



Merced Composite Squadron 147
Mission Pilot Course



SPECIALTY QUALIFICATION TRAINING WORKSHEET

MP - SAR/DR Mission Pilot

Name (Last, First, MI)	Type	CAPID	Date Issued
Task Name	Date	Trainer CAPID	Mission Number (Optional)
SAR/DR Mission Pilot - Prerequisites			
Age eligibility check (enter current date)			
Current and qualified CAP pilot in accordance with CAPR 60-1 , with at least 175 hours pilot in command time including 50 hours of crosscountry flying			
MS - Mission Scanner			
Commander Approval for Prerequisites			
MP - Commander Approval for Prerequisites			
SAR/DR Mission Pilot - Familiarization and Preparatory Training			
Complete Task O-2003 Grid Sectional Charts			
Complete Task O-2004 - Use a POD Table			
Complete Task O-2009 Demonstrate Air/Ground Team Coordination			
Complete Task O-2101 - Describe how ELT's are Detected			
Complete Task P-2001 - Discuss Mission Pilot Duties and Responsibilities			
Complete Task P-2002 - Discuss General CAP-Related Safety Requirements and Issues			
Complete Task P-2003 Discuss Type of Flights Performed by CAP Aircrews			
Complete Task P-2004 - Discuss Security Concerns and Procedures			
Complete Task P-2005 Discuss Mission Pilot Responsibilities During a Mission			
Complete Task P-2028 (Discuss Crew Resource Management)			
Commander Approval for Familiarization and Preparatory Training			
MP - Commander Approval for Familiarization and Preparatory Training			
SAR/DR Mission Pilot - Advanced Training			
Complete Basic Communications User Training			
Complete CAPF 91 Check Ride			
Complete Task O-2001 - Operate the Aircraft Audio Panel			
Complete Task O-2005 - Operate the Aircraft DF			
Complete Task O-2006 - Perform ELT Searches			
Complete Task O-2007 - Locate and Silence an ELT on the Ground			
Complete Task O-2008 Complete a Mission Sortie			
Complete Task O-2102 - Demonstrate Planning and Flying a Route Search			
Complete Task O-2103 - Demonstrate Planning and Flying a Parallel Track Search			
Complete Task O-2104 - Demonstrate Planning and Flying a Creeping Line Search			
Complete Task O-2105 - Demonstrate Planning and Flying a Point Based Search			
Complete Task O-2106 - Plan and Command a CAP Flight			
Complete Task O-2107 (Prepare for a Trip to a Remote Mission Base)			
Complete Task P-2119 - Demonstrate how to complete a CAP aircraft inspection.			
IS100 - IS-100			
IS200 - IS-200			
IS700 - IS-700			
SAR/DR Mission Pilot - Exercise Participation			
SAR/DR Mission Pilot Trainee Exercise # 1			
SAR/DR Mission Pilot Trainee Exercise # 2			
SAR/DR Mission Pilot - Continuing Education Examination			
CAPT 117 ES Continuing Education Exam - Part 2			
SAR/DR Mission Pilot - Flight Time (Qualified)			
50 hrs cross-country			
PIC 200 hrs			
Aircraft Ground Handling - Required by 30 Sept 2009			
Aircraft Ground Handling			
MP - SAR/DR Mission Pilot, MAR 04 OPR/ROUTING - DOS			



NATIONAL HEADQUARTERS CIVIL AIR PATROL

CAP REGULATION 60-1

5 JANUARY 2009

INCLUDES CHANGE 1 (CORRECTED COPY), 2 FEBRUARY 2009

Operations

CAP FLIGHT MANAGEMENT

This regulation prescribes the responsibilities of all Civil Air Patrol (CAP) personnel as applicable to the control and management of CAP flying programs, aircraft, and aircrews. Federal Aviation Administration (FAA) requirements are minimum standards; however, in some instances CAP has established higher standards than FAA minimums. The practices, procedures, and standards prescribed in this regulation are mandatory.

SUMMARY OF CHANGES. The entire regulation is completely revised, to eliminate information duplicated in other CAP regulations and improve readability.

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CHAPTER 1 – GENERAL INFORMATION

1-1. Scope. This regulation does not apply to CAP Corporate aircraft flown by CAP-USAF personnel, aircraft released for repair to an approved FBO/aircraft maintenance facility, or other non-CAP member use as approved by CAP-USAF/XO.

1-2. Supplements and Waivers. Supplements to this regulation cannot be issued below the wing level (except Congressional Squadron) and require region commander, NHQ CAP/DO, and CAP-USAF/XO approval. Requests for waivers or supplements must be submitted via chain of command to the region commander and then to NHQ CAP/DO for further distribution.

1-3. Definition of Terms. All terminology is in accordance with FAA 14 CFR Part 1 or Part 61 except as follows:

a. Air Force Assigned Mission (AFAM) – Any CAP flight activity authorized by the Air Force to use an A or B mission symbol (see CAP-USAF 10-2701 for details).

b. CAP Aircraft - Any aircraft (either member owned/furnished or CAP Corporate) used in a CAP flight activity. “CAP Airplane” or “CAP Glider” refers to CAP Aircraft of a certain category.

c. CAP Check Pilot – Qualified to administer a CAP Pilot Flight Evaluation (CAPF 5) to members using CAP aircraft.

d. CAP Corporate Aircraft - Any aircraft owned by and registered to CAP and any aircraft under an exclusive lease to CAP.

e. CAP Corporate Mission – All CAP flight activities that are not Air Force assigned missions.

f. CAP Flight Activity - Any flight activity governed by this regulation.

g. CAP Instructor Pilot – Qualified to give flight instruction and FAA endorsements to other members using CAP aircraft.

h. CAP Instrument Pilot – Qualified to operate as Pilot in Command of CAP aircraft in Visual or Instrument Meteorological Conditions.

i. CAP Solo Pilot – Qualified to solo CAP aircraft. Solo is limited to Gliders or Single Engine Land Airplanes that are not Complex, High Performance (except C182 airplanes), tailwheel, or ski/float equipped.

j. CAP Tow Pilot – Qualified to use a CAP airplane to tow CAP gliders.

k. CAP VFR Pilot – Qualified to operate as Pilot in Command of CAP aircraft in Visual Meteorological Conditions.

l. Current – Meets 14 CFR 61.57 (recent flight experience) for the designated operation.

m. Examiner – Authorized to endorse the CAPF 5 (if a Check Pilot Examiner) or CAPF 91 (if a Mission Check Pilot Examiner) of other pilots for check pilot privileges.

n. Mission Symbol – The code letters and numbers used to denote the type of mission a CAP Flight is released under.

o. MOU – Memorandum of Understanding – an approved agreement with another organization that may define CAP flight activities in support of that agency’s mission. They may contain provisions and restrictions that supersede those found in this regulation.

p. National Check Pilot Standardization Course (NCPSC) - This course is required for all CAP check pilots and mission check pilots. NCPSC is an instructor led course for airplane check pilots and an online course for glider check pilots.

q. NHQ CAP/DOV website – The CAP website where materials in support of CAP aviation are located - (http://members.gocivilairpatrol.com/emergency_services/stanevalflight_ops/).

r. OPS Quals – The CAP online database for entering pilot information. Access to OPS Quals is via the e-Services section at www.capnhq.gov.

s. Qualified – Meets all FAR and CAP requirements except 14 CFR 61.57 (recent flight experience).

t. Supervised Mission – A CAP Flight Activity that is under the direct control of a current and qualified incident commander (IC) IAW CAPR 60-3 or counterdrug mission director (CMD) IAW CAPR 60-6.

u. WMIRS – The CAP website used to track mission sorties and all CAP flights – (<https://missions.cap.af.mil/wmirs/index.cfm>).

v. Written Designation – Includes electronic approval in eServices.

CHAPTER 2 – RULES OF OPERATION

2-1. Basic Rules.

- a. CAP aircraft will be used only for official CAP business and not for personal use.
- b. Smoking, aerobatic flight, spins (except instruction for a flight instructor certificate), parachuting and dropping of objects (except to save a life) from CAP aircraft are prohibited.
- c. Formation flying with CAP aircraft is prohibited.
- d. The use of night vision devices by the pilot flying CAP aircraft is prohibited.
- e. Only CAP pilots may start, taxi, or otherwise operate CAP aircraft unless the aircraft is released for repairs (see paragraph 1-1). Hand propped starts are prohibited.
- f. All CAP airplanes shall carry a working fire extinguisher.
- g. All occupants shall wear seat belts and shoulder harnesses (if available) unless such wear interferes with pilot or crew member duties.
- h. No more than 8 persons, including crew members, are permitted on any CAP aircraft.
- i. For flight beyond gliding distance of land, each occupant will wear an individual flotation life vest. Other requirements apply for flight more than 10 nautical miles from land – consult the NHQ CAP/DOV website for the latest requirements.
- j. No charge may be made by any person for any ground or flight training or flight checks accomplished in accordance with this regulation, except examiner fees for issuance of an FAA pilot certificate or rating.
- k. Simulated emergency procedures are prohibited during Instrument Meteorological Conditions or at night. Exception: partial panel instrument training and inflight discussion of emergency procedures may be conducted during night VMC conditions.
- l. Sterile Cockpit procedures, to include passenger briefings, will be used on all CAP flights. Accepted procedures are specified on the NHQ CAP/DOV website.
- m. Use of approved aircraft or operational checklist(s) are mandatory in all CAP aircraft.
- n. Minimum flight visibility of 3 statute miles is required for all VFR flights unless the PIC is a current and qualified instrument pilot.
- o. The maximum crosswind limit for operating CAP aircraft is that which is stated in the Pilot Operating Handbook (POH) as the maximum demonstrated crosswind velocity or 15 knots if the POH does not specify a limit.
- p. Assistance to law enforcement officers using CAP Aircraft is restricted to those missions coordinated and approved through the CAP National Operations Center (NOC).

2-2. Operation Limits.

- a. An FAA flight plan must be filed and activated for every flight of a CAP Aircraft beyond 50 nautical miles distance from point of origin. Those flights that are part of a Supervised Mission may be exempted from this requirement by the mission incident commander (IC) or counterdrug mission director (CMD).

b. Only civilian airports in the current FAA Airport/Facility Directory and military airfields (if approved by the military organization supported during a Supervised Mission or by CAP-USAF for all other flights) are authorized for CAP Aircraft. Unlisted civilian airfields may be approved by a wing or higher commander with written permission from the airfield owner/operator. For CAP-USAF approvals, advance notice of 5 days (Corporate aircraft) or 45 days (member owned/furnished aircraft) is required to obtain a Military Airfield approval from the CAP-USAF State Director where that airfield is located.

c. Flight to destinations outside a wing's boundaries requires the authorization of an IC or CMD (during Supervised Missions), wing or higher commander unless permitted under an approved MOU. Flight across an international border requires N/DO approval unless part of an FAA IFR procedure to a US airport.

d. The maximum crew duty day for pilots is 14 hours of official CAP duty. Pilots will not plan to serve as PIC past the end of their crew duty day. Pilots will not flight plan to exceed 8 hours PIC time between periods of crew rest. Pilots must have 10 hours of crew rest between the last official CAP duty and the first official CAP duty in the next duty period. A wing or higher commander may authorize exceeding the 8 hour PIC time limit, provided each flight in excess of the requirements is individually approved and an appropriate risk assessment is made by the commander involved.

e. Sustained flight below an altitude or lateral distance from any object of 1,000 ft during the day or 2,000 ft at night is prohibited except for takeoff and landing or in compliance with ATC procedures (such as IFR flight). At no time will the pilot allow the aircraft to come within 500 feet of terrain or obstructions unless taking off or landing.

f. IFR flights will not depart unless the weather is at or above landing minimums at the departure airport. A wing commander may publish an authorization for different minimums at specific airports if, after review, a safe alternate airport with lower IFR landing minimums is in the immediate area.

g. Night VFR is permitted; however, if the PIC and aircraft are IFR qualified and current then the flight should be conducted under IFR, if practical.

h. Except for flight instruction, only a qualified CAP pilot may handle the controls below 1,000 ft AGL.

i. When taxiing within 10 feet of any obstacle, pilots shall proceed at a pace not to exceed a slow walk until clear. During taxi maintain at least 50 feet behind light single-engine aircraft, 100 feet behind light multi-engine or light jet aircraft, and 500 feet behind helicopters or heavy multi-engine or heavy jet aircraft.

j. Except for glider towing operations within 5 nautical miles of the departure airport, all flights will be planned and flown such that a minimum of one hour of fuel (at normal cruise speed) remains upon landing.

2-3. Passenger Requirements. Passengers and crew members must be current CAP members, CAP employees, AFROTC/AFJROTC cadets (AFROTC/AFJROTC flight orientation program), International Air Cadet Exchange (IACE) cadets and escorts, Emergency Services (ES) or Rescue workers engaged in a Supervised Mission (if approved by the mission approval authority), FAA designated pilot examiners during flight checks, or U.S. government employees/military conducting official duties in conjunction with CAP. Other individuals require advance approval by the CAP NOC, NHQ CAP/DO, or CAP-USAF (5 working days notice requested for approvals).

a. CAP members will wear an appropriate CAP uniform and carry proof of CAP membership. Only occupants of CAP gliders and crew members requested not to wear uniforms by the customer of a CD Mission are exempt from the CAP uniform requirement.

b. All non-CAP members other than Military/Federal employees must execute a CAPF 9, *Release*, and leave the form in a secure location on the ground known to the flight release officer (FRO) or mission IC/CMD.

c. Except for Tow Pilot training, no passengers may be carried in a CAP tow plane that is towing a glider.

d. Only pilots that are qualified as CAP Instructors, Cadet/AFROTC/AFJROTC Orientation Pilots, or SAR/DR or Transport Mission Pilots (during Supervised Missions) may carry CAP cadets as passengers or crew members. At no time may a pilot who is a CAP Cadet carry another CAP Cadet as a passenger or crew member.

e. Aircraft will not carry CAP or AFROTC/AFJROTC cadets on board during the first 10 tach hours following an engine change, major overhaul, or replacement of cylinders/magnetos.

f. CAP has two exemptions granted by the FAA for flying non-CAP passengers. An exemption to 14 CFR 61.113 allows our pilots to obtain reimbursement as a private pilot and an exemption to 14 CFR 91.501 provides a tool for CAP to comply with specific FAA requirements regarding transportation flights. The exemptions are located on the NHQ CAP/DOV website and should be consulted prior to flying non-CAP passengers to ensure any special requirements and restrictions are adhered to.

2-4. Aircraft Requirements.

a. Ultralight, aerolight, hang glider and similar aircraft, rotorcraft, lighter-than-air, experimental, primary category, and home-built aircraft are not authorized for use on any CAP flight activity.

b. Airplanes used for solo, flight training, or flight checks must have an operating two way radio and dual controls (except single seat airplanes).

c. CAP aircraft must have a current FAA airworthiness certificate. Except for ferry permits, the use of a FAA special flight permit is prohibited.

d. Each wing and region shall report all aircraft flying time totals monthly using the NHQ CAP on-line Form 18 Reporting System no later than the 20th day of the following month.

e. A standard CAP Aircraft Information File shall be maintained in all Corporate aircraft. The NHQ CAP/DOV website will be consulted for the latest requirements.

f. The use of member owned/furnished aircraft requires wing or higher commander approval for corporate missions and CAP-USAF Liaison Region or higher approval for AFAMs. A hold harmless agreement (see NHQ CAP/DOV website) must also be executed annually for each member owned/furnished aircraft and be on file with the State Director.

2-5. Flight Release. The FRO is responsible for authorizing a CAP pilot to fly as pilot-in-command in CAP aircraft. The FRO is expected to use his/her best efforts to verify appropriate information prior to giving a flight release, including reliance on information verbally provided by the CAP pilot requesting a flight release. The FRO is not a dispatcher and is not responsible for the actual conduct of the flight. They are responsible for confirming the aircraft safely arrived at its destination if an FAA flight plan is not used (see paragraph 2-5e).

a. A flight release is required for all CAP flight activities.

b. FROs are CAP senior members designated in writing as Flight Release Officers by the Executive Director, region or wing commander, or their designee. FROs must have passed the on-line CAP FRO training course and possess a sound knowledge of the CAP flight management program prior to being appointed as an FRO.

c. FROs may not release a flight on which they are PIC, crew or passenger.

d. Flights may be released on a CAPF 99, *CAP Flight Release Log*, CAPF 104, *Mission Flight Plan/Briefing Form*, or CAPF 84, *Counterdrug Mission Flight Plan/Briefing Form*, (as appropriate). For Supervised Missions the IC or CMD is also considered a FRO and may release any flight related to that mission.

e. All flights released on CAPF 99 require the date, N-number, Mission Symbol, PICs, passengers, estimated flight time and route of flight recorded prior to release. The FRO must be notified of any changes made prior to departure. If an FAA flight plan will not be used, the following additional steps are required:

(1) An estimated landing time must be recorded on CAPF 99 prior to release.

(2) The FRO is responsible for initiating missing aircraft procedures two hours after the estimated landing time if not notified the flight was safely concluded.

f. Flight activities involving multiple flights at the same location and on the same day may be released on CAPF 99 without passenger, flight time and estimated landing time information provided each participating aircraft and PIC combination is identified in advance and that someone on the ground at the activity site tracks aircraft occupants and flight times for reporting back to the FRO at day's end.

g. At the conclusion of all flights, the PIC (or IC/CMD of a Supervised Mission) is responsible for ensuring all flight hours have been recorded in the NHQ CAP WMIRS System.

h. The appropriate Mission Symbol must be used on all flight release documents, logs and entries into WMIRS or other electronic systems. Currently approved Mission Symbols are listed on the latest CAPF 99.

i. A copy of each CAPF 99 will be forwarded to the wing DO and State Director by the 5th of the following month. FROs not releasing any flights during the month will forward a negative report to the wing DO and State Director.

2-6. Re-evaluations and Special Flight Checks. Flying CAP aircraft is a privilege, not a right of membership. Commanders have the responsibility for flying safety and compliance with this regulation.

a. Wing or higher commanders may require re-evaluation of CAP pilots transferring into their respective commands. Also, members wishing to take a CAPF 5 flight evaluation in a wing other than his/her assigned wing must obtain approval from the wing standardization and evaluation (Stan/Eval) officer of the wing to which the member is assigned.

b. Commanders may require any CAP pilot under their command to complete a special flight check. The commander shall designate the CAP check pilot who will administer the flight check. Pending completion of a directed special flight check and any action by the commander as provided in paragraph 2-7 of this section, the individual pilot will be suspended as pilot in command on all flight activities except to train for re-evaluation with a CAP instructor.

2-7. Grounding and Mishaps.

a. Grounding means a member cannot act as pilot in command, crewmember, or passenger in CAP aircraft. In the case of grounding away from home base, the member may be permitted to return to home base as a passenger in a CAP aircraft.

b. Any commander in the chain of command (from squadron to National Commander) of a CAP member, or an IC/CMD during a Supervised Mission, may ground that member for cause.

c. Commanders or IC/CMDs exercising this authority shall notify the affected aircrew member in writing within 7 days of the date grounded, including the reason(s) this action was taken. The written notification must include a statement telling the aircrew member that he/she has the right to seek reconsideration of this action under the provisions of paragraph 2-7f of CAPR 60-1. A copy of this notification will be filed with the region commander and all intermediate commanders within 14 days of the grounding.

d. Any pilot operating a CAP aircraft who is involved in an aircraft mishap (as defined in CAPR 62-2) while on a CAP flight activity is automatically grounded until reinstated to flight status.

e. Once grounded, only a wing or higher commander in the individual's chain of command may reinstate a member to flight status. Commanders may set any condition for reinstatement, including completion of a new CAPF 5, *CAP Pilot Flight Evaluation*.

f. A member may submit a written appeal to his/her region commander if he/she remains grounded after 90 days. Such an appeal may only be filed one time and must be filed within one year of the initial grounding. Upon receipt of the appeal, the region commander will appoint a review board of at least three CAP check pilots to review the appeal. The review board will examine the facts of the case and make a recommendation to the region commander. The region commander will issue a final decision within 60 days of receipt of the appeal. All such decisions are final and not subject to review by filing a complaint under CAPR 123-2.

g. CAP members may be assessed some or all of the damages due to negligent operation or movement of CAP Corporate aircraft. CAPR 62-2 governs the conduct of mishap investigations. Guidance for commanders to use in assessing damages has been published separately.

2-8. Pilot Training.

a. CAP cadets and qualified SAR/DR mission pilots are authorized to use CAP airplanes for flight instruction toward any FAA certificate or rating.

b. All CAP members are authorized to use CAP gliders for flight instruction toward any FAA certificate or rating.

c. CAP senior members that are not current SAR/DR mission pilots must obtain permission to receive flight instruction in CAP airplanes toward FAA certificates or ratings as follows:

(1) Senior members who hold a Private Pilot Airplane Certificate or higher and have been an active CAP member for at least 1 year – Wing commander written permission.

(2) All other senior members – Written permission from the wing commander, region commander and the CAP Executive Director is required and may be granted provided the members lives more than two hours driving time from a commercial training facility.

d. Self conducted proficiency flight guidelines are available for use by all CAP pilots to maintain currency and improve pilot confidence. These recommended guidelines are located on the NHQ CAP/DOV website.

e. Additional mission pilot training flights are authorized under mission pilot proficiency flight profiles located on the NHQ CAP/DOV website. These training flights are Air Force assigned non-reimbursed missions authorized by the State Director, and may be flown only by pilots holding the qualifications stated in the specific profile.

CHAPTER 3 – PILOT QUALIFICATIONS AND REQUIREMENTS

3-1. CAPF 5 Check Ride. A completed CAPF 5 denotes qualification to fly a particular model of CAP aircraft. It consists of ground and flight evaluations, and is valid for 12 calendar months from the date it is completed. CAPFs 5 may contain one or more endorsements for certain types of aircraft operation (instrument, cadet o-ride, instructor, check pilot or other). All pilots except CAP Solo pilots must complete a check ride. To be complete, the following must be accomplished as part of the CAPF 5 check ride:

- a. Completion of an Aircraft Questionnaire for the model aircraft flown within 60 days prior to the flight check.
- b. Pass the annual CAPF 5 online written examination (power or glider as applicable) within 60 days prior to the flight check.
- c. Members must be current in accordance with FAA 14 CFR 61.57(a)(1) to carry passengers in the same category and class as the CAPF 5 aircraft prior to the flight check.
- d. Evidence of qualifications (membership card, medical and pilot certificates, log book, questionnaire[s], and on line written exam results) must be presented to the check pilot at the time of the CAPF 5 flight check.
- e. For airplanes only, the minimums are 1 hour flight time and 3 takeoffs and landings.

3-2. CAPF 5 Administration.

- a. A CAPF 5 flight check may be administered by a CAP check pilot, or it may be administered by a FAA Inspector, FAA designated check airman, FAA designated pilot examiner, or CAP-USAF flight examiner provided the individual administering the flight check completes and signs the CAPF 5 and the CAP specific items are verbally covered by a CAP Check Pilot who also signs the CAPF 5.
- b. Written approval is required from a wing or higher commander for a CAP pilot to complete more than two annual CAPF 5 flight checks in a row with the same CAP check pilot.

