

CIRRUS AIRFRAME PARACHUTE SYSTEM (CAPS™) TRAINING - PILOT EDITION

FLIGHT TRAINING





CAPS Syllabus - Pilot Edition

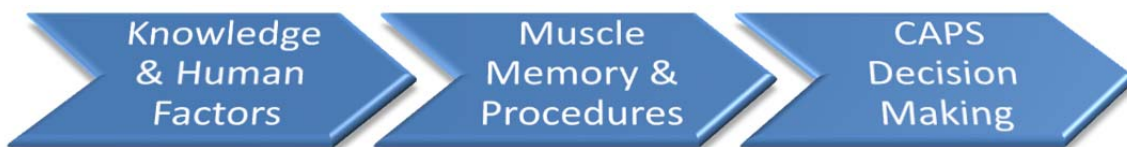
Introduction

The Cirrus Airframe Parachute System (CAPS) is an integral part of any Cirrus. Before operating a Cirrus aircraft, the pilot should receive CAPS specific training. The CAPS is designed to lower the aircraft and its passengers to the ground in the event of a life-threatening emergency. Possible CAPS activation scenarios should be well thought out and mentally practiced by every Cirrus pilot. Pilots who conduct CAPS training and practice using CAPS will have a higher probability of activating CAPS successfully when necessary.

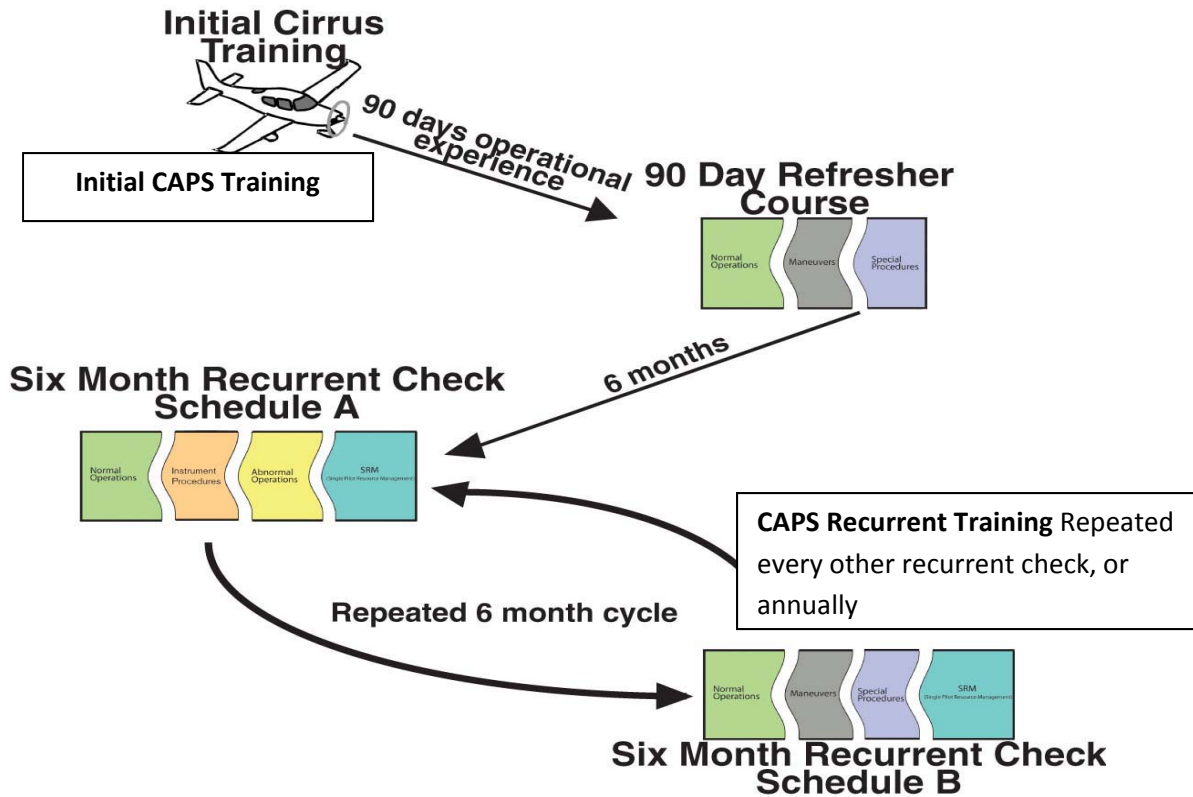
The CAPS Syllabus should be incorporated into initial training, transition training or recurrent training. This syllabus can also be used as a standalone training event if desired. This syllabus is designed to give the pilot and instructor further guidance when conducting CAPS training. Though this syllabus can be completed in an aircraft, the use of a simulator with a CAPS handle is highly recommended when completing CAPS training to achieve the muscle memory needed during an emergency. A simulator provides a safe, realistic and controlled platform to conduct CAPS scenarios to a level that cannot be achieved in the actual aircraft.

