

# **CAPF 91 Practical Test Guide**

Revision: 1.2

Approved

16-Mar-2007



## **Part A**

### **General Flight Check Procedures**

#### **I. Introduction**

This document lists the various maneuvers and procedures required for the California Wing Civil Air Patrol Form 91 (Mission Pilot Checkout) checkride. This guide is analogous to the FAA Practical Test Standards (PTS) used for Civil Air Patrol Form 5 checkrides.

#### **II. Organization of This Document**

The Mission Pilot checkride consists of completing a set of tasks and demonstrating knowledge of Search and Rescue (SAR) procedures. This document lists the various tasks and satisfactory completion standards.

#### **III. General Completion Requirements**

The CAPF-91 checkride consists of a (simulated) SAR assignment. The applicant must complete the appropriate briefing documents, brief his/her aircrew, fly the assigned tasks, complete the post-flight debrief, and complete the post-flight documents.

An Observer/Scanner may be on board subject to agreement by the applicant, Check Pilot, and flight conditions.

Some maneuvers or procedures (e.g. ditching) may be impractical to complete. The Check Pilot may evaluate satisfactory knowledge of the subject by oral quizzing.

The applicant must also demonstrate the ability to command an aircrew and show mastery of the aircraft, with the successful outcome of a procedure or maneuver never seriously in doubt. (Does the Check Pilot trust you to fly his/her loved ones?)

The applicant must be able to demonstrate the proper usage of any equipment in the aircraft he provides. This includes ALL avionics.

#### **IV. Unsatisfactory Performance**

The inability to demonstrate the requisite skill or knowledge results in a failure of the flight check. This will require a recheck with the **same Check Pilot** unless otherwise authorized by Wing/DOV or the original Check Pilot.

If, in the opinion of the Check Pilot, the applicant performs a dangerous maneuver or violates an FAR or CAPR 60-1 requirement, his/her flying privileges **may** be revoked by the Wing CC or

the applicant's squadron CC. The Check Pilot shall make an immediate written report to the Squadron CC with a copy to the Wing DOV.

## **V. Applicant's CAPF 91 Flight Check Checklist**

**A. Appropriate Uniform (flight suit)**

**B. CAWG Check Pilot form 91 Guide**

**C. CAP Flight Plan**

**D. CAPF 91**

**E. Aircraft Manual (including W&B)**

**F. Current Sectional**

**G. Gridded Sectional**

**H. FAR/AIM**

**I. Computer and Plotter**

**J. Personal Records**

1. CAP Membership Card
2. Pilot Logbook (Endorsements, 90-day Currency)
3. Pilot Certificate
4. ROP Card [A/B]-CUT
5. CAPF 101 (for renewals) or MIMS training record

**K. Survival Kit (may be in the aircraft)**

**L. For an initial CAPF-91 checkride, the recommendation of a mentor pilot.**

## **VI. Typical Flight Check Scenario**

The Mission Check Pilot usually provides a simulated SAR scenario for the applicant to complete. This may be a missing aircraft, overdue campers, etc. with a [quarter] GRID assignment.

The applicant completes his/her preflight planning and mission paperwork and briefs the Check Pilot with his/her intended actions.

## Part B

### List of Procedures/Maneuvers

#### I. ORAL DISCUSSION

**Objective:** To determine that the applicant can satisfactorily plan a SAR sortie, complete the appropriate mission forms, and demonstrate his/her knowledge through oral quizzing. The oral examination of the Mission Check Pilot Candidate will be extensive. A MP Candidate is expected to fluently know the major procedures and processes that relate to the duties and responsibilities of a Mission Pilot. An occasional look-up of a specific parameter MAY be permitted by the Check Pilot. Excessive reference to written materials for answers to oral questions shall be deemed as not meeting standards.

##### A. CAPF 116 Written Exam Passed

**Acceptable Performance Guidelines:** The applicant shall provide satisfactory evidence of completing the CAPT 116 Written Exam via written training record, MIMS, or CAPF 101.

##### B. CAPF 117 Part II Written Exam Passed

**Acceptable Performance Guidelines:** The applicant shall provide satisfactory evidence of completing the CAPT 117, Part II Written Exam via written training record, MIMS, or CAPF 101.

##### C. Mission Base Procedures

**Acceptable Performance Guidelines:** The applicant shall demonstrate knowledge of sign-in, sign-out, and mission dispatch procedures.

**Reference:** CAPR 60-1, 60-3, 60-4.

##### D. Air-to-ground Signals

**Acceptable Performance Guidelines:** The applicant shall demonstrate knowledge of FAA recommended air-to-ground signals.