3-3. Abbreviated CAPF 5 Check Rides. For the purpose of adding additional endorsements or aircraft models in the same category and class, an Abbreviated CAPF 5 may be taken to update those endorsements or models on the current CAPF 5. The Abbreviated CAPF 5 only requires completion of a new Aircraft Questionnaire in the model flown within 60 days prior and such maneuvers as necessary during the flight check for the new endorsement. There is no flight time or landing minimums required for these types of check rides. An Abbreviated CAPF 5 merely updates the last completed annual CAPF 5 and does not result in a new expiration date for any pilot privileges.

3-4. CAPF 5 for Multiple Aircraft Models. A CAPF 5 may also denote qualification to fly other aircraft models in the same category and class as the model used for the CAPF 5 check ride provided the following have been completed:

- a. A previous CAPF 5 or Abbreviated CAPF 5 was completed for those aircraft model(s) any time in the past.
- b. A new Aircraft Questionnaire for those model(s) is completed within 60 days prior to the CAPF 5.

c. To renew airplane models that are complex or high performance, the check ride model flown must be either a complex or high performance airplane.

d. To renew tailwheel airplanes, the check ride model flown must be a tailwheel airplane.

e. To renew Cessna models equipped with the G1000, the check ride model flown must be Cessna Nav III G1000 equipped.

f. All endorsements given on the CAPF 5 for aircraft operations will apply to all qualifying models.

3-5. Equivalent Make and Models. Certain models of aircraft are considered equivalent to one another. A CAPF 5 in any model grouping below counts as a CAPF 5 for all models listed in the grouping:

- C-172 (all models except 180 hp constant speed, C-R172 or C-172 Nav III G1000)
- C-182 (all models except C-R182 or C-182 Nav III G1000)
- T-41 (145hp, 180hp fixed pitch), C-172 (145,150,160 and 180 hp fixed pitch)
- T-41 (180 hp constant speed), C-172XP, C-172 (180 hp constant speed), C-175
- T-41C/D (210 hp constant speed), C-182 (all except C-182 Nav III G1000 or C-R182)
- C-150, C-152
- C-R182 counts for C-R172 (C-R172 does not count for C-R182)
- C-205, C-206, C-207, U-206
- PA28-140, PA28-160, PA28-161, PA28-180, PA28-181
- PA28R-200, PA28R-201, PA28R-180
- PA28-235, PA28-236
- PA32-300, PA32-301, PA32-260
- Kachina 2150, 2180
- Mooney M20, M21
- T-34A, T-34B
- BE33, BE35
- AA5, AA5A, AA5B
- SGS 2-33, SGS 2-22
- Schleicher K-7, K-13

3-6. Airplane Qualifications. In order to operate certain CAP Airplane models, pilots (other than CAP Solo pilots) must meet one or more of the following requirements:

a. Single Engine Airplane.

(1) High Performance Airplanes – 100 hours total time.

(2) Complex Airplanes – 100 hours total PIC time of which at least 10 hours PIC and 25 takeoffs and landings are in complex airplanes.

(3) Gippsland GA-8 – In addition to High Performance requirements:

(a) Be a qualified SAR/DR mission pilot with an instrument rating and 300 hours of PIC fixed wing aircraft time.

(b) Complete the NHQ CAP/DOV on-line course “GA8 Airvan Familiarization Course”.

(c) Complete the prescribed flight training and receive a check ride recommendation from a GA-8 qualified CAP instructor.

(d) Complete the first CAPF 5 flown in a GA-8 with a CAP check pilot different from the CAP instructor recommending the check ride.

(4) Cessna Nav III G1000 Airplanes – In addition to other requirements:

(a) Complete the CAP Cessna G1000 transition syllabus for VFR operation.

(b) For instrument operating privileges in G1000, complete the CAP Cessna G1000 transition syllabus for Instrument operation. To remain current for instrument privileges in G1000 airplanes, a pilot must take an Instrument Proficiency Check using a G1000 airplane or the pilot must complete three of the approaches required for ongoing FAA Instrument currency in a G1000 airplane.

(c) For flight instructor privileges in G1000, complete the CAP Cessna G1000 transition syllabus for Flight Instructors that is given by a Cessna factory trained instructor.

(d) G1000 check pilots must be Cessna factory trained or have provided a minimum of 15 hours dual instruction in G1000 equipped airplanes.

(5) Tailwheel Airplanes – 25 hours – and 50 takeoffs and landings in tailwheel airplanes.

b. Multi-Engine Airplanes – 250 hours total PIC airplane time of which at least 50 hours PIC and 50 takeoffs and landings are in multi-engine airplanes.

3-7. Classification of CAP Pilots. CAP pilots may operate a CAP aircraft according to the classification of their experience and skills as follows:

a. CAP Solo Pilot.

(1) Possess a current student pilot certificate with solo endorsements in accordance with 14 CFR Part 61 from a CAP Instructor Pilot in the make and model aircraft flown.

(2) For gliders, a minimum of 30 dual glider instruction flights prior to solo. Glider encampment/academy students are restricted from completing solo the first time they attend.

(3) For C182 airplanes, 25 (including cross wind, short, soft and simulated engine failure) dual takeoffs & landings with a CAP instructor in C182 airplane prior to solo.

(4) For G1000 equipped airplanes, complete the CAP Cessna G1000 transition syllabus for VFR operation.

b. CAP VFR Pilot. Must be qualified in accordance with FAA regulations to operate the CAP aircraft flown at the private pilot level or higher and satisfactorily complete a CAPF 5 flight check within the previous 12 calendar months.

c. CAP Instrument Pilot. Must be a qualified CAP VFR pilot that is FAA rated to fly Instruments and satisfactorily complete an Instrument endorsement on a CAPF 5 within the previous 12 calendar months. FAA Instrument currency is not required for this endorsement.

d. Cadet and AFROTC/AFJROTC Orientation Pilots.

(1) Current CAP senior member.

(2) CAP VFR Pilot at least 21 years of age (or have a valid FAA CFI certificate).

(3) For powered airplanes have 200 hours PIC time.

(4) For gliders have 100 flights as PIC or be a qualified CFGI.

(5) For AFROTC/AFJROTC Orientation Pilots have 300 hours PIC time and completed the exam for “Orientation Pilot – Powered for ROTC”.

(6) For Cadet Orientation Pilots completed the exam for “Orientation Pilot – Powered” if a power pilot and “Orientation Pilot – Glider” if a glider pilot.

(7) Satisfactorily complete a Cadet Orientation Flight endorsement on a CAPF 5 within the preceding 12 calendar months and be designated in writing as an AFROTC/AFJROTC or Cadet Orientation pilot by the Executive Director, region or wing commander, or their designee.

e. CAP Instructor Pilot.

(1) Qualified CAP VFR Pilot in the aircraft model flown if a Corporate CAP aircraft.

(2) Qualified IAW FAA regulations to operate as an Instructor in the CAP aircraft flown.

(3) Satisfactorily complete an Instructor endorsement on a CAPF 5 within the preceding 12 calendar months and designated in writing as a CAP Instructor Pilot by the wing or region commander, Executive Director, or their designee.

f. CAP Check Pilot.

(1) Qualified as a CAP Instructor Pilot in the CAP aircraft flown. The Executive Director or National Commander may waive this requirement to cover unusual circumstances.

(2) Satisfactorily complete the National Check Pilot Standardization Course prior to initial appointment and every 4 years thereafter. CAP Check Pilots only qualified in gliders may take the online CAP Glider National Check Pilot Standardization Course.

(3) Satisfactorily complete a Check Pilot endorsement on a CAPF 5 given by a CAP Check Pilot Examiner within the preceding 12 calendar months and designated in writing as a CAP Check Pilot by the wing or region commander, Executive Director, or their designee.

g. CAP Check Pilot Examiner. Qualified as a CAP Check Pilot and designated in writing as a CAP Check Pilot Examiner by the wing or region commander, Executive Director, or their designee.

h. CAP Tow Pilot.

(1) Qualified CAP VFR Pilot at least 21 years of age.

(2) Qualified in accordance with 14 CFR 61.69 to tow Gliders.

(3) Minimum 500 hours PIC time, 250 hours of which is in single engine airplanes.

(4) Satisfactorily completed the CAP/SSF online Tow Pilot Course.

(5) Designated in writing as a CAP Tow Pilot by the wing or region commander, Executive Director, or their designee.

(6) Must have completed 10 tows of gliders within the preceding 12 calendar months. For initial qualification or later re-currency, pilots may accomplish these tows in CAP aircraft under the instruction of another CAP Tow Pilot.

i. CAP SAR/DR Mission Pilot.

(1) Must meet the requirements for SAR/DR mission pilot in accordance with CAPR 60-3.

(2) Must satisfactorily complete a CAPF 91, *CAP Mission Pilot Checkout*, within the preceding 24 calendar months.

j. CAP Mission Check Pilot.

(1) Must be a qualified SAR/DR mission pilot.

(2) Have participated in 25 mission sorties as a SAR/DR mission pilot.

(3) Must satisfactorily complete a CAPF 91 mission check pilot check ride given by a CAP Mission Check Pilot Examiner within the preceding 24 calendar months IAW CAPR 60-3.

(4) Satisfactorily complete the National Check Pilot Standardization Course prior to initial appointment.

(5) Must be designated in writing as a CAP Mission Check Pilot by the wing or region commander, Executive Director, or their designee.

k. CAP Mission Check Pilot Examiner. Qualified as a CAP Mission Check Pilot and designated in writing as a CAP Mission Check Pilot Examiner by the wing or region commander, Executive Director, or their designee.

3-8. Pilot Records.

a. All pilot data must be entered into the CAP OPS Quals system by the member or authorized unit Stan/Eval and validated by the unit commander or designee. Data entered shall include all relevant FAA pilot qualifications, CAPFs 5, aircraft questionnaire(s), commander written designations, and other items needed to establish CAP aircraft operating privileges under this regulation.

b. All CAP pilots must sign a one time copy of the CAP Statement of Understanding, which will be maintained on file with the authorized unit Stan/Eval. The latest copy of this document is located on the NHQ CAP/DOV website.

3-9. Trend Analysis Reporting. This will help CAP target areas that need more emphasis during training. Each wing will report check ride statistics on a semi-annual basis. The January to June period will be reported by 31 July and the July to December period will be reported by 31 January. The report will include:

a. The number of CAPF 5 evaluations administered, the number of failures, and the areas of the CAPF 5 failed.

b. The number of CAPF 5G evaluations administered, the number of failures, and the areas of the CAPF 5G failed.

c. The number of CAPF 91 evaluations administered, the number of failures, and the areas of the CAPF 91 failed.

The report may be e-mailed to dov@capnhq.gov, faxed to 800-555-7902, or entered directly on-line.



NATIONAL HEADQUARTERS CIVIL AIR PATROL

CHANGE 1 (CORRECTED COPY)

CAP REGULATION 60-1

2 FEBRUARY 2009

Operations

CAP FLIGHT MANAGEMENT

CAP Regulation 60-1, 5 January 2009, is changed as follows:

Page-Insert Change.

Remove	Insert
11/12	11/12

Note: Shaded areas identify new or revised material.



NATIONAL HEADQUARTERS CIVIL AIR PATROL

CAP REGULATION 60-3

17 AUGUST 2009

Operations

CAP EMERGENCY SERVICES TRAINING AND OPERATIONAL MISSIONS

This regulation prescribes concepts, policies, and standards that govern all Civil Air Patrol (CAP) supervisory, ground, and flight personnel in the training, qualification, and execution of CAP operational missions. Practices, procedures, and standards prescribed in this regulation are mandatory and may not be supplemented or changed locally without the prior approval of NHQ CAP/DO. Additional guidance is found in CAPR 60-1, *CAP Flight Management*; CAPR 60-5, *Critical Incident Stress Management*, CAPR 60-6, *CAP Counterdrug Operations*, and other directives governing specific CAP policies. Forward all suggestions for modification and improvement of the program through channels to NHQ CAP/DO. **Note: This regulation is revised in its entirety.**

SUMMARY OF CHANGES.

The entire regulation is completely revised, to eliminate information duplicated in other CAP regulations, improve readability, and incorporate interim change letters. Though significant changes have been incorporated, this regulation is only an interim measure to bridge the gap until CAPR 60-3 and CAPR 60-6 are combined into one regulation that encompasses guidance for all operational missions. This revised regulation is 14 pages shorter than the previous version. To accomplish that, some of the sections from the previous CAPR 60-3 are now posted online on the NHQ CAP/DOS website. We will continue to seek ways to shorten the combined 60-3/60-6 regulation as it is being drafted to follow the standard that was established with the latest revision to CAPR 60-1.

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CHAPTER 1 – GENERAL INFORMATION

SECTION A – GENERAL POLICIES

1-1. Scope.

a. This regulation provides direction for the Civil Air Patrol (CAP) operational mission training, qualification, and actual mission activities. CAP provides services to conduct search and rescue (SAR), disaster relief (DR), Homeland Security (HLS) and other public assistance missions. Many missions are in support of persons in distress and should be conducted competently, expeditiously, and in a professional manner. Proper training, thoroughness, and timeliness cannot be overemphasized.

b. This regulation outlines the policies and procedures for execution of various CAP operational missions, and establishes a foundation for expansion into joint operations using the incident command system and other management tools. Some unique situations may dictate variations in the procedures contained in this regulation. In these cases common sense and prudent judgment must be used to ensure effective management of CAP resources. Safety must always be a primary concern.

c. When the regulation states that wing commanders can approve various qualifications, it means wing commander or higher. Region commanders and the National Commander (or their designees) can respectively approve these qualifications for the members they supervise on the region and national staff.

1-2. Supplements and Waivers. Supplements to this regulation cannot be issued below the wing level (except Congressional Squadron) and require region commander, NHQ CAP/DO, and CAP-USAF/XO approval. Requests for waivers or supplements must be submitted via chain of command to the CAP and CAP-USAF region commanders and then to NHQ CAP/DO for further consideration.

1-3. Definition of Terms. Below is a list of terminology and general definitions commonly used in emergency services:

a. Air Force Assigned Mission (AFAM) – Any CAP activity authorized by the Air Force to use an “A” or “B” mission symbol. “A” missions are generally considered Air Force reimbursable missions that are funded and provide federal insurance coverage. “B” missions are generally considered Air Force non-reimbursable missions that are normally funded by a federal, state, or local agency, the CAP wing, or individual members and provide federal insurance coverage. “B” missions must have some level of federal interest in order for the mission to be authorized to receive federal insurance coverage. See AFI 10-2701 and CAP-USAFI 10-2701 for additional details.

b. CAP Corporate Mission – All authorized mission activities that are not AFAMs.

c. CATS – CAP Asset Tracking System; the CAP website used to track non-expendable property like computers available in eServices. CATS will be incorporated into the Operational Resource Management System (ORMS) when ORMS is finalized. Also see ORMS.

d. CEMS – Communications Equipment Management System; the CAP website used to track all land mobile radio supplies and equipment, accessible to approved members in eServices. CEMS will be incorporated into the ORMS when ORMS is finalized. Also see ORMS.

e. eServices – the CAP website accessible to all members that serves as the portal for most electronic services for CAP – (<https://www.caphq.gov/CAP.eServices.Web/Default.aspx>)

f. Incident Commander (IC); the CAP IC is the member responsible and in command of CAP resources supporting an incident. If CAP is not the lead agency, a CAP member qualified in the IC achievement will serve as the CAP agency representative to the lead agency IC, and ensure that all CAP resources are used in accordance with approved policies and procedures.

g. Memorandum of Understanding (MOU) – an approved agreement with another organization that may define CAP activities in support of that agency’s mission. MOUs may contain provisions and restrictions that supersede those found in this regulation. Each wing is encouraged to establish an MOU with their state and local agencies that they routinely support. Additional information on MOUs is available from NHQ CAP/GC.

h. NHQ CAP/DOS website – The CAP website where materials in support of CAP mission operations are located – (http://members.gocivilairpatrol.com/emergency_services/operations_support/index.cfm)

i. National Operations Center (NOC) – The single resource for coordinating mission approval for both Air Force Assigned Missions and CAP corporate missions. Additional information about the NOC is available in paragraph 1-5a.

j. Operations Qualifications (Ops Quals) – Ops Quals is the CAP website used to document all operations related training and qualifications for CAP members and is accessible to all members in eServices

k. Operational Resource Management System (ORMS) – Formerly referred to as CATS and CEMS, ORMS will be the CAP website used to track primary assignment of CAP equipment (including communications), vehicles, and aircraft, accessible to approved members in eServices.

l. Qualified – Meets all CAP requirements for assignment – qualified is defined in greater detail in CAPR 60-1 for pilots.

m. Web Mission Information Reporting System (WMIRS) – the CAP website accessible through eServices to all members as well as externally to customers. It is used to track mission sorties, approval and other critical mission information. Additional information is available in paragraph 1-15. WMIRS can be found on-line at: (<https://missions.cap.af.mil/wmirs/index.cfm>).

1-4. Priority for Support. As the Auxiliary of the Air Force, CAP priority for employing CAP resources is first, the Air Force, then other DoD departments and agencies, other federal departments and agencies, state civil agencies, and finally, local agencies. That does not prohibit CAP from supporting multiple agencies on the same incident, but CAP must be careful to make sure customers understand CAP’s priorities when requesting support.

1-5. Responsibilities. All commanders and members must strictly enforce and comply with the provisions of this regulation. Specific requirements and job descriptions for staff officers at all levels can be found in CAPR 20-1, *Organization of Civil Air Patrol*. Missions are primarily accomplished at the wing level and below. Summaries of key responsibilities at that level are provided below.

a. **NOC.** The NOC is the single resource for assisting customers in obtaining CAP support, coordinating mission approval and up-channeling reports for both Air Force Assigned Missions and CAP corporate missions.

(1) The responsibilities of the NOC include, but are not limited to the following:

(a) Coordinating with the local region to provide additional resources that are needed from other wings/regions.

(b) Consolidating and up-channeling mission reports through CAP and Air Force channels.

(c) For Air Force missions, the NOC acts as the conduit for mission guidance and approval from the Air Component Commander's staff (1st AF, 11th AF, 13th AF). CAP ICs should be aware that guidance and requests coming through the NOC are actually being made by the Air Force.

(d) For corporate missions, the NOC provides wing/region commanders (the Corporate Officers who will be approving the mission) guidance on the legality of performing the requested mission as well as advice on the best ways for CAP to support the mission request.

(e) Provide regions/wings/customers initial feedback on if/how CAP can provide support for various missions.

(2) AFAM guidance.

(a) The NOC is directly involved in coordinating all types of missions except SAR missions. Air Force Rescue Coordination Center (AFRCC) missions are tasked/worked directly between AFRCC and the wing involved. This includes requesting resources from other wings. The NOC does not usually get involved in SAR missions unless AFRCC requests NOC assistance or the wing/region requests NOC assistance.

(b) A verbal request for CAP assistance from a customer can be acted on initially in an emergency, but all requests for CAP support must be submitted in writing via surface mail, e-mail (preferred) or fax.

(c) To ensure CAP's ability to support mission requests or to meet potential wing/region additional resource requirements, it is always best for commanders or ICs to give the NOC as much advance notice as possible even if they are not sure CAP will be tasked or if additional resources will be needed.

(3) General information.

(a) The NOC normally operates from 7 AM to 5 PM Central Time, Monday – Friday (except federal holidays.)

(b) The NOC expands its hours to meet customer and CAP requirements during major contingencies.

(c) A duty officer can be reached 24/7 by calling 888-211-1812, Ext 300 at any time in case of emergency.

(d) The NOC e-mail address is opscenter@capnhq.gov and the fax number is 800-555-7902. E-mails or Faxes submitted to the NOC during non-duty hours for emergency requests should be followed up with a phone call to make sure the NOC has received it.

b. Wing. Wing commanders and their designees must ensure all CAP resources are used in an effective, safe, and efficient manner to support all authorized CAP operational missions. Each wing must:

(1) Maintain a current Wing alert roster and resource report in WMIRS.

(a) This will be updated at least annually or as directed by the National Operations Center, and should be reissued as major changes occur. All CAP personnel designated as Wing Alert Officers (WAO) to accept missions on the wing's WMIRS alert roster must be qualified ICs. WAOs will be tracked in Ops Quals as a specialty qualification.

(b) Alert roster updates will automatically be sent from WMIRS to AFNORTH (including AFRCC) and other national organizations as specified by agreements.

(c) It is imperative that contact information and status of operational mission qualified personnel and resources are updated in a timely manner to assist in personnel notification and response. Additional guidance for alerting procedures can be found on the NHQ CAP/DOS website.

(2) Coordinate with state and local officials for training and equipment, and establish integrated plans and exercises that will satisfy state requirements.

(a) Sample operations and exercise plans are available from the National Operations Center to assist commanders in establishing joint training and operational plans with military units.

(b) Plans for support to other state and local agencies/organizations should be incorporated into a wing level memorandum of understanding or other approved agreement.

(c) Ensure all commitments can be met and correct any prior deficiencies that are known. Do not over-obligate the wing. Review historical data to establish trends and be able to justify the wing's requirements for support. Maintain regular contact with all involved parties so that Civil Air Patrol remains on agencies' active checklists. Develop and test procedures for relaying required and pertinent operational information to the appropriate controlling agency.

(d) Ensure compliance with applicable regulatory guidance when working missions in support of, or in cooperation with, other agencies.

(3) Mission requirements and activities must be coordinated with other CAP staff (Director of Logistics, Director of Communications, Finance Officer, etc.).

(a) Appropriate staff officers must maintain records containing the status of vehicles, aircraft, radios, and other emergency equipment available for operational missions in WMIRS, ORMS, CEMS and other applicable local databases when necessary.

(b) Ensure proper documentation and retention of records for emergency services mission activities. Electronic storage of mission documentation is acceptable including readable scans of original documentation and storage of logs in local mission databases. Electronic records must be backed up in accordance with CAPR 10-2, *Files Maintenance and Records Disposition*. Electronic records within WMIRS do not need to be stored locally. Though electronic storage is authorized, this is not intended to authorize purely electronic flight or other mission release.

(4) Ensure adequate initial, upgrade, and currency training activities are conducted to maintain the qualification and proficiency of emergency services mission personnel, and the results are properly documented.

(a) Maintain electronic or paper records on individual CAP personnel documenting:

- 1 Accomplishment of qualification training required by this regulation.
- 2 Current specialty qualification status.

3 CAPFs 112 and/or 113 may be used to document training tasks completed. These forms are provided as a convenience are not mandatory.

4 CAPF 114, *CAP ES Qualification Record*, should be used to maintain hard copy emergency services personnel records. This is not required if electronic records are kept.

(b) Wings may opt to only maintain records documenting those members that are currently qualified.

(c) Though paper records of all members' emergency services qualifications are not required, Wings must have appropriate electronic access to qualification data when needed if not entirely stored within the National Headquarters Ops Quals system.

(d) Pilot files are still required to be kept in accordance with CAPR 60-1.

(e) All qualifications must be reflected in Ops Quals for a member to be considered qualified.

(f) It is not necessary to maintain paper or electronic Specialty Qualification Training Records (SQTR) once qualifications are approved in Ops Quals on-line. Members are encouraged to still maintain complete records of SQTRs and external training as many task requirements and courses overlap specialties and without proper documentation the member may need to re-demonstrate tasks when working towards other qualifications.

(5) Develop and provide an IC kit to all wing ICs. Periodic updates will be provided, but it is the responsibility of each IC to ensure the currency of this kit. This kit should contain required regulations, manuals, maps, forms, checklists, resource directives, etc., normally needed to conduct any operational mission. A downloadable electronic IC kit or CD-Rom of resources is acceptable; electronic resources must be reviewed and certified as current at least annually.

c. Units. Each unit must:

(1) Ensure individuals satisfy all applicable requirements before approving a member's SQTR, and maintain all documentation required for issuance either on paper or electronically. Documentation should be kept in a CAPF 114, if not stored electronically.

