CAP PAMPHLET 71-2
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Aircrew Training, Glider

NATIONAL HEADQUARTERS CIVIL AIR PATROL
Maxwell Air Force Base, Alabama

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Contents

Chapter 1 – General Guidance

This pamphlet outlines CAP's approach to training CAP members participating in CAP glider activities, using aero-tow or ground launch; via auto or winch. CAP Tow Pilot and Tow Pilot Trainer requirements are outlined in CAPR 70-1, *CAP Flight Management*.

CAP, in conjunction with the Soaring Safety Foundation, provides on-line training designed to prepare pilots, student pilots and ground support personnel for an effective, safe and rewarding experience. Most of these on-line courses are mandatory for the applicable qualifications and operations; however, anyone can take any of the courses offered. The following courses can be found on the gocivilairpatrol.com website under Emergency Services > Programs > Aircraft Operations > Glider Program > Glider Operations.

- SSF/CAP Wing Runner Course
- SSF/CAP Tow Pilot Course
- Blanik L-23 Cockpit Familiarization Course

In addition, aircraft specific training that may be helpful to Tow Pilots is contained on gocivilairpatrol.com under Emergency Services > Programs > Aircraft Operations > Aircraft & Equipment.

- Maule Familiarization Course

Chapter 2 – Glider Pilot Training

Although the CAP glider program exists primarily to support cadet orientation flights, flight instruction, and continuation training, the program's continued success and future growth also depend on its ability to attract, train, and retain senior member glider pilots. Accordingly, CAPR 70-1, *CAP Flight Management*, permits senior member CAP pilots to take flight training towards a glider rating. Non-pilot senior members may also train for a glider airman's certificate when cadets are not using the gliders. Generally, Cadets have first priority for glider use, for either Orientation Flights or flight training; this should be balanced with the need for additional glider pilots.

2.1 Initial Flight Training

In accordance with CAPR 70-1, *CAP Flight Management*, all CAP members are authorized to participate in primary and advanced glider flight training provided by CAP Glider Flight Instructors, toward solo and/or the attainment of an FAA pilot's certificate.

Initial glider flight training will be conducted using the *CAP Glider Flight Training Course* contained in this pamphlet or a comparable training program approved in writing by the CAP NHQ/DO. The Soaring Society of America Flight Training Handbook or commercially produced glider training products will be used to support this curricula. All flight training, dual or solo, will be conducted in accordance with 14 CFR 61 and all flight training will be directly supervised by a current CAP Glider Flight Instructor.

2.2 CAPF 5 Evaluation

Each senior member CAP Pilot new to the glider program, whether with an existing glider rating or newly rated, is required to receive familiarization flights from a CAP Glider Instructor Pilot and be recommended for an evaluation. The *CAP Initial Glider Check-out Program* provided in this pamphlet provides a safe and effective method for conducting an initial checkout in CAP glider aircraft. Prior to the familiarization flight, if the pilot is qualified for the Orientation Pilot endorsement in accordance with CAPR 70-1, the pilot must become familiar with CAPP 60-40, *Cadet Orientation Flight Program Guide*, and practice those maneuvers that must be discussed and demonstrated during the evaluation.

An initial CAPF 5 evaluation by a CAP Glider Check Pilot will be required for each make and model CAP glider to be flown. Except as noted below, a minimum of one landing is required to complete the evaluation (more landings may be required at the discretion of the Check Pilot). If the pilot taking the evaluation has not accomplished and logged a rope break in the preceding 12 months, the CAPF 5 evaluation must include a simulated low level rope break (above 200 feet AGL). If a rope break is completed, at least one other landing is required as part of the evaluation. Although a CAPF 5 is not required for each method of glider launching, CAP glider pilots must have logged a minimum of three ground launches and landings in the last 90 days prior to flying orientation or instructional flights from a ground launch.

2.3 Continuation Flight Training

USAF-approved Pilot Proficiency Profiles supporting glider proficiency flying can be found on gocivilairpatrol.com under Programs > Emergency Services > Aircraft Operations

under the heading Flight Information. CAP Senior Members and Cadets are encouraged to refer to these profiles as a means of structuring their proficiency flying.

Chapter 3 - Winch Operator Training

The following provisions are standardized CAP Winch Launch Instructor and Trainee requirements designed to enhance safe and effective operations of critical towing equipment used to support CAP glider flight activities.

3.1 Competency Levels

The following competency levels are defined with respect to CAP winch launch operations. The requirements at each competency level may be waived on a case-by-case basis by the Wing or higher Commander when the organization has taken delivery of a newly assigned winch.

a. CAP Winch Operator (WO): Member qualified to operate a winch per paragraph 3.2 and is designated by a wing or higher commander.
b. CAP Winch Instructor (WI): Instructor may be a winch manufacturer representative, a person trained by a manufacturer representative or a person trained by a CAP designated Winch Instructor who has safely completed a minimum of 30 winch launches, has been signed off by the winch manufacturer representative or CAP designated Winch Evaluator, and is designated by a wing or higher commander.
c. CAP Winch Evaluator (WE): Evaluator may be a winch manufacturer representative, a person trained by a manufacturer representative, or a CAP designated Winch Instructor who has safely completed a minimum of 50 winch launches, has been signed-off by the winch manufacturer representative or a CAP designated Winch Evaluator, and is designated by a wing or higher commander.

