



ELMENDORF AFB AERO CLUB

ELMENDORF AFB, ALASKA 99506

SINGLE ENGINE SEA RATING COURSE ADDITIONAL CLASS RATING

AIRPLANE SINGLE-ENGINE SEA (SES)

AIR AGENCY CERTIFICATE NUMBER

IE8S213Q

AIRPLANE SINGLE ENGINE SEA RATING COURSE

ENROLLMENT PREREQUISITES

The applicant must hold at least a private pilot certificate with an airplane category rating. In addition, the applicant must meet the experience requirements of FAR Part 61 for the issuance of a Single Engine Sea rating

FLIGHT TRAINING COURSE OBJECTIVES

The Applicant will obtain the aeronautical skills and experience necessary to obtain a Single Engine Sea rating with an airplane category rating.

FLIGHT TRAINING COURSE COMPLETION STANDARDS

The applicant must demonstrate through flight tests and school records the necessary aeronautical skills to obtain a Single Engine Sea rating with an airplane category rating. Flight training will consist of 10.5 hours.

GROUND TRAINING COURSE OBJECTIVE

The applicant will acquire the necessary aeronautical knowledge for a Single Engine Sea rating.

GROUND TRAINING COURSE COMPLETION STANDARDS

The applicant will demonstrate, through records, oral, and written test, that the necessary aeronautical knowledge has been obtained for a Single Engine Sea rating. Ground training will consist of 11 hours.

FLIGHT TRAINING SYLLABUS

The flight-training syllabus is one stage with 10 lessons. The ground training contains one stage with six lessons. Each of these instructional units are described in the succeeding pages. Flight training consists of 10.5 hours of flight. The applicant's proficiency and knowledge will be checked by the chief flight instructor, assistant chief instructor or check instructor during the final stage check.

Hours shown in each lesson for flight training, preflight briefing, and post-flight critique are offered as a guide to the instructor. Whereas times used on individual lessons may be adjusted to the individual applicant's needs.

APPLICANT INFORMATION

COURSE ENROLLMENT

To enroll in the Single Engine Sea Rating Course, you must hold at least a private pilot certificate with a Second Class medical to receive VA reimbursement otherwise a Third Class medical is required.

REQUIREMENTS FOR GRADUATION

To obtain a Single Engine Sea Rating, you must be able to read, write, and understand the English language and speak it without accent or impediment of speech that would interfere with two-way radio conversation. You must hold at least a private pilot certificate with a Second Class medical certificate to receive VA reimbursement otherwise a Third Class medical is required. You must successfully complete all of the flight and ground lessons contained in the syllabus.

LESSON DESCRIPTION AND STAGES OF TRAINING

Each lesson is fully described within the syllabus, including the objectives and standards, for each lesson. Applicants are expected to complete this training within 90 days. The objectives and standards are described within the syllabus.

TESTS AND CHECKS

The syllabus incorporates stage checks in accordance with FAR 141, Appendix I. These checks are conducted by the chief instructor, assistant chief instructor or check instructor at the end of each stage. The chief or assistant chief instructor must conduct the final stage check. The applicant will complete the appropriate stage exam, pilot briefings, and final examinations that are described within the syllabus. In addition, you must satisfactorily accomplish a final written and flight test after all of the stages have been completed.

FLIGHT 1
DUAL 1.0
0.5 HOUR PRE/POST FLIGHT

LESSON OBJECTIVE:

The applicant will be familiarized with the training seaplane's operating characteristics, limitations, cockpit controls, instruments and systems. Preflight procedures, use of checklists and safety precautions to be followed will be introduced.

LESSON CONTENT

Aircraft Familiarization

Preflight Operations

- Certificates and Documents
- Performance and Limitations
- Weight and Balance
- Weather Information
- Seaplane Servicing
- Use of Checklist
- Preflight Inspection
- Engine and Systems Preflight Check
- Engine Starting
- Use of Water Rudders
- Pre-take off Check
- Normal Takeoff
- Climbs
- Straight and Level Flight
- Slow Flight
- Steep Turns
- Power On Stall (*with and without turns*)
- Power Off Stall (*with and without turns*)
- Accelerated
- Descents and Glides
- Seaplane Base Traffic Pattern
- Prelanding Check
- Normal Landing
- After Landing Check
- Aircraft Shutdown
- Aircraft Mooring

