Lancair accident statistics and the hazard of improper risk assessment. Additionally, the instructor will introduce single-pilot resource management concepts including practical risk management and aeronautical decision making.

Training Elements

Accident Statistics	*Single-pilot Resource Management*
❑ Weather (Thunderstorms, icing, IMC) ❑ Controlled Flight into Terrain (CFIT) ❑ Loss of Control ❑ Maneuvering Flight ❑ Time in Type ❑ Airworthiness	❑ Aeronautical Decision Making ❑ Risk Management

Completion Standards

The PT will demonstrate knowledge of the Lancair accident history and causes, and single-pilot resource management including aeronautical decision making and risk management strategies.

ELEMENTS	*Grade*							
	Pilot				*Instructor*			
	*E**	*Pr*	*MD*	*NO*	*E**	*Pr*	*MD*	*NO*
Lancair Accident Statistics Review								
Weather								
CFIT								
Loss of Control								
Maneuvering Flight								
Time in Type								
Airworthiness								
Single-pilot Resource Management								
Aeronautical Decision Making								
Risk Management								

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Lesson F3 – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)

Lesson Objective

The PT will review VFR maneuvers and normal procedures in the aircraft. The lesson will introduce and practice Lancair emergency procedures. The flight will originate at a local field proceeding via day VMC, cross-country flight to a nearby airport (approximately 50- 80 nm away). The PT will complete all start, taxi, takeoff and departure, cruise, arrival and landing checklists as well as utilize advanced GPS navigation skills including complex flight plan routing, departure and arrival procedures. EFIS skills will be reviewed (if equipped). Autopilot functions will be practiced (if equipped). A simulated en route emergency will require diversion. The instrument-rated PT will make an approach and full stop landing at destination #1. The non instrument rated pilot will make a VFR arrival and landing. The PT will depart destination #1 and proceed to destination #2 using the above procedures. A second enroute emergency will develop requiring a demonstration of degraded aircraft systems operation. Repeat to point of origin.

Training Elements

SRM	*Operations*	*Emergency Procedures*	*Arrival Procedures*
❑ Risk Management ❑ Aeronautical Decision Making	❑ Autopilot Use ❑ Normal/Crosswind Takeoff ❑ Normal/Crosswind Landing	❑ Loss of Cabin Pressure/ Smoke in Cockpit ❑ Engine Failure—Takeoff ❑ Recovery from Unusual Attitudes ❑ Cabin/Wing Fires ❑ Engine Fire ❑ Propeller Governor Malfunction ❑ Engine Out Landing ❑ Vacuum Failure ❑ Autopilot Malfunctions	❑ Visual/Instrument Approaches ❑ Power & Speed Mgmt ❑ Basic VFR Procedures ❑ Communication Procedures

Training Scenario

You are flying to a neighboring manufacturing facility to meet with the company – a potential customer for your patented *tagnite* metal coating process. But, you must first pick up a division manager from the company at a nearby airport. He will ride with you to the neighboring manufacturing facility. Once at the facility, the CEO will meet you at the airport. Obviously, you wish to impress your passenger and the CEO with your professionalism – both in the air, and on the ground.

Completion Standards

At the completion of this flight lesson the PT will demonstrate the skill commensurate with the certificate held while using sound judgment in operation of the aircraft. The PT will apply the appropriate PAC in accomplishing all flight maneuvers while maintaining altitude within 100 feet, airspeed within 10 knots and heading within 10 degrees. The PT should complete all emergency procedures with limited assistance from the instructor.

Single-pilot Resource Management

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	E*	***Pr***	***MD***	***NO***	***E***	***Pr****	***MD***	***NO***
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								
Terrain/CFIT Awareness								