3.2 Winch Operator Requirements

The following minimum training requirements must be met by CAP members in order to perform duties of CAP Winch Operator:

a. Trainee must be a CAP senior member.
b. Prior to operational training, Trainees must receive a minimum of 2 hours face to face ground instruction, to include discussion of set up, shut down, maintenance, winch-specific safety concerns, emergency procedures, standard radio calls and winch launch operations. This includes actions on both ends of the winch tow line (winch end and glider end).
c. Trainees must have at least three glider flights on a similar type of winch.
d. Training must include both normal and emergency procedures.
e. While next to the Instructor, Trainees must observe a minimum of 10 winch launches performed by a designated Instructor while being instructed on launch procedures. The 10 winch launches must be specific to the type of winch launch speed control winch or tension control winch.
f. Trainees must conduct a minimum of 10 winch launches in the operator's seat under the supervision of a designated Instructor. The 10 winch launches must be specific to the type of winch launch speed control winch or tension control winch.
g. Complete CAP Winch Operator Quiz, when available.
h. Trainees and operators will maintain documentation displaying winch launch training and recurrent winch launch activity using a logbook or equivalent record.
i. After the Trainee has satisfactorily completed all training requirements and is able to safely conduct unsupervised winch launches, the Instructor will then endorse and sign the Trainee's logbook or record to reflect the completed training using the verbiage below. The Trainee will then upload the endorsement to Ops Quals and

check “Qualified” in the “Pilot > Prerequisites” section indicating successful completion of winch launch training, for approval by the wing or higher commander.

Trainee’s Name (Last, First MI. / CAPID): _____ I verify that the Trainee has successfully completed all specified requirements and is competent to perform the duties of Winch Operator on the speed control winch or tension control winch for which they were trained.

3.3 Winch Operator Training Guidelines

Instructional winch launches must include a minimum of:

a. CAP Standardized Pre-Launch and Post-Launch Checklist usage
b. Winch launch signals
c. Wind analysis and compensation
d. Tow speeds and limitations
e. Mandatory radio procedures and terminology
f. Simulated rope-break and engine failure procedures at low and high altitudes
g. Proper RPM and engine management for avoiding overheating and over-tension of ropes
h. Rope retrieval

Discussion items must include a minimum of:

a. Operator and Glider Pilot pre-flight coordination
b. Emergency Procedures
c. Rope break and power loss on all stages of take-off and climb
d. Use of Guillotine or explosive safety devices
e. Rope/cable cutting, splicing, repair, and inspection
f. Weak Link type and rating identification

3.4 Winch Operator Currency

To ensure that Winch Operators maintain a level of proficiency, CAP Winch Operators at every competency level must provide documentation of at least three launches within the preceding 12 months. If a CAP Winch Operator is outside of this currency, he or she will perform a minimum of one launch under the supervision of a CAP Winch Instructor or Winch Operator.

Chapter 4 - Winch Pilot Training

The following provisions are standardized CAP Winch Glider Pilot Instructor and Trainee requirements designed to enhance safe and effective operations of critical launching equipment used to support CAP glider flight activities.

4.1 Competency Levels

The following competency levels are defined with respect to CAP Glider Pilot operations using winch launch. The requirements at each competency level may be waived on a case-by-case basis by the Wing or higher Commander when the organization has taken delivery of a newly assigned winch.

a. CAP Winch Pilot (WP): CAP Glider Pilot who has met the requirements of paragraph 4.2, has a logbook endorsement for winch launching, and is designated by a wing or higher commander.
b. CAP Winch Orientation Pilot (WOP): A CAP Glider Orientation Pilot who has safely completed a minimum of 20 winch launches as PIC, completed 10 winch launches from the rear seat, has completed a check ride with a Winch Evaluator Pilot to include normal launching and a minimum of one 200 foot launch failure, and is designated by a wing or higher commander.
c. CAP Winch Evaluator Pilot (WEP): A WEP must already be a current CAP WOP, as well as an FAA CFI-G. To upgrade to WEP status, a WOP must safely complete a minimum of 50 winch launches, be signed-off by a designated WEP, and be designated by a wing or higher commander.

4.2 Winch Pilot Requirements

The following minimum training requirements must be met by CAP members in order to perform duties of CAP Winch Pilot:

a. Review Winch Launching guides such as the FAA Glider Flying Handbook or “Ground Launches” by Derek Piggott.
b. Be a current FAA and CAP Glider Pilot, with three winch takeoffs and landings in the preceding 90 days.
c. If no prior winch launches logged as PIC, receive a minimum of one hour of face to face ground instruction on winch launch techniques and procedures from a winch qualified Glider Flight Instructor. Topics should include local procedures and operations, site-specific weather and emergency concerns, impacts of different types of winches.
d. Observe and critique three winch flights from the ground with a Winch Instructor or winch qualified Glider Flight Instructor, and correctly identify the four launch phases.
e. Demonstrate mastery of CAP launch process, in-flight signals, and radio communications.
f. Demonstrate recovery from failures at 10ft, 200-300ft and above 400ft.
g. Complete CAP Winch Pilot Syllabus and CAP Winch Pilot Quiz.
h. Obtain or verify FAA logbook endorsement for Ground Launch Qualification and enter in WMIRS.
i. The CAP Winch Evaluator Pilot will then endorse and sign the Winch Pilot’s logbook to reflect the completed training. The Winch Pilot will then upload the endorsement to Ops Quals and check “Qualified” in the “Pilot > Prerequisites” section indicating successful completion of Winch Pilot training, for approval by the wing or higher commander.

4.3 Winch Pilot Training Guidelines

Subjects which must be covered for every CAP Winch Pilot prior to initial certification and endorsement are below.