COMPLETION STANDARDS:

At the completion of this lesson, the applicant will be able to conduct a pre-flight, use check list and display coordination in all piloting fundamentals covered in this lesson. Altitude will be maintained within ± 100 feet, heading within ± 10 degrees and airspeed within ± 10 knots

FLIGHT 2
DUAL 1.0
0.5 HOUR PRE/POST FLIGHT

LESSON OBJECTIVES

The applicant will review normal takeoffs and landings and be introduced to the three positions of the seaplane while taxiing

LESSON CONTENT:

Review

- Preflight Operations
- Normal Takeoffs
- Normal Landings
- Skipping
- Aircraft Mooring

Introduction

Taxiing Positions

- Idling
- Plowing
- On Step
- Porpoising

Taxiing Turns

- Slow Speed
- Plowing
- On Step

COMPLETION STANDARDS:

The applicant will show proper planning, judgment and positive control of the aircraft while taxiing, on final approach speed will be within +10/-5 kts of the recommended speed and a straight course will be maintained during touchdown and throughout the runout on the surface

FLIGHT 3
DUAL 1.0
0.5 HOUR PRE/POST FLIGHT

LESSON OBJECTIVES

The applicant will review taxiing, takeoffs and landings and be introduced to taxiing under varying wind conditions, aborted takeoffs and accuracy landings

LESSON CONTENT:

Review

Taxiing Positions

- Idling
- Plowing
- On Step

Taxiing Turns

- Slow Speed
- Plowing
- On Step
- Normal Takeoff
- Normal Landing

Introduction

Taxiing

- Down Wind
- Crosswind
- Aborted Takeoff
- Accuracy Landing

COMPLETION STANDARDS:

The applicant will demonstrate proper use of flight controls. Lower water rudders while safely and effectively taxiing the seaplane. During landings, the applicant will correctly use the controls in flight and on the surface; touchdowns will be within a specified area

FLIGHT 4
1.0 HOUR DUAL
0.5 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

This lesson will review taxiing, aborted takeoffs and accuracy landings, emergency operations, go-around and crosswind takeoff and landing techniques will be introduced.

LESSON CONTENT:

Review

Taxiing

- Downwind
- Crosswind

Introduction

- Crosswind Takeoffs
- Aborted Takeoff
- Crosswind Landings
- Accuracy Landing
- Emergency Operations
- Go-around

COMPLETION STANDARDS:

The applicant will use the controls smoothly and correctly in-flight and on the surface and during takeoffs and landings, go-around will be executed safely from any point during the landing approach. Emergency procedures will be performed in compliance with the manufacturer's published recommendations.

LESSON 5
1.0 HOUR DUAL
0.5 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

This lesson will review crosswind takeoff and landing technique emergency operations and go-around. The applicant will be introduced to sailing, docking, beaching and securing techniques

LESSON CONTENT:

Review

- Crosswind Takeoffs
- Crosswind Landings
- Emergency Operations
- Go-Around

Introduction

- Sailing
- Anchoring
- Docking
- Beaching
- Taxiing
- Approach to a Buoy (actual or simulated)
- Approach to a Pier (actual or simulated)
- Approach to a Ramp (actual or simulated)

COMPLETION STANDARDS:

The applicant will demonstrate proper planning, judgment, timing and aircraft control while sailing, docking, beaching and taxiing the aircraft.

LESSON 6
1.0 HOUR DUAL
0.5 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

This lesson will review sailing, docking, and beaching. Takeoff and landing techniques for choppy and rough water conditions plus downwind takeoffs and landings will be introduced.

LESSON CONTENT:

Review

- Sailing
- Anchoring
- Docking
- Beaching

Introduction

Takeoffs

- Downwind
- Glassy Water
- Choppy Water
- Rough Water
- Confined Area and Maximum Performance Climb

Landings

- Downwind
- Glassy Water
- Choppy Water
- Rough Water
- Confined Area
- Emergency - high and low altitude
- System and Equipment Malfunction

COMPLETION STANDARDS:

The applicant will demonstrate correct downwind, choppy water and landing techniques. Takeoff and landings will be performed smoothly with correct use of the controls in flight and on the surface. Emergency procedures will be performed in compliance with the manufacturer's published recommendations

LESSON 7
1.0 HOUR DUAL
0.5 HOUR PRE/POST FLIGHT

LESSON OBJECTIVES

This lesson will review previously introduced takeoffs and landings and introduce the applicant to circular takeoffs and confined area takeoff and landing.