Pre-Takeoff

ELEMENTS	***Grade***							
	Pilot				***Instructor***			
	D	***E***	***Pr***	***Pe****	***D***	***E***	***Pr***	***Pe****
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Normal/Crosswind Takeoff								
Engine Failure after Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Initial Cruise								
En route Cruise								
Checklist Use								
Electrical/Landing Gear Malfunction								
Pressurization Loss/Smoke in Cockpit								
Engine Failure								
Emergency Landing								
EFIS/Autopilot Operation								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Descent & Arrival Procedures/ Instrument Approach								
Traffic Pattern								
Normal/Crosswind Landing								
Power Off Landing								
Go Around								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post Flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F3 is a scenario based three-leg, short cross-country flown under VMC. The PT will program a GPS course to another airport allowing 20 to 30 minutes enroute. Following a normal takeoff and departure, the PT should navigate to the destination at a median altitude. If so equipped, the PT should program the autopilot to perform the climb and level off. If so equipped, all navigation should be accomplished using coupled autopilot/GPS operation. The instructor will simulate a smoke-in-cockpit emergency requiring diversion to the nearest airport. If installed, the PT should utilize cabin pressure dump procedures. If installed, the PT should utilize an O^2 mask. The second leg will begin with an engine failure on takeoff above 1500' AGL. Once the instructor declares the emergency complete the PT will proceed to the next destination. The instrument-rated PT will accomplish an instrument approach. The third leg to the originating airport will be similar except the instructor will simulate an electrical failure requiring alternate landing gear extension methodology and a no-flap landing.

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Lesson F4I – Flight (approximately 1.5 -2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)
- Instrument Flying Handbook (FAA-H-8083-15, as amended)
- Instrument Procedures Handbook (FAA-H-8261-1, as amended)

> ***Note**: Non-instrument-rated PTs will complete lesson **F4V** (see page 31) instead of **F4I**.*

Lesson Objective

The instrument-rated PT will review and practice the principles of attitude instrument flying and how to correlate the flight instruments to maintain precise aircraft control. The instrument-rated PT will review and practice use of advanced avionics within complicated airspace/ATC environment. The instrument-rated PT will review and practice ILS, GPS (including LPV), VOR instrument approaches, holds and demonstrate radial tracking. The flight will originate at a local field and proceed via day IFR cross-country flight to a nearby non towered airport with an instrument approach (approximately 50-80 nm away). The PT will complete all start, taxi, takeoff and departure, cruise arrival and landing checklists as well as utilize basic IFR GPS navigation skills. IFR EFIS skills will be emphasized (if equipped). Autopilot functions will be reviewed and practiced (if equipped). An instrument approach and full stop landing will be made at destination #1. The PT will depart destination #1 and proceed to destination #2 using the above procedures. Repeat to point of origin.

Training Elements

❑ Single-pilot Resource Management	❑ Descents & Descent Planning
❑ Risk Management/Aeronautical Decision Making	❑ Partial Panel
❑ Instrument preflight	❑ Holding
❑ Departure checklist	❑ TAWS Escape Maneuver
❑ Normal takeoff into IMC	❑ IMC Emergency Landing
❑ Climbs	❑ Precision Approach
❑ Clearance Adherence	❑ Non-precision Approach
❑ Straight and Level	❑ GPS Approaches
❑ EFIS/Autopilot usage (if installed)	❑ Missed Approach
❑ Turns (Level)	❑ Circling Approach
❑ Electrical Failure	❑ Advanced Avionics

Training Scenario

It is homecoming weekend at Tippacanoe U., your alma mater and you and your two fraternity buddies are going to the big game. Kick off is at 1 pm so don't be late. Even though the forecast calls for rain you are still a go since you have that coveted instrument rating. If you can't get a hotel room you three are planning on returning after dinner at the old frat house.

Completion Standards

The instrument-rated PT will demonstrate an understanding of power, attitude and configuration control by reference to the flight and power instruments while maintaining altitude within 100 feet, airspeed within 10 knots, and heading within 5 degrees.

Single-pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	Pr*	MD	NO	E	Pr*	MD	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Normal/ Crosswind Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Initial Cruise								
Enroute Cruise								
Checklist								
GPS Navigation								
EFIS/Autopilot Operation								
EFIS/ PFD/ AHARS Malfunction								
Partial Panel								
Unusual Attitude Recovery								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Descent & Arrival Procedures								
Holding								
Approach								
Traffic Pattern								
Normal/Crosswind Landing								
TAWS Escape Maneuver								
Go Around								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post Flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F4I is a scenario-based, three leg short cross-country flown under simulated IMC conditions. The PT will program a GPS course to another airport allowing 20 to 30 minutes enroute. Following a normal takeoff and departure using a programmed autopilot climb/level off, the PT should navigate to the destination at a median altitude using a coupled autopilot/GPS (if equipped). The PT should plan on a GPS approach at the first destination. Execute a missed approach to hold for another approach to a full-stop landing. Proceed on next leg using same procedures to terminate with an approach. While on approach simulate TAWS warning (if equipped). Perform escape maneuver. Follow same scenario on third leg of flight to originating airport and substitute AHARS failure on approach (if equipped).