Instructional winch launches must include satisfactory demonstration by the Winch Pilot of at least:

a. CAP Standardized Pre-Launch and Post-Launch Checklist usage
b. Winch launch signals
c. Wind analysis and compensation
d. Zero-G push-over recovery off-tow
e. Abort altitude (<10 ft) rope break mastery
f. Low altitude (200-300 ft) rope break mastery
g. Pattern altitude (>400 ft) rope break mastery
h. Glider tow speeds and limitations
i. Glider climb angles and energy management
j. Mandatory radio procedures and terminology
k. Aeronautical Decision Making/Risk Management

Discussion items must include a minimum of:

a. Operator and Winch Pilot pre-flight coordination
b. Emergency procedures
c. Rope break and power loss on all stages of take-off and climb
d. Weak Link type and rating identification
e. Winch airspeeds and aircraft handling characteristics for specific glider being used
f. FAA and CAP currency requirements
g. Local procedures and winch type characteristics
h. CAP Orientation Flight Program Guide differences and challenges for winch operations
i. Local frequency usage and airport standard operations

4.4 Winch Pilot Currency

To ensure that CAP pilots maintain the required level of proficiency to safely operate gliders in winch operations, Winch Pilots at every competency level must provide documentation of at least three launches within the preceding 90 days in order to act as a CAP Winch Pilot. If a Winch Pilot is outside of this currency, he or she will perform a minimum of one winch launch, either solo or with a Winch Evaluator Pilot, or to the satisfaction of a CAP Winch Operator.

Chapter 5 – Auto Launch Training

The following provisions are standardized CAP Auto Launch Instructor and Trainee requirements designed to enhance safe and effective operations of critical launching equipment used to support CAP glider flight activities.

Note: The terms, Auto Tow and Auto Launch are synonymous and may be used interchangeably.

5.1 Competency Levels

The following competency levels are defined with respect to CAP auto launch operations. The requirements at each competency level may be waived on a case-by-case basis by the Wing or higher Commander when a wing or other CAP unit has newly begun employing auto launch.

a. CAP Auto Launch Operator (ALO): Member qualified to operate an auto launch vehicle to launch CAP gliders per paragraph 5.2 and designated by a wing or higher commander.

b. Auto Launch Crew Member (ALCM): Senior or Cadet Member qualified to perform duties as Release Operator, as well as Tow Line Retrieval Assistant and has been signed-off by a designated Auto Launch Instructor.

c. CAP Auto Launch Instructor (ALI): Instructor must be an Auto Launch Operator, trained by a designated Auto Launch Instructor; who has completed a minimum of 30 glider auto launches, has been signed-off by a designated Auto Launch Evaluator, and is designated by a wing or higher commander.

d. CAP Auto Launch Evaluator (ALE): Evaluator must be an Auto Launch designated Instructor who has completed a minimum of 50 auto launches, has been signed off by a designated Auto Launch Evaluator, and is designated by a wing or higher commander.

5.2 Auto Launch Operator Requirements

The following minimum training requirements must be met by CAP members in order to perform duties of CAP Auto Launch Operator, Release Operator and Tow Line Retriever:

a. Trainee must be a CAP senior member for all positions; except cadets may serve as Release Operators and Tow Line Retrieval Assistants.

b. Trainees must receive face to face ground instruction and a safety briefing, to include an explanation of launch duties, proper procedures and radio calls, safety concerns and emergency procedures**,** prior to operational training for set up and auto launch operations. This includes actions on both ends of the auto tow line (auto end and glider end).

c. Trainees must have at least three glider flights involving the type of launch system with which they are training.

d. Training must include both normal and emergency procedures.

e. Auto Launch Operator Trainees must have conducted a minimum of five auto launches in the **Auto Launch Driver position**, five auto launches in the **Observer/Radio Operator position**, 2 auto launches in the rearward facing **Release Operator** position, and 2 tow line

retrievals in the **Retrieval Vehicle Driver** position; all under the supervision of an ALI and all to a point where competent performance is achieved. Note: Cadets may be trained & qualified as Auto Launch Crew Members (ALC) who perform duties as **Release Operator**, as well as **Tow Line Retrieval Assistant** (person that gets out and collects the tow line; requires two supervised tow line pickups to be qualified); all under direct supervision of a senior member in the vehicle with the cadets.

f. Trainees and all auto launch crew members will maintain documentation displaying auto launch training and recurrent auto launch activity, including proper signoffs from qualified ALI or ALE, as required.

g. After completion of minimum training requirements and when the Auto Launch Instructor is satisfied that the Trainee is competent to safely conduct unsupervised auto launches, the Instructor will then endorse and sign the Trainee's logbook or record to reflect the completed training using the verbiage below. The Trainee will then upload the endorsement to Ops Quals and check "Qualified" in the "Pilot > Prerequisites" section indicating successful completion of auto launch training, for approval by the wing or higher commander.

Trainee's Name (Last, First MI. / CAPID):

_____

I verify that the Trainee has successfully completed the specified requirements and is competent to perform the duties of Auto Launch Operator for procedures (including emergency procedures), operation and speed control for which they were trained.

5.3 Auto Launch Operator Training Guidelines

Subjects which must be covered for every CAP Auto Launch Operator prior to initial certification and endorsement are below.