(2) Ensure individuals satisfy all applicable requirements before recommending issuance or renewal of a CAPF 101, *Specialty Qualification Card*, and maintain all documentation for issuance either on paper or electronically. Documentation should be kept in a CAPF 114, if not stored electronically.

(3) In coordination with the Wing emergency services staff, ensure adequate coordination with local agencies for training, joint exercises, etc.

(4) Coordinate with local agencies for training, equipment, joint exercises, plans, etc. Ensure all commitments can be met. Do not over-obligate your unit.

(5) Track the status of all SQTR cardholders within the unit.

(6) Maintain a unit alert roster and resource lists, and designate Unit Alert Officers (UAO) to coordinate mission support for the unit. This will be updated at least annually or as directed by the chain of command, and should be reissued as major changes occur. All personnel assigned as UAOs must be General Emergency Services (GES) qualified senior members. UAOs will be tracked in Ops Quals as a specialty qualification.

d. Individual Members. Individual CAP members participating in operational missions must:

(1) Maintain proficiency in and documentation of their specialty qualifications.

(2) Provide information concerning their qualifications, availability, and readiness to their unit commander (or designee).

(3) Maintain individual equipment readiness and availability to support operational mission requests.

1-6. Wing Recognition. Each calendar year, HQ CAP-USAF/CC presents awards within each region for the wings with the best search and rescue, disaster relief, counterdrug, and homeland security programs as outlined in CAP-USAF Instruction 10-2701, *Civil Air Patrol Operations and Training*. The winning wings permanently retain these awards. Selection of the wings receiving these awards is accomplished by the respective CAP-USAF liaison region commander based upon the following:

- a. Results of required evaluations.
- b. Quality and quantity of training activities during the year.
- c. Performance during actual missions.
- d. Cooperation between the CAP wing and state and local agencies.

1-7. Training. Commanders must ensure that an adequate upgrade, currency, and standardization program is maintained to provide qualified and proficient personnel to conduct operational missions. A continuous training program fostering training at all operational levels must be conducted to ensure that all personnel thoroughly understand and apply the policies in this regulation. Training programs will clearly define responsibilities, stressing the knowledge of the capabilities and limitations of equipment and personnel. A comprehensive annual operations training plan will be developed for each wing, and will be submitted to the CAP Liaison Region via WMIRS by 31 July for the following fiscal year. This training plan must be the basis for all Air Force funded training for the next fiscal year, and should be based on the funding levels of the current year. Training plans should address wings needs for air, ground, and incident staff training. Commanders will need to be sure that all staff inputs are reflected in the plan, critical priorities are funded appropriately, and unfunded initiatives are identified should additional funding come available.

1-8. Information Releases. Information that is releasable to the public on CAP missions should be given promptly to news media representatives. All CAP ICs and information officers will coordinate press releases with the agency being supported (AFNORTH, AFRCC, FEMA, etc.) in advance. The NOC can assist with this. Press releases for all AFAMs must also be coordinated with NHQ CAP/PA with support from the NOC to ensure the appropriate Air Force agency provides approval prior to release. In addition to keeping the public informed, releasing certain information could lead to public assistance in reporting data that may assist in search or other CAP missions. Mission information will be safeguarded IAW CAPR 60-3 para 1-34 and 1-35, and DoD Guidance. Additional information on the role and responsibilities of the public information officer can be found in CAPR 190-1, *Civil Air Patrol Public Affairs Program*, and the Mission Base Staff Task Guide.

1-9. Mission Funding and Reimbursement. CAP members and units may be reimbursed for designated expenses incurred during Air Force-assigned missions. Other federal, state, and local agencies or organizations may provide reimbursement for other missions according to prearranged agreements. Review CAPR 173-3, *Payment for Civil Air Patrol Support*, for current reimbursement policies and procedures.

SECTION B - MISSION COMMITMENT POLICIES

1-10. General. The determination to commit CAP resources during adverse conditions is a difficult decision. A calculated risk in the use of these forces may be justified during hazardous missions involving people in distress. The NHQ CAP/DOS website provides some information on risk analysis that can be used in making the decision to commit to a mission or not. CAP ICs should rely upon the judgment of the on-scene commander if unable to be there personally. Before an IC commits CAP resources, known capabilities of personnel and equipment and the urgency of the situation must be weighed carefully against the chance of mission success. Prior planning and knowledge of the limited capabilities of resources is essential to doing this.

a. Upon locating persons in distress, all personnel must assume that immediate assistance is necessary and act accordingly. The condition of these persons cannot be determined accurately through aerial observation alone.

b. CAP resources may be deployed whenever they can be effectively used. They should not interfere with other activities being conducted to assist any person or property in distress.

c. It is possible to use all suitable and readily available CAP resources, whether corporate or member-owned/furnished, to ensure the most efficient and timely response to missions. The use of some privately owned resources is permitted if approved in advance. CAP regulations 173-3, 77-1, and 900-5 should be referred to in order to determine if the resource must be approved in advance, and who the approval authority is.

d. Only qualified CAP members, qualified members of other agencies with which CAP has an approved memorandum of understanding, and CAP mission trainees under the supervision of a qualified person may participate in CAP operational missions. There will be at a minimum a 1-to-3 ratio of supervisors to trainees when trainees are utilized.

e. Use of qualified CAP cadets is encouraged as much as possible on appropriate missions. Cadets should be trained in the various functions of mission operations and support as permitted. Cadets qualify no differently than adult members in emergency services qualifications, and can be properly utilized in age-appropriate scenarios. Additional guidance for employing cadets on missions can be found on the NHQ CAP/DOS website.

f. Basic policies of CAP directives remain in effect while acting under a joint agreement such as with the Salvation Army or a state emergency response agency.

1-11. Operational Risk Management. The determination to employ CAP resources is a serious one, and should be made carefully, with all personnel fully aware of the associated risks. All CAP members will apply the appropriate level of Operational Risk Management (ORM) and risk mitigation techniques to all events. Additional training and information on ORM is available on the NHQ Safety website.

1-12. Organizing Resources. The IC will organize the personnel and equipment under his/her control for maximum efficiency and economy of operations. Resource utilization and allocation are critical functions of the mission staff; only properly qualified personnel or supervised trainees may be utilized, and the supplies, equipment, vehicles and aircraft they need must be capable and available to meet mission requirements. Analyze the objective and the prevailing conditions and make prudent decisions concerning the suitability of air and/or ground resources. The final decision to use CAP resources remains within CAP at all times. The CAP IC exercises full authority over all CAP personnel for matters pertaining to the mission; the CAP IC is often not the overall IC, and often serves as an agency representative in the incident command structure. The CAP IC must exercise prudent judgment in prosecuting missions. A thorough assessment of all risks associated with the mission must be accomplished and appropriate controls put in place to ensure safe operations. More information is available on the NHQ CAP/DOS website to assist with risk assessments, and organizing resources.

1-13. Common Responsibilities of all CAP Mission Personnel. There are certain common responsibilities or instructions associated with an incident assignment that everyone should follow. Following these simple guidelines will make your job easier and result in a more effective operation. Checklists, forms and training materials are provided on the NHQ CAP/DOS website, and evaluation guides are provided in CAP-USAFI 10-2701.

1-14. Managing the Mission. ICs are expected to support many types of missions utilizing a variety of resources. This requires significant training and experience. CAP ICs not only represent CAP, but also take on a variety of responsibilities for customer agencies and organizations. In general, CAP ICs are expected to make prudent decisions to safely execute mission assignments with available resources, to properly document objectives and work completed, to request additional support when necessary, and guide mission operations from start to finish. Detailed guidelines for how CAP ICs are expected to manage and support missions can be found on the NHQ CAP/DOS website.

1-15. Web Mission Information Reporting System (WMIRS). The IC is responsible for the accuracy and quality of the information in WMIRS. The IC may delegate WMIRS data entry as necessary but this delegation in no way releases the IC from the responsibility of ensuring data in WMIRS is current and correct.

a. The IC is responsible for ensuring all necessary WMIRS entries are completed and mission approvals are received prior to the launch of any sortie.

(1) All sorties for 1st AF, 11th AF and 13th AF missions must be approved in advance.

(2) An air sortie is one takeoff to one full stop landing. Additional sorties can be approved by the designated approval authorities for the mission on short notice for unexpected events. Additional information is also available on the NHQ CAP/DOS website.

(3) Ground sorties are generally considered to be from when a team is released until they return.

b. After the crew is released for their approved sortie, the IC will ensure sortie departure times are entered into WMIRS as soon as that information is received by mission base personnel.

c. Upon sortie completion, the IC will ensure sortie duration, effectiveness, and any requested photos are entered into WMIRS. This information will be entered without delay. Photos will be marked in accordance with the needs of Air Force and the customer, but will contain, at the very least, a detailed description of the target, the latitude/longitude of the target, and the direction toward which the photo was taken. Contact the NOC for clarification if needed.

d. Sorties which divert and thereby incur an extra sortie must have their new sortie entered into WMIRS prior to departure.

e. If circumstances prevent the IC from ensuring all required data is entered into WMIRS in a timely manner, the IC will immediately contact the NOC for assistance.

1-16. Air Operations.

a. Air search operations are broken into two phases, the preliminary search and the concentrated search.

(1) A preliminary search is accomplished during the early part of a mission when it is desirable to cover rapidly all of the territory in which the objective might be located. Aircraft should be dispatched as quickly and safely as possible. Initial route searches should cover the likely route of flight, with emphasis on high mountain peaks, frozen lakes, and areas of severe weather at the time the objective was lost. Properly trained and equipped aircrews can accomplish a preliminary search at night.

(2) If the objective is not located during the preliminary search, it is then necessary to conduct a concentrated search of the most probable areas. Determination of the concentrated search area requires careful analysis of all available information, including the flight plan, weather, terrain, pilot habits, etc.

b. Air operations in support of disasters must be conducted as necessary to accomplish damage assessment, transport of equipment and supplies, monitoring of overall operations, etc., in accordance with requests of the overall IC.

c. Airborne reconnaissance and delivery of imagery to varied customers is a critical function of CAP aircrews. Though it is not required that all images taken be uploaded into WMIRS on all missions, aircrews must upload photos as required in the mission and sortie authorization to WMIRS in a timely manner in the format desired. AFNORTH's current requirements for mission photos and imagery can be found on the NHQ CAP/DOS website.

d. The air operations branch director is responsible for ensuring the safety of all air operations. Aircraft and aircrew capabilities and limitations must be carefully reviewed to verify their suitability for mission assignments prior to release.

(1) Aircraft equipment must be appropriate for the mission (DF, night or IFR equipped, VHF FM communications, etc.).

(2) Composition of the aircrew will vary in number and qualifications depending upon the assignment. A typical aircrew is made up of a mission pilot, mission observer, and mission scanner. Some missions may require a mission scanner or observer to also be a qualified airborne photographer, ADIS operator, or ARCHER operator. Even for purely relocation or transportation sorties it is recommended that aircraft be released with a mission observer, mission scanner, or a second mission pilot. Pilots only qualified as Transport Mission Pilots (TMP) are only allowed to fly certain sorties on authorized ES missions, and additional details of the below restrictions can be found in CAPR 60-1. TMPs can only:

(a) Transport Emergency Services qualified CAP members required for an authorized mission.

(b) Ferry aircraft required for an authorized ES mission.

(c) Fly “high bird” communications sorties on an authorized ES mission.

(d) Current and qualified FAA private pilots may transport parts and equipment owned by CAP or a CAP member to a mission base or staging area.

(e) Current and qualified FAA commercial pilots may transport parts and equipment not owned by CAP.

(3) Aircrews will not self-dispatch; they must be properly released, even remotely via phone or other means if necessary, and noted appropriately on a CAPF 104, *Mission Flight Plan/Briefing Form*; 107, *Flight Operations Log*; and other mission documents, as appropriate. Signatures are not required on the CAPF 104, but the CAPF 104 must note who briefed and released the crew accordingly.

(4) CAPR 60-1 and CAPR 66-1, *Civil Air Patrol Aircraft Maintenance Management*, apply to all air operations.

1-17. Ground Operations. Ground teams may be used in virtually all phases of a mission. Ground operations are governed by state and local laws as well as by CAP regulations and policies.

a. Missions are frequently initiated during periods of adverse weather or other inopportune moments when air operations may be precluded or limited, for example, immediately following a storm or in the middle of the night. Ground teams can often be dispatched to gather information, search suspected high probability areas, search for missing persons, locate ELT transmissions, verify airborne sightings, etc.

b. The ground branch director is responsible for ensuring the safety of all ground operations. Team capabilities and limitations must be carefully reviewed to verify their suitability for mission assignments.

(1) Team vehicles and equipment must be appropriate for the mission (VHF direction finding [DF], VHF FM communications, first aid/rescue equipment, etc.).

(2) Team training and experience must be appropriate for the mission (proficiency in DF use, ground rescue knowledge, concentrated area search procedures, missing person search, etc.). Ground Team Members – Level 1 should be prepared to conduct ground team operations within their limits of training up to 72 hours. Ground Team Members – Level 2 should be prepared to conduct ground team operations within their limits of training for up to 48 hours. Ground Team Members – Level 3 should be prepared to conduct ground team operations within their limits of training for up to 24 hours.

(a) A ground team may only conduct operations within the limits of training of its lowest qualified member. A member qualified at one level, and having supervised trainee status for a higher level may be used operationally at the higher level if the trainee is properly equipped and supervised.

(b) Team assignments must be carefully matched with team member qualifications before releasing a ground team on a sortie.

(3) Composition of the ground team, urban DF team, or Community Emergency Response Team (CERT) will vary depending upon the assignment. Ground teams will not be released without a qualified ground team leader and at least three qualified ground team members or supervised trainees. Urban DF teams will not be released with less than two personnel and CERTs will not be dispatched with less than three personnel. There is not a separate qualification for members and leaders on Urban Direction Finding Teams and CERTs, but one member will be placed in charge. All ground operations must still meet the requirements for cadet protection and vehicle usage. Ground resources will not self-dispatch; they must be properly released, even remotely via phone or other means if necessary, and noted appropriately on mission documents. Signatures are not required on the CAPF 109, *Ground Team Clearance*, but the CAPF 109 must note who briefed and released the crew accordingly.

(4) Teams in the field should establish communications with the base of operations (directly or through a relay) at regular intervals.

(5) Ground teams should document interviews/interrogations conducted in the field using the CAPF 106, *Ground Interrogation Form*.

(6) Only members qualified in accordance with CAPR 77-1, *Operation and Maintenance of Civil Air Patrol Vehicles*, may operate CAP vehicles. All personnel operating vehicles will have a valid state driver's license and will operate all vehicles in accordance with applicable state and local laws.

c. Ground teams must follow proper procedures upon locating a search objective.

(1) Assess and secure the scene.

(2) Render aid to survivors and prepare survivors for evacuation.

(3) Do not disturb anything at the site except as necessary to render aid to survivors.

(4) Verify the identity of the aircraft, person, etc.

(5) Advise the IC of the situation and request appropriate authorities be notified.

(6) Retain aircraft or other resources in the area until certain they are not needed.

Note: Additional information is available in the Ground & Urban Direction Finding Team Task Guide.

1-18. Mission Assistance. Once a CAP IC is appointed, there should be no hesitation to request, through the controlling agency, any additional assistance needed.

a. In many instances, a mission will occur on or near the border of another CAP wing possessing the capability to give assistance. In these cases, the best course of action may be for the additional resources to come from an adjacent wing and use groups, divisions, branches, unified command and area command as needed for span-of-control and supervision of resources within the operational area. The NOC will work with the IC and the local CAP region to make sure all mission resource requirements are met. The NOC will coordinate approval from the designated mission approval authority to use resources from other regions/wings.

b. In some instances where a mission involves several wings (states), it may be more effective for the controlling agency to designate an overall IC, with assistants representing other participating wings, or to consider employing unified command or area command.

c. CAP may be working a mission with non-CAP agencies and, in fact, may not be the lead agency.

d. All CAP personnel, regardless of unit or rank, will give the IC complete support and cooperation. ICs are assigned based on their experience.

(1) There are a limited number of Level 1 ICs across the country. These personnel are normally the most experienced and can be utilized on all events.

(2) There are several subordinate levels of ICs. These personnel can be utilized to coordinate CAP's common missions like electronic searches for distress beacons, ramp checks, etc. at the lowest levels, to complex searches and local disaster response missions. They are not disqualified from coordinating other missions, but their experience must be considered before assigning them.

(3) ICs must recognize when incident complexity or scope approach the limits of their experience level, and request assistance from, or transfer command to, a more experienced IC in a timely manner.

e. Only the designated CAP IC or the IC's designee will coordinate with the controlling agency. Unless relieved by the appointing authority, the designated IC will make the final decision on all matters pertaining to CAP participation in the mission.

f. In order to maximize CAP's capabilities, wing and region commanders should establish "Joint Agreements of Cooperation" between their wings and bordering regions. Formalized agreements of cooperation and assistance will reduce duplication of effort, enabling missions to be performed promptly and efficiently. These agreements do not change the responsibilities of the NOC and coordinating agencies to approve sorties and resource usage on missions, and does not automatically authorize the use of pre-arranged assets. However, it can significantly decrease the time required to arrange for support and should be considered.

1-19. Imminently Serious Missions (C911). The wing commander or designee cannot authorize an AFAM. The C911 program permits CAP wing commanders to launch aircraft or disperse ground teams on actual missions using a corporate mission number with the understanding that there is limited insurance coverage (members are not provided FTCA and FECA coverage). In order to activate a C911 mission, a responsible state or local government official must request CAP assistance. Imminently Serious Missions will only be used to save lives, relieve human suffering, or mitigate great property damage. CAP members participating in C911 missions must be mission qualified in accordance with this regulation. Mission procedures are as follows:

a. Only the wing commander or the commander's designee may authorize a C911 mission as a corporate mission for a wing. In the absence of the wing commander, the vice commander, the director of operations, or director of emergency services may exercise this authority.

b. The NOC must be informed ASAP for all C911 missions.

c. Whenever a C911 mission is activated, the wing (and the NOC once notified) will make every effort to have responsible authorities obtain an actual AFAM number from AFNORTH, AFRCC or other appropriate Air Force authority in order to improve the insurance coverage provided to our members.

d. The IC must track the assets committed to the C911 mission. C911 missions are funded by the wing or the customer agency within funding limits agreed to in advance; national funds are not available for corporate missions of this nature. Mission funding should be sought from the state or local requesting official under an approved MOU or other agreement to avoid depleting the wing's accounts.

1-20. CAP Assistance in Transporting Specialty Teams. If a state or other local agency requests CAP assistance in transporting special SAR or DR assets like canine search teams or man trackers, they should make the request to AFRCC (SAR missions) or the NOC (DR missions). In some limited situations, CAP-USAF liaison regions may be able to authorize Air Force-assigned reimbursed training missions if sufficient training funds are available, or non-reimbursed missions if funds are not available. In addition, the wing commander could authorize a wing-funded or unfunded corporate mission. FAA rules do not allow customer reimbursement for transportation missions flown as corporate missions.

1-21. Mission Records. Wing commanders will ensure that records pertaining to each authorized mission are filed at wing headquarters. These records must be kept in a CAPF 115, *Emergency Services Mission Folder*, or electronically (scanned copies to document proper release signatures and such) and will include at least the ICS 201 or full Incident Action Plan; IC's log; mission flight plans; personnel, vehicle, and aircraft registers; all CAP and wing forms used; sortie logs; interview/interrogations forms; message log; copies of news releases; reports to the controlling agency (CAPF 122, SITREPs, etc.); and any related information that may be needed in answering future inquiries relating to the mission. Detailed guidance for the use and retention of CAP and ICS forms and other mission documentation is available on the NHQ CAP/DOS website. Records must be maintained at least 4 years after the mission is closed or suspended except where they are involved in actual or potential litigation and then they will be retained until that issue is resolved. Mission records kept in WMIRS do not need to be kept separately in either paper or electronic format. However, any mission records not contained in WMIRS must be kept in either paper or electronic format and be available for inspection. No mission records will be released outside CAP without prior written approval of NHQ CAP/GC and HQ CAP-USAF/JA. See paragraph 1-5b(3) for additional information.

1-22. Patient Transfer and Medical Evacuation. The CAP will not normally be used for routine patient transfers or medical evacuations; however, CAP may be used to transport persons seriously ill, injured, or in distress to locations where facilities are suitable, or when other suitable modes of patient transportation (commercial or public) are not readily available in an emergency. Prior to dispatching an aircraft or vehicle on this type of mission, the AFRCC or other controlling agency will obtain the best medical evaluation to determine the need for assistance. This is not to be interpreted to mean that decisions of medical authorities are final in deciding whether a mission will be performed. This type of mission is normally categorized as a rescue mission, with authorization obtained through the AFRCC. If the requested activity cannot be accomplished as an Air Force-Assigned Mission, prior approval as a CAP corporate mission must be obtained as stated in CAPR 60-1. In order for this to be flown as a corporate mission in support of organizations like Angel Flight or the Air Care Alliance, the following is required:

a. The CAP pilot would have to pay for all of the mission expenses. Ideally the pilot would have a commercial rating, but it is not required.

b. The patient would need to have a written statement from his or her doctor clearly indicating it is safe for the patient to travel via a small unpressurized aircraft.

- c. The patient or the patient's legal guardian would need to sign a CAPF 9, *Release (For Non CAP Members)*, (or other HQ CAP approved) release.
- d. The mission would need to be entered into WMIRS including attached copies of the doctor's statement and CAPF 9 (see above). Ideally, this would be done several days in advance of the requested mission.
- e. The NOC will review all documentation provided and then alert the wing commander or his/her designee that the mission is ready for approval in WMIRS.

1-23. Assistance to Law Enforcement Officials. CAP units and members engaged in CAP activities may provide passive assistance to law enforcement officers and agencies, subject to the restrictions outlined in AFI 10-2701. CAP members may not be deputized nor may they take an active part in arrest or detention activities and have no authority to restrict persons by means of force, actual or implied.

a. CAP assistance to law enforcement agencies that may lead to criminal prosecution is restricted to patrol, reconnaissance, and reporting only. Requests for such assistance, unless of an emergency nature, must be approved in advance by the wing and region commanders and coordinated with NHQ CAP/DO. All CAP flight activities will be in accordance with CAPR 60-1.

b. Assistance may also be a by-product of the normal conduct of a CAP mission. In some instances, such as during an airborne search, CAP members may observe suspicious activities and as concerned citizens, should report those observations to proper authorities.

c. When requested by the proper law enforcement authority, CAP members may provide crash site surveillance and/or crowd control duties during an emergency/disaster situation. When on such a mission, the senior CAP member present will ensure the above restrictions are understood and will contact the nearest law enforcement officer if assistance is required.