LESSON CONTENT:

Review

Takeoffs

- Downwind
- Glassy Water
- Choppy Water
- Rough Water
- Confined Area

Landings

- Downwind
- Glassy Water
- Choppy Water
- Rough Water
- Confined

Introduction

- Takeoffs
- Circular

COMPLETION STANDARDS:

The applicant will demonstrate correct circular takeoff plus confined area takeoff and landings. Takeoffs and landings will be performed smoothly with correct use of the controls in flight and on the water surface.

LESSON 8
1.0 HOUR DUAL
0.5 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

This lesson will review previously introduced takeoffs and landings and introduce the applicant to high density altitude takeoffs.

LESSON CONTENT:

Review

Takeoffs

- Circular
- Glassy Water

Introduction

- High-Density Altitude Takeoff

Landings

- Night - Simulated
- No Flap

COMPLETION STANDARDS:

The applicant will demonstrate correct glassy water and high-density altitude takeoff techniques, and the correct techniques for landing in glassy water, at night and without flaps. Takeoff and landing-flights will be performed smoothly with correct use of the controls in flight and on the water surface.

LESSON 9
1.0 HOUR DUAL
0.5 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

During this lesson, the applicant will review all previously introduced maneuvers and procedures in preparation for the final flight check.

LESSON CONTENT:

Review

- Basic Flight Maneuvers
- Taxiing
- Sailing
- Takeoffs
- Landings
- Emergency Operations

COMPLETION STANDARDS:

The minimum standards of proficiency will be the acceptable performance guidelines as outlined in the appropriate and current Practical Test Standards.

LESSON 10 – FINAL STAGE CHECK
1.5 HOUR DUAL
1.0 HOURS PRE/POST FLIGHT

LESSON OBJECTIVES

This final flight check conducted by the chief flight instructor or his assistants will evaluate the applicant's readiness for the seaplane rating flight test.

LESSON CONTENT:

Review

- Performance and Limitations
- Operations of Systems
- Seaplane Characteristics

Taxiing/Sailing

- Idle
- Plow
- Step
- Porpoising

Takeoffs

- Normal/Crosswind
- Glassy Water
- Rough Water
- Confined Area

Maneuvers

- Slow Flight
- Steep Turns
- Power On Stall (*with and without turns*)
- Power Off Stall (*with and without turns*)

Landings

- Normal/Crosswind
- Glassy Water
- Rough Water
- Confined Area

Emergency Operations

- Approach and Landing

Post Flight

- Anchoring
- Beaching
- Docking
- Securing Aircraft

COMPLETION STANDARDS:

The minimum standards of proficiency will be the acceptable performance guidelines as outlined in the appropriate current Practical Test Standards. If additional instruction is necessary, the chief flight instructor or his assistant will assign the additional training.

If the flight is satisfactory, the chief flight instructor or his assistant will complete the applicant's training records and issue an appropriate graduation certificate.

GROUND TRAINING SYLLABUS

GROUND TRAINING – 11.0 HOURS

1. GROUND TRAINING COURSE OBJECTIVES

The applicant will obtain the necessary aeronautical knowledge to pass the oral phase of the flight test.

2. GROUND TRAINING COURSE COMPLETION STANDARDS

The applicant will demonstrate through oral examinations and written tests that he has the knowledge to pass the oral phase of the flight test. The minimum grade on the written test is 70 percent.

3. GROUND TRAINING SYLLABUS

Hours shown in each lesson of ground training are offered as a guide to the instructor. Specified minimum times for an entire stage must be complied with whereas times used on individual lessons may be adjusted to the individual applicant's needs.

LESSON 1 2.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will introduce the applicant to seaplane types, components, systems and powerplant operation.