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Lesson F4V – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended
- Aeronautical Information Manual)

Lesson Objective

The non-instrument-rated PT will review and practice the principles of flying and how to correlate the flight instruments to maintain precise aircraft control. The non-instrument-rated PT will review and practice use of advanced avionics within complicated airspace/ATC environment. The non-instrument-rated PT will review and practice VFR cross-country skills including pilotage, dead-reckoning, VOR and GPS navigation. The flight will originate at a local field and proceed via day VFR cross-country flight to a nearby non towered airport (approximately 50-80 nm away). The PT will complete all start, taxi, takeoff and departure, cruise arrival and landing checklists as well as utilize basic VFR GPS navigation skills. VFR EFIS skills will be emphasized (if equipped). Autopilot functions will be reviewed and practiced (if equipped). A visual pattern entry and full stop landing will be made at destination #1. The PT will depart destination #1 and proceed to destination #2 using the above procedures. Repeat to point of origin.

Training Elements

❑ Single-pilot Resource Management	❑ EFIS/Autopilot Use (if installed)
❑ Risk Management/Aeronautical Decision Making	❑ VFR Navigation
❑ Checklist	❑ Electrical Failure
❑ Normal takeoff	❑ Descents & Descent Planning
❑ Climbs	❑ Inadvertent IMC Recovery
❑ Cruise	❑ Advanced Avionics
	❑ GPS Navigation
	❑ VOR Navigation

Training Scenario

It is homecoming weekend at Tippacanoe U., your alma mater and you and your two fraternity buddies are going to the big game. Kick off is at 1 pm so don't be late. Even thought e forecast calls for rain you are still a go. If you can't get a hotel room you three are planning on returning after dinner at the old frat house.

Completion Standards

The non-instrument-rated PT will demonstrate an understanding of power, attitude and configuration control by reference to the flight and power instruments while maintaining altitude within 100 feet, airspeed within 10 knots, and heading within 5 degrees.

Single-pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	Pr*	MD	NO	E	Pr*	MD	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Normal/ Crosswind Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Initial Cruise								
Enroute Cruise								
Checklist								
Pilotage/ Dead-Reckoning								
VOR/ GPS Navigation								
Emergency (Electrical)								
EFIS/Autopilot Operation								
Inadvertent IMC Recovery								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr*	Pe	D	E	Pr*	Pe
Descent & Arrival Procedures								
Traffic Pattern								
Normal/Crosswind Landing								
Power-off Landing								
Go Around								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post Flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F4V is a scenario based three-leg, short cross-country flown under VFR conditions. The PT will program a GPS course to another airport allowing 20 to 30 minutes enroute. Following a normal takeoff and departure using a programmed autopilot climb/level off, the PT should navigate to the destination at a median altitude using a coupled autopilot/GPS (if equipped). Simulate electrical failure requiring alternate landing gear extension. The PT should perform a traffic-pattern entry using AIM procedures and fly a visual approach to a full-stop landing (plan on multiple landings at each destination). Proceed on next leg using same procedures while emphasizing visual navigation. While on final simulate TAWS warning (if equipped). Perform escape maneuver. Follow same scenario on third leg of flight to originating airport. Plan time en route to practice 180° IMC escape maneuver under the hood utilizing autopilot and non autopilot assisted turns.

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Lesson F5I – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)
- Instrument Flying Handbook (FAA-H-8083-15, as amended)
- Instrument Procedures Handbook (FAA-H-8261-1, as amended)

> ***Note**: Non-instrument-rated PTs will complete lesson **F5V** (see page 39) instead of **F5I**.*

Lesson Objective

The instrument-rated PT will plan and execute an instrument cross-country (100-200 nm in distance) flight to an agreed upon destination above FL180 (if turbocharged and pressurized or O2 equipped). En route the PT will practice a loss of cabin pressurization (if equipped) and perform an emergency descent terminating in an approach to a missed and a hold followed by another approach. The PT will emphasize weather evaluation and risk management. The elements learned in the previous flights will be practiced as part of a FITS scenario planned and executed by the instrument-rated PT.