3 Steps to CAPS Training

Cirrus CAPS training is most effective when divided into three separate steps. Ground training is an important aspect of CAPS training to help develop the required knowledge base and attitude. Pilots may have started flight training in an aircraft without a parachute and now must learn how to incorporate CAPS into emergency situations; this can create several human factor barriers the student must overcome during CAPS training. Scenario-based flight lessons will teach the pilot how to recognize possible CAPS situations quickly and provide a chance to practice their CAPS decision making.



Additional Training Requests	Recurrent CAPS Training								



***Completion of a Cirrus Pilot Proficiency Program (CPPP) weekend event is a recommended substitution for a recurrent training check.**

Standalone CAPS training:

This course may also be used as a standalone syllabus to further increase the pilot’s proficiency with CAPS. Any time the Cirrus pilot wants to practice CAPS procedures this syllabus should be used to further develop the pilot’s CAPS awareness.

CAPS Training Syllabus

Training requirements:

Allow Half of a Day to Complete	Flight/Simulator Time	Ground	Muscle Memory Pulls	CAPS Scenarios
Course Averages	2.0	2.0	5	6
Course Minimums	1.5	1.0	4	5

Pre-Study Materials:

The Cirrus pilot should become familiar with the CAPS deployment procedures, deployment scenarios and parameters before conducting CAPS training:

- CAPS Video
- Guide to CAPS

CAPS Ground Briefing Lesson:

Ground training is a very important aspect of CAPS training. Ground training includes the first two phases Knowledge & Human Factors and Muscle Memory & CAPS Procedures exercises.

Stage 1 - Knowledge & Human Factors:

The pilot must demonstrate a basic understanding of how the CAPS system works and its limitations. The pilot must be mentally prepared to use the CAPS in an emergency prior to flight.

Items to include during ground training:

- CAPS Video
- CAPS Presentation
- CAPS Scenario Discussions
- Airspeed considerations
- Altitude considerations
- Identify human factors and attitudes that might be hazardous to the pilot's decision to use CAPS:
 - Primacy Effect
 - Task Fixation
 - Hazardous Attitudes

Stage 2 - Muscle Memory & CAPS Procedures:

A pilot must be able to correctly and quickly deploy the parachute and prepare the aircraft and occupants for touchdown after deployment. The Cirrus pilot should practice the CAPS deployment emergency procedure a minimum of four times, repeat as necessary until the pilot can correctly complete the procedures.

Tasks to complete during cockpit training:

- Engine Failure Inflight Flow
- Practice Deployment Procedures

- Remove placard
- Grasp handle
- Post Deployment Procedures
 - Body position
 - Door position
- Egress Procedures

Stage 3 - CAPS Decision Making

Scenario based training allows the Cirrus pilot to put all the knowledge they have gained into practice.