LESSON CONTENT:

Seaplane types

- Amphibian
- Floatplane
- Flying Boat

Seaplane

- Wings
- Fuselage
- Empennage
- Landing Gear
- Powerplant and Propeller
- Floats and Hull Construction

Controls

- Ailerons
- Elevator/Stabilator
- Rudder
- Flaps
- Water Rudders
- Trim System

Electrical System

- Master Switch
- Alternator/Generator
- Battery

Fuel and Fuel System

- Use of Proper Fuel
- Fuel System Operation
- Fuel Contamination and Preventive Measures
- Refueling

Oil and Oil System

Powerplant Operations

- Fuel/Air Induction Systems
- Ignition System
- Cooling
- Precautions and Operational Considerations

Propellers

- Fixed Pitch
- Constant Speed

Preflight Operations

COMPLETION STANDARDS:

This lesson will be complete when by oral examination the applicant displays an understanding of the material presented and has completed the study assignment.

LESSON 2
2.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will introduce weight and balance theory and computations including their importance to seaplane performance.

LESSON CONTENT:

Definitions

- Empty Weight
- Gross Weight
- Maximum Gross Weight
- Useful Load
- Datum
- Arm
- Moment
- Center of Gravity

Weight and Balance

- Graph Method
- Table Method
- CG Adjustment
- Fuel Burn
- Performance and Handling

Emergency operations

- Approach and Landing
- Partial or Complete Power Malfunctions
- Systems or Equipment Malfunctions
- Lost Procedures

COMPLETION STANDARDS:

This lesson will be complete when by oral examination and the applicant displays an understanding of the material presented and has completed the study assignment

LESSON 3 2.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will introduce methods of determining wind direction and techniques used in taxiing and takeoff under varying wind conditions

LESSON CONTENT:

Determining Wind Direction

- Tide
- Current (*Strength and Direction*)
- Waterfowl
- Smoke
- Flags
- Wave Pattern
- Boats at Anchor
- Whitecaps

Taxiing

- Center of Buoyancy
- Position Idling
- Plowing
- On the Step
- Wind Direction/Velocity
- Debris (*Floating/Submerged*)
- Sandbars

Taxiing Turns

- Positions
- Slow Speed
- Plowing
- On the Step

Wind direction

- Sailing
- Takeoff

Conditions of Water Surface

- Glassy
- Calm
- Choppy/Rough
- Swells
- Wind Direction

Takeoff

- Initial Climb Speed V_x or V_y
- Climb Performance
- Selection of Climb Speed/Rate of Climb
- Confined Area
- Cruise Climb

COMPLETION STANDARDS:

This lesson will be complete when by oral examination the applicant displays an understanding of the material presented and has completed the study assignment.

LESSON 4
2.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will introduce cruise performance charts, landing techniques, hazards and methods of securing the aircraft.

LESSON CONTENT:

Cruise Performance

- Altitude Selection
- Power Settings
- RPM
- Manifold Pressure
- Mixture Control
- Fuel Consumption Rate
- True Airspeed

Landings-Water Surface

- Glassy
- Calm
- Choppy/Rough
- Swells
- Wind Direction
- Current/Tidal effects
- Approach Speed
- Use of Flaps
- Confined Area

Hazards

- Porpoising
- Skipping

Surface Operations

- Anchoring
- Mooring
- Docking
- Sailing
- Beaching

Seaplane Bases

COMPLETION STANDARDS:

This lesson will be complete when by oral examination and the applicant displays an understanding of the material presented and has completed the study assignment.

LESSON 5
2.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will review federal aviation regulations discussed as an integral part of previous lessons and will introduce other regulations applicable to seaplane operations and safety.

LESSON CONTENT:

Regulations

- FAR Part 1
- FAR Part 61
- FAR Part 91
- NTSB part 830
- Maritime Rules
- Maritime Navigation Aids

COMPLETION STANDARDS:

This lesson will be complete when, by oral examination, the applicant displays an understanding of the material presented and has completed the study assignment.

LESSON 6
1.0 HOURS GROUND TRAINING

LESSON OBJECTIVES

This lesson will be a review of material presented in lessons 1 through 5 in preparation for the final written examination.

LESSON CONTENT:

Review as necessary

COMPLETION STANDARDS:

This lesson and final stage will be complete when the applicant has passed the final written examination with a minimum score of 70 percent covering the material presented in lessons 1 through 5.