Training Elements

❑ Weight & Balance	❑ Arrival Procedure & Descent Planning
❑ TOLD Planning	❑ Holding
❑ File Flight Plan	❑ Precision or Non-precision Approach
❑ Instrument Preflight	❑ Loss of Pressurization/Emergency Descent
❑ Departure Procedure	❑ Normal Takeoff & Landing
❑ High-altitude En route Navigation/Communication	
❑ Fuel Calculation/Reserve Planning/Diversion	

Training Scenario

You promised your spouse that you would take the family to the grandparents for the holidays. The weather outside is frightful.

Completion Standards

The instrument-rated PT demonstrates skill commensurate with the certificate(s) held and sound judgment in operation of the aircraft while maintaining altitude within 100 feet, heading within 5 degrees and airspeed to within 5 knots. The PT performs all emergency procedures such that a successful outcome is never seriously in doubt. The PT will adhere to checklist use at all times. All instrument approaches are performed to instrument rating practical test standards. The PT will demonstrate a mastery of IFR single-pilot proficiency.

Single Pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	Pr	MD*	NO	E	Pr	MD*	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations/TOLD								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Normal/ Crosswind Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Initial Cruise								
High-altitude En Route Cruise								
Checklist Use								
ATC Radio Communication								
GPS Navigation								
EFIS/Autopilot Operation								
Loss of Cabin Pressure/Emergency Descent (if equipped).								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Descent & Arrival Procedures								
Approach								
Holding								
Normal/Crosswind Landing								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post Flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F5I is a scenario-based, cross-country flown under simulated IMC conditions. Program a GPS course to another airport allowing 45-50 minutes enroute. Following a normal takeoff and departure the PT should navigate to the destination at a high altitude. The PT should use program the autopilot to perform the climb and level off followed by coupled autopilot/GPS navigation to the destination. Simulate loss of cabin pressure (if equipped). Program a GPS arrival and approach via GPS. Execute a missed approach to hold for another approach to a full-stop landing.

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Lesson F5V – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)

Lesson Objective

The non-instrument-rated PT will plan and execute a 100-200 nm VFR cross-country flight to an agreed upon destination at 14,500-17,500' MSL (if O2 equipped and/or pressurized). Enroute the PT will practice a loss of cabin pressurization (if equipped) followed by an emergency descent. The PT will emphasize proper weather evaluation and risk management. The PT will practice elements learned on previous flights as part of a FITS scenario planned by the non-instrument-rated PT.

Training Elements

❑ Weight & balance ❑ TOLD planning ❑ File Flight Plan ❑ Preflight ❑ VFR Departure Procedure ❑ High-altitude En route Navigation/Communication	❑ Fuel Calculation/Reserve planning/Diversion ❑ Arrival Procedure & Descent Planning ❑ VFR Approach ❑ Loss of Pressurization/Emergency Descent ❑ Normal takeoff and landing

Training Scenario

You promised your family you would go to the grandparents for the holidays. Its not the best time of year for flying, but your spouse really enjoys time with the family. Will all those presents fit in the baggage area?

Completion Standards

The non-instrument-rated PT demonstrates skill commensurate with the certificate(s) held and sound judgment in operation of the aircraft while maintaining altitude within 100 feet, heading within 5 degrees and airspeed within 5 knots. The PT performs emergency procedures such that the successful outcome is never seriously in doubt. The PT adheres to checklist use at all times while demonstrating a mastery of VFR single-pilot proficiency in the Lancair aircraft.

Single-pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	PR	MD*	NO	E	Pr	MD*	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Normal/ Crosswind Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr *	Pe	D	E	Pr *	Pe
Initial Cruise								
High-altitude En route Cruise								
Checklist Use								
Flight Following								
GPS Navigation								
Loss of Cabin Pressure (if equipped)								
Emergency Descent								
EFIS/Autopilot Operation (if equipped)								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	D	Pr	Pe*
Descent & Arrival Procedures								
Traffic Pattern								
Normal/Crosswind Landing								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade							
	Pilot				Instructor			
Post Flight Critique & Discussion								

NOTES TO THE INSTRUCTOR: Lesson F5V is a scenario-based, longer cross-country flown under VFR conditions up to 17,500' MSL (if O2 equipped or pressurized). Program a GPS course to another airport allowing 45 minutes enroute. Following a normal takeoff and departure the PT should navigate to the destination at altitude. Program an autopilot climb and level off/ couple autopilot to GPS. Simulate loss of cabin pressure (if equipped). Proceed to destination. Plan descent to not exceed airspeed limits. Make full stop.