Emphasis Areas during CAPS Training

These items should be included not just during CAPS training, but during every flight the Cirrus pilot conducts. This is the time to reinforce the importance of these tasks and for the pilot to develop new habit patterns.

Emphasis Areas:

- CAPS Passenger Brief
- Takeoff Briefing
- CAPS 500' AGL Callout
- CAPS Management

Flight Lessons

The number of flights can change depending on how the instructor decides to integrate the required tasks into each flight. Repetition is crucial for developing new habit patterns and decision making skills. The height AGL that each scenario is introduced should vary to give the pilot experience with CAPS scenarios from high as well as low altitudes.

Scenario Altitudes:

- High Altitude: 5,000 ft. AGL or above
- Mid Altitude: 2,000 - 5,000 ft. AGL
- Low Altitude: 2,000 ft. AGL or less

CAPS Flight Training Lessons

The CSIP, at their discretion, should pick three tasks from the engine failure section and two tasks from the loss of control section of the task list for a minimum of five scenarios. If completed in an airplane, after simulated CAPS deployment, the Cirrus instructor should announce that they have control and configure the airplane into a gliding descent to simulate a descent under canopy and allow the pilot to simulate post-deployment procedures.

Example CAPS Training CAPS Sequence

Flight 1: High Altitude - Engine Failure no Runway within Gliding Distance

- Cross country flight while in cruise

Flight 2: High Altitude - Severe Icing Encounter

- Cross country flight while in cruise

Flight 3: Mid Altitude - Engine Failure over a Runway

- During climb out after departing airport

Flight 4: Low Altitude - Engine Failure on Takeoff

- During takeoff above 500' AGL

Flight 5: Low Altitude - Midair Collision

- During return to airport environment

Flight 6+ (If necessary)

- Review leg, as necessary to meet course requirements

CAPS Scenarios

The Cirrus pilot should be exposed to at least five different CAPS scenarios from the Syllabus Task List during CAPS flight lessons. CAPS Guidance is to be considered informative, not directive, as every situation and scenario has several variables involved.

During CAPS scenarios completed in an airplane, the Cirrus pilot should simulate CAPS activation by removing the CAPS placard, touching the CAPS handle, and then the Cirrus instructor should allow the Cirrus pilot to simulate post deployment procedures by taking control of the aircraft to simulate a descent under the parachute. **Under no circumstances should the pilot be allowed to remove the CAPS handle from the sleeve during simulated CAPS deployments in the aircraft.**

Engine Failure during Takeoff

The engine failure during takeoff scenario is used to demonstrate the importance of the takeoff briefing. The pilot that rehearses their options before takeoff has a higher likelihood of a successful outcome should an engine failure occur on takeoff.

CAPS Guidance – At 500 ft. (600 ft. G5) AGL or less, land straight ahead (use CAPS immediately if no other survivable alternative exists); 500 ft. (600 ft. G5) - 2,000 ft. AGL, use CAPS immediately; at 2,000 ft. AGL or above, troubleshoot and use CAPS as required.

Engine Failure with No Runway Nearby

If a forced landing on a surface other than a runway is required, CAPS activation is recommended. The deployment of CAPS at a higher altitude will allow the pilot more time to prepare the occupants for touchdown and egress, especially important for over water deployments.

CAPS Guidance - During an engine failure that occurs above 2,000 ft. AGL, where there is no airport within gliding distance, troubleshoot the problem and maneuver to the best location for CAPS deployment. Upon reaching 2,000 ft. AGL, if not already activated, CAPS activation is recommended.

Engine Failure Over a Runway

This scenario will challenge the pilot's decision making by having a runway nearby. If the pilot decides to continue the power-off landing, and then successfully completes the landing this is considered acceptable. If at any point the landing is not assured and enough altitude remains, the pilot should elect

to immediately use CAPS. If the pilot does not feel proficient or able to complete a power-off landing for the given length of runway, immediate activation of CAPS is recommended.

CAPS Guidance - If an engine failure occurs within gliding distance of a runway, the pilot must continually monitor the situation to verify if the landing is assured. At 2,000 ft. AGL reassess if the landing is assured; if not, activate CAPS. At 1,000 ft. AGL reassess if the landing is assured; if not, activate CAPS. It is recommended to activate CAPS prior to 400 ft. (600 ft. G5) AGL. The chance of a successful deployment greatly decreases below these altitudes.

Engine Failure at Night or in IMC

An engine failure in nighttime or in IMC conditions will make it even more difficult for the pilot to find a suitable place to land and maintain situational awareness. During emergencies in IMC or night conditions, the pilot is more likely to fail to realize their proximity to terrain until it is too late. The pilot must use all available resources to make the decision to activate CAPS at a suitable altitude.

CAPS Guidance - The chance that a pilot successfully completes a power-off landing at night or in IMC conditions is extremely low. Immediate CAPS activation is recommended.

Spin Recovery

The only approved and demonstrated spin recovery method in a Cirrus aircraft is activation of the CAPS. Although it is difficult for a Cirrus aircraft to enter a spin, it is possible if control inputs are misapplied or abused. This scenario should only be practiced in a simulator or verbally simulated in an airplane.

CAPS Guidance - Immediate activation of the CAPS is required.

Severe Icing

This scenario is useful to demonstrate how CAPS could be utilized in icing situations when the pilot is left with no other outs. If the pilot is no longer able to maintain altitude or loses control of the airplane due to icing, CAPS should be used in a timely manner.

CAPS Guidance - At any time the pilot is unable to maintain airspeed above V_y in level flight or altitude is approaching 2,000 ft. AGL or less in a forced descent with a low likelihood of exiting icing conditions, immediate CAPS activation is recommended. If a loss of control is experienced due to icing, immediate CAPS activation is recommended.

Loss of Control

A loss of control may result from many situations, including flight control or system failure, turbulence, disorientation or pilot loss of situational awareness.

CAPS Guidance - Anytime a loss of control occurs, the CAPS should be activated immediately.

Structural Failure

A structural failure could result because of a variety of situations, such as, encountering severe gusts at speeds above the airplane's structural cruising speed, inadvertent full control movements above V_o or exceeding the design load factor while maneuvering.

CAPS Guidance- If a structural failure occurs, CAPS activation is recommended.

Midair Collision

A midair collision likely will render the airplane uncontrollable by damaging the control system or primary structure. If a midair collision occurs, immediately evaluate if the airplane is controllable and structurally capable of continued safe flight and landing. If it is apparent that structural and control system damage has occurred, CAPS activation is recommended. If the Cirrus pilot is not sure of the condition of the aircraft following a midair collision, CAPS activation is recommended.

CAPS Guidance - Visually inspect all control surfaces and assess the flight characteristics of the airplane. If any control surface appears damaged and the airplane displays control behaviors that are not normal or a loss of control is experienced, immediate activation of CAPS is recommended.

CAPS Training Task List

Ground Training Emphasis Area Checklist

Check if Completed

CAPS Training Presentation	
History, CAPS procedure & parameters, scenario discussion, hazardous attitudes, T.O. briefing	
CAPS Video	
History, philosophy, real life testimonials	
Discussion of Possible CAPS Scenarios	
Engine Failures, MidAir, Loss of Control, Structural Failure, Spins, Icing	
CAPS Muscle Memory Cockpit Training	
Muscle memory exercises in cockpit or simulator, emergency procedures, post deployment	

