

Cadet Orientation Flight Program Guide

Appendix 1



Glider Syllabus

CAPP 60-40
October 2018

GENERAL SYLLABUS

The Airman's Attitude

Pilots are asked to look for opportunities during their interactions with the cadets to impart the following positive, professional attitudes toward airmanship, as occasions arise:

1. Pro-Safety Attitude

Airmen take a sober, calculated approach to risks.

Airmen think before they act.

Through your actions and words, show that having a pro-safety attitude is important to you.

2. Disciplined Airmanship

Airmen habitually comply with FAA regulations and standard procedures.

Airmen are not “hot dog” fliers but disciplined aviators who know that rules and procedures exist to protect their safety.

Airmen execute their pre-planned mission. For o-flights, they stick to the syllabus’s learning objectives.

Through your actions and words, show that you’re self-disciplined in your flying.

3. Fitness

Airmen are health- and fitness-conscious. Physical and mental wellness is required to fly.

A habit of regular exercise is a part of the airman’s life.

Through your actions and words, show that physical and mental wellness is important.

4. Drug-Free Ethic

Airmen need to choose a drug-free lifestyle.

Even legal drugs (alcohol, cigarettes, prescriptions) can affect an airman’s personal airworthiness when those substances are abused.

Illegal drugs (cocaine, ecstasy, heroin, etc.) can affect personal airworthiness and jeopardize FAA licenses. Airmen must pass drug-screening tests.

Through your actions and words, show that flying is a sobering responsibility.

Cadet-Passenger Safety Briefing

from Susan Parson, *FAA Safety Briefing*

- S**
 - Seat belts fastened for taxi, takeoff, landing
 - Shoulder harnesses fastened for takeoff, landing
 - Seat position adjusted and locked in place

- A**
 - Air vents (location and operation)
 - All environmental controls (discussed)
 - Action in case of any passenger discomfort

- F**
 - Fire extinguisher (location and operation)

- E**
 - Exit doors (how to secure, how to open)
 - Emergency evacuation plan
 - Emergency / survival kit (location and contents)
 - Equipment (location and operation)

- T**
 - Traffic (scanning, spotting, notifying pilot)
 - Talking ("sterile cockpit" expectations)

- Y**
 - Your questions? Speak up!

Ground Handling, Preflight, Takeoff & Landing

Cadets' Reference:
Aerospace Dimensions,
Module 1

Estimated Duration: 45 min

1. Ground Handling

- a. Show how to ground handle the glider.
- b. Emphasize surface areas not to be touched.

2. Preflight Inspection

- a. Show how to preflight launch equipment & glider.
- b. Show & explain the towrope's or cable's function.
- c. Mention documents required to be aboard (AROW).
- d. Show main parts of glider & explain their function.

3. Launch Procedures

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

Aero Tow:

- a. Explain the duties & purpose of ground launch personnel.
- b. Discuss aero tow launch signals.

Ground Launch:

- a. Explain the duties & purpose of the ground launch personnel.
- b. Discuss ground launch signals.

4. Before Takeoff

- a. Show & tell about the routine cockpit checks.
- b. Explain the sequence of events prior to takeoff .

(Example: Tow hook connection & checks, taking up tow line slack, etc.)

5. Takeoff

- a. Show & tell about the glider's position behind the tow plane at takeoff & when airborne.
- b. Describe the glider's position during takeoff roll & initial climb.
- c. Describe emergency actions to be taken at different altitudes .

6. Climb Out

Discuss glider's position in relation to tow plane or launch vehicle:

- a. Describe the high tow position during aero tow.
- b. Discuss glider pitch attitude and position during ground launch.

7. Release

Show & tell about the release to include clearing, release confirmation, & release procedures.

8. In-Flight

- a. Show & tell about the use of flight controls in gliding flight, to include drag devices.
- b. Point out the glider's attitude in relation to the horizon & at different airspeeds.
- c. Show & tell about performance airspeeds: lift-over drag & minimum sink airspeeds.
- d. Identify familiar landmarks, ground features, and the position of the airport with respect to glider altitude and position.

9. Approach to Landing

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

- a. Show & tell about the traffic pattern. Discuss the reasons for a standardized entry procedure.
- b. Show & tell about the pre-landing checklist.
- c. Explain the use of a crab to maintain position (if needed).
- d. Identify the base turn and leg of the pattern.
- e. Show & tell about the final approach; discuss aim point, touchdown point, & stop point, and discuss use of drag devices.