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Lesson F6I – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)
- Instrument Flying Handbook (FAA-H-8083-15, as amended)
- Instrument Procedures Handbook (FAA-H-8261-1, as amended)

> ***Note**: Non-instrument-rated PTs will complete lesson **F6V** (see page 47) instead of **F6I**.*

Lesson Objective

The instrument-rated PT will plan and execute a return instrument cross-country flight to airport of origin for flight F5I. Enroute the PT will practice selected emergency procedures.

Training Elements

❑ Weight & Balance	❑ Fuel calculations/ reserve planning/ diversion
❑ Flight & Weather Planning	❑ Arrival Procedure & Descent Planning
❑ File Flight Plan	❑ Holding
❑ TOLD Planning	❑ Precision or Non-precision Approach (GPS, VOR)
❑ Instrument Preflight	❑ Selected Emergency
❑ Departure Procedure	❑ Normal Takeoff & Landing
❑ En route Navigation/Communication	

Training Scenario

You just finished building the aircraft and really want to journey to Oshkosh for Airventure. The trip is long but the reward is the admiration your friends and fellow Lancair pilots will show when they see this beauty on the line. You are hoping the judges agree.

Completion Standards

The instrument-rated PT demonstrates skill commensurate with the certificate(s) held and sound judgment in operation of the aircraft while maintaining altitude within 100 feet, heading within 5 degrees and airspeed within 5 knots. The PT performs all emergency procedures such that the successful outcome is never seriously in doubt. The PT adheres to checklist use at all times. Instrument approaches are performed to instrument rating standards while the PT demonstrates a mastery of IFR single-pilot proficiency.

Single Pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	Pr	MD*	NO	E	Pr	MD*	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations/TOLD								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Instrument Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Normal/ Crosswind Takeoff								
Instrument Takeoff/Departure Procedure (DP)								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Initial Cruise								
High-altitude En Route Cruise								
Checklist Use								
ATC Procedures/Communication								
GPS Navigation								
AHRS Failure (if installed)								
EFIS/Autopilot Operation (if equipped)								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Descent & Arrival (STAR) Procedures								
Approach								
Traffic Pattern								
Normal/Crosswind Landing								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade							
	Pilot				Instructor			
Post Flight Critique & Discussion								

NOTESS TO THE INSTRUCTOR: . Lesson F6I is a scenario-based, cross-country flown under simulated IMC conditions. The PT will program a GPS course to the airport of origin for flight F5I. Following a normal takeoff and departure the PT should navigate to the destination at a high altitude using the autopilot for climb and level off (if equipped). Proceed to the destination using autopilot/GPS coupled navigation. Plan a GPS arrival and GPS approach (if equipped). Execute missed approach to hold for another approach to a full-stop landing.

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Lesson F6V – Flight (approximately 1.5- 2.0 hours)

Text Reference

- Lancair Training Manual
- Airplane Flight Manual
- Airplane Flying Handbook (FAA-H-8083-3, as amended)

Lesson Objective

The non-instrument-rated PT will plan and execute a VFR cross-country flight. The PT will practice selected emergency procedures en route. The PT will practice elements learned from all previous flights as part of a FITS scenario planned and executed by the PT.

Training Elements

❑ Weight & Balance	❑ En route Navigation/Communication
❑ Flight & Weather Planning	❑ Fuel Calculation/Reserve planning/Diversion
❑ File Flight Plan	❑ Arrival & Descent Planning
❑ TOLD Planning	❑ VFR Approach
❑ Preflight	❑ Selected Emergency
❑ Departure Procedure	❑ Normal Takeoff & Landing

Training Scenario

You just finished building the aircraft and really want to journey to Oshkosh for Airventure. The trip is long but the reward is the admiration your friends and fellow Lancair pilots will show when they see this beauty on the line. You are hoping the judges agree.

Completion Standards

The non-instrument-rated PT demonstrates skill commensurate with the certificate(s) held and sound judgment in operation of the aircraft while maintaining altitude within 100 feet, heading within 5 degrees and airspeed within 5 knots. The PT performs emergency procedures such that the successful outcome is never seriously in doubt. The PT adheres to checklist use at all times while demonstrating a mastery of VFR single-pilot proficiency in the Lancair aircraft.