Instructional auto launches must include a minimum of:

a. CAP Standardized Pre-Launch and Post-Launch Checklist usage
b. Auto launch signals
c. Wind analysis and compensation
d. Tow speeds and limitations
e. Radio procedures and terminology
f. Simulated rope-break and engine failure procedures at low and high altitudes
g. Proper RPM and engine management for avoiding overheating and over-tension of ropes
h. Rope retrieval

Discussion items must include a minimum of:

a. Operator and glider pilot pre-flight coordination
b. Emergency procedures
c. Rope break and power loss on all stages of take-off and climb
d. Use of emergency release safety devices
e. Rope/cable cutting, splicing, repair, and inspection
f. Weak Link type and rating identification

5.4 Auto Launch Operator Currency

CAP Auto Launch Operators at every competency level must provide documentation of at least three launches within the preceding 12 months. If an operator is outside of this currency, he or she will perform a minimum of three launches under the supervision of a CAP Auto Launch Instructor or Auto Launch Evaluator.

5.5 Duties and Responsibilities of Tow Vehicle Crew Positions

CAP Auto Launch Operations utilize the following Tow Vehicle Crew Positions. These positions are not currently tracked within Ops Quals:

a. Launch Vehicle Driver: In command of and responsible to ensure the safety of the Tow Vehicle Operation. He or she is specifically trained to operate the launch vehicle during all aspects of the glider launch process. Must be a CAP senior member. The Launch Vehicle Driver operates the launch vehicle and occupies the left hand (driver's seat).

b. Launch Vehicle Assistant: Assists the Launch Vehicle Driver with situational awareness, traffic awareness and is responsible to make the radio calls during the launch sequence. Must be a CAP senior member. The Launch Vehicle Assistant can also be an Auto Launch Instructor or Evaluator.

c. Bucket Heads: Consists of 2 trained CAP members (generally Cadets) who work as a team and are responsible for all the ground hooking up and resetting the launch rope. They must be trained on how to operate the emergency release and what to look for if an emergency occurs. It is important that they understand and can perform the required emergency signals for the Launch Vehicle Driver.

Chapter 6 - Auto Launch Pilot Training

The following provisions are standardized CAP Auto Launch Glider Pilot, Instructor and Trainee requirements designed to enhance safe and effective operations of critical auto launching equipment and gliders used to support CAP auto launch glider flight activities.

6.1 Competency Levels

The following competency levels are defined with respect to CAP glider pilot operations using auto launch. The requirements at each competency level may be waived on a case-by-case basis by the wing or higher commander when a wing or other CAP unit has newly begun employing auto launch.

a. CAP Auto Launch Pilot (ALP): CAP Glider Pilot who has met the requirements of paragraph 6.2, has a logbook endorsement for auto launching, and is designated by a wing or higher commander.
b. CAP Auto Launch Orientation Pilot (ALOP): A CAP Glider Orientation pilot who has safely completed a minimum of 20 auto launches as PIC, completed 10 auto launches from the rear seat, has completed a check ride with an Auto Launch Evaluator Pilot to include normal launching and a minimum of one 200 foot launch failure, and is designated by a wing or higher commander.
c. CAP Auto Launch Evaluator Pilot (ALEP): An ALEP must already be a current CAP ALOP, as well as an FAA CFI-G. To upgrade to ALEP status, an ALP must safely complete a minimum of 50 auto launches, be been signed-off by a designated ALEP, and be designated by a wing or higher commander.

6.2 Auto Launch Pilot Requirements

The following minimum training requirements must be met by CAP members in order to perform duties of CAP Auto Launch Pilot:

a. Auto Launching guides such as the FAA Glider Flying Handbook or “Ground Launches” by Derek Piggott.
b. Be a current FAA and CAP Glider pilot, including a ground launch endorsement (as required), with three auto launch takeoffs and landings in the preceding 90 days.
c. Receive a minimum of one hour of face to face ground instruction on auto launch techniques and procedures. Topics should include local procedures and operations, site-specific weather and emergency concerns, impacts of different types of vehicles.
d. Observe and critique three auto launch flights from the ground with an Auto Launch Instructor, and correctly identify the four launch phases
e. Demonstrate mastery of CAP launch process, in-flight signals, and radio communications.
f. Demonstrate recovery from failures at 10ft, 200-300ft and above 400ft
g. Complete or verify FAA logbook endorsement for Ground Launch Qualification and enter in WMIRS.
h. The CAP Auto Launch Evaluator Pilot will endorse and sign the Auto Launch Pilot’s logbook to reflect the completed training. The Auto Launch Pilot will then upload the endorsement to Ops Quals and check “Qualified” in the “Pilot > Prerequisites” section indicating successful completion of Auto Launch Pilot training, for approval by the wing or higher commander.

6.3 Auto Launch Pilot Training Guidelines

Subjects which must be covered for every CAP Auto Launch Pilot prior to initial certification and endorsement are listed below.

Instructional auto launches must include satisfactory demonstration by the Glider Pilot of at least:

a. CAP Standardized Pre-Launch and Post-Launch Checklist usage
b. Auto launch signals
c. Wind analysis and compensation
d. Zero-G push-over recovery off-tow
e. Abort altitude (<10 ft) rope break mastery
f. Low altitude (200-300 ft) rope break mastery
g. Pattern altitude (>400 ft) rope break mastery
h. Glider tow speeds and limitations
i. Glider climb angles and energy management
j. Mandatory Radio procedures and terminology
k. Aeronautical Decision Making/Risk Management

Discussion items must include a minimum of:

a. Operator and Glider Pilot pre-flight coordination
b. Emergency procedures
c. Rope break and power loss on all stages of take-off and climb
d. Weak Link type and rating identification
e. Auto tow airspeeds and aircraft handling characteristics for specific glider being used
f. FAA and CAP Currency Requirements
g. Local procedures and winch type characteristics
h. CAP Orientation Flight Syllabus differences and challenges for Auto Launch Operations
i. Local Frequency usage and airport standard operations

6.4 Auto Launch Pilot Currency

To ensure that CAP pilots maintain the required level of proficiency to safely operate gliders in Auto Launch Operations, Auto Launch Pilots at every competency level must provide documentation of at least three auto launches within the preceding 90 days in order to act as a CAP Auto Launch Pilot. If an Auto Launch Pilot is outside of this currency, he or she will perform a minimum of one auto launch, either solo or with an Auto Launch Evaluator Pilot.