1-24. Legal Issues of CAP Operational Missions. Title 10, USC § 9442 identifies CAP as an auxiliary of the Air Force when carrying out a mission assigned by the Secretary of the Air Force. This happens when CAP provides services to any department or agency in any branch of the Federal government, including the Air Force. CAP is deemed to be an instrumentality of the United States while carrying out missions assigned by the Secretary. This provides both legal benefits and restrictions on what members can do on AFAMs. There are certain legal issues and principles of which CAP members should be aware to protect themselves and the Corporation from legal liability. While it is impossible to have specific rules which will be valid in all the states and territories, several general principles of law can decrease the risk of individual and corporate liability. The legal officer of each wing should review state laws and suggest ways to avoid legal liability arising out of CAP activities.

a. **Liability Protection.** CAP members acting within the scope of their duties on CAP operational missions will be afforded liability protection by the United States Government under the Federal Torts Claims Act (FTCA) while serving on Air Force-Assigned Missions or by CAP's liability insurance policies (within policy limits) while on other CAP corporate missions (refer to CAPR 900-5, *The CAP Insurance/Benefits Program*).

b. Worker's Compensation Protection. CAP members 18 years of age and older are eligible for Federal Employees' Compensation Act (FECA) benefits if injured or killed while serving on an Air Force-Assigned Mission. Travel to and from such mission activity is also covered as long as there is a "causal relationship" between the injury/death and the AFAM activity. In addition, some states provide state worker's compensation benefits for CAP members injured or killed while serving on state operational missions (refer to CAPR 900-5, *The CAP Insurance/Benefits Program*).

c. Entry or Seizure of Private Property During Missions. As a general rule, CAP members are subject to well-known rules that prohibit trespass or seizure of private property. While entry upon private property may be justified if such an act is for the purpose of saving life, every effort should be made to obtain the controlling agency's approval and property owner's consent. Entry and activities on private property during training missions must always be arranged in advance with the owner. Under no circumstances may a CAP member seize property or engage in searches beyond that noted above.

d. Distress Beacons. Distress beacons are frequently tracked to a locked vehicle, boat, aircraft, or building. CAP mission personnel should contact the IC who will contact the controlling agency (e.g., AFRCC) for further instructions. If entry is required, the owner/operator or local law enforcement officials must arrange access or CAP will not be able to silence the beacon. CAP members WILL NOT enter private property and should not do anything that could cause harm or damage to the distress beacon or other property. If the beacon cannot be silenced, the IC should contact the controlling agency and plan to withdraw CAP resources.

e. Staging or Pre-Positioning Resources. CAP units often want to move or stage resources to best meet the needs of impending missions like hurricane support. Pre-positioning assets in advance are often warranted; however, until a mission has been approved by the Air Force, insurance protection is available only as a corporate mission. Additionally, local personnel need to be aware that just because you want to support your community, the primary resources of your community may not need or want your help and you can't force it upon them. State agencies that require your resources to be pre-positioned should fund this movement just as FEMA or AFNORTH generally does when they request pre-positioning of CAP resources for a mission.

f. First Aid and Emergency Medical Care. CAP is not an emergency medical care or paramedic organization and should not advertise itself as such. CAP will not be the primary provider of medical support on missions or training events though qualified personnel can be used to support such activities. The only type of medical aid that should be administered by CAP personnel or by any other person at CAP's request is reasonable treatment deemed necessary to save a life or prevent human suffering. This treatment must be executed by a person qualified to attempt such medical care within their skill level. When first aid or higher medical training is required for qualification in a particular specialty, the expectation is that the qualification course includes both knowledge and practical skills training; first aid courses taken on-line only are not acceptable; though members are not considered employees when supporting operations, courses are expected to meet the *National Guidelines for First Aid in Occupational Settings* available at <http://www.ngfatos.net/> or ASTM F 2171-02, *Standard Guide for Defining the Performance of First Aid Providers in Occupational Settings*. CAP medical personnel are not provided supplemental malpractice insurance coverage, and any care provided is at the members own risk. Though medical supplies and equipment are not normally provided to responders, any reasonable supplies used on training or actual missions may be submitted for reimbursement as long as sufficient justification is provided.

g. CAP Emergency Vehicles. The policies and procedures regarding the use of CAP vehicles are detailed in CAPR 77-1. In general, CAP limits or prohibits the use of lights and sirens, and though some vehicle identification may be authorized, it does not give members permission to exceed posted speed limits or break any other federal, state, or local traffic laws.

1-25. Withdrawal of CAP Resources and Closing/Suspending the Mission. Once CAP resources have been committed to a mission controlled by another agency, they will not be withdrawn except upon authorization of the controlling agency or the decision of the CAP IC. CAP ICs must have reasonable justification and use proper tact when withdrawing their resources. Notification will be given to the controlling agency prior to withdrawal. For SAR missions all reasonable actions will be taken to locate the search objective, determine the status, and effect rescue or recovery of survivors or victims. The decision to conduct extended operations will be based upon the probability of finding survivors. After all reasonable probability of locating survivors has been exhausted, extended operations become uneconomical and unwarranted.

a. When the CAP operates under an AFRCC mission number for either an aircraft or a non-aircraft search and the objective is located, the AFRCC will close the mission at the completion of rescue/recovery or when continued use of the federalized resource would be of no value. When the objective cannot be located, AFRCC will work with the IC to determine if it makes sense to continue the mission. If a decision is made not to continue, AFRCC will classify the mission as follows:

- (1) For aircraft, the mission will be suspended.
- (2) For non-aircraft, the mission will be closed as "Remains Missing."
- (3) For a distress beacon, the mission will be closed as "Ceased."

b. If AFRCC does not concur with a CAP IC's recommendation to suspend a mission, the SAR mission will continue until additional circumstances arise which justify another recommendation to suspend the mission.

c. Missions will not be closed until all CAP resources have returned to their home bases or other points of origin, until another mission number has been assigned or personnel are officially released from the mission.

1-26. Prevention of Fatigue. ICs will ensure that personnel performing operational mission activities, particularly flight operations, have had sufficient rest to enable them to safely complete the proposed assignment. CAP mission managers and flight crews should refer to CAPR 60-1 for flight time and duty limitations. Other CAP personnel will make a conscientious effort to avoid or reduce fatigue by

- a.** periodic separation from duty station;
- b.** periodic light refreshments of moderate amounts of hot foods, soup, fruit juice, etc.;
- c.** avoidance of excessive smoking;
- d.** periodic sleep prior to sorties; and
- e.** refraining from alcohol within 8 hours of reporting for the mission.

1-27. Criteria for SAVE Credit. A SAVE is the preservation of a human life as a result of actions taken by emergency services (ES) forces. The determination as to whether or not a SAVE is made rests with the controlling agency (for example: AFRCC for SAR missions) based on the recommendation of the appropriate IC or participating emergency services element. In the case of a medical evacuation, the attending physician must attest to the SAVE. Normally, a SAVE will be credited to the element of the ES force making the recovery; however, a search force including incident staff and other aircrews and teams involved may be credited with a SAVE if it locates the SAR objective and directs the retrieval force to a successful recovery.

1-28. Criteria for FIND Credit. A FIND is awarded by the wing commander or higher commander (or a subordinate commander if authority is delegated by the wing commander) to any CAP member of the wing, and is classified as distress or non-distress. A distress FIND is defined as one involving downed aircraft or persons in distress. Normally a definite search objective must have been assigned, located, and positively identified. All other finds will be classified as non-distress, e.g., location of distress beacons accidentally activated. Credit towards FIND ribbons is normally given to the aircrew and/or ground team that located the objective; however, a search force including incident staff and other aircrews and teams involved may be credited with a FIND. More specific guidance for issuance of find ribbons can be found in CAPR 39-3, *Award of CAP Medals, Ribbons, and Certificates*.

1-29. Resource Protection. CAP units located in high crime areas or units involved in the location and identification of persons connected with illegal activities may face the possibility of aircraft and equipment sabotage. Unit commanders must determine local needs for security precautions and establish procedures that are appropriate for their particular location.

1-30. Prohibited Equipment. CAP is often offered equipment that is not appropriate to our mission or is not reasonable for our personnel to use because of the training time required for personnel to remain proficient.

a. Restrictions for the use of night vision devices by CAP personnel during any flight operations can be found in CAPR 60-1. Representatives of other agencies may use their own equipment. CAP ground resources may use night vision devices in support of SAR/DR operations while on foot or as passengers in vehicles. Use of night vision devices by drivers during motor vehicle operations is prohibited.

b. Firearms are prohibited for use or to be carried by CAP personnel during any emergency services operations unless required by state law. More specific guidance on CAP's firearms policy can be found in CAPR 900-3, *Firearms - Assistance to Law Enforcement Officials*.

1-31. Technical or Specialized Operations. CAP often recruits personnel with specialized training or expertise that can be useful on emergency services missions. Though the training required to specialize in these areas is often too cost prohibitive or risky for most personnel to undertake, CAP can still utilize these resources.

a. Members wishing to utilize the training they have earned must have prior permission to do so from NHQ CAP/DO, with written endorsement by the wing and/or region commander. The request must state the limitations proposed for use and how they propose to mitigate risk. If approved by the Air Force for use on an Air Force mission, these members will receive FTCA and FECA coverage just like any other member. Any additional liability coverage required to exercise these privileges is at the expense of the member. CAP personnel choosing to train to be useful in technical areas do so at their own risk. Background training and documentation will be kept at the wing or higher unit for each person given permission for these specialized operations.

b. Any special equipment or resources required for these personnel to exercise their privileges are furnished at the member's own expense and risk.

c. The following technical or specialized operations are considered acceptable but still require prior written approval:

- (1) Technical (Rope) Rescue or Mountain Rescue
- (2) Canine Search and Rescue
- (3) Mounted Search and Rescue
- (4) Urban Search and Rescue

Additional areas will be reviewed on a case-by-case basis. Questions on other areas should be addressed to the NHQ CAP/DO.

d. Wing and region commanders should review the current letters of permission on file at least annually and coordinate revisions as necessary. New wing and region commanders should review the current letters of permission as soon as is feasible after accepting command. Commanders can contact NHQ CAP/DO to request copies of letters on file if necessary.

1-32. Critical Incident Stress. CAP personnel involved in operational missions can often be exposed to stressful situations.

a. Each region will establish at least one Critical Incident Stress Team (CIST) as outlined in CAPR 60-5.

b. Wings should establish contact with local emergency response organizations before a mission requiring support arises to determine the availability of trained support personnel that can assist them. It may be necessary for some wings to establish their own CIST as outlined in CAPR 60-5.

c. ICs requiring critical incident stress support for their personnel should coordinate with their wing or region commander. If a local resource cannot be found, then contact the CAP NOC Duty Officer to request support.

d. More specific guidance for the CAP CISM program can be found in CAPR 60-5.

1-33. National Incident Management System (NIMS) Compliance. CAP is committed to being NIMS compliant like all other response agencies across the United States. Training and other NIMS requirements are posted on the NHQ CAP/DOS website.

1-34. Sensitive and Classified Programs. CAP does not traditionally conduct or support classified missions itself, but it does support sensitive missions regularly, and some mission results support classified missions and customer needs. Members need to be familiar with the classification definitions and their associated access and requirements when assigned these missions. Guidance for these programs is available on the NHQ CAP/DOS website.

1-35. Operational Security (OPSEC). OPSEC is the basis for the protection of information that regardless of the designation, the loss or compromise of sensitive information could pose a threat to the operations or missions of the agency designating the information to be sensitive. All CAP members must complete *OPSEC Awareness Training* and sign the non-disclosure agreement in order to become or remain emergency services qualified. Additional information is available on the NHQ CAP/DOS website including how to complete and document OPSEC Awareness training.

1-36. Standardization of Advanced Technology and Communications Assets. All of CAP's advanced technology equipment (ARCHER, ADIS, etc.) and communications equipment must be standardized to be able to maximize its use on missions across the country. In order to maintain this standardization the following must be adhered to:

a. CAP members will NOT alter, separate, or use for purposes other than as intended any advanced technology and communications equipment, or deviate from approved installation or maintenance procedures in any way. This includes both hardware and software.

b. Only fully qualified operators who have successfully completed standardized training are allowed to operate or install/uninstall any equipment. Trainees must be properly supervised by qualified operators.

c. Recommendations for upgrades/changes to any advanced technology or communications equipment must be submitted through the chain of command to NHQ CAP/DO for proper coordination with staff agencies.

d. Technical support is available from the National Technology Center (NTC) for all advanced technology and communications assets. The NTC is available during normal duty hours at (866) 600-2071. For emergency support after normal duty hours, contact the NOC Duty Officer.

CHAPTER 2 – OPERATIONAL SPECIALTY RATINGS/PERFORMANCE STANDARDS

2-1. General. This chapter defines authorized CAP operational specialty ratings, qualification and training requirements, and minimum performance standards.

a. A CAPF 101, *Specialty Qualification Card*, or equivalent will not be issued to a member until the requirements specified in this regulation have been satisfied.

b. The training/qualification requirements of this chapter are the minimum required. Training should not stop with initial qualification since professional performance demands continuous training. Examples of continuation training programs available are: the AFRCC National SAR School Inland SAR Coordination Course; Federal Emergency Management Agency (FEMA) Emergency Management Institute (EMI) independent study courses; CAP and Air Force training missions; National Association for Search And Rescue (NASAR) classes and training programs conducted by various state or local government agencies; etc. CAP will not track all of the possible courses taken in Operations Qualifications; only those courses required for CAP emergency services specialty qualifications will be tracked.

c. Persons attaining a qualified status under this regulation who will be using CAP communications frequencies must be certified in accordance with CAPR 100-1, *Communications*. Trainees do not need this certification when using these frequencies under the direction of a properly certified communicator.

d. Events creditable toward training, qualification, and currency include both Air Force and CAP Corporate training activities. For all events that are expected to be reimbursed with Air Force training funds, the wing commander or designee, must approve the activity in advance using WMIRS.

e. Waivers of the specialty qualification training requirements specified in paragraph 2-3 must be requested in accordance with paragraph 1-2 of this regulation, be based on equivalent training received from other agencies and substantiated by appropriate documentation, and must be coordinated with CAP-USAF prior to approval. NHQ CAP/DO must approve all such waivers. Broad waivers for known equivalent training will be posted on the NHQ CAP/DOS website.

2-2. Documenting Specialty Qualifications. Authorization for CAP members to perform in an emergency services specialty is limited to personnel who have successfully completed the required training and satisfactorily demonstrated their ability to meet the performance standards for the particular specialty rating.

a. Personnel are authorized to train for the specialty rating qualifications listed in paragraph 2-3 by their unit commander (including approved emergency services school directors) in Operations Qualifications except IC, CISM, ARCHER and NOC Augmentee qualifications. Training to qualify in a specialty is expected to be completed within 2 years from the time the member is authorized to begin familiarization and preparatory training in Operations Qualification on a Specialty Qualification Training Record (SQTR). Members not completing training requirements within two years should expect to re-demonstrate expired portions of their training. All training must be certified as complete by a qualified evaluator, and members cannot certify their own training. Qualified evaluators must meet the requirements established in subparagraphs 1 or 2 below:

(1) Evaluators who are current and qualified supervisors as outlined on the NHQ CAP/DOS website must complete the current emergency services Skills Evaluator Training (SET) also outlined on the NHQ CAP/DOS website. SET will be reflected on the CAPF 101 with “NO EXPIRE”. The member must also have held the specialty achievement qualification in which they are to evaluate for at least one year. Exceptions to the one year requirement can be approved by the wing commander or their designees in cases where the member’s professional background meets the experience criteria. Evaluators must also be approved by their unit commander, group commander (if applicable) and wing commander or their designees to serve in each specialty they are authorized to evaluate. Commanders or their designees can limit or change what specialty qualifications a member is allowed to evaluate in Ops Quals at any time at their discretion. The “all” default authority for an evaluator being submitted for approval would allow them to evaluate in any area that they themselves have been current and qualified in for at least a year. Personnel currently SET qualified when this regulation is released will be qualified under the default authority noted above unless changed by a commander or their designee. If a commander or designee chooses to limit new specialties a member can evaluate rather than using the “all” default, then the commander will have to approve each individual specialty as it is added. Directors of wing, region, or national emergency services schools approved by NHQ CAP/DO can assign temporary SET approval to staff personnel as necessary for their specific events. NHQ CAP/DO will coordinate approval of these school directors with NHQ CAP/IT.

(2) Mission check pilots as outlined in CAPR 60-1 for the mission pilot, transport mission pilot, mission observer and mission scanner specialty qualifications.

Note: Certain tasks and the associated training are expected to be provided by external agencies. For example NIMS and First Aid training will normally be provided by another agency.

b. Trainees can still participate in training or actual missions as allowed on their CAPF 101 if working under qualified supervisors as outlined on the NHQ CAP/DOS website. If the supervisor does not meet the requirements of paragraph 2-2a, the trainee WILL NOT receive credit for training towards qualification. This is not meant to prevent experienced people, members or not, from teaching and educating members, only that formal task completion must be certified by qualified evaluators to receive credit.

c. A current CAPF 101 from Ops Quals reflecting the member’s trainee status should be retained and used for continued participation in a trainee status pending the validation and approval of a new CAPF 101 showing addition of the appropriate specialty rating qualification.

d. The CAPF 101 identifies specialties or functions in which CAP members are authorized to participate during operational missions as trainees or fully qualified staff. The wing commander or his or her designee(s) (except for the General ES Rating) approves the initial CAPF 101 to personnel who satisfactorily complete all training and evaluation requirements specified for the requested specialty rating listed in this chapter. A CAPF 101 with the General ES rating will be approved by the unit commander or his or her designee(s) upon completion of the requirements for the specialty. Copies of documentation are no longer required to be kept at the wing level except in special circumstances (see paragraph 1-5b(4)). Specialty ratings on the CAPF 101 generally remain valid through the last day of the 36th month from the date issued. Authority to approve the initial CAPF 101 in each specialty above General ES may not be delegated below the group level. Delegation of this function must be coordinated with NHQ CAP/DO and NHQ CAP/IT to be sure changes are reflected properly in Ops Quals for the wing. Subsequent CAPFs 101 will be approved at the unit level

unless the wing commander limits this action via an approved supplement to this regulation. Once final approval for a CAPF 101 is granted in Ops Quals, it is considered valid, and the member, unit commander or other designated staff officers can print the CAPF 101. It is recommended that the member or units laminate the printed 101 card for extended use by the member. There are certain exceptions to the above policies listed below:

(1) CAPFs 101 for level 1 ICs must be approved at the region level or higher, by the commander or the commander's designee. CAPFs 101 for all other IC levels must be approved at the wing level or higher, by the commander or the commander's designee. It is not necessary for formal review boards to be held to determine if a member should be qualified in any IC level, but commanders should exercise discretion and reasonable judgment in assigning these qualifications as they require great trust and levy great responsibility on the members being designated as ICs.

(2) Approved directors of wing, region, or national emergency services schools can issue CAPFs 101 for all specialties except IC, CISM, ARCHER or NOC Augmentees. Tasks may be entered when training is provided by an authorized instructor. Approved directors may issue CAPFs 101 for IC, CISM or ARCHER Operator when granted authority by the appropriate wing or region commander, their designees, or NHQ CAP/DO in advance. NHQ CAP/DO will coordinate approval of these school directors receiving appropriate access to Ops Quals to enter qualification data.

(3) Only NHQ CAP/DO or designees will issue CAPFs 101 for the CISM, ARCHER or NOC Augmentee specialties, or designate personnel in a trainee status pending full qualification.

e. Only personnel holding a valid CAPF 101 (or authorized on equivalent computer rosters noted below) containing the applicable specialty rating(s) may be assigned to perform duties on CAP operational missions. Properly documented individuals in training for a specialty rating may only perform mission duties under the supervision of fully qualified personnel.

(1) A current CAP membership card must accompany a current specialty qualification card. Commanders may recall a specialty qualification card from CAP members assigned within their command for violation of CAP directives.

(2) If the unit, wing, region, or National Commander has documented reason to believe that the member is not properly qualified, the specialty(s) in question will be suspended in Ops Quals until resolved and that member will not be allowed to participate in operational mission activities in the questioned specialty until qualifications have been verified. Subordinate unit commanders should notify their next higher echelon to be sure that key personnel are aware of actions being taken.

(3) Computerized rosters using data from Ops Quals may be used in lieu of a CAPF 101 for validation of currency.

f. Authorization for experienced personnel to train for the IC specialty rating is approved by a wing or higher commander or their designees. The wing or higher commander or their designees will renew the IC specialty rating.

g. National Incident Management System (NIMS) training must be provided by appropriately trained and qualified instructors in accordance with established Department of Homeland Security policies and objectives when training is not completed on-line. Instructor requirements can be found on the NHQ CAP/DOS website.

2-3. Specialty Rating Requirements and Performance Standards. For each specialty rating, SQTRs have been developed to train and qualify members in stages. The most current versions of the task guides for all specialties are found on the NHQ CAP/DOS website.

a. First, prerequisites must be completed prior to initiating training requirements.

b. Once trainees have met the prerequisites, they will be required to complete familiarization and preparatory training for the specialty before serving in that position on actual or training missions under supervision. Familiarization and preparatory training is the minimum set of tasks that the member must master prior to acting as a supervised trainee on practice or actual missions. These tasks represent those skills that will keep the member safe and allow the member to function under supervision without jeopardizing the mission. This requirement avoids placing personnel not ready to perform certain jobs or those who work for them at risk.

c. Finally, after completing familiarization and preparatory training, supervised trainees must complete advanced training and participate satisfactorily in two missions before a CAPF 101 is approved and a member is considered "Qualified." Advanced training covers the remainder of the tasks required for specialty qualification. On actual missions, it is expected that these tasks could be accomplished by the trainee's supervisor or other fully trained members if they became critical. These tasks do not have to be completed in a mission setting though. It is acceptable for these tasks to be accomplished with similar familiarization and preparatory tasks during routine unit training or in a formal school like the National Emergency Services Academy. Prior approval and additional risk mitigation measures will be required by the mission approval authority in order for these personnel to participate in a mission. Because all trainees are properly supervised at all times, trainees are allowed to learn these "on the job." These two "missions" do not have to be on different mission numbers, be AFAMs, or be completed after all other advanced training is complete, but personnel must have completed all familiarization and preparatory training in order to receive credit for these sorties. These sorties must be complete sorties and/or operating periods where the member participates in all aspects of their assigned mission specialty. It is possible to participate in more than one specialty on a given mission or day.

d. All personnel will conduct training using the standardized National task guides. Evaluators must ensure that trainees satisfactorily pass all requirements of a task contained in the task guide before certifying completion for the SQTR. Recommended changes to task guides for all specialties will be submitted through the chain of command to the region commander. If the region commander concurs with the proposed change, he/she will forward the recommendation to NHQ CAP/DO for national coordination and to be considered for approval.

e. **General Emergency Services (GES).** To participate in emergency services training or operations, personnel must be current traditional members (not patrons, cadet sponsors, AEMs, or legislative members) having completed level one and cadet protection training (senior members) or achievement one (cadets). Individuals in temporary membership are not eligible for liability coverage under the FECA or FTCA. Individuals in temporary membership status are eligible to accomplish academic training activities, but are not authorized to observe mission base training and operations due to liability issues. In addition, they may not participate in any flight activities (including flight line activities) or ground, urban direction finding team, or CERT field activities. Other than these, there are no prerequisite requirements for GES. The General Emergency Services specialty rating is required of all individuals qualifying in emergency services and will be completed prior to commencing training for any other specialty. This training authorizes members to attend missions, observe activities and perform administrative and general operations support tasks under the direction of qualified staff personnel, essentially as a license to learn. Successful completion of the current CAPT 116, *General Emergency*

Services Questionnaire and *OPSEC Training*, qualifies the member in the General Emergency Services Specialty Rating. To remain current in the GES specialty all current holders will complete new CAPTs 116 and *OPSEC Training* within 180 days of issuance of new examinations. Personnel can complete the latest CAPT 116 exam on-line at: <https://tests.cap.af.mil/ops/tests/default.cfm?grp=dos>, and OPSEC Training at: <https://tests.cap.af.mil/opsec>.

f. The following are the approved emergency services specialty qualifications above the GES level. The requirements to train or qualify in the below specialties can be found on the appropriate SQTRs in Ops Quals, and additional information can be found in the appropriate task guide or in other training materials available on-line on the NHQ CAP/DOS website:

- Aerial Digital Imaging System Operator (ADIS). See notes 2 and 3.
- Airborne Photographer (AP). See See notes 2 and 3.
- Air Operations Branch Director (AOBD).
- ARCHER Operator (ARCHOPR). See note 1.
- ARCHER Trac Technician (ARCHTRK). See note 1.
- ARCHER Ground Station Operator (ARCHGSO). See notes 1 and 4.
- ARCHER Field Spectrometer Operator (ARCHSPEC) See note 1.
- Communications Unit Leader (CUL) – Any Level. See note 4.
- Community Emergency Response Team (CERT). See note 4.
- Cost Unit Leader (FCUL). See note 4.
- Critical Incident Stress Management (CISM) – Any Level. See note 1.
- Finance/Administration Section Chief (FASC).
- Flight Line Marshaller (FLM).
- Flight Line Supervisor (FLS).
- Ground Branch Director (GBD).
- Ground Team Leader (GTL) – Any Level. See note 4.
- Ground Team Member (GTM) – Any Level. See note 4.
- Highbird Radio Operator (HRO). See note 4.
- Incident Commander (IC) – Any Level. See note 4.
- Liaison Officer (LO)
- Logistics Section Chief (LSC).
- Mission Chaplain (MC).
- Mission Information Technology (MIT). See note 4.
- Mission Observer (MO).
- Mission Radio Operator (MRO) – Any Level. See note 4 below.
- Mission Safety Officer (MSO).
- Mission Scanner (MS).
- Mission Staff Assistant (MSA).
- Mountain Flying Certification (MFC). See note 3.
- NOC Augmentee (NOCAUG). See note 1.