Single-pilot Resource Management

ELEMENTS	Grade							
	Pilot				Instructor			
	E	Pr	MD*	NO	E	Pr	MD*	NO
Automation/Avionics Management								
Radio Communication								
Hazard & Risk Analysis								
Situational Awareness								
Task Management								
ADM								
Checklist Use								
Performance & Limitations/TOLD								
Terrain/ CFIT Awareness								

Pre-Takeoff

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Preflight								
Start								
Before Taxi								
Taxi								
Before Takeoff								
Checklist Use								

Takeoff & Climb

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Normal/ Crosswind Takeoff								
Climb								
Checklist Use								

Cruise

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Initial Cruise								
High-altitude En route Cruise								
Checklist Use								
Flight Following								
GPS Navigation								
Emergency (Alternator loss/ Electrical)								
EFIS/Autopilot Operation (if equipped)								

Descent & Landing

ELEMENTS	Grade							
	Pilot				Instructor			
	D	E	Pr	Pe*	D	E	Pr	Pe*
Descent & Arrival Procedures								
Traffic Pattern								
Normal/Crosswind Landing								
After Landing								
Shutdown								
Checklist Use								

Post Flight

ELEMENTS	Grade			
	Pilot		Instructor	
Post Flight Critique & Discussion				

NOTES TO THE INSTRUCTOR: Lesson F6V is a scenario-based, cross-country flown under VFR conditions up to 17,500' MSL (if pressurized or O2 equipped). The PT will program a GPS course to the airport of origin for flight F5V. Following a normal takeoff and departure the PT should navigate to the destination using the autopilot for climb and level off (if equipped). Proceed to the destination using autopilot/GPS coupled navigation. Plan to practice checklist procedure for loss of alternator. Plan descent to not exceed airspeed limits.

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Personal Minimums

14 CFR 61 comprise FAA regulations concerning airmen training, certification, and currency. Part 91 concerns general flight operation rules. While these rules comprise the core of today's aeronautical standards, they are the absolute floor in many situations regarding safety of flight.

A review of accident statistics shows the majority of serious and fatal accidents occur while a pilot new to Lancair aircraft accumulates their first 100 hours in type. Prudence dictates limiting exposure to high-risk operations during this time.

LOBO offers the following matrix to help the PT develop appropriate personal minimums. Pilots with more flight time and/or professional experience may wish to use this matrix as a starting point to develop their own for use while flying Lancair aircraft. Pilots with less overall experience and/or no professional flying experience should adhere to the personal minimums recommended here, or adopt more conservative ones.

> ***NOTE**: Night and IFR flight **not recommended** for pilots with less than 100 hours time in type.*

QUALIFICATION	DAY		NIGHT	
	TIME IN TYPE (hours)			
	Less than 100	**More than 100**	**Less than 100**	**More than 100**
	VMC			
VFR-ONLY (Not-IFR Rated) or **IFR RATED -- not proficient**	Minimum 3000' Ceiling & 5 SM Visibility		Not Recommended	Minimum 5000' Ceiling & 10 SM Visibility
	IMC			
IFR RATED & PROFICIENT	Not Recommended	Minimum 500' Ceiling & 1 SM Visibility	Not Recommended	Minimum 600' Ceiling & 1 SM Visibility
IFR RATED & PROFICIENT CAT 1 MINS (within 60 days)	Not Recommended	Minimum 200' Ceiling & ½ SM Visibility	Not Recommended	Minimum 400' Ceiling & ¾ SM Visibility
NOTE: FILE IFR ANYTIME WEATHER IS BELOW 3000'/5 SM				
TIME IN TYPE (hours)	**MAXIMUM WIND**			
Less than 25	20 KNOTS SUSTAINED AND/OR 10 KNOT CROSSWIND		20 KNOTS TOTAL SUSTAINED AND/OR 10 KNOT CROSSWIND	
From 25 – 100	25 KNOTS SUSTAINED AND/OR 15 KNOT CROSSWIND		25 KNOTS SUSTAINED AND/OR 15 KNOT CROSSWIND	
More than 100	35 KNOTS SUSTAINED AND/OR 20 KNOT CROSSWIND OR MAX DEMONSTRATED WHICHEVER IS LESS		35 KNOTS SUSTAINED AND/OR 20 KNOT CROSSWIND OR MAX DEMONSTRATED WHICHEVER IS LESS	
FLIGHT INTO KNOWN ICING PROHIBITED				

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