10. Landing & Rollout

- a. Show & tell about the landing attitude.
- b. Point out the correct procedure for landing rollout.

11. Post Flight: Questions & Answers

Normal Glider Flight Maneuvers

1. Preflight

- a. Discuss previously completed flights, as appropriate.
- b. Discuss principles for staying safe during this flight.

2. In Flight (minimum altitude of 1500' AGL)

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

- a. Trim for level flight; show & tell how the glider remains stable in hands-off flight.
- b. Emphasize attitude flying.
- c. Emphasize the importance of clearing.
- d. Discuss the effects of lift, drag, and gravity, and how gravity propels the glider.
- e. Discuss the relationship of lift, angle of attack, and relative wind.
- f. Show & tell straight and turning glides at various speeds (minimum sink, best lift over drag, and pattern speed).
- g. Show & tell shallow banked turn; discuss the horizontal component of lift, adverse yaw, turn coordination, slipping and skidding.
- h. Explain load factor during turns.

3. Post Flight: Questions & Answers

Advanced Glider Flight Maneuvers

1. Preflight

- a. Discuss previously completed flights, as appropriate.
- b. Discuss principles for staying safe during this flight.

2. In Flight (minimum altitude of 1500' AGL)

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

- a. Perform clearing turns emphasizing collision avoidance.
- b. Demonstrate slow flight during straight & turning descents.
- c. Demonstrate straight ahead and turning stalls as appropriate, emphasizing stall recognition and recovery.
- d. Demonstrate medium and steep bank turns as appropriate.
 - (1) Discuss over-banking tendency.
 - (2) Discuss proper rudder coordination.
 - (3) Discuss aft control stick requirements to keep the nose up.
- e. Explain load factor during turns.
- f. Discuss steep spirals and spins; emphasize the difference and the dangers of excessive load factors in steep spirals.
- g. Demonstrate forward and side slips and discuss their purpose.

3. Post Flight: Questions & Answers

Cadets' Reference:

Aerospace Dimensions,
Module 1

Estimated Duration: 45 min

Use of Instruments in Soaring Flight

Cadets' Reference:
Aerospace Dimensions,
Module 2

Estimated Duration: 45 min

1. Preflight

- a. Discuss previously completed flights, as appropriate.
- b. Discuss principles for staying safe during this flight.
- c. Explain the pitot/static system and its relationship to the airspeed indicator, altimeter, and variometer.
- d. Explain the magnetic compass and its inherent errors.

2. In Flight

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

- a. Explain the difference between absolute altitude (AGL), true altitude (MSL), and pressure altitude (PA).
- b. Demonstrate how to read the altimeter.
- c. Demonstrate how to read the airspeed indicator and discuss the difference between indicated airspeed, true airspeed, and ground speed.
- d. Identify how altitude and airspeed are related.
- e. Demonstrate how to read the variometer and discuss the indications of rising and/or falling thermal activity (air currents).
- f. Demonstrate turns using the magnetic compass; discuss compass turning errors (variation, deviation, magnetic dip, and oscillation error).

3. Post Flight: Questions & Answers

Weather

1. Preflight

- a. Discuss previously completed flights, as appropriate.
- b. Discuss principles for staying safe during this flight.
- c. Discuss thermal soaring: the effect of heating, thermal structure, locating thermals (cumulus clouds, dust devils, surface dust & smoke, soaring birds, other sailplanes, etc.).
- d. Discuss methods of soaring, as appropriate:
 - (1) Ridge and slope soaring
 - (2) Wind effects and requirements, soaring in upslope lift, leeside turbulence, slope and ridge requirements
 - (3) Sea breeze soaring
 - (4) Mountain wave soaring; formation, visual indications, associated turbulence

2. In Flight (cover those topics appropriate to local conditions)

Cadets are never to handle the controls during take-off, landing, or when below 1000 ft AGL.

- a. Demonstrate thermal soaring; discuss thermal entry and when & how to turn into the thermal; discuss thermalling with other sailplanes, best airspeed, and flying between thermals.
- b. Demonstrate sea breeze or shear line soaring.
- c. Demonstrate ridge or slope soaring; emphasize best speed to fly, general rules for turning on the ridge, approaching other sailplanes, and other “rules of the road.”
- d. Demonstrate wave soaring; explain wave structure, wave crests, and rotor; identify lenticular clouds, if present.

3. Post Flight: Questions & Answers