Chapter 7 - CAP Initial Glider Check-out Program

All senior member CAP glider pilots must complete the following CAP Initial Glider Check-Out Program with a FAA CFIG prior to their Initial CAPF 5 Flight Evaluation.

Training Items	Completed to the appropriate FAA PTS (CFIG signature and date)
Ground Training Review	
Aircraft POH Familiarization Operating Limitations – Emergency Procedures – Normal Procedures Performance – Weight & Balance – Glider Systems Assembly/Disassembly	
Glider Pre-flight Inspection	
Tow Line and Tow Ring Inspection	
Glider Ground Handling	
Glider Tie-down Procedures	
CAP Flight Release Procedures	
Use of Checklists	
Other Operational Issues	
CAPP 60-40 Knowledge	
Flight Training Review	
Before Take-off Procedures	
Take-off	
Aero-tow – straight and turns	
Ground Launch – as applicable	
Box the Wake	
Normal Release	
Medium and Steep turns	
Slow Flight	
Stalls – straight and turning	
Pattern entry	
Use of Radio – if installed	
Before Landing Checklist	
Landing and Roll-out	
After Landing Procedures	
Emergency Procedures Review	
Review American Standard Soaring Signals On the ground and coordinate with tow plane to observe in flight	
Pre-mature Termination of Tow – Take-off Roll (verbal only)	
Pre-mature Termination of Tow – below 200’ (verbal only)	
Pre-mature Termination of Tow – above 200’	
Glider Can Not Release (verbal only)	
Glider and Tow Plane Can Not Release (verbal only)	

This check-out program can be completed in a little as two flights. Additional flights should be added to ensure the trainee is flying at or above the appropriate PTS standard.

Chapter 8 - CAP Glider Flight Training Course

8.1 Objective

Through the medium of basic to advanced sailplane flight instruction, the student will develop self-confidence, task and self-discipline, and fundamental leadership skills while progressing their aeronautical knowledge and skills on the path to a private glider license.

8.2 Ground Training

CAP IPs should use appropriate content selected from the following courses when constructing ground training to meet the requirements of 14 CFR 61.87:

Online Course

- SSA (Soaring Society of America) Wing-Runner Course
  http://www.soaringsafety.org/learning/wingrunner/wingrunner.html
- Ground Handling
  https://www.capnhq.gov/CAP.LMS.Web/Course/course_start.aspx?c=32
- Basic Risk Management
  https://www.capnhq.gov/SafetyEducation/ORM_Basic_Course.pps
- AOPA “Know Before You Go”
  https://www.aopa.org/training-and-safety/online-learning/online-courses/
- AOPA “Weather Wise: Air Masses and Fronts”
  https://flash.aopa.org/asf/wxwise_fronts/wxwise_fronts.cfm
- AOPA “Do The Right Thing: Decision Making for Pilots”
  https://www.aopa.org/training-and-safety/online-learning/safety-advisors-and-safety-briefs/do-the-right-thing

Primary Course Text

The primary course text considered during the construction of this syllabus was the *Glider Flight Training Manual* by Thomas Knauff.

Additional Course Text

In addition to the Knauff text, students are encouraged to reference FAA Handbook 8083-13A, *Glider Flying Handbook*. An online version of this text can be found at https://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/glider_handbook/media/faa-h-8083-13a.pdf

8.3 Flight Training

CAP Glider Flight Training is organized into seven phases, as described below.

PHASE 1

In the Phase 1 block of instruction, the IP should focus on demonstration and student performance of flight controls and functions, angle of attack, shallow turns, use of trim, adverse yaw, drag, speed control, Checklist usage, and collision avoidance. Specific ground discussion topics in this block should at a minimum include aircraft control and trim and coordinated turns.

PHASE 2

In the Phase 2 block of instruction, students focus on ground handling, aerotow, medium and steep turns, instructor-aided landings, Min controllable airspeed, reduced-G, forward stalls. Ground instruction topics should include a minimum of aerotow concepts and landing techniques.

PHASE 3

In the Phase 3 block of instruction, the students are introduced to takeoff, show proficiency in aerotow, begin thermalling, TLAR (that looks about right) patterns, turning stalls, wake turbulence, flight manuals, and should begin having critical phase of flight checklists memorized. Ground instruction topics should include TLAR patterns, takeoff, stalls, unusual patterns, premature termination of the tow (PT3), radio communications, and off-field landings.

PHASE 4

The Phase 4 block of instruction is designed to prepare the students for more advanced conditions and situations, and includes focus areas of cross-wind takeoff, aerotow, 360/720 steep turns, stalls, TLAR patterns, equipment malfunctions, PT3s, slack line recovery, slips, high-drag configurations. Ground instruction should include discussions of slips, equipment malfunctions, and SSA in-flight signals.

PRE-SOLO

When a student is performing a “Pre-Solo” flight, the student is expected to be completing all elements of flight without IP involvement or interventions. Instructional topics should focus on demonstration of safe aircraft control, student-led in-flight decision making and communication w/o IP inputs.

SOLO

For a student to solo in a Glider, all CAPR 70-1 and 14 CFR Part 61 solo requirements must be met, and appropriate logbook endorsements made.