CAPS Flight Training Task List

Task Completed

	CAPS Course Briefing				
	System Knowledge, Scenarios, Human Behavior Factors, Muscle Memory				
CAPS Emphasis Areas	CAPS Passenger Briefing				Required Tasks
	Briefed passengers before startup, CAPS procedures				
	CAPS Takeoff Briefing				
	500' (600' G5), 2,000' AGL considerations				
	CAPS Call Out				
	Announces at 500' (600' G5) CAPS available				
	CAPS Management				
	Pilot maintains situational awareness at all time, used CAPS at an appropriate time				
CAPS Scenarios	Engine Failure - Over a Runway				Pick Three
	Timely decision, simulated within altitude/airspeed limits,				
	Engine Failure - Takeoff				
	Timely decision, simulated within altitude/airspeed limits				
	Engine Failure - No Runway within Gliding Distance				Pick Two
	Timely decision, simulated within altitude/airspeed limits				
	Engine Failure - IMC/Night				
	Timely decision, simulated within altitude/airspeed limits				
	Spin Recovery				
Timely decision, simulated within altitude/airspeed limits					
Severe Icing					
Timely decision, simulated within altitude/airspeed limits					
Loss of Control					
Timely decision, simulated within altitude/airspeed limits					
Structural Failure					
Timely decision, simulated within altitude/airspeed limits					
Midair Collision					
Timely decision, simulated within altitude/airspeed limits					

Completion Standards

The Completion Standards list the requirements necessary for training items to be considered satisfactory. While each syllabus task list provides a brief description, this section is the primary guide for determining whether performance is considered complete.

CAPS Knowledge & Attitude

CAPS Course Briefing

System Knowledge

Exhibited knowledge on the following topics:

- Reasons why Cirrus developed the CAPS system,
- CAPS deployment & post deployment procedures,
- CAPS demonstrated parameters,
- Vpd - Max demonstrated deployment speed,
- CAPS observed in-field parameters,
- Why risk increases with deployments at lower altitudes, and
- Hazards associated with a forced landing off airport.

CAPS Scenarios

Exhibited knowledge of possible CAPS scenarios

- Engine failure,
- Loss of control,
- Spin recovery,
- Midair collision,
- Structural failure,
- Pilot incapacitation, and
- Icing encounter.

CAPS Human Factors

Exhibited knowledge of why the following factors are hazardous:

- Primacy Effect
- Hazardous Attitudes
- Task Fixation, and
- Desire to save the airplane.

Muscle Memory & Procedures

Demonstrates proficiency in the following areas:

- Applicable emergency procedure memory items,
- CAPS post deployment procedures,
- Body position,
- Door position, and
- Egress procedures.

CAPS Flight Procedures

CAPS Passenger Briefing

- Briefed CAPS deployment procedures,
- Pilot Incapacitation,
- CAPS placard and handle location,
- Emergency egress procedures, and
- Door operation.

CAPS Takeoff Briefing

- During the takeoff briefing the pilot included a CAPS strategy,
- 500 ft. (600 ft. G5) AGL or less: land straight ahead unless no other survivable alternative exists,
- 500 ft. (600 ft. G5) - 2,000 ft. AGL: CAPS immediately, and
- 2,000 ft. AGL or higher: troubleshoot, use CAPS as required

CAPS Callout

- Pilot verbally announced “CAPS available” when reaching 500 ft. (600 ft. G5) AGL

CAPS Management

- The pilot prioritized tasks to ensure successful completion of the training scenario,
- Managed the resources both on board the aircraft and from outside sources available (prior to and during flight) to ensure that the successful outcome of the flight was never in doubt,
- Declined external tasks if unable to safely comply,
- Made informed decisions in a timely manner,
- Effectively assessed alternatives during scenarios.

CAPS Scenarios

- The pilot performed appropriate emergency procedures checklist time permitting,
- Recognized factors that exist with parachute deployment:
 - Airspeed: Vpd,
 - Altitude: Activated CAPS at a safe altitude and in a timely manner
- Maintained situational awareness during the scenario and made appropriate decisions,
- Simulated correctly the procedure to pull the parachute,
- Simulated the post-deployment procedures necessary to safely secure the cockpit and make emergency communications,
- Identified the correct emergency landing body position,
- Recognized the most appropriate door position during landing considering outside environmental factors.