- Operations Section Chief (OSC).
- Planning Section Chief (PSC).
- Public Information Officer (PIO) – Any Level. See notes 4 and 5.
- Resources Unit Leader (RUL). See note 4.
- Search and Rescue/Disaster Relief Mission Pilot (MP).
- Situation Unit Leader (SUL). See note 4.
- Transport Mission Pilot (TMP).
- Unit Alert Officer (UAO)
- Urban Direction Finding Team (UDF). See note 4.
- Water Survival (WS). See note 3.
- Wing Alert Officer (WAO)

Note 1: The CISM, ARCHER and NOC Augmentee specialties can only be entered or updated in Ops Quals by NHQ personnel at this time.

Note 2: Personnel current and qualified as an ADIS Operator are automatically qualified as an AP. Personnel that are considered current and qualified Airborne Photographers are NOT automatically qualified as ADIS Operators, but they have already completed many of the tasks that are required for qualification.

Note 3: Training for Airborne Photographers, ADIS Operators, Mountain Flying Certification, and Water Survival has been available, but has not been consistently recorded in Ops Quals. Wing commanders (or higher) or their designees will need to determine who of their current personnel meet the published requirements, and authorize these qualifications in Ops Quals.

Note 4: New training programs and levels in certain specialties are currently in development. In order to allow enough time for proper testing and fielding of new curricula and to avoid delaying the release of this regulation, these new specialties were included in the regulation even though CAP is not ready to implement all of these specialties at this time. As these new or revised specialties are implemented, transition guidance including grandfathering, equivalency, and currency procedures will be posted on the NHQ CAP/DOS website and personnel will be notified via the chain of command.

Note 5: The specialty qualification of Information Officer is initially being changed in name only to coincide with NIMS guidance to Public Information Officer (PIO). All personnel holding the current specialty or in training for the specialty will automatically have this designation changed in Ops Quals. Transition guidance will be provided as levels are added.

g. There are some duty positions that CAP does not have specific specialty qualifications identified. Any CAP IC can appoint any GES qualified member to fill these gaps in order to meet the needs of the mission, but must use good judgment to select personnel who have the appropriate training and backgrounds to be able to successfully complete their assignment.

2-4. Renewal of Specialty Qualification.

a. Most specialty qualifications generally expire 3 years from the date the qualification was attained. Exceptions are listed in table 2-1. Wings will develop plans to ensure that the majority of their qualified members will not expire at the same time.

Table 2-1. Specialty Qualification Expiration Exceptions

Specialty Exceptions	Reason for Exception
General Emergency Services	Specialty expires 180 days after a new CAPT 116 is issued if the member does not successfully complete the new CAPT 116 or the member has not completed OPSEC training by 1 April 2008. The member's electronic CAPF 101 will note "NO EXPIRE" as long as the member has completed the current CAPT 116 and OPSEC.
Transport Mission Pilot	Specialty expires when the member's CAP pilot status lapses, is suspended or is revoked, or if the member's GES specialty expires. The member's electronic CAPF 101 will note "NO EXPIRE" as long as he/she is GES qualified and remains a current CAP pilot.
SAR/DR Mission Pilot	Specialty expires if CAP pilot status lapses, is suspended or is revoked, or the pilot's CAPF 91 lapses. The expiration date on the CAPF 101 is set to two years from the current CAPF 91.
Critical Incident Stress Management – Any Level	Specialties expire if the member's GES specialty expires or when the member is removed from a CAP CISM Team. The member's electronic CAPF 101 will note "NO EXPIRE" as long as the member remains current.
CERT	Specialty expires if the member's GES specialty expires. The member's electronic CAPF 101 will note "NO EXPIRE" as long as the member remains current.
ARCHER Operator	Specialty expires if the member's GES specialty expires or if the member's operator status is revoked. The member's electronic CAPF 101 will note "NO EXPIRE" as long as the member remains current.
NOC Augmentee	Specialty expires if the member's GES specialty expires or is removed by NHQ. The member's electronic CAPF 101 will note "NO EXPIRE" as long as the member remains current.
All Specialties	Members failing to complete CAPT 117, OPSEC or NIMS Training as required will not be allowed to renew a qualification until the appropriate requirements are met.

b. To renew an expiring specialty qualification, the member must:

- (1) Be a current CAP member.
- (2) Be evaluated on at least one mission (actual or training) every 3 years by a qualified evaluator as outlined in paragraph 2-2a in each specialty (or equivalent higher specialty) for which renewal is requested. A matrix of equivalent specialties is available on the NHQ CAP/DOS website.

(a) During the evaluation, candidates will be required to demonstrate their ability to perform and/or evaluate annotated tasks on the SQTR required to qualify in that specialty. Not all tasks are required to be demonstrated; generally only advanced level tasks are required to be re-demonstrated. Most formal courses do not have to be re-accomplished though some are recommended like first aid training.

(b) This evaluation does not have to be completed on an Air Force approved training mission, and courses that must be re-accomplished need not be completed at the same time as the evaluation.

(c) The evaluation is meant to be a practical check of a member's currency and proficiency to serve in a specialty on a mission.

(d) CAPF 91, *CAP Mission Pilot Checkout*, check rides will be considered equivalent to this evaluation for all aircrew positions for mission pilots. A separate evaluation is not required.

(3) Have satisfactorily completed applicable parts (see paragraph 2-3e) of the current CAPT 116, *General Emergency Services Questionnaire*.

(4) Have satisfactorily completed the current CAPT 117, *Emergency Services Continuing Education Examinations*. CAPT 117 is conducted in three parts: one for aircrew members and flight line personnel; one for ground and urban direction finding teams; and one for mission base staff.

(5) Have satisfactorily completed current OPSEC Training.

(6) Have satisfactorily completed current NIMS training as applicable.

c. Members should periodically review their electronic records in Ops Quals to be sure they will complete requirements to remain qualified in a specialty.

d. The wing commander (or higher commander) or their designee will renew the IC specialty rating. Since the wing commander is required to review documentation to renew these specialties, members must be prepared to send the required documentation to the wing commander in a timely manner prior to the expiration of these rating(s).

2-5. Re-qualification Procedures for Expired Specialties.

a. Individuals previously qualified in various specialty qualification areas may re-qualify without re-accomplishing all initial training requirements. These personnel must demonstrate proficiency in the specialty to re-earn their expired qualification by:

(1) Accomplishing any tasks not previously completed on the current SQTR,

(2) Being evaluated by a qualified supervisor on at least one mission (training or actual) in each specialty (or equivalent specialty as outlined on the NHQ CAP/DOS website), and

(3) Satisfactorily completing applicable parts of the current CAPTs 116, 117, OPSEC Training, and NIMS Training.

b. The wing commander or his or her designee will approve re-qualifications.

2-6. Transfers From Other Wings. Specialty qualification ratings issued in one wing or region will normally be transferred to another wing (or region) without the need for the member to re-accomplish the entire initial training program for various specialty ratings.

a. The transferring member must contact the new wing (or higher unit) and provide copies of his or her emergency services records to the member's unit of assignment. Electronic records will automatically be transferred once a member's transfer request is processed by national headquarters. When a member transfers to a new wing he or she may have to accomplish additional training to remain qualified based on approved supplements to this regulation in the new wing.

b. Wing commanders must establish procedures to provide familiarization training regarding state/local procedures including local hazards for transferring members.

c. Personnel requesting transfer of IC qualification may be required to demonstrate proficiency through participation in emergency services missions under the supervision of a qualified IC from the new wing (or higher unit). IC qualifications will not directly transfer from one wing to another. The new wing or higher unit commander or designee must approve the transfer before it will be reflected in Ops Quals.

2-7. Documentation. The individual member is responsible to maintain copies of documentation of their qualifications. Members will likely need more than old 101 cards to prove completion of training, especially when requirements change and some grandfathering of qualifications may not be allowed in the future.

CHAPTER 3 – AIR FORCE-ASSIGNED TRAINING/EVALUATION MISSIONS

3-1. General. This chapter outlines responsibilities and procedures for planning and conducting Air Force-assigned training and evaluation missions. State and local missions will be conducted in accordance with current CAP regulations and state or local MOUs and operating agreements.

3-2. Responsibilities.

a. CAP-USAF liaison personnel are responsible for monitoring these missions. Liaison personnel may cancel, suspend, or alter the missions as necessary in the interest of safety, but will normally recommend changes to avoid this well in advance.

b. The CAP wing/region commander coordinates requested dates for Air Force-assigned training/evaluation missions with the respective wing's state director (SD).

c. The CAP region commander monitors each wing's training program and coordinates region-wide training activities. Region commanders review the results of Air Force-required evaluations within their region and ensure necessary actions are taken to correct any deficiencies identified.

3-3. Air Force-assigned Reimbursable Training and Evaluation Missions.

a. The goal of Air Force reimbursable training missions and the evaluation program is to assist CAP in developing and maintaining effective, efficient, and safe mission operations. Operational evaluations provide the Air Force and CAP with information concerning capabilities and limitations of each wing in the performance of CAP operational missions. Wing training missions are also used to identify and strengthen areas requiring additional emphasis and training.

b. Training missions should be designed to improve the wing's ability to perform mission commitments identified in approved agreements and MOUs. The responsible wing coordinates participation of state and local emergency services agencies. At the request of the wing/region commander, wing liaison personnel may assist in coordinating state and local agency involvement in training/evaluation activities.

c. Training funds and missions can be used to fund CAPF 5, *CAP Pilot Flight Evaluation-Airplane*, and CAPF 91, *CAP Mission Pilot Checkout*, checkrides as well as other proficiency training for emergency services qualified personnel and trainees. A full mission staff is not required, but proper overhead staffing should be provided to maintain a safe operating environment for all participants:

(1) For checkrides and other approved flying clinics, a properly documented flight release officer or IC must release all flights.

(2) For all other Air Force approved training, the proper staffing will be approved and agreed to during the planning of the mission, prior to commencing operations. Some training missions do not require a full complement of mission staff.

d. Air Force-assigned training missions are planned to accomplish specific training requirements. The specific training objectives must be reviewed and approved by the CAP-USAF SD through the WMIRS training mission request process. CAP-USAF may utilize CAP personnel as trusted agents or expert advisors on monitored training missions, and fund that support on invitational orders in accordance with current CAP-USAF policy.

e. Air Force-required evaluations are administered under the control of the CAP-USAF liaison region. Wing liaison personnel and other active duty or reserve Air Force personnel may assist liaison region personnel in forming the Air Force evaluation team. CAP personnel may be used as trusted agents on evaluation missions in order to provide a fair and independent evaluation, and also prevent any appearance of impropriety on a wing's evaluation.

f. During Air Force-required evaluation missions, training of operational mission personnel may only be conducted when not detrimental to accomplishment of the evaluation.

3-4. Air Force-assigned Non-Reimbursable Training Missions for CAP Resources. Air Force-assigned non-reimbursable training missions should be designed to provide training to improve the wing's ability to perform mission commitments identified in approved agreements and memorandums of understanding. These missions are intended to permit a wing to conduct additional training activities beyond those authorized for Air Force reimbursement, while still providing FTCA and FECA coverage. Non-reimbursable training missions will be planned to accomplish specific training requirements. Specific training objectives must be reviewed and approved by the wing commander prior to requesting mission authorization.

3-5. Scheduling and Requesting Air Force-assigned Training or Evaluation Missions.

a. **General.** Subject to availability of funds and other necessary resources, each wing and region is authorized the following evaluation and training missions during the federal fiscal year:

(1) Evaluations are required biennially. These evaluations may be combined into one evaluation and may be accomplished as part of a multi-wing evaluation.

(2) Optional (wing/region commanders will prioritize available training funds to meet the wing/region's most critical training requirements):

(a) Emergency Services and other Operations training missions; this training is expected to prepare members to meet AFAM requirements and earn emergency services specialty qualifications; any training for tasks required to become qualified may be included in this category. For example, communications user training for personnel that will operate radio equipment on missions would be acceptable as well as water survival training for aircrew members in coastal states, or first aid training for ground teams. A full mission staff to provide selective task training is generally not required but certain staffing or other safety requirements may be required by the mission approval authorities.

(b) Administrative/training missions in support of Subordinate Unit Inspections (SUI) as prescribed by CAPR 123-3, *CAP Compliance Assessment Program*,

(c) National Check Pilot Standardization Courses

(d) Mountain flying Clinics and Mountain Fury Courses

(e) ARCHER Training by NHQ approved instructors

(f) Administrative/training missions in support of SET training

(g) Flight clinics or training flights where training supports any Air Force-Assigned Mission conducted under an approved training syllabus (See CAPR 60-1). Training cannot lead to a higher airman rating or certificate

(h) CAPF 5 and 91 checkrides for personnel eligible to fly AFAMs. Only one CAPF 5 and one CAPF 91 is normally funded for mission pilots and trainees annually. Multiple checkrides may be reimbursed as funds are available. Initial CAPF 5 checkrides and checkrides conducted to reinstate a pilot following a mishap may not be funded with Air Force training funds, but wings may choose to fund them with corporate funds. Wing commanders are responsible for establishing policy and specifying which wing members receive reimbursed checkrides. Priority should be placed on checkrides in the following order: mission check pilots, SAR/DR mission pilots, check pilots, instructor pilots, transport mission pilots, and then cadet orientation pilots.

b. Required Evaluation Scheduling. The responsible CAP-USAF liaison region will schedule each wing for one evaluation at least every other year (may be combined). The liaison region commander will coordinate with the respective CAP-USAF SD and CAP wing commander to establish firm dates. Required evaluation dates will be selected well in advance to permit proper coordination of region events.

c. Air Force-Assigned Training and Evaluation Mission Requesting Procedures. For required evaluations the liaison region commander will coordinate with the wing commander to establish an appropriate date(s) for the evaluation. For evaluations, and training missions the wing/region commander or designee will plan and estimate the cost of the mission and, in each case will input the mission request into WMIRS.

(1) The CAP wing/region commander or designee prepares a WMIRS mission request to include a detailed training scenario. Once approved by the wing or region commander, the request is automatically forwarded to the CAP-USAF SD. After approval by the SD, the request is forwarded to the CAP-USAF liaison region. The WMIRS mission request should be provided to the CAP-USAF liaison region as soon as feasible prior to the activity date to allow the liaison region to find staff to attend and support the training as necessary. WMIRS training mission requests must be available in WMIRS for the state director's approval at least three weeks in advance of the mission start date. Waiver authority rests with the CAP-USAF liaison region director of operations or commander, and requires concurrence of the CAP wing commander and the CAP-USAF SD. Training scenarios and requests should contain at the least the following:

- (a) List in sentence form the achievable objectives of the training mission.
- (b) Give detailed information on how the training scenario will support and enhance the wing's ability to perform these missions.
- (c) Attach an example of any specific mission tasking that will be assigned. (Example – details of a specific photo mission assignment for the aircrew to photograph).
- (d) List unique training areas such as water survival training, soft field landings and take offs, or tactical communications – provide specific details.
- (e) List the approximate number of members expected to attend the training, and resources required for the training.
- (f) List in sentence form, what safety areas will be emphasized in the training.
- (g) If classroom (non-flying) training will be conducted – provide detailed listing of training and what areas will be emphasized.
- (h) List approximately how many total ground and air sorties will be conducted by this training mission, and if any member owned or furnished equipment will be utilized.
- (i) Provide the following areas if needed:

1 If non-CAP personnel will participate in the training mission, list their name, connection to CAP's missions, and purpose at the training mission.

2 For multi-wing training missions, list the wings that will participate. If each wing participating will fund its own training, then a separate mission number will need to be assigned for each wing. Note: the "duplicate mission" function in WMIRS may be utilized to avoid having to retype the same information for multiple wings.

3 If you request reimbursement of expenses for a guest instructor, list instructor's name, arrival date, expected RON costs and costs of any other additional expenses.

4 If you expect personnel to remain overnight for training, training will require commercial travel, or meals will be provided on site, and you plan to request reimbursement costs for any CAP personnel attending, outline expected costs and expenses and provide adequate justification.

5 If the training required has known miscellaneous costs for things like printing or copies, first aid training instructor or other course fees, equipment rental or other necessary supplies to make training successful, and you plan to request reimbursement, outline expected costs and expenses and provide adequate justification.

(2) If approved, the CAP-USAF liaison region will authorize the mission in WMIRS.

(3) WMIRS will not allow users to claim expenditures in excess of the funds requested and approved by the CAP-USAF liaison region. Should the mission go over budget, the wing may be responsible for the additional expense and/or will need to shift funds from other areas of the wing's appropriated training budget to cover the additional expenses. CAP-USAF liaison regions must approve any budget increases requested.

3-6. Monthly Missions. Some routine missions following established plans like mission pilot proficiency flying are approved on a monthly basis for eligible members. By the 5th calendar day of each month, CAP wing commanders, or their designees, will provide their SD with an updated list of CAP pilots who are current and qualified to act as PIC of missions flown in AFAM status. The SD will provide mission approval through WMIRS in conjunction with the wing's monthly PIC list. It is the responsibility of the CAP wing to ensure that pilots on the list are current and qualified. Detailed mission directives are also available in WMIRS.

3-7. Air Force Reimbursement. Reimbursement procedures will be in accordance with CAPR 173-3.

3-8. Mission Reports.

a. Air Force evaluation team members use CAP-USAFI 10-2701, attachment 7, as a guide during required evaluations and optional training missions. Results of required evaluations are documented and sent to the respective CAP wing commander and to HQ CAP-USAF/XO. Wing commanders must review their copy of required evaluation reports and forward corrective actions for all items rated less than satisfactory (or "no" on a yes/no question) to the CAP region commander, with a copy to the CAP-USAF liaison region. The wing commander must forward these responses not later than 30 days following receipt of the report from the Air Force evaluation team.

b. Optional training mission reports are prepared by the CAP-USAF SD or his/her designee and provided to the CAP wing commander. The CAP-USAF SD maintains a file copy. At the discretion of CAP-USAF state director, mission results are reported using a simple narrative of activities and findings. The wing commander is not required to answer this report unless specifically requested by HQ CAP-USAF/XO or by the CAP-USAF liaison region office.

O-2003
GRID SECTIONAL CHARTS

CONDITIONS

You are a Mission Observer trainee and must grid and use gridded sectional charts.

OBJECTIVES

Grid a sectional chart using the CAP and the Standardized Lat/Long Grid systems.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, knowing how to grid a sectional chart and use grids is essential in order to assist the mission pilot in planning a search, and to maintain situational awareness during a search.

2. CAP grid system. The sectional grid system used by Civil Air Patrol divides each sectional's area into 448 smaller squares. The latitude and longitude boundaries of each sectional chart are shown below. The St. Louis chart, for example, covers an area that is bounded by the following latitudes and longitudes: North 40° 00' (north boundary), North 36° 00' (south boundary), West 91°-00' (west boundary), and West 84°-00' (east boundary).

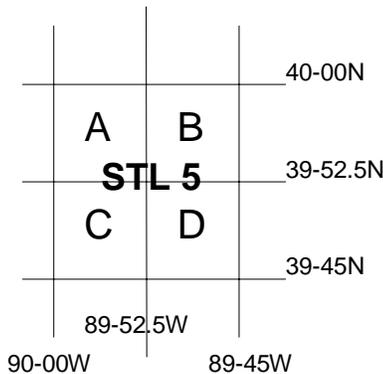
Chart	Identifier	North Grid Limit	South Grid Limit	West Grid Limit	East Grid Limit	Total Grids
Seattle	SEA	49-00N	44-30N	125-00W	117-00W	576
Great Falls	GTF	49-00N	44-30N	117-00W	109-00W	576
Billings	BIL	49-00N	44-30N	109-00W	101-00W	576
Twin Cities	MSP	49-00N	44-30N	101-00W	93-00W	576
Green Bay	GRB	48-15N	44-00N	93-00W	85-00W	544
Lake Huron	LHN	48-00N	44-00N	85-00W	77-00W	512
Montreal	MON	48-00N	44-00N	77-00W	69-00W	512
Halifax	HFX	48-00N	44-00N	69-00W	61-00W	512
Klamath Falls	LMT	44-30N	40-00N	125-00W	117-00W	576
Salt Lake City	SLC	44-30N	40-00N	117-00W	109-00W	576
Cheyenne	CYS	44-30N	40-00N	109-00W	101-00W	576
Omaha	OMA	44-30N	40-00N	101-00W	93-00W	576
Chicago	ORD	44-00N	40-00N	93-00W	85-00W	512
Detroit	DET	44-00N	40-00N	85-00W	77-00W	512
New York	NYC	44-00N	40-00N	77-00W	69-00W	512
San Francisco	SFO	40-00N	36-00N	125-00W	118-00W	448
Las Vegas	LAS	40-00N	35-45N	118-00W	111-00W	476
Denver	DEN	40-00N	35-45N	111-00W	104-00W	476
Wichita	ICT	40-00N	36-00N	104-00W	97-00W	448
Kansas City	MKC	40-00N	36-00N	97-00W	90-00W	448
St. Louis	STL	40-00N	36-00N	91-00W	84-00W	448
Cincinnati	CVG	40-00N	36-00N	85-00W	78-00W	448
Washington	DCA	40-00N	36-00N	79-00W	72-00W	448
Las Angeles	LAX	36-00N	32-00N	121-30W	115-00W	416
Phoenix	PHX	35-45N	31-15N	116-00W	109-00W	504
Albuquerque	ABQ	36-00N	32-00N	109-00W	102-00W	448
Dallas-Ft. Worth	DFW	36-00N	32-00N	102-00W	95-00W	448
Memphis	MEM	36-00N	32-00N	95-00W	88-00W	448
Atlanta	ATL	36-00N	32-00N	88-00W	81-00W	448
Charlotte	CLT	36-00N	32-00N	81-00W	75-00W	384
El Paso	ELP	32-00N	28-00N	109-00N	103-00W	384
San Antonio	SAT	32-00N	28-00N	103-00W	97-00W	384
Houston	HOU	32-00N	28-00N	97-00W	91-00W	384
New Orleans	MSY	32-00N	28-00N	91-00W	85-00W	384
Jacksonville	JAX	32-00N	28-00N	85-00W	79-00W	384
Brownsville	BRO	28-00N	24-00N	103-00W	97-00W	384
Miami	MIA	28-00N	24-00N	83-00W	77-00W	384

The process begins by dividing the whole area into twenty-eight *1-degree* grids, using whole degrees of latitude and longitude. Then each 1-degree grid is divided into four *30-minute* grids, using the 30-minute latitude and longitude lines as shown in Figure 8-22. Finally, each of the 30-minute grids is divided into four *15-minute* grids, using the 15- and 45-minute latitude and longitude lines.

Next, the grid squares are numbered 1 through 448 beginning usually with the most northwest square on the entire sectional, and continuing straight east through number 28. The numbering resumes in the second row, with number 29 placed beneath number 1, 30 beneath 2, and so on through 56. The third row begins with number 57 beneath numbers 1 and 29, and continues through 84. Numbering continues through successive rows until all 448 squares have a number.

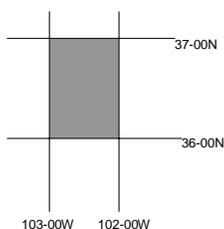
In cases where two sectionals overlap one another, the Civil Air Patrol always uses the numbering system for the western-most chart of the two in question. You can see this where the overlap area between 90° 00' and 91° 00', shown in the first 4 vertical columns, is identified with Kansas City (MKC) grid numbering, not St. Louis. Note too that, since the Kansas City grid numbering is used in this overlap area, the first 4 columns of the St. Louis grid numbering system are omitted. Several other such overlaps exist within the grid system.

When circumstances require, a 15-minute grid can be divided into 4 more quadrants using 7 1/2 minute increments of latitude and longitude, creating 4 equal size grids that are approximately 7 1/2 miles square. The quadrants are then identified alphabetically - A through D - starting with the northwest quadrant as A, northeast as B, southwest as C and southeast as D, as shown below. A search area assignment in the southeast quadrant may be given as "Search STL 5D."

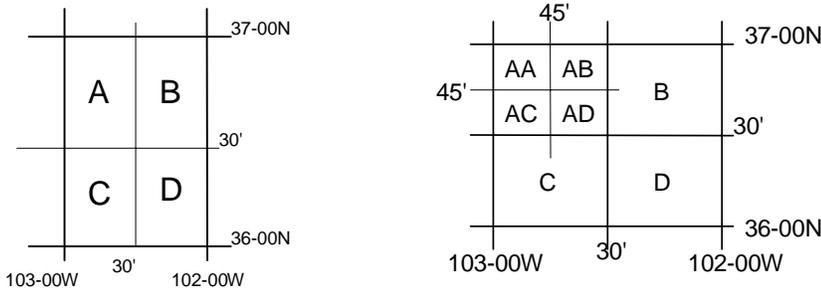


Pinpointing an area within the grid system becomes easy once you gain familiarity with the grids' many uses. You soon will be able to quickly plot any area on a map and then fly to it using the basic navigation techniques already discussed.

3. Another means of designating a grid system is the Standardized Latitude and Longitude Grid System. It has an advantage over the sectional standardized grid in that it can be used on any kind of chart that has lines of latitude and longitude already marked. In this system, 1-degree blocks are identified by the intersection of whole numbers of latitude and longitude, such as 36-00N and 102-00W. These points are always designated with the latitude first, such as 36/102, and they identify the area north and west of the intersection of these two lines. In the figure below, the gray shading identifies section 36/102.



Next, the 1-degree grid is divided into 4 quadrants using the 30-minute lines of latitude and longitude. Label each quadrant A through D; the northwest quadrant being 36/102A, the northeast 36/102B, the southwest 36/102C, and the southeast 36/102D as shown in the figure below (left). Each quadrant can also be divided into four sub-quadrants, labeled AA, AB, AC, and AD, again starting with the most northwest and proceeding clockwise, as shown the figure below (right). This grid system works on any chart that has latitudes and longitudes printed on it.



Additional Information

More detailed information and figures on this topic are available in Chapter 8 of the MART. Attachment 1 of the MART is a reproduction of Attachment E of the *U.S. National SAR Supplement to the International Aeronautical and Maritime SAR Manual*.

Evaluation Preparation

Setup: Provide the student with Appendix E of the *U.S. National SAR Supplement to the International Aeronautical and Maritime SAR Manual* (Attachment 1 of MART), a sectional chart and a plotter. Give the student a sectional (may be out-of-date) and a gridding assignment.

Brief Student: You are an Observer trainee asked grid a sectional chart, using both the CAP and the Standardized Latitude and Longitude Grid systems.

Evaluation

<u>Performance measures</u>	<u>Results</u>
Given Appendix E of the <i>U.S. National SAR Supplement to the International Aeronautical and Maritime SAR Manual</i> (Attachment 1 of MART), a sectional chart, and a plotter:	
1. Grid a sectional using the CAP grid system.	P F
2. Given coordinates, draw a grid on the sectional using the Standardized Latitude and Longitude Grid System.	P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2004
USE A POD TABLE

CONDITIONS

You are a Mission Observer trainee and must demonstrate basic knowledge of search planning and the use of the POD table.

OBJECTIVES

Demonstrate basic knowledge of how search planners determine the Maximum Area of Possibility and Probability Area. Use a POD table to discuss the advantages and disadvantages of various search altitudes and speeds over various types of terrain.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, basic knowledge of search planning and being able to use the POD table is helpful.
2. The first task in planning a search and rescue mission is to establish the most probable position of the crash site or survivors. If witnesses or other sources provide reliable information concerning an accident, the location may be established without difficulty. If there is little or no information, the planning section chief faces a more difficult task. Regardless of the information available, the planning section chief always prepares a chart to assist in focusing the search and locating the crash site or survivors as quickly as possible.
3. When defining search area limits, the planning section chief first sketches the maximum possibility area. This can focus the initial search in the most likely area and allows use of the charted area to help screen sightings and other reports. Again, the area is roughly circular, centered on the last known position of the missing aircraft. The radius approximates the distance the objective aircraft might have traveled, given the amount of fuel believed aboard at its last known position, and the wind direction and speed. The area is circular because it's always possible the missing pilot may have changed directions following his last known position and flown until his fuel was exhausted.
4. To chart the Maximum Area of Possibility, the planning section chief requires the missing aircraft's last known position, wind direction and velocity, and an estimate of the missing aircraft's fuel endurance and airspeed. If none of this information is available the task is much more difficult, and the search plan is usually based on an assumption that the missing aircraft is located along or near its intended course.
5. Plotting the probability area, the area in the possibility circle where the searchers are most likely to find the aircraft, is the second major factor in search planning. The probability area is determined by the accuracy of the last known position (LKP) in the possibility circle. When this information is not available, the planning section chief must rely on less specific secondary sources of information.

Based on experience and the accuracy of available information, the planning section chief defines an area of highest priority to initiate the search. The first search area may be called probability area one: this area begins around the last known position, extends along the intended route, and ends around the intended destination. If a search of probability area one produces negative results, the search may be expanded to cover probability area two, an extension of area one. If this search is unsuccessful, the search area is adjusted once more.

6. Organization is an important element in search planning. The time it takes to locate downed aircraft or survivors could depend on the definition and charting of the search area. As an observer, you should become familiar with each designated search area before the mission is launched. You should use current charts and maps which will enable you to provide additional navigational assistance in accurately positioning the search aircraft over the properly designated area.

7. The size of the search objective, weather, visibility, and ground cover in the search area must be considered when determining the altitude and airspeed for a visual search. Over non-mountainous terrain, a search altitude between 800 and 2000 feet above the terrain is normally used for a visual search. The search visibility and the terrain conditions may affect this selection. As altitude decreases below 500 feet, search effectiveness may actually decrease, due to the "rush effect" of objects on the ground passing through the scanner's field of view more rapidly.

Depending upon the number of search aircraft available, planners may also consider the desired probability of detection when selecting an altitude for the search pattern. Although a probability of detection chart is normally used to estimate POD *after* a search, its use here allows planners to predetermine a mission's chance of success. The POD table shows data for: open, flat terrain; hilly terrain and/or moderate ground cover; and very hilly and/or heavily covered terrain. To the right in the columns beneath "Search Visibility" you see what are, in this case, the desired probabilities of detection. Looking at the open/flat terrain and using 1-mile track spacing, you can see that all three altitudes give at least 50% POD, but a search at 1000 feet above the terrain gives 60%, or 10% *more* POD, than does a search at 500 feet. Over open terrain, where flight and search visibility are not limiting factors, the table demonstrates that a higher altitude is more likely to yield positive results on a single sortie. Notice that the highest POD, 85%, is obtained when flying at 1,000 feet above the ground using a track spacing of 0.5 nm.

OPEN, FLAT TERRAIN					MODERATE TREE COVER AND/OR HILLY					HEAVY TREE COVER AND OR VERY HILLY				
SEARCH ALTITUDE (AGL)	SEARCH VISIBILITY				SEARCH ALTITUDE (AGL)	SEARCH VISIBILITY				SEARCH ALTITUDE (AGL)	SEARCH VISIBILITY			
Track Spacing	1 mi	2 mi	3 mi	4 mi	Track Spacing	1 mi	2 mi	3 mi	4 mi	Track Spacing	1 mi	2 mi	3 mi	4 mi
500 Ft					500 Ft					500 Ft				
.5 mi	35%	60%	75%	75%	.5 mi	20%	35%	50%	50%	.5 mi	10%	20%	30%	30%
1.0	20	35	50	50	1.0	10	20	30	30	1.0	5	10	15	15
1.5	15	25	35	40	1.5	5	15	20	20	1.5	5	5	10	15
2.0	10	20	30	30	2.0	5	10	15	15	2.0	5	5	10	10
700 Ft					700 Ft					700 Ft				
.5 mi	40%	60%	75%	80%	.5 mi	20%	35%	50%	55%	.5 mi	10%	30%	30%	35%
1.0	20	35	50	55	1.0	10	20	30	35	1.0	5	10	15	20
1.5	15	25	40	40	1.5	5	15	20	25	1.5	5	5	10	15
2.0	10	20	30	35	2.0	5	10	15	20	2.0	5	5	10	10
1000 Ft					1000 Ft					1000 Ft				
.5 mi	40%	65%	80%	85%	.5 mi	25%	40%	55%	60%	.5 mi	15%	20%	30%	35%
1.0	25	40	55	60	1.0	15	20	30	35	1.0	5	10	15	20
1.5	15	30	40	45	1.5	10	15	20	25	1.5	5	10	10	15
2.0	15	20	30	35	2.0	5	10	15	20	2.0	5	5	10	10

If weather or visibility are not limiting factor, why then don't you just always elect to fly *that* track spacing at 1,000 feet, and always try to obtain that highest of probabilities of detection? You should recall, from the earlier maximum probability area, that you start with a very large area and then try to focus your efforts on smaller probability areas within that larger area. If the incident commander has received a number of leads that have reduced the probable area to a small size, he might task you to fly exactly that track spacing and altitude. If the area is not so small, and you try to fly 1/2- rather than 1-mile track spacing, you will obviously take *twice* as long to cover the whole area.

8. Execution of search patterns. The incident commander and his staff take into consideration many variables including weather, visibility, aircraft speed, and availability of aircraft and crew resources, experience, and urgency of the situation when developing the search plan. Similarly, the planning section chief considers many variables when selecting the search pattern or patterns to be used. Individual search patterns are covered in

chapters that follow. All questions about how the search is to be conducted must be resolved at the mission briefing. When airborne, crews must focus on executing the briefed plan instead of second-guessing the general staff and improvising. If, for whatever reason, you deviate from the planned search patterns it is imperative that you inform the staff of this during your debriefing.

Additional Information

More detailed information and figures on this topic are available in Chapter 9 of the MART.

Evaluation Preparation

Setup: Provide the student with search planning figures (e.g., Chapter 9 of the MART) and a POD table.

Brief Student: You are an Observer trainee asked to discuss basic search planning and use a POD table.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Discuss how search planners determine the Maximum Area of Possibility and the Probability Area.	P F
2. Using a POD table, discuss the advantages and disadvantages of various search altitudes and speeds over the three major types of terrain.	P F
3. Discuss the importance of proper execution of search patterns.	P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DEMONSTRATE AIR/GROUND TEAM COORDINATION TECHNIQUES

CONDITIONS

You are a Mission Observer trainee and must demonstrate how to coordinate with ground teams.

OBJECTIVES

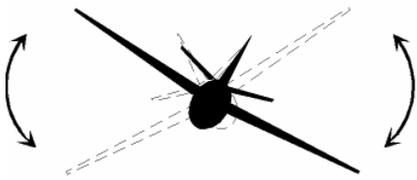
Demonstrate and discuss air and ground team coordination plans and techniques.

TRAINING AND EVALUATION

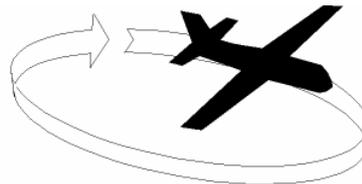
Training Outline

1. As a Mission Observer trainee, the ability to coordinate with ground teams is essential.
2. Naturally, the best means of working with a ground team is to use the radio. The observer and scanner should continuously have their eyes on the ground team; this frees you to fly the aircraft. The observer and/or scanner will work the radio to execute the coordination. The observer will likely also have to be the one who keeps track of where you “left” your target. Sometimes you may be the one using the radio.
 - a. It is important to understand that you have the advantage of perspective; the long-range visibility that is inherent to flying is absent from the ground. You can see over the hills, trees, and other obstacles that are blocking the ground team member's sight, so you may have to explain the situation to the ground pounder in painstaking detail.
 - b. Another perspective problem is time: time seems to pass very slowly while waiting for a ground team, and it is easy to get impatient and leave station prematurely.
 - c. Sometimes the ground team member (non-CAP, of course) may not understand radio jargon, so use plain English. For example, if you wanted a ground team to take a left at the next intersection, what would you say? How about “Ground Team 1, CAP Flight 4239, turn left at the next intersection, over.” Most often the plain English answer is the correct way to say it in radioese, anyway.
3. It is important to brief the mission with the ground team, if possible, and at least agree on communications frequencies and lost-comm procedures, maps/charts to be used by *both* teams, determine what vehicle the ground team is driving (e.g., type, color, and any markings), determine what the ground team members are wearing (highly visible vests are preferred), and a rendezvous point and time window for rendezvous (+/- 15 minutes). One tried-and-true method is to rendezvous at a landmark that both the aircrew and the ground team can *easily* identify. A common rendezvous point is an intersection of prominent roads; these are easily identifiable by both the aircrew and ground team. The rendezvous location should be set up before you leave.
4. Also, ground teams that have a hand-held GPS can radio their latitude and longitude coordinates to you and say, “Come and get me!” If you are unable to loiter over the target and bring the ground team to it, you can simply radio the coordinates to the ground team and let them navigate to it on their own. This is not nearly as efficient, however, as when you lead them to it. Note that two pieces of technology have to be working properly to make this work: 1) both air and ground operators need to be proficient with their GPS units and 2) two-way radio communication must be established and maintained.
5. It is important to plan for a loss of communications during the briefing. The teams should agree on pre-arranged signals such as: stopping the vehicle means lost comm; blinking headlights indicate the message has been received; and operating the flashers means the message hasn't been received.

If communications are lost, you have a limited number of signals that can be given using the aircraft itself, as illustrated below. These signals serve as a standard means to acknowledge receiving and understanding signals from the ground. An "affirmative, I understand" response to a survivor's signal can often be a morale booster, and renew hope for imminent rescue.



a. Message received and understood



b. Message received but NOT understood



c. Yes or affirmative

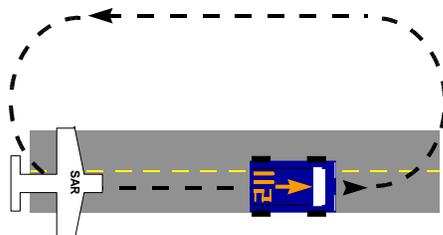


d. No or negative

In addition to the four signals shown above, there are two more that you can use to communicate with ground rescue teams. First, if you believe a ground team should investigate an area, you may fly over the team, "race" the engine or engines, and then fly in the direction the team should go. Repeat this maneuver until the ground team responds or until another means of communication is established.

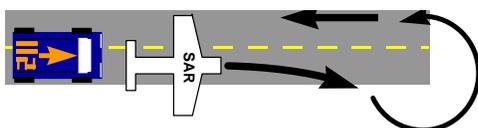
Second, you may pinpoint an area for investigation by circling above the area, continuing to do so until the ground team reaches the area and begins the search. The better the communication from ground-to-air and air-to-ground, the more coordinated the search will be and the greater the chances for success. Below are some patterns you may use to guide a ground team:

Keeping contact with the ground team.



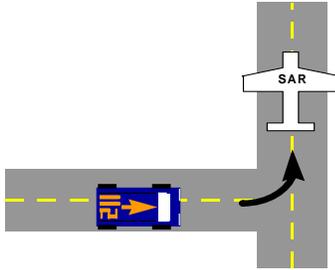
- Aircraft action: Aircraft approaches the vehicle from the rear and turns in a normal manner right (or left) to re-approach the vehicle from the rear. Circle back as necessary using oval patterns and flying over the team from behind, indicating that they should continue. This process may be referred to as a "Daisy Chain." Daisy Chain over the ground team as long as necessary.
- Desired team action: Continue driving in indicated direction along this road.

Turning the ground team around.



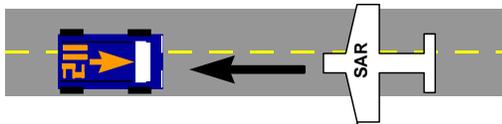
- Aircraft action: Aircraft approaches the vehicle from the rear and then turns sharply right (or left) in front of the vehicle while in motion. Circle back as necessary, flying against the team's direction of travel, and then take up the 'keeping up' procedure outlined above.
- Desired team action: Turn vehicle around.

Turn.



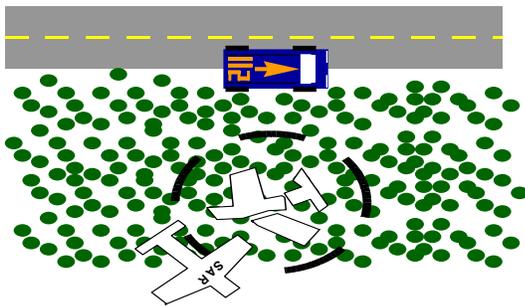
- Aircraft action: Aircraft approaches the vehicle from the rear and then turns sharply right (or left) in front of the vehicle while in motion. Circle back as necessary using oval patterns and flying over the team from behind, indicating that they should continue.
- Desired team action: Turn vehicle to right (or left) at the same spot the aircraft did and then continue in that direction until further signals are received.

Stop or Dismount.



- Aircraft action: Aircraft approaches the vehicle low and head-on while the vehicle is moving.
- Desired team action: Stop the vehicle and await further instructions.
- Aircraft action: Aircraft makes two (or more) passes in same direction over a stopped ground team.
- Desired team action: Get out of the vehicle, then follow the aircraft and obey further signals (proceed on foot).

Objective is here.



- Aircraft action: Aircraft circles one geographic place.
- Desired team action: Proceed to the location where the low wing of the aircraft is pointing; that is the location of the target.

Additional Information

More detailed information on this topic is available in Chapter 4 and Attachment 2 of the MART.

Evaluation Preparation

Setup: The trainee needs an aircrew and a ground crew.

Brief Student: You are a Mission Observer trainee asked to guide ground units with and without comm.

Evaluation

Performance measures

Results

- | | | |
|---|---|---|
| 1. Discuss crew responsibilities during a combined air/ground team mission. | P | F |
| 2. Discuss factors to consider before you or the ground team leaves mission base. | P | F |
| 3. Demonstrate basic ground team coordination, with and without comm. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2101
DESCRIBE HOW ELTs ARE DETECTED

CONDITIONS

You are a Mission Observer trainee and must describe how ELTs are detected and a search is launched.

OBJECTIVES

Describe how ELTs are detected and a search is launched.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, knowing the types of Emergency Locator Transmitters (ELTs), how they can be detected, and how a search is launched is essential. While the observer's role seems to be concentrated in visual searches, her contributions in electronic searches are no less important. The observer's understanding of electronic search techniques, and her ability to assist the pilot, can substantially increase both search effectiveness and the timeliness of recovering accident victims.

2. Types of ELTs. The Federal Aviation Administration (FAA) requires most U.S.-registered aircraft to have operable ELTs installed, which activate automatically when sensing acceleration forces during an accident. An active ELT transmits a continuous radio signal on a specific frequency until it's either deactivated or its battery discharges: most transmit on 121.5 MHz at 60-100 milliwatts (less power than a small flashlight). [Note: After 01FEB09, advanced ELTs that transmit on 406.025 MHz at 25 milliwatts are to be used. They are specifically designed to operate with the Cospas-Sarsat satellite system, and transmit data that contains a unique identifier number that links them to a database containing information on the vessel or aircraft and emergency points of contact. Some advanced 406 MHz beacons also transmit GPS coordinates.]

Military Beacons (e.g., URT-33/C) operate on 253 MHz. Personnel ejecting/parachuting from a military aircraft have this beacon; some pilots may be able to communicate via two-way radio on 243 MHz using a PRC-90 or later military survival radio (this radio also has a beacon mode).

Marine Emergency Position Indicating Radio Beacons (*EPIRBs*) are primarily found on boats and ships. Similar to ELTs, some are automatically activated while others can only be activated manually.

Personal Locator Beacons (PLBs) and Personal Emergency Transmitters (PETs) are currently illegal for general use in the U.S., but the law is about to be changed and they are presently used by some government agencies. They transmit on 121.5 MHz, 243 MHz and 406 MHz or a combination: the new law proposes to license only the 406 MHz version.

Test stations or *practice beacons* like those used by CAP transmit on 121.775 MHz. Some organizations still operate practice beacons on 121.6 MHz, but all CAP practice beacons should be converted by now. [NOTE: **Avoid calling the practice beacon an "ELT"** while communicating on the radio; this can cause confusion. The term "practice beacon" is very clear to all concerned and should be used on all drills and exercises.]

3. Approximately 97% of all received ELT signals turn out to be false alarms. For 121.5 MHz ELTs only 1 in 1000 signals is an actual emergency! False alarms cause problems because SARSAT can only monitor 10 ELT signals at a time and because they block the emergency frequencies (thus blocking a real emergency signal). However, you must *always treat an ELT signal as an emergency* because you can't know whether the signal is real or false.

4. In a cooperative effort among several nations, search and rescue-dedicated satellites (SARSAT and COSPAS) orbit the earth and alert to ELT transmissions. Upon receiving an ELT signal, the SARSAT derives the approximate lat/long coordinates of the ELT's position, and the coordinates are passed through the Air Force Rescue Coordination Center (AFRCC) to the incident commander.
5. AFRCC will not launch a search until the signal is picked up by at least two satellites. Also, system accuracy in pinpointing the location varies. For a typical 121.5 MHz ELT, accuracy is limited to a 12 nm radius (452 square nm); a 406 MHz ELT can be narrowed down to a 2 nm radius (12.5 square nm) and one with GPS can be narrowed down to a 0.05 nm radius (0.008 square nm).
6. Upon receiving SARSAT coordinates, or determining that an ELT was aboard a missing aircraft, the incident commander may launch a combined ELT/visual route search. Search success may depend upon several factors. The fact that an ELT was aboard a missing aircraft does not necessarily guarantee that electronic search procedures will locate it because the unit may have been inoperative or the batteries totally discharged. Also, the crash forces may have been insufficient to activate the ELT or so severe that it was damaged. Incident commanders may attempt to maximize the search effort by conducting an electronic search and a general visual search simultaneously when weather and other circumstances permit.

Additional Information

More detailed information and figures on this topic are available in Chapter 10 of the MART.

Evaluation Preparation

Setup: Provide the student access to an aircraft ELT (or pictures).

Brief Student: You are a Mission Observer trainee asked to describe how ELTs are detected and a search launched.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Discuss the various types of ELTs.	P F
2. Describe how an ELT is detected and a search is launched.	P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

P-2001
DISCUSS MISSION PILOT DUTIES AND RESPONSIBILITIES

CONDITIONS

You are a Mission Pilot trainee and must discuss MP duties and responsibilities.

OBJECTIVES

Discuss Mission Pilot duties and responsibilities.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing your duties and responsibilities is essential.
2. The first and foremost duty of a mission pilot is to fly the aircraft in a safe and proficient manner, following all applicable FAA and CAP rules and regulations. All other duties are secondary to those of the aircraft commander.
3. The second most important duty of a mission pilot is to remember that he or she is the *pilot* -- *not* a scanner. You are the Pilot-in-Command (PIC) and you must never forget that.
4. In addition to the normal duties of a PIC, CAP mission pilots must also perform all the non-scanner duties of the Observer if no qualified observer is on board.
5. In addition to PIC duties, your general duties and responsibilities include:
 - a. Obtain complete briefings and plan the sortie. A good mission pilot always includes the observer during these activities. [Remember, you may be the aircraft commander but you are not always the mission commander; an experienced observer should serve as mission commander whenever possible.]
 - b. Thoroughly brief the crew before the flight (include fuel management).
 - c. Thoroughly brief the crew on their responsibilities during all phases of the flight.
 - d. Obtain a flight release.
 - e. Enforce sterile cockpit rules.
 - f. Fly search patterns as completely and precisely as possible. Report any deviations from the prescribed patterns during debriefing.
 - g. Monitor the observer and ensure all events, sightings and reports are recorded and reported.
 - h. Fill out all forms accurately, completely and legibly.
6. The Mission Pilot needs to know what goes into the observer's log, in order to help inexperienced observers and to be able to keep the log when riding in the right seat. The log is maintained from take-off until landing, and should include all events and sightings. It is important to log the geographical location of the search aircraft at the time of all events and sightings (as a habit, always log the Hobbs time each time you make a report or record an event or sighting). This information is the basis of CAP Form 104, which is passed back to the incident commander and general staff after the debriefing and becomes a part of the total information that is the basis for his subsequent actions and reports. Good logs give the staff a better picture of how the mission is progressing. If sketches or maps are made to compliment a sighting, note this and attach them to the log. The log and all maps and sketches will be attached to the CAPF 104.

Additional Information

More detailed information on this topic is available in CAPR 60-1 and in Chapter 12 and Attachment 2 of the Mission Aircrew Reference Text (MART).

Evaluation Preparation

Setup: Provide the student with a current copy of CAPR 60-1 and the MART.

Brief Student: You are a Mission Pilot trainee asked about your duties and responsibilities, and to discuss the Observer Log.

Evaluation

Performance measures

Results

- | | | |
|---|---|---|
| 1. State the first and foremost duty of the mission pilot. | P | F |
| 2. State the second-most important duty of the mission pilot. | P | F |
| 3. Discuss general duties and responsibilities. | P | F |
| 4. Discuss the information recorded in the Observer Log. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DISCUSS GENERAL CAP-RELATED SAFETY REQUIREMENTS AND ISSUES

CONDITIONS

You are a Mission Pilot trainee and must discuss general CAP-related safety requirements and issues.

OBJECTIVES

Discuss general CAP-related safety requirements and issues.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing general CAP-related safety requirements and issues is essential.
2. *Flying into and taxiing on unfamiliar airports.* CAP missions often require flying into small, non-towered and unlighted airports. The mission pilot needs to quickly obtain information about these airfields. Of particular importance:
 - a. Runways. Determine length, width, markings and lighting. Is runway alignment compatible with predicted wind direction and strength? If not, what is your alternative?
 - b. Taxiways. Are there any, or will you have to back taxi? Are the taxiways marked and/or lighted?
 - c. If you will be arriving in low visibility conditions or at night, taxi SLOWLY and use a wing walker if necessary. If you can't see the turnoff to the taxiway or the taxiway itself -- STOP.
 - d. Obstacles. Note all near the airport and its approaches.
 - e. Services. Fuel and oil, phone, tie downs, and maintenance. Will they be open when you arrive? Is there a phone number to call after normal hours? If in doubt, call ahead -- most FBOs are glad to assist CAP.
 - f. Local NOTAMS.
3. *Flying into large, busy airports.* Of particular importance:
 - a. Airspace and obstacles. Review airspace layout and restrictions, and note all relevant frequencies (including ATIS, AWOS or ASOS).
 - b. Taxiways. Make sure you have a taxiway diagram, and review it before you land. Brief the crew so they can assist you.
 - c. Local NOTAMS.
4. *Taxiing around and near a large number of aircraft:*
 - a. Follow the taxi plan that is in the Operations Plan, if applicable.
 - b. Taxi no faster than a slow walk when around obstacles.
 - c. When there are no flight line personnel or marshalls available, do not taxi within ten feet of any obstacle; stop, and then proceed at no faster than a slow walk.
 - d. Follow all signals given by flight line personnel. However, use common sense as some of the flight line marshals may have little or no experience. If it looks too close -- STOP.
 - e. Pilot aids such as the *Airport/Facility Directory* or commercial products such as the *Flight Guide* (Airguide Publications, Inc.) are invaluable tools for the CAP mission pilot. One should be carried in the aircraft at all times, and kept *current*. Also, several web sites (e.g., AOPA) have very detailed airport layouts available for downloading.
 - f. Another often-overlooked safety measure is reconnoitering the terrain around unfamiliar airports to determine your actions in the event the engine quits on takeoff. Get in the habit of flying a circuit around the airport upon arrival to look for emergency landing areas off the ends of each runway. Ask local pilots

for the best actions to take if you lose an engine on takeoff (from each runway). Also, suggest that mission staff include this information in the general briefing, if necessary.

5. *Squawks*. CAP aircraft have Discrepancy Logs - use them! While private pilots may delay 'minor' repairs, mission pilots should not. Just as ELT missions always seem to occur between midnight and 0dark30, you can bet that a nighttime mission will come up if a landing, taxi, strobe or navigation light is out. Been having troubles with your comm radios? Get ready for an ELT search in Class B airspace.

CAP pilots often fly unfamiliar aircraft during missions. Pay particular attention to each aircraft's squawk sheet, and don't fly unless you are satisfied with the aircraft's condition: question the aircraft's regular crew about the particulars of their aircraft -- probe for "unwritten" squawks.

In a related matter, keeping the aircraft windows clean and having a well-stocked cleaning kit in the aircraft is vital. How many of you have arrived at the airport for a night flight and found that the last pilot had flown through a bug convention and neglected to clean the windscreen? And, as if this isn't enough of a delay in launching the mission, you can't find anything to clean the windscreen!

6. *Fuel management*. CAP missions often require flying long distances to mission bases, and the missions themselves involve flying several sorties a day. Mission aircrews often carry a lot of luggage and equipment. Missions are flown in widely varying weather conditions. Therefore mission pilots must carefully plan, check and manage their fuel.

- a. Per CAPR 60-1, the PIC is responsible for maintaining a sufficient fuel supply to ensure landing with one hour of fuel remaining (computed at normal POH/AFM cruise fuel consumption). If it becomes evident the aircraft will not have that amount of fuel at its intended destination, the PIC will divert the aircraft to an airport that will ensure the requirement is met.
- b. Weight & Balance computations *must* be accurate. Do you include the weight of the permanent equipment stowed in the aircraft? Do you change your W&B from the standard FAA 170 pounds when a crewmember that doesn't meet the Air Force weight standards shows up? Do you have a scale available at your headquarters to weigh luggage and equipment?
- c. If you do not fill the aircraft fuel tanks to the top or a tab, do you have a means to accurately determine fuel on board? Each aircraft that is routinely filled to a level less than full should have a calibrated fuel-measuring device on board. Remember that these devices are specific to the particular aircraft!
- d. *Each CAP aircraft should have information concerning the aircraft's fuel consumption rate for various power settings, taken from actual flight conditions*. If the information is not in the aircraft, ask the aircraft's regular pilot for fuel burn rates. If neither of these options is available, be very conservative in your planning. Long cross-country flights, or a series of legs in a flight, or a series of mission sorties require careful planning. Make sure you note your assumptions (e.g., distance, power setting, and predicted wind direction and speed) so that you can compare them against actual conditions in flight.
- e. *Brief your crew, especially the observer, on these assumptions so they can assist you in managing the fuel*. The pilot or observer should ask about fuel status at least once an hour, or before departing on each leg or sortie. Are the winds as predicted, or are you facing a stronger-than-expected headwind? Is your power set at economy cruise, as you planned, or have you gone to full power because you're running late? Did the last leg take as long as you had planned, or did ATC put you in the north forty for 30 minutes for "traffic separation"?

If in doubt, *land and refuel!* Just in case, *land and refuel!*

7. *Unfamiliar aircraft equipment*. CAP aircraft are not equipped uniformly. If you are assigned to another aircraft than the one you usually fly, check the equipment. If you don't know how to use its GPS, tell air operations. If you can't set up and operate the GPS, you won't be able to use it correctly. If you try to learn "on the fly," you will spend too much time with your head inside the aircraft instead of looking outside. The same

reasoning applies to the Audio Panel, FM radio, and DF unit. In these cases, someone will probably be available to show you how to set up and operate the equipment.

Even something as simple as an unfamiliar navaid can affect safety. In most cases, just spending some time sitting in the aircraft and going over an unfamiliar comm radio or transponder will suffice. But if you've never used an HSI before, this isn't the time to learn.

Whatever you do, don't try to bluff your way through. Tell someone and ask for assistance. Another pilot can help you, or mission staff may assign another pilot or experienced observer to your crew who knows how to operate the equipment.

8. *Trainees and inexperienced crewmembers.* CAP aircrew members may be trainees, or simply inexperienced. You must take the time to ascertain the qualifications and experience level of any crewmember assigned to you.

If a crewmember is a trainee, spend extra time on briefings and be very specific as to duties and responsibilities. If the trainee is a scanner, listen in on the observer's briefing to make sure he does the same. Make sure trainees understand that, while you will teach them as much and as often as possible, you (and the observer) have duties that must not be interfered with.

If a crewmember is newly qualified or has not flown in some time, make allowances. You may have to assume some of their normal duties (e.g., setting up and operating nav aids or radios) in certain situations, so be sure to brief them so there is no confusion. For example, you may brief that you will handle all ATC communications while in Class C airspace while the inexperienced observer will handle all other communications.

Cadets and some seniors often qualify as flight line marshalls as their first mission specialty, and there is no practical way to determine their experience level. On some missions the flight line is handled by whoever is available, regardless of qualifications. Be alert and brief your aircrew to be alert. Don't hesitate to stop the aircraft if a marshaller's signals don't make sense or seem to be leading you into an unsafe situation.

9. *Low and slow.* CAP mission search patterns often require you to fly below 1000 AGL and at speeds at or below 90 knots (but never below V_x). Proficiency and planning are critical.

- a. Ensure that "low and slow" is an integral part of your proficiency program.
- b. Strictly enforce sterile cockpit rules under these conditions, and make sure your crew is briefed on all obstacles in the search area.
- c. Flying at low altitude often means losing radar and communications with ATC and mission base. Don't hesitate to climb back up to an altitude where you can make your "ops normal" reports.
- d. Maintain situational awareness and continually ask yourself, "If the engine quits now, where will I land?"
- e. CAPR 60-1 requires pilots to maintain a minimum of 500 feet above the ground, water, or any obstruction and a minimum of 2000' AGL at night (except for takeoff/landing or when under ATC control). For SAR/DR/CD/HLS reconnaissance, the pilot will maintain at least 800 AGL. Pilots may descend below the designated search altitude to attempt to positively identify the target (but never below 500 AGL); once the target has been identified the pilot will return to 800' AGL or higher. [Refer to CAPR 60-1 for special restrictions for over-water missions.]
- f. Per CAPR 60-1, minimum airspeed will be no lower than the aircraft's published best rate of climb speed (except for takeoff, landing, go-arounds, practice stalls, slow flight training and evaluation, and glider towing).
- g. Per CAPR 60-1, practice of in-flight emergency procedures and maneuvers will be conducted during daylight VMC at an altitude high enough to allow recovery from an inadvertent stall/spin entry and complete a recovery at no lower than 2000' AGL or the aircraft manufacturer, FAA, or CAP approved training syllabi recommended altitude, whichever is higher. Simulated forced landings will be discontinued prior to descending below 500' AGL, unless you intend to land.

Additional Information

More detailed information on this topic is available in CAPR 60-1 and in Chapter 12 of the Mission Aircrew Reference Text (MART).

Evaluation Preparation

Setup: Provide the student with a current copy of CAPR 60-1 and the MART.

Brief Student: You are a Mission Pilot trainee asked about general CAP-related safety requirements and issues.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Concerning general CAP-related safety requirements and issues, discuss:		
a. Flying into and taxiing on unfamiliar airports.	P	F
b. Flying into large, busy airports.	P	F
c. Flying into large, busy airports.	P	F
d. Taxiing around and near a large number of aircraft.	P	F
e. Taxiing around and near a large number of aircraft.	P	F
f. Squawks.	P	F
g. Fuel management.	P	F
h. Unfamiliar aircraft equipment.	P	F
i. Trainees and inexperienced crewmembers.	P	F
j. Low and slow.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DISCUSS TYPES OF FLIGHTS PERFORMED BY CAP AIRCREWS

CONDITIONS

You are a Mission Pilot trainee and must discuss the types of flights performed by CAP aircrews.

OBJECTIVES

Discuss the types of flights performed by CAP aircrews.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing the types of flights that CAP aircrews perform is essential. CAPR 60-1 covers the types of flights for CAP aircraft, but we want to look at a few of these in a little more detail.

Note that per CAPR 60-1, the minimum flight visibility for VFR flight in Class G airspace is three statute miles (unless the PIC is instrument current), and you must update altimeter settings hourly from the closest source.

2. *Transportation flights.* Always consult CAPR 60-1, Chapter 2 (Authorized Passengers) when you need to know who is authorized to fly as passengers in CAP aircraft and the conditions under which they are authorized to fly.

As a general rule, anyone other than CAP or US government employees need special permission to fly in CAP aircraft. All non-CAP members eligible to fly aboard CAP aircraft must execute a CAPF 9, *Release (for non-CAP Members)*, prior to the flight.

3. *Night flights.* Typical sorties flown at night are transport sorties, route searches, and DF searches (it seems these are always flown at late at night). CAPR 60-1 requires pilots to maintain a minimum of 2000' AGL at night (except for takeoff/landing or when under ATC control). During night over-water missions, both front-seat crewmembers must be CAP qualified mission pilots and both will be instrument qualified and current (the right-seat pilot need not be qualified in the specific aircraft).

As a minimum, the PIC should be night-current in the aircraft (category, class and type) you're going to fly and assure the required one-hour fuel reserve required by CAPR 60-1. When performing night searches it is preferable to have an experienced crew accompanying the pilot to assist in situational awareness and search procedures.

Night time route searches will only be successful if the downed aircraft or missing person has the capability to signal the aircraft or if an ELT has been activated. Usually, ground team searches near the LKP or intended airport stand a better chance of success. No CAP crewmember may use night vision devices during any flight operations.

The most important item when planning night sorties is the PIC. Flying at night requires more attention to preflight planning and preparation. In particular, a careful check of the weather is essential; probably the most significant problem that can occur at night is flying into weather you cannot see. Also, pay attention to the dew point spread as a predictor of fog. During the flight, maintain situational awareness and always know where you can land in an emergency.

Before you accept the mission, ask yourself a few questions:

- a. If all the night flying you have had in the last 90 days are your three takeoffs and landings, are you really proficient?
- b. How long has it been since you've done a night cross-country?
- c. How long has it been since you've done a night ELT search?
- d. If you are Instrument rated, how many approaches have you done at night lately?
- e. How familiar are you with the terrain and obstacles along the route?
- f. Since landing lights only fail at night, when was the last time you practiced landing without the landing light?
- g. Have you included all your flashlights in the weight-and-balance?

Remember that confidence is gained by experience, so you should include night flying in your proficiency regimen. You should also include periodic DF training at night.

4. *IMC flights.* CAP sorties are very seldom flown in IMC. The most common reason for an IFR flight is to transport personnel to a search area or mission base. However, it is possible to conduct a route search in IMC. If an aircraft was lost while on an IFR flight plan, a sortie may be launched along the same route with the hope of picking up an ELT signal. This approach may also be taken, with careful planning and close coordination with ATC, for aircraft lost outside prescribed IFR routes.

It is also possible to DF in IMC, but this can be dangerous and is not to be undertaken lightly. Per CAPR 60-1, IFR flights will not depart unless the weather is at or above landing minimums at the departure airport.

In any case, a few extra precautions are in order:

- a. The pilot must have completed section XIV, "Instrument Proficiency" on her Form 5.
- b. The PIC must meet FAA instrument flight proficiency requirements.
- c. The PIC should be proficient in instrument flight in the CAP aircraft to be used.
- d. For any flight other than a simple IFR transportation flight, it is highly recommended that another current and proficient Instrument-rated pilot be in the right seat. *Never* fly a search alone in IMC.
- e. Never fly an instrument search when ground teams are appropriate and available for the search.

5. *Video Imaging.* More and more, we are performing aerial reconnaissance for our partner agencies. We primarily take still photos (digital and 35mm) and video (analog and digital), and may use Slow Scan video. The mission pilot must know how to fly these missions. As SAR missions decline and the phase-out of 121.5 MHz ELTs begins, video imaging will become one of CAP's most valuable assets.

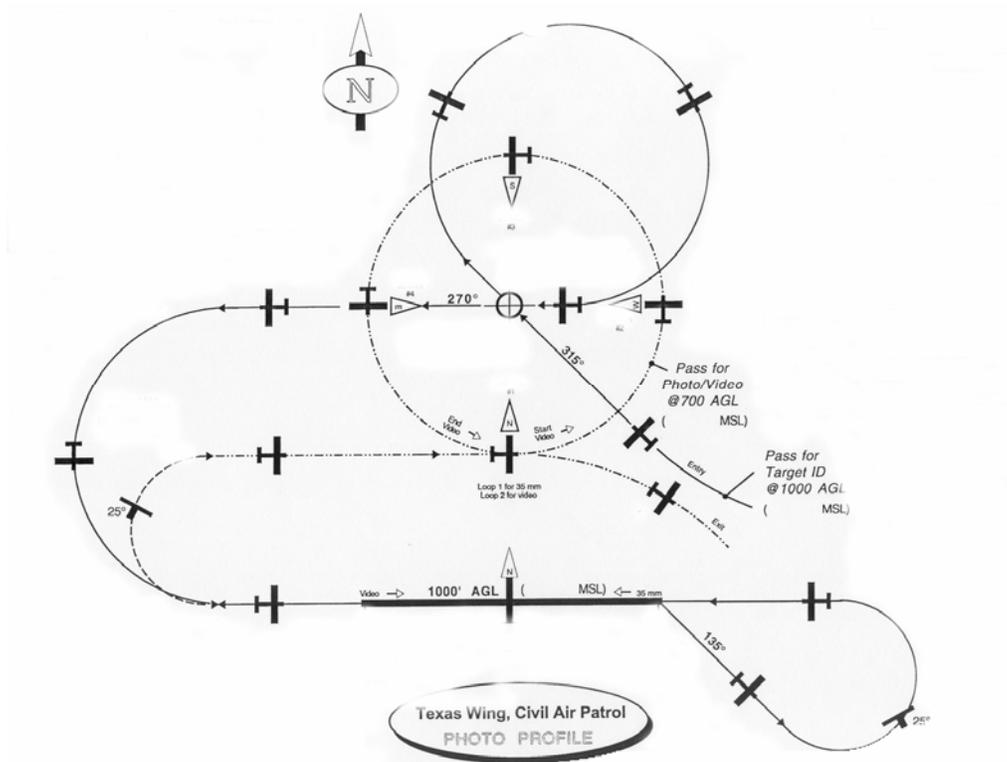
Emergency response planners expect more timely information about developing situations. These planners recognize real-time and near real-time images as an invaluable tool.

Regardless of the type of video imaging mission, there are some basics that everyone involved in the mission need to know to ensure success. The following presents the extra essentials needed for a video mission briefing:

- a. Make sure each crewmember knows what the target is and what types of images are needed. For example, a sortie may require a digital still shot of the target area for orientation, followed by a recorded video to detail egress points.
- b. Ensure the target location is identified so that you can find it.
- c. Thoroughly brief the route to and from the target, and the flight patterns within the target area. Mark them on the appropriate sectional chart and maps (e.g., road or topographical).
- d. Ensure minimum altitudes are established, both for the routes to and from the target and in the target area.
- e. Ensure all communications frequencies are well understood. This is particularly important for Slow Scan sorties.

- f. Define the duties of the PIC and the photographer when in the target area. The photographer will actually be in command of the mission and will give directions to the pilot, but the PIC retains responsibility for the safe operation of the aircraft.
- g. Ensure video equipment batteries are fully charged and that extra batteries are available.
- h. Clean the aircraft windows. If the video will be shot from the front right seat (normal), remove the window latch screw and put it in a safe place.
- i. For Slow Scan sorties, make sure the equipment is secured and properly connected. Make a test transmission before you leave the ramp.

The customer sometimes defines *video imaging flight profiles*, but a typical profile is shown and discussed below:



As the aircraft approaches the target the photographer should alert the pilot and prepare to begin photographing the target. You may need to over-fly the target first for positive identification. Assume the photographer is in the right front seat.

The first step is to take an identification photo, usually one mile south of the target from an altitude of 1000' AGL. The photographer will begin shooting as soon as the aircraft is established on this easterly route. If another pass is needed, the pilot will circle around to repeat the route.

Next the pilot will turn toward the target, descend to 500' AGL and establish a 1/2 nm circuit around the target. The photographer will be taking shots at the cardinal points of the circle, or continuously if using video. This circuit may be enlarged to fit the target area or if it is important to identify entrance and egress routes near the disaster area.

During slow-scan sorties it may be necessary to climb to a higher altitude to transmit each image.

NOTE: Never hesitate to make another pass or move to a better position if necessary to ensure the success of the sortie. Film (especially digital) is cheap and flight time is expensive; it is better to make another pass or reposition the aircraft at the scene than it is to send another aircraft back to repeat the mission.

6. *Proficiency.* CAPR 60-1 encourages pilots to maintain currency and proficiency by accomplishing a self-conducted proficiency flight at least once every 90 days (described in an Attachment, and using mission symbol C1). More specifically, mission pilots are authorized four hours of proficiency flight training per calendar month under Air Force-assigned non-reimbursed mission status (described in an Attachment, and using mission symbol B12).

When practicing in-flight emergencies, adhere to the restrictions in CAPR 60-1.

As the demands on the CAP mission pilot increase, the need to maintain and improve your mission skills becomes more important. Besides the guidance given in the CAPR 60-1 Attachments, you should also practice:

- a. Search patterns. Use the GPS as your primary tool but also practice planning and flying the different patterns using VORs and pilotage.
- b. Night proficiency. Practice search patterns at night (particularly the ELT search).

As part of your cross-country proficiency, practice with the GPS:

- a. Maintain a constant track over ground.
- b. Select/display a destination: Airport, VOR and User Waypoint.
- c. Determine heading, time and distance to a waypoint.
- d. Save lat/long coordinates as a User Waypoint.
- e. Save your present position as a User Waypoint.
- f. Enter and use flight plans.
- g. Exercise the nearest airport and nearest VOR features.
- h. Practice navigating with present position displayed (constant lat/long display).
- i. Always try to take someone along with you on your proficiency flights. This will provide excellent practice for scanners and observers, helps improve CRM and teamwork, and makes the flights more enjoyable. [Remember, if you are going to be practicing instrument approaches you must use a safety pilot. It is also preferred to have one during your night practice, although a qualified non-pilot observer will serve just as well.]

Additional Information

More detailed information on this topic is available in CAPR 60-1 and in Chapter 12 of the Mission Aircrew Reference Text (MART).

Evaluation Preparation

Setup: Provide the student with a current copy of CAPR 60-1 and the MART.

Brief Student: You are a Mission Pilot trainee asked about the types of CAP flights.

Evaluation

Performance measures

Results

1. Concerning types of CAP flights, discuss:

a. Transportation.

P F

b. Night.

P F

c. IMC.

P F

d. Video imaging, including the typical flight profile.

P F

e. Proficiency.

P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DISCUSS SECURITY CONCERNS AND PROCEDURES

CONDITIONS

You are a Mission Pilot trainee and must discuss security concerns and restrictions, and describe your actions in case of an airborne interception.

OBJECTIVES

Discuss security concerns and restrictions, and describe your actions in case of an airborne interception.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing security concerns and restrictions is essential. Additionally, you must know how to respond to an airborne interception.
2. *Security.* CAP resources should be considered National Security assets. In times of emergency you should take special security precautions to protect the aircraft and crew. Some examples are:
 - a. Hanger the aircraft whenever possible. You may place small pieces of clear tape on fuel caps, the cowling and/or doors that will break if someone tampers with vital areas.
 - b. Pay particular attention during pre-flight inspections. Look for signs of tampering and carefully inspect the fuel for contamination.
 - c. Be as "low key" as possible, and be discrete. Don't discuss CAP business in public places.
 - d. Be aware of your surroundings at all times. If you see something or someone that is suspicious, don't ignore it. Report your suspicions to your supervisor and/or law enforcement.
3. *Airspace restrictions.* The FAA may issue Temporary Flight Restrictions at any time, so it is vitally important to ask for FDC NOTAMs before each flight and to monitor ATC for changes while in flight. TFRs were issued to establish enhanced Class B airspace, protect airspace around nuclear facilities, and protect airspace around large gatherings of people.

Even with most TSRs lifted, you should not loiter around or circle critical facilities (e.g., nuclear power plants, large stadiums or gatherings, air shows, and dams or reservoirs). If you have to circle critical facilities (e.g., for planning or actual mission purposes) make sure you coordinate with the facility's manager and ATC.

4. *In-flight Intercept.* If your aircraft accidentally approaches or encroaches restricted airspace military aircraft may intercept you; it is important to know how to respond. The following covers the important points; details can be found in AIM 5-6-2.

An intercept to identify your aircraft has three phases:

- a. Approach phase. A flight leader and wingman will coordinate their individual positions in conjunction with the ground-controlling agency.
- b. Identification phase. The intercepted aircraft should expect to visually acquire the lead interceptor and possibly the wingman during this phase. The wingman will assume a surveillance position while the flight leader approaches your aircraft. The flight leader will then initiate a gentle closure toward the your aircraft, stopping at a distance no closer than absolutely necessary to obtain the information needed. The interceptor aircraft will use every possible precaution to avoid startling you.
- c. Post-intercept phase. After you have been identified, the flight leader will turn away. The wingman will remain well clear and rejoin the leader.

If you are intercepted you should immediately:

- a. Follow the instructions given by the intercepting aircraft, interpreting and responding to the visual signals (see the Table below).
- b. Notify ATC if possible.
- c. Attempt to communicate with the intercepting aircraft and/or ATC on the emergency frequency 121.5 MHz, giving the identity and position of your aircraft and the nature of the flight.
- d. If equipped with a transponder, squawk 7700 unless otherwise instructed by ATC. If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual or radio signals, request clarification while continuing to comply with the instructions given by the intercepting aircraft.

Intercepting aircraft signal	Meaning	Intercepted aircraft response	Meaning
Rocks wings. After acknowledgement initiates a slow level turn, normally to the left, onto desired heading.	You have been intercepted. Follow me.	Rocks wings and follows.	I understand and will comply.
<i>(At night, the pilot will also flash the navigational lights at irregular intervals.)</i>		<i>(At night, the pilot will also flash the navigational lights at irregular intervals.)</i>	
Performs an abrupt breakaway maneuver consisting of a climbing 90° turn without crossing the intercepted aircraft's flight path.	You may proceed.	Rocks wings.	I understand and will comply.
Circles airport, lowers landing gear, and over-flies runway in the direction of landing.	Land at this airport.	Lowers landing gear, follows the intercepting aircraft and lands if the runway is considered safe.	I understand and will comply.
<i>(At night, the pilot will also put the landing lights on.)</i>		<i>(At night, the pilot will also put the landing lights on.)</i>	
Raises landing gear while flying over runway between 1,000' and 2,000', and continues to circle the airport.	This airport is inadequate.	If the intercepted aircraft is requested to go to an alternate airport, the intercepting aircraft raises its landing gear and uses the intercept procedures (listed above).	Understood, follow me.
<i>(At night, the pilot of the intercepted aircraft will also flash landing lights while passing over the runway.)</i>		To release the intercepted aircraft, the intercepting aircraft will perform the breakaway maneuver listed above.	Understood, you may proceed.

The pilot switches on and off all available lights at regular intervals.	Cannot comply.	Performs the breakaway maneuver listed above.	Understood.
The pilot switches on and off all available lights at irregular intervals.	In distress.	Performs the breakaway maneuver listed above.	Understood.

Additional Information

More detailed information on this topic is available in CAPR 60-1 and in Chapter 12 of the Mission Aircrew Reference Text (MART).

Evaluation Preparation

Setup: Provide the student with a current copy of CAPR 60-1 and the MART.

Brief Student: You are a Mission Pilot trainee asked security concerns and restrictions, and your actions if intercepted.

Evaluation

Performance measures

Results

- | | | |
|---|---|---|
| 1. Discuss security concerns. | P | F |
| 2. Discuss airspace restrictions. | P | F |
| 3. Describe the phases of an in-flight intercept, and your actions. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DISCUSS MISSION PILOT RESPONSIBILITIES DURING A MISSION

CONDITIONS

You are a Mission Pilot trainee and must discuss the mission pilot's responsibilities during a mission.

OBJECTIVES

Discuss the mission pilot's responsibilities during a mission.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing the mission pilot's responsibilities during the mission is essential.
2. *Mission Pilot and POD.* There are some factors affecting Probability of Detection (POD) that you can control:
 - a. Ask questions during briefings to ensure you *really* understand your assignment.
 - b. Take the time to plan the flight thoroughly and make sure you are prepared to fly it before leaving mission base. This knowledge enables you to concentrate on the mission and "stay ahead of the aircraft," thus increasing search effectiveness.
 - c. Maintain optimum altitude and airspeed. If you have to decrease power on a southbound leg and increase power when you turn northbound in order to maintain a constant 90 knots, then do it.
 - d. Accuracy of navigation: Use the GPS! However, you should be ready to complete the search using other navigational methods should the GPS fail.
 - e. Avoid turbulence whenever possible, avoid steep or abrupt turns, and ensure the mission commander is scheduling breaks and monitoring the scanners (and yourself) for fatigue or dehydration.
 - f. Give a thorough debriefing and be brutally honest about your effectiveness.
 - g. Stay proficient in your flying skills. Flying the aircraft and operating its equipment should be second nature, leaving you free to concentrate on accomplishing mission objectives safely.
3. *Flying the Mission.* Before missions are launched, the briefing officer provides you with information designating the routes to and from the search area, and the types of search patterns to be used upon entering the search area. Your planning should involve the observer, as they are familiar with each type of search pattern and can assist you in planning and navigation. While the observer should be scanning while you fly the pattern, they can assist you if things become confused (hey, it can happen).
4. *Number of Scanners.* Search planning, probability of detection, and search pattern effectiveness depends upon some underlying assumptions; the most important as far as the aircrew is concerned is the *assumption that there is one crewmember dedicated to scanning out the right side of the aircraft and another on the left side.*

Since the majority of CAP aircraft are Cessna 172s that only carry three crewmembers, we will assume that the crew consists of a pilot, an observer in the right front seat, and a single scanner in the rear seat. We assume that the observer will be scanning out the right side of the aircraft while the scanner covers the left side. If a larger aircraft is used there may be two scanners in the rear seat; this will allow the observer to spend more time assisting you without seriously decreasing search effectiveness.

Mission pilots must remember that they are *not* scanners. A mission pilot who tries to fly the aircraft and scan the search area at the same time is doing neither job effectively or safely. The mission pilot is responsible

for placing the scanners' eyes over the search area so they can do their job; your job is to fly the pattern precisely and effectively and for ensuring the safety of the aircraft.

Single scanner

- a. Planning and executing a search pattern with only one scanner on board is different from one where you have two scanners. You will only be able to search out one side (usually the right side) of the aircraft; this means that you must keep the right side of the aircraft towards the search area at all times. This can have a significant effect on search time and aircraft hours. For example, this would require careful planning and flying on a grid search since you will have to modify your leg entries/tracks to ensure the scanner scans the entire grid (no inverted flight, please).
 - b. Additionally, this cannot help but decrease search effectiveness due to fact that you lose the "double coverage" or overlap you get with two scanners looking out opposite sides of the aircraft. Scanner fatigue also becomes more of a factor, and search times need to be reduced to account for this.
 - c. For these reasons, performing parallel track or creeping line searches with a single scanner is not recommended. Likewise, searching any but open/flat terrain with a single scanner significantly reduces your chances of success.
5. *Flying a search pattern.* The mission pilot's contribution to a successful search is his ability to fly the search pattern precisely while maintaining altitude and airspeed. This must be done while performing the duties of a Pilot-in-Command; in the search area the most important of these duties is to "see and avoid" obstacles and other aircraft.

Another special consideration in flying search patterns is the possibility of engine trouble or failure at low altitude. The mission pilot must always be aware of where she is, the wind direction, the nature of the terrain, and where she will land if the engine fails *now*. This also underscores the importance of a thorough pre-flight inspection.

Like the rest of the aircrew, the mission pilot must continuously and honestly critique her performance during the sortie. If you're not set up properly when you enter the search area, exit and start again. If you are off by half a mile on a leg, fly the leg again. If winds and/or turbulence caused you to fly the legs erratically, emphasize this during the debriefing.

6. *Go or No-Go.* The Incident Commander has authorized your flight, you have obtained a proper briefing and flight release, you have filed your flight plan, you have completed a thorough pre-flight of the aircraft, and your crew is briefed and ready to go. *A Mission Pilot may accomplish all of this and still not be safe to fly the mission.*

How can this be? All of the regulations and safety precautions have been followed to the letter. You have been extensively trained and have demonstrated proficiency by successfully completing a Form 91 checkride. Your wing commander has appointed you as a CAP Mission Pilot!

It all comes down to the individual pilot and the circumstances. How long has it been since you've taken off in a 14-knot crosswind? Have you ever taken off or landed on an icy runway? When is the last time you've flown cross-country at night? You're signed off for instrument privileges on your Form 5, but how long has it been since you've flown in actual IMC?

Pilots, by their nature, are confident in their abilities. Sometimes over-confident. Mix in overconfidence, unusual circumstances, and the need to put all those hours of training to the test. Now add the desire to help others who are in immediate danger and you have all the ingredients for a dangerous situation.

The most effective way to break this potential accident chain is for Mission Pilots to be brutally honest about their abilities under the present conditions. Mission Pilots (as Pilot-in-Command) must have enough courage and integrity to decline a mission that they don't feel *comfortable* doing.

Additional Information

More detailed information on this topic is available in CAPR 60-1 and in Chapter 12 of the Mission Aircrew Reference Text (MART).

Evaluation Preparation

Setup: Provide the student with a current copy of CAPR 60-1 and the MART.

Brief Student: You are a Mission Pilot trainee asked your responsibilities during a mission.

Evaluation

Performance measures

Results

- | | | |
|--|---|---|
| 1. Discuss your responsibilities during a mission: | | |
| a. How you can improve POD. | P | F |
| b. Flying the mission. | P | F |
| c. Number of scanners onboard. | P | F |
| d. Flying a search pattern. | P | F |
| e. Go or No-Go decisions. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

P-2028
DISCUSS CREW RESOURCE MANAGEMENT

CONDITIONS

You are a Mission Observer trainee and must discuss Crew Resource Management (CRM).

OBJECTIVES

Discuss how CRM is used in CAP activities and missions.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, knowing how to employ effective crew resource management is essential to safety.
2. *Situational Awareness*. Simply put, situational awareness (SA) is "knowing what is going on around you at all times." SA is not restricted to just pilots -- everyone must exhibit SA at all times. Each crewmember must have their SA at peak levels while flying because it takes everyone's awareness to keep the plane safe in flight. Scanners and observers have their own unique positions and functions that require full attention, so their SA is essential to the safe operation of any CAP flight.

Examples of good SA attitudes are:

Good mental health, where each crewmember is clear and focused.

Good physical health: this includes fatigue, sickness, hydration, and stress factors.

Attentiveness: keep your attention on the task at hand.

Inquisitiveness: always asking questions, challenging ideas, and asking for input.

Examples of SA skills:

Professional skills developed through training, practice and experience.

Good communication skills. These are necessary to effectively get your point across or receive valid input.

Interpersonal skills such the basic courtesies factor greatly into how a crew will get along, and this will greatly impact crew effectiveness and performance.

To help prevent a loss of SA, use the "IMSAFE" guidelines. This checklist was developed for the FAA as a quick memory guide for aviators to run through and make self-determination as to their fitness to fly. If a crewmember says yes to any of these, they really shouldn't fly.

There are a number of standardized tools that can help improve CRM and overcome a loss of situational awareness. When a crew loses SA it is critical to reduce workload and threats:

- a. Suspend the mission. [Remember to "Aviate, Navigate and Communicate."]
- b. Get away from the ground and other obstacles (e.g., climb to a safe altitude).
- c. Establish a stable flight profile where you can safely analyze the situation.

Once we have lost situational awareness, or recognized the loss in another crewmember, how do we get it back? A few methods are to:

- a. Listen to your gut feelings. If it acts like an idiot and talks like an idiot, then its probably an idiot.

- b. *Use terms like "Time Out" or "Abort" or "This is Stupid."* Once terms like these are called, the pilot should terminate the task or maneuver, climb away from the ground if necessary, establish straight-and-level flight and then discuss the problem. [The term you use should be agreed upon before the flight.]
- c. *Keep the cockpit sterile* -- keep talk to the minimum necessary for safety, particularly during taxi, takeoff, departure, low-level flying, approach, and landing. This helps remove distractions and keep everyone focused on the important things.

3. *Barriers to Communication.* Rank, gender, experience level, age, personality, and general attitudes can all cause barriers to communication. You may occasionally be hesitant to offer an idea for fear of looking foolish or inexperienced. You may also be tempted to disregard ideas that come from individuals that have a lower experience level. If you are committed to teamwork and good crew coordination, you must look through such emotions and try to constructively and sensitively adapt to each personality involved.

You can deal best with personalities by continually showing personal and professional respect and courtesy to your teammates. Criticism will only serve to build yet another barrier to good communication. Nothing breaks down a team effort faster than hostility and resentment. Always offer opinions or ideas respectfully and constructively. Instead of telling the pilot, "You're wrong," tell him what you *think* is wrong, such as "I think that new frequency was 127.5, not 127.9."

Personal factors, including individual proficiency and stress, may also create barriers to good communication. Skills and knowledge retention decrease over time, and that is why regular training is necessary. If you don't practice regularly, you very likely will spend a disproportionate amount of time on normal tasks, at the expense of communication and other tasks. Civil Air Patrol, the FAA, commercial airlines, and the military services all require certain minimum levels of periodic training for the sole purpose of maintaining proficiency.

Stress can have a very significant, negative effect on cockpit communication. An individual's preoccupation with personal, family, or job-related problems distracts him or her from paying complete attention to mission tasks and communication, depending upon the level and source of stress. The flight itself, personalities of the individuals, distractions, flight conditions, and individual performance can all be sources of communication-limiting stress. When stress reaches very high levels, it becomes an effective barrier to communication and job performance. Many fliers and medical specialists advocate refraining from flying or other complex tasks until the stress is removed.

Part of your job is also to recognize when others are not communicating and not contributing to the collective decision-making process. Occasionally, other crewmembers may need to be actively brought back into the communication process. This can often be done with a simple "What do you think about that?" In a non-threatening way, this invites the teammate back into the communication circle, and, in most cases, he or she will rejoin the information loop.

4. *Task Saturation.* At times, crews or individual members may be confronted with too much information to manage, or too many tasks to accomplish in the available time. This condition is referred to as *task saturation*. This will most likely happen when a crewmember is confronted with a new or different situation such as an emergency, bad weather, or motion sickness. Preoccupation with the different situation may then lead to a condition of "tunnel vision," where the individual can lose track of many other important conditions. In an advanced state, comprehension is so far gone that partial or complete *situational awareness* is lost. When individuals are task saturated to this extent, communication and information flow usually ceases.

If you begin to feel overwhelmed by information or the sheer number of things to do, it's time to evaluate each task and do only those tasks that are most important. If you ever feel over-tasked, you have an obligation to tell the other crewmembers *before* becoming task-saturated and losing your situational awareness. If others know your performance is suffering, they may assume some of the workload, if they are able. Once the most

important tasks are accomplished and as time permits, you can start to take back some of those tasks that were neglected earlier. Allocation of time and establishing priorities is known as *time management*.

Most people can recognize task saturation and understand how it can affect performance. However, you should also watch for these symptoms in other members of your crew and take over some of their responsibilities if you have the qualifications and can do so without placing your own duties at risk.

The pilot's job is to safely fly the aircraft, and you should be very concerned if he or she becomes task saturated, or spends an excessive amount of his time with tasks other than flying the airplane. No crewmember should ever allow the work management situation to deteriorate to such an extent as to adversely affect the pilot's ability to continue to safely operate the aircraft. Many preventable accidents have resulted from crews' entire involvement in other areas or problems, while the airplane literally flew into the ground. If any crewmember suspects pilot task saturation to be the case, nonessential discussion should cease, and the crew as a whole should discontinue low-priority aspects of the job, and even return to the mission base if necessary.

5. *Assignments and Coordination of Duties.* Assignment of aircrew duties is based on CAPR 60-3. All flight-related duties are conducted under the supervision of the aircraft commander. Mission-related duties may also be conducted under the supervision of the aircraft commander, but a properly trained observer can also fill the role of mission commander. The key is that positive delegation of monitoring duties is as important as positive delegation of flying duties. As previously discussed, it is very important for each crewmember to know what they are supposed to be doing at all times and under all conditions. Aircraft safety duties vary with the start up, taxi, takeoff, departure, transit, approach and landing phases of flight. Mission duties are related to the mission objective, primarily to fly the aircraft safely and precisely (the pilot) and to scan effectively (scanners and observers).

Close attention should be paid during the pilot's briefing. The pilot will establish flight-specific safety "bottom lines" at this time, such as emergency duties and division of responsibilities. Each individual must again clearly understand his specific assigned duties and responsibilities before proceeding to the aircraft.

Other phases of the flight also require that distractions be kept to a minimum. Recent air transport industry statistics show that 67% of airline accidents during a particular survey period happened during only 17% of the flight time -- the taxi, takeoff, departure, approach and landing phases. The FAA has designated these phases of flight as critical, and has ruled that the cockpit environment *must* be free of extraneous activity and distractions during these phases to the maximum extent possible (the sterile cockpit).

In assigning scanning responsibilities to the scanners, mission observers must be receptive to questions and suggestions from the scanners. Carefully consider suggestions and understand that suggestions are almost always offered constructively, and are not intended to be critical. Answer questions thoroughly and openly, and don't become defensive. All doubts or questions that you can't answer should be resolved as soon as possible. It is critical to remember that CRM encourages the flow of ideas, but the Mission Pilot must make the final decision based on the crew's input.

Additional Information

More detailed information on this topic is available in Chapter 14 of the MART.

Evaluation Preparation

Setup: None.

Brief Student: You are a Mission Observer trainee asked to discuss CRM.

Evaluation

Performance measures

Results

- | | | |
|--|---|---|
| 1. Discuss situational awareness and how to regain SA once it is lost. | P | F |
| 2. Describe barriers to communication. | P | F |
| 3. Discuss task saturation and strategies to minimize it. | P | F |
| 4. Discuss crew assignments and coordination of duties. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

CAP MISSION PILOT CHECKOUT		DATE OF FLIGHT CHECK:	
MEMBER'S NAME (print or type)	CAPID	FAA CERTIFICATE NO.	CHARTER NO.
MEMBER'S ADDRESS (print or type)	LAST CAPF 5	DATE CAPF 101 ISSUED	CAP ROP NO. (as req)
I. ORAL DISCUSSION		V. MOUNTAINOUS TERRAIN PROCEDURES	
A. CAPF 116 Witten Exam Passed (initial only)		A. Locate Grid/Area (with & without elec nav aid)	
B. Mission Base Procedures (Sign In, Flight Plans, Reimbursement Forms)		B. Establish Search Altitude	
C. Air-to-ground Signals		C. Contour Search Procedures	
D. Mission Safety Principles		D. Canyon Search Procedures	
E. CAP Radio Procedures (as req)		E. Ridge Crossing Procedures	
F. Individual & Crew Equipment/Clothing		F. Communication Procedures	
G. Search Procedures		G. Wind/Updrafts/Downdrafts	
H. Map and Chart Reading		H. Mountain Wave Effect	
II. PREFLIGHT PLANNING		VI. EMERGENCY PROCEDURES	
A. Determine Performance Limitations		A. Low Altitude Engine Failure	
B. Obtain Mission Briefing		B. Ditching	
C. Gridded Sectional		C. Landing on Unprepared Surface	
D. Observer Briefing		D. Deteriorating Weather	
E. Fuel Planning & Reserve		VII. MISSION FLIGHT MANEUVERS	
F. Ground Team Coordination		A. 720 Steep Turns	
III. VISUAL SEARCH PATTERNS & PROC		B. Turns About a