POST-SOLO

Post-solo training should be structured around the FAA Practical Test Standards and SSA Badge flying (A, B, C, Bronze).

8.4 Grading Procedures

General

This section details the grading procedures on the CAP Glider Training grade card. As soon as practical following the completion of a fight, the IP should debrief and grade the student using the grading scales below.

Assessing Student Performance

The goal of the grading process is to provide a quantifiable record of a student's performance on specific maneuvers on each flight, not to assign a pass/fail mark or identify failures of the students. It is therefore vital that IPs provide measurable feedback by identifying both areas of strong proficiency and areas needing additional attention when completing the grade card.

Absolute Grading Scale

When measuring individual maneuver performance, IPs shall judge the student's maneuver performance against the course training standards (CTS) provided in the following section. Maneuvers should be graded on the student's performance and should not consider the student's type and amount of training.

Maneuver Grade	Symbol	Description
Demonstration	**D**	The instructor *demonstrated* the maneuver, but the student does not attempt
Unsatisfactory (Optional)	U	The student lacks sufficient knowledge, skill, or ability to perform the operation without instructor intervention for safety of flight
Practiced	**P**	The student *practiced* the maneuver in a safe manner, but not to a level required to satisfy 14 CFR 61.87
Solo	**S**	The student performed the task/maneuver to a level of proficiency that the instructor believes is appropriate to satisfy 14 CFR 61.87 requirements for *solo* flight.
Excellent (Optional)	E	The Student has performed the task to the FAA Private Glider Practical Test Standard

For each maneuver and task performed during the flight, the IP shall assign one of the above grades. If IPs do not feel comfortable assigning grades on the full 5-point scale (D-U-P-S-E), they may opt to only use the simplified, 3-point scale described in the course text (D-P-S).

8.5 Evaluation Standards

Purpose

These standards outline the general tasks required of graduates of this syllabus. Students should aim to accomplish all tasks as specified.

General Standards

Aircraft control must be smooth and positive. Momentary deviations are acceptable if corrections are timely and flight safety is not compromised. Consider thermal effects and

other weather conditions when assigning grades, however, exceeding aircraft tolerances, even momentarily, is unacceptable. Procedural knowledge must be in accordance with applicable directives and allow the sortie to be accomplished effectively. Unless otherwise noted, all area maneuvers begin at approximately the no-wind best L/D pitch picture.

Tasks

The table below lists the standards of performance that each required glider task or maneuver should be performed to achieve a grade of “Excellent”. Listed with the maneuvers are also the references to the FAA practical test standard and course texts for specific discussion on the tasks/maneuvers.

TASKS	61.87 (S)	PTS (E)	Knauff (REF A)	FAA-HBK-8083-13A (REF B)	GRADING CRITERIA
PRE-FLIGHT PLANNING	1	I, II	p.50-53	p.6-6	Performs pre-flight inspection using a checklist and can perform a positive control check. Can calculate weight and balance, understands IMSAFE check before flying.
GROUND HANDLING	2,11	II B	p.49	p.6-4/6-5	Handles the glider in a manner that will not result in damage, properly secures controls while moving glider, uses appropriate number of people to move the glider
TAKEOFF – NORMAL	3	IV B	p.56	p.7-3	Established Course of actions, completes prescribed checklist, uses proper signals for takeoff, lifts off at an appropriate airspeed, maintains directional control and proper position and alignment behind the tow plane until the tow plane lifts off.
AEROTOW	12	IV C	p.62	p.7-6	Makes smooth and correct control applications to maintain vertical and lateral positions during high (slightly above the wake) and low (slightly below the wake) tow, maintains tow position during turns. Maintains Tow plane wheels on the Horizon.
SLACK LINE	N/A	IV D	p.87-88	p.7.9	Understands elements related to the causes, hazards, and corrections related to slack lines, recognizes slack line and applies immediate, positive, and smooth corrective action to eliminate slack line in various situations
TOW RELEASE	N/A	IV F	p.66	p.7-8	Maintains High tow position and normal tow line tension, clears the area before releasing, observes the towline to confirm release, makes a coordinated level release and immediate turn away from tow plane.
STRAIGHT GLIDES	15	VII A	p.25-28	p.7-27	Tracks toward a specific landmark at a given airspeed, demonstrates effective use of flaps, spoilers, or dive brakes in relation to pitch, maintains heading ±10 degrees and specified airspeed ±10 knots
TURNS - HEADING/360/720	4.15	VII B	p.44-47	p.7-28	Enters and maintains an appropriate rate of turn with smooth, proper, and coordinated control applications, maintains desired airspeed ±10 knots and rolls out on specified heading ±10 degrees
STEEP TURNS	N/A	VII C	p.44-47	p.7-31	Understands elements related to steep turns, including load factor, effect on stall speed, and overbanking tendency, establishes the recommended entry airspeed, maintains 45-degree bank ±5 degrees and desired airspeed ±10 kts, recovers with smooth and coordinated control ±10 degrees of desired heading
MIN CONTROLLABLE AIRSPEED	N/A	IX A	p.81	p.7-31	Establishes and maintains airspeed at which and further increase in AoA or configuration would result in a stall, adjusts airspeed to avoid stalls in turbulent air or as bank increases, applies smooth, coordinated control inputs, maintains heading ±10 degrees and desired bank angle ±10 degrees during turns