**Reference:**

AIM.

## **E. Mission Safety Principles**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of Mission Safety Principles including knowledge, use of the CAPF-71, and aircraft safety issues on the ground and in flight.

*Reference:* CAPR 62-1, CAPF 71, AIM, AFM.

## **F. CAP Radio Procedures (as req)**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of CAP Radio Procedures including knowledge of primary and alternate frequencies, repeaters in the search and base areas, and proper channels to use when communicating with SAR base, high bird, and ground teams.

*Reference:* CAPR 100-1. CAP Radio Manual.

## **G. Individual & Crew Equipment/Clothing**

*Acceptable Performance Guidelines:* The applicant shall present himself in the appropriate SAR uniform with insignia as applicable. He shall have a basic knowledge of survival equipment and techniques, and be able to list the contents of his/her personal survival gear.

*Reference:* CAPM 39-1. AIM.

## **H. Search Procedures**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of CAP Search Procedures, and know various search techniques that may or may not be applicable to the given SAR scenario, such as the parallel search, creeping search, expanding square search and contour search technique

*Reference:* IAMSAR Chap 5.

## **I. Map and Chart Reading**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of the CAP Grid System, pre-flight planning techniques and how to navigate to the grid with an awareness of aircraft that might be in grids in route.

*Reference:* IAMSAR Appendix E. Sectional Charts. TAC Charts.

## II. PREFLIGHT PLANNING

**Objective:** To determine that the applicant can satisfactorily plan a SAR sortie by consulting the appropriate information sources, properly brief his/her crewmembers, and coordinate Ground Team Resources as appropriate.

### A. Determine Performance Limitations

**Acceptable Performance Guidelines:** The applicant shall determine aircraft and aircrew performance based on available information and prevailing conditions.

**Reference:** AC 00-45E, POH/AFM, FAR 91.103, AIM, CAPR 60-1, PCR 60-1.

### B. Obtain Mission Briefing

**Acceptable Performance Guidelines:** The applicant shall obtain a briefing for a mission sortie. He/she shall inquire on the results of CAP intelligence gathered, special circumstances, and any additional information necessary to satisfactorily complete a sortie.

**Reference:** IAMSAR Chap 5.

### C. Gridded Sectional

**Acceptable Performance Guidelines:** The applicant shall present a NACO Sectional Chart of the search area (need not be current) Gridded to CAP specifications.

**Reference:** IAMSAR Appendix E.

### D. Observer Briefing

**Acceptable Performance Guidelines:** The applicant shall brief his/her crewmembers with respect to general safety issues, and those specific to the assigned sortie. The examiner will act the role of Mission Observer.

**Reference:** CAWG Aircrew Briefing Guide (<http://www.cawg.cap.gov>) AIM.

### E. Fuel Planning and Reserve

**Acceptable Performance Guidelines:** The applicant shall plan and fly the assigned sortie within FAA and CAPR 60-1 fuel requirements.

**Reference:** FAR 91.151, CAPR 60-1.

## **F. Ground Team Coordination**

*Acceptable Performance Guidelines:* The applicant shall communicate or direct the communication with Ground Teams using the appropriate CAP or FAA Aeronautical frequencies and corresponding phraseology. This may be verified by the Check Pilot by verbal quizzing.

*Reference:* CAPR 100-1.

## **III. VISUAL SEARCH PATTERNS & PROC**

*Objective:* To determine that the applicant can satisfactorily fly a SAR sortie and use the appropriate search patterns.

### **A. Locate Grid or Area (without electronic aids)**

*Acceptable Performance Guidelines:* The applicant shall locate the Grid, Route, or other Area visually **without** the use of ANY electronic NAVAIDs (VOR, DME, NDB, or GPS). The applicant shall specify his/her visual references to the Check Pilot. Once in the specified area, the Check Pilot *may* allow the use of these NAVAIDs as a backup. The applicant will be expected to demonstrate during the Check Ride their mastery of the GPS system on the aircraft.

The applicant shall configure the aircraft and establish the appropriate airspeed *before* entering the Grid or as otherwise agreed with the Check Pilot.

*Reference:* IAMSAR.

### **B. Establish Search Altitudes**

*Acceptable Performance Guidelines:* The applicant shall establish the appropriate search altitude before entering the search area. For a Grid, this is normally 2000 feet above the highest obstacle. Once the corners of the Grid have been visually identified, the search altitude may be adjusted as necessary, but not less than 1000 feet AGL or beyond safe gliding distance to an emergency landing site.

*Reference:* FAR 91.119. CAPR 60-1.

### **C. Parallel Search Procedures**

*Acceptable Performance Guidelines:* The applicant shall demonstrate or verbally describe Parallel Search Procedures to the Check Pilot and when it is preferred over other search techniques. They should be able to determine the starting point and which direction the pattern will be flown and why. This should be done with and without the use of the GPS.

*Reference:* IAMSAR.

### **D. Creeping Line Search Procedures**

*Acceptable Performance Guidelines:* The applicant shall demonstrate or verbally describe Creeping Line Search Procedures to the Check Pilot and when it is preferred over other search techniques.

*Reference:* IAMSAR.

### **E. Expanding Square Search Procedures**

*Acceptable Performance Guidelines:* The applicant shall demonstrate or verbally describe Expanding Square Search Procedures to the Check Pilot and when it is preferred over other search techniques.

*Reference:* IAMSAR.

### **F. Ground Team Coordination**

*Acceptable Performance Guidelines:* The applicant shall demonstrate or verbally describe Ground Team Coordination procedures including Air-to-Ground and Ground-to-Air communication methods.

The applicant shall describe to the Check Pilot how a ground team is to travel from paved road to the simulated target (person, aircraft, wreckage, etc.).

*Reference:* AIM.

## IV. ELECTRONIC SEARCH PATT & PROC

**Objective:** To determine that the applicant can satisfactorily use electronic search equipment (DF, COMM) while flying the SAR sortie.

### A. Locate Starting Point (with elec.)

**Acceptable Performance Guidelines:** The applicant shall navigate to the initial search point with the use of electronic NAVAIDs (VOR, DME, NDB, LORAN, or GPS). Use of the GPS for lat/long verification shall be demonstrated.

**Reference:** IAMSAR.

### B. Establish Appropriate Search Altitude

**Acceptable Performance Guidelines:** The applicant shall select an appropriate search altitude dependent upon the type of electronic search to be performed, and the applicants comfort range to remain safe.

**Reference:** FAR 91.119, IAMSAR.

### C. VHF-DF Procedures

**Acceptable Performance Guidelines:** The applicant shall demonstrate proper use of the airborne Direction Finding (DF) equipment. This task includes configuring the unit from alarm mode to DF mode when using the L-Tronics, and setting the audio panel so that the observer and scanner can hear the DF output. When using the Becker, demonstrates knowledge of it's operation with the various page selections.

**Reference:** CAPP 2, L-Tronics publications, Becker publications.

### D. Wing Null Procedures

**Acceptable Performance Guidelines:** The applicant shall demonstrate his/her ability to locate a specified radio source using Wing Null procedures. A ground or flight discussion may precede the evaluation concerning Wing Null procedures with the specific aircraft or other aircraft as described by the Check Pilot.

**Reference:** CAPP 2, L-Tronics publications.

### **E. Aural (Build-Fade) Procedures**

*Acceptable Performance Guidelines:* The applicant shall demonstrate or verbally describe Aural (Build-Fade) Procedures to the Check Pilot.

*Reference:* CAPP 2, L-Tronics publications.

### **F. Off Frequency Tuning of Communications Receiver**

*Acceptable Performance Guidelines:* The applicant shall detune the communications receiver to eliminate false signals and show proximity to the (simulated) ELT.

*Reference:* CAPP 2, L-Tronics publications.

## **MOUNTAINOUS TERRAIN PROCEDURES**

*Comment:* Mountainous Terrain Procedures are an *optional* set of maneuvers for completion of the CAPF-91. To be “Mountain Qualified”, the applicant must demonstrate completion of a mountain flying course, (AOPA, Mountain Fury, and others) and satisfactorily complete the maneuvers listed below. Otherwise, the Check Pilot will note “NOT Mountain Qualified” on the applicant’s CAPF-91.

*Objective:* To determine that the applicant has sufficient skill and knowledge to conduct safe SAR operations in Mountainous Terrain.

### **G. Locate Grid/Area (with & without elec. nav)**

*Acceptable Performance Guidelines:* The applicant shall locate the Grid or search area without the use of NAVAIDs (VOR, DME, NDB, LORAN, or GPS). Once established in the Area, he/she may use the NAVAIDs to verify his/her location.

*Reference:* IAMSAR.

### **H. Establish Search Altitude**

*Acceptable Performance Guidelines:* The applicant shall select an appropriate search altitude for Mountainous Terrain Procedures. He/she shall maintain this altitude  $\pm 100$  feet, and his/her chosen airspeed  $\pm 10$  knots. *Reference:* FAR 91.119, CAPR 60-1.

## **I. Contour Search Procedures**

***Acceptable Performance Guidelines:*** The applicant shall fly search contours over the terrain at the appropriate altitudes. He/she shall maintain the search altitude  $\pm 100$  feet and airspeed  $\pm 10$  knots. Course reversals and altitude changes shall be executed using recommended CAP procedures. Minimum altitudes shall be maintained in the interest of safety.

***Reference:*** FAR 91.119, CAPR 60-1. IAMSAR Chap 5.

## **J. Canyon Search Procedures**

***Acceptable Performance Guidelines:*** The applicant shall fly canyon search patterns over the terrain at the appropriate altitudes. He/she shall maintain the search altitude  $\pm 100$  feet and airspeed  $\pm 10$  knots. Course adjustments and altitude changes shall be executed using recommended CAP procedures. Minimum altitudes shall be maintained in the interest of safety. Knowledge of hazards of canyon searches shall be demonstrated by oral quizzing.

***Reference:*** IAMSAR Chap 5

## **K. Ridge Crossing Procedures**

***Acceptable Performance Guidelines:*** The applicant shall demonstrate preferred ridge crossing procedures. Minimum altitudes shall be maintained in the interest of safety. Knowledge of hazards of ridge crossing procedures shall be demonstrated by oral quizzing.

***Reference:*** IAMSAR Chap 5.

## **L. Communications Procedures**

***Acceptable Performance Guidelines:*** The applicant shall communicate or direct the communications with the SAR base, ATC, or other authorities using the proper phraseology.

***Reference:*** CAPM 100-1, AIM.

## **M. Wind/Updrafts/Downdrafts**

*Acceptable Performance Guidelines:* The applicant shall describe the likely areas of turbulence in a particular grid as proposed by the Check Pilot. This process may be interactive with the Check Pilot providing additional or more complex conditions with each step in the evaluation process.

*Reference:* Aviation Weather, Aviation Weather Services.

## **N. Mountain Wave Effect**

*Acceptable Performance Guidelines:* The applicant shall describe weather conditions conducive to the formation of mountain waves, possible visible phenomena, and areas to avoid. This knowledge should include Foehn clouds, lenticulars, and rotor clouds.

*Reference:* Aviation Weather, Aviation Weather Services.

# **V. EMERGENCY PROCEDURES**

## **A. Low Altitude Engine Failure**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of low altitude engine failure procedures by oral quizzing. Immediate action items will be recited without reference to external materials.

When practical, the applicant shall demonstrate a landing at an airport or other suitable terrain with a (simulated) full or partial engine failure.

*Reference:* POH/AFM.

## **B. Ditching**

*Acceptable Performance Guidelines:* The applicant shall verbally describe ditching procedures by oral quizzing.

*Reference:* POH/AFM, AIM, IAMSAR.

## **C. Landing on Unprepared Surface**

*Acceptable Performance Guidelines:* The applicant shall verbally describe landing on unprepared surfaces by oral quizzing. At the discretion of the Check Pilot, the applicant may be asked to demonstrate the proper aircraft configuration in a simulated emergency.

*Reference:* POH/AFM.

#### **D. Deteriorating Weather**

*Acceptable Performance Guidelines:* The applicant shall describe the recommended procedures in prosecuting a mission in the event of deteriorating weather.

*Reference:* CAPR 60-2.

### **VI. MISSION FLIGHT MANEUVERS**

#### **A. 720 Steep Turns**

*Acceptable Performance Guidelines:* The applicant shall select an appropriate bank angle between 45 and 60 degrees. He/she shall maintain that bank angle  $\pm 5$  degrees and altitude  $\pm 100$  feet.

*Reference:* Airplane Flying Handbook, Chapter 6.

#### **B. Turns About a Point**

*Acceptable Performance Guidelines:* The applicant shall select an appropriate altitude (typically 1000 feet AGL). He/she shall maintain a constant ground track around a selected object and maintain altitude  $\pm 100$  feet. Bank angles should not exceed 45 degrees.

*Reference:* Airplane Flying Handbook, Chapter 6.  
(Comment: Altitudes below 1000 feet requires NOC approval.)

#### **C. Message Drop Procedure (verbal)**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of message drop procedures through oral quizzing.

*Reference:* FAR 91.15. AIM.

#### **D. Airspeed Control**

*Acceptable Performance Guidelines:* The applicant shall configure the aircraft to fly at a specified airspeed  $\pm 10$  knots. Altitude shall be maintained  $\pm 100$  feet or as otherwise agreed.

*Reference:* Airplane Flying Handbook, Chapter 5.

### **E. Low Speed Maneuvering**

*Acceptable Performance Guidelines:* The applicant shall demonstrate climbs, turns, and descents while maintaining an airspeed not greater than  $V_{so} + 10$  Knots.

*Reference:* Airplane Flying Handbook, Chapter 5.

### **F. Low Level Navigation (without elec. nav)**

*Acceptable Performance Guidelines:* The applicant shall navigate without using electronic navigation aids. ( *Deduced* reckoning or pilotage).

*Reference:* AC 61-23C Chapter 8.

### **G. Judgment**

*Acceptable Performance Guidelines:* The applicant shall be continuously evaluated that no undue risks are undertaken during any part of the checkride. The Check Pilot should not create a scenario that could cause the applicant to take undue risks.

## **VII. SAFETY AWARENESS**

### **A. Clearing and Collision Avoidance**

*Acceptable Performance Guidelines:* The applicant shall execute clearing turns and maintain a concerted effort in avoiding other aircraft and obstacles. The applicant may solicit input from other crewmembers, but shall be responsible for the ultimate safety of the flight.

### **B. Vigilance**

*Acceptable Performance Guidelines:* The applicant shall continuously monitor aircraft performance, crew performance, and other safety issues during the flight.

### **C. Cockpit Resource Management**

*Acceptable Performance Guidelines:* The applicant shall coordinate and use available resources in order to accomplish his/her task. These resources may be ground, air, the same crew, or piece(s) of equipment that satisfy the particular needs.

#### **D. Risk Management**

*Acceptable Performance Guidelines:* The applicant shall continuously monitor the risks throughout the flight and weigh them against the probable outcome. Should his/her personal limits be exceeded, it is expected that the applicant will discuss the issue with the Check Pilot for the provided scenario.

*Reference:* CAP Operational Risk Management.

### **VIII. Additional Tasks**

#### **A. Familiarity with SQTR Task for MP, MS, MO**

*Acceptable Performance Guidelines:* The applicant shall demonstrate knowledge of the SAR/DR mission pilot tasks AND the tasks for mission scanner and mission observer.

*References:* CAPR 60-3, 60-4

#### **B. Operational Security Items (OPSEC)**

*Acceptable Performance Guidelines:* The applicant will provide examples of CAP information covered under Operational Security.

*References:* <https://tests.cap.af.mil/opsec/main.cfm>

## **Part C**

### **Reference Materials**

#### **I. CAP National Web Site (<http://www.cap.gov>)**

Members Tab ⇒ Operations ⇒ Emergency Services ⇒  
Emergency Services Curriculum ⇒ Aircrew and Flightline Materials

#### **II. CAP Regulations**

**A. CAPR 60-1, 60-2, 60-3,.**

#### **III. CAP Forms**

**A. CAPF 71, 91, 104, 108, A/C Briefing Guide.**

#### **IV. CAP Pacific Region Web Site (<http://www.pacr.cap.gov>)**

#### **V. CAP California Wing Web Site (<http://www.cawg.cap.gov>)**

#### **VI. FAA Materials**

**A. FARs Parts 1, 61, 91. NTSB Part 830.**

**B. Airman's Information Manual**

**C. Sectional Charts. TAC Charts.**

**D. Advisory Circulars**

**E. FAA Practical Test Standards (Private or Commercial)**

**F. FAA Books**

1. AC 00-6A – Aviation Weather
2. AC 00-45E – Aviation Weather Services
3. FAA-H-8083-3 – Airplane Flying Handbook
4. AC 61-23C – Pilot's Handbook of Aeronautical Knowledge
5. FAA-H-8083-9 – Aviation Instructor's Handbook

## **VII. Aircraft Materials**

- A. Pilot's Operating Handbook/Approved Flight Manual (POH/AFM)**
- B. Supplements**
- C. Required Documents**
- D. Weight and Balance**

## **VIII. IAMSAR Materials**

- A. US National SAR Supplement (NSS)**

## **IX. Books**

- A. Aerodynamics for Naval Aviators – H. H. Hurt – NAVWEPS 00-80T-80**
- B. Mountain Flying – S. Imeson – ISBN 1-880568-88-8**
- C. Stick & Rudder – W. Langwiesche – 0 07-036240-8**

## **X. Other Materials**

- A. L-tronics web site: (<http://www.ltronics.com>)**  
Becker web site: (<http://www.becker-avionics.de>)

## **Part D**

### **Comments and Feedback**

Please direct comments or additional feedback to:

[dov@cawg.cap.gov](mailto:dov@cawg.cap.gov)