TASKS	61.87 (S)	PTS (E)	Knauff (REF A)	FAA-HBK-8083-13A (REF B)	GRADING CRITERIA
FORWARD STALL	14	IX B	p.68	p.7-32 to 34	Understands elements related to stall and recovery and the hazards of stalling during uncoordinated flight, selects entry altitude that will allow maneuver to be completed no lower than 1500 ft. AGL, establishes and maintains pitch attitude that will result in a stall during straight flight, maintains bank angle of up to 15 degrees, recovers using smooth and coordinated control applications throughout
TURNING STALL	14	IX B	p.76	p.7-34	Understands elements related to stall and recovery and the hazards of stalling during uncoordinated flight, selects entry altitude that will allow maneuver to be completed no lower than 1500 ft. AGL, establishes and maintains pitch attitude that will result in a stall during turning flight, maintains bank angle of up to 15 degrees ±10 degrees, recovers using smooth and coordinated control applications throughout
TRAFFIC PATTERN	5	III B	p.89-93	p.7-22,7-23	Follows established traffic pattern procedures, maintains awareness of other traffic in pattern, maintains proper ground track with crosswind corrections, adjusts glidepath and track promptly to compensate for lift, sink, or turbulence in the pattern to cross designated points at appropriate altitudes, make smooth, coordinated turns with no greater than 45 degrees of bank, adjusts flaps, spoilers or dive brakes as appropriate, completes prescribed checklist
NORMAL LANDING	16	IV Q	p.94-116	p.7-22,7-23	Adjusts flaps, spoilers or dive brakes as appropriate, maintains approach speed +10/-5 kts, makes smooth, timely, and positive control application during round-out and touchdown, touches down smoothly within designated landing area with no appreciable drift, with the longitudinal axis aligned with the desired landing path. maintains control during the after-landing roll
POST FLIGHT PROCEEDURES	N/A	XI	N/A	p.6-4	Understands local parking procedures and selects a suitable parking area considering wind, traffic, and nearby persons or property, taxis to parking area, secures glider properly, completes post flight inspection and completes prescribed checklist
CHECKLIST USAGE	N/A	Intro, IV A/Q	p.159,171	p.6-7,6-8	Follows prescribed checklists when appropriate, demonstrates division of attention and proper visual scanning when using checklist. Recall and perform Pre-Takeoff and Pre-landing checklists from memory.
CRM/SRM	N/A	Intro	N/A	N/A	Effectively uses all available resources (human and other) during tasks to operate safely
AERO DECISION MAKING	N/A	Intro	N/A	p.13-9 to 10	Assess critical factors affecting decision making using PAVE Model - Pilot, Aircraft, enVironment, External Pressures, uses analysis to drive decisions

TASKS	61.87 (S)	PTS (E)	Knauff (REF A)	FAA-HBK-8083-13A (REF B)	GRADING CRITERIA
RADIO COMMUNICATIONS	N/A	III A	N/A	N/A	Selects appropriate frequencies to be used, transmits using recommended phraseology, acknowledges radio communications and complies with instructions, uses appropriate procedures for simulated radio communication failure
COLLISION AVOIDANCE	6	N/A	p.41	p.197	Scans for traffic>90 deg in direction of turn, before turnings additionally performs clearing turns, 2 90deg, or 1x 180deg turns scanning for traffic prior to Airwork maneuvers
EMERGENCY PROCEDURES	9	N/A	p.259-	p.8-2	Maintain aircraft control, analyze the situation and take proper action, land as soon as conditions permit/--Attitude, Airspeed, Decision
CROSSWIND T/O AND LANDING	3,16	IV B, IV Q	p.59, p.129-131	p.7-5, 7-25, 7-26	Maintains proper wind-drift and crosswind correction, and directional control
DOWNWIND LANDING	N/A	IV S	p.262-263	p.7-27	Adjusts flaps, spoilers or dive brakes as appropriate, maintains approach speed ±5 kts, maintains proper directional control during touchdown and roll-out, applies brake smoothly to bring glider to a stop
THERMALLING	18	VA A	p.83-87	p.10-5 to10-10	Recognizes presence of a thermal, determines direction to turn, exhibits coordinated control and planning when entering and maneuvering to remain in the thermal, applies correct technique to re-enter if lift is lost, remains oriented to ground references, wind, and other aircraft, maintains airspeed
BOXING THE WAKE	N/A	IV E	p.169-170	p.7-10	Maneuvers the glider, while on tow, slightly outside the tow plane's wake in a rectangular, box-like pattern, maintains proper control and coordination. Box Pattern will start from the Center Low Tow position, and move to the left in a clockwise rotation around the wake.
PT3 - NOTE TYPE ON BACK	19	IV G	p.117-125	p.8-10	Exhibits knowledge of aero tow abnormal occurrences, such as tow plane power loss, towline break, or tow/glider release failure, demonstrates simulated PT3 occurrences (400 ft., then, 200 and 500 ft. for Pre-solo)
UNASSISTED TAKEOFF				p 7-3	Stick full deflection to raise lowered wing, brief tow pilot, PIC calls take up slack and takeoff with go, go, go
SIM OFF-FIELD LANDING	N/A	X A	p.248-258	p.8-18	Determines suitable landing area and demonstrates procedures to accomplish an off-airport landing
ASSEMBLY AND DISASSEMBLY	13	II A	N/A	p.6-2	Selects suitable assembly/disassembly area, follows appropriate checklist, uses proper tools, handles components properly, cleans and lubricates parts, performs post-assembly checklist, including positive control check
PERFORMANCE AIRSPEEDS	8	V A&B	p.206	p.7-36-38	Determines minimum sink airspeed for a given situation and maintains selected speed ±5 kts and desired heading and bank angle ±10 degrees during turns, determines speed to fly for performance between thermals and maintains ±5 knots

TASKS	61.87 (S)	PTS (E)	Knauff (REF A)	FAA-HBK-8083-13A (REF B)	GRADING CRITERIA
SPIN/SPIRAL DIVE RECOVERY	15,19	Intro	p.44-47	p.7-28	Recognizes and understands difference between spins and spiral dives, can describe procedures for Spin and spiral dive recovery

NAME *(LAST, FIRST, MI)*					Primary Instructor																			
CAP #			ASSIGNED GLIDER									Secondary Instructor												
HEIGHT		WEIGHT		AGE	Wing							FLIGHT		PRIOR EXPERIENCE										
Syllabus Phase	Phase 1		Phase 2			Phase 3							Phase 4								Presolo		Solo		
Flight Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	PS	PS	PC	S	Min
PRE-FLIGHT PLANNING																									S
GROUND HANDLING																									S
TAKEOFF - NORMAL																									S
AEROTOW																									S
SLACK LINE RECOVERY																									S
TOW RELEASE																									S
STRAIGHT GLIDES																									S
TURNS																									S
STEEP TURNS																									S
MIN CONTROLLABLE AIRSPEED																									S
FORWARD STALL																									S
TURNING STALL																									S
TRAFFIC PATTERN (TLAR)																									S
NORMAL LANDING																									S
POST FLIGHT PROCEDURES																									S
CHECKLIST USAGE																									S
CRM/SPRM																									S
AERO DECISION MAKING																									S
RADIO COMMUNICATIONS																									S
COLLISION AVOIDANCE																									S
EMERGENCY PROCEDURES																									S
SPECIAL SYLLABUS ITEMS																									
CROSSWIND T/O AND LANDING																									S
PT3 - NOTE TYPE ON BACK																									S
THERMALLING																									S
FORWARD SLIPS																									S
SPIN/SPIRAL DIVE RECOVERY																									D
BOXING THE WAKE																									D
UNASSISTED TAKEOFF																									-
NON-STANDARD PATTERNS																									-
SIM OFF-FIELD LANDING																									-
DOWNWIND LANDING																									-
TOW HEIGHT (K ft)																									
AIRCRAFT CALLSIGN																									
FLIGHT DURATION (10ths)																									
DATE																									
INSTRUCTOR NAME																									

OTHER DISCUSSIONS AND DEMOS (Suggested sortie # for discussion): IP initials / date

ASSEMBLY/DISASSEMBLY (#1)	_____ / _____	SSA SIGNALS (#2)	_____ / _____
ADVERSE YAW DEMO (#1)	_____ / _____	ZERO-G DEMO (#3)	_____ / _____
HIGH DRAG CONFIGURATIONS (#2)	_____ / _____	GROUND REFERENCE MANEUVERS (#5)	_____ / _____
PERFORMANCE AIRSPEEDS (#2)	_____ / _____	LOW PATTERN DEMO (#9)	_____ / _____

DATE / IP NAME	REMARKS (Documents syllabus deviations, Unsat performance, Instructor notes, Progress updates)

Knauff Syllabus Phases

1	Flight Controls and Functions, AoA, Shallow Turns, Trim, Adverse Yaw, drag, speed control, Checklist usage, Collision avoidance
2	Ground handling, Aerotow, Medium and steep turns, instructor-aided landings, Min controllable airspeed, reduced G's, forward stalls.
3	Takeoff, aerotow, thermalling, TLAR patterns, turning stalls, wake turbulence, flight manuals, checklist memorization
4	Cross-wind takeoff, Aerotow, 360/720's, stalls, TLAR patterns, equipment malfunctions, PT3s, slack line recovery, Slips, high-drag
Phase Check	Demonstration of safe A/C Control, decision making and communication w/o instructor inputs

GRADING LEGEND

U	(Optional) UNSAT
P	Practiced
S	Solo Standard
E	(Optional) PTS Standard
D	Instructor DEMO
✓	SOLO MANEUVERS

REQUIRED GROUND SCHOOL TOPICS

LESSON	IP INITIALS
L1 - GROUND OPS AND SAFETY	
L2 - A/C CONTROL AND TRIM	
L3 - COORDINATED TURNS	
L4 - AEROTOW	
L5 - LANDINGS	
L6 - TLAR PATTERNS	
L7 - TAKEOFF	
L8 - STALLS	
L9 - UNUSUAL PATTERNS	
L10 - PT3	
L11 - RADIO COMMUNICATIONS	
L12 - OFF-FIELD LANDINGS	
L13 - SLIPS	
L14 - EQUIPMENT MALFUNCTION	
L15 - SIGNALS	

NON-FLYING REQUIREMENTS

ROPE RUNNER CHECKOUT	
DATE:_____	
WING RUNNER CHECKOUT	
DATE:_____	

SOLO PREREQUISITES	IP INITIALS
14 CFR Part 61.87 Requirements Met (All 19 Tasks) and Log Endorsed for Solo	
14 CFR Part 61.31 Aerotow Training-Logbook Endorsed	
14 CFR Part 61.87 B1 Presolo Test corrected to 100%-Logbook Endorsed	
Phase Check Complete	
FAA Student Pilot's Certificate uploaded to e-services	
Government ID IAW 14 CFR 61.3	
CAP Statement of Understanding & Solo Training Data Submitted in e-services	
CAPF5Q Glider questionnaire completed and uploaded to e-services	
Winds <10kts (5kts cross), Ceilings >2500 AGL, Visibility >5 mi	
Risk Assessment and Release Process completed	

THE STUDENT IS READY FOR SOLO AFTER FLIGHT #_____/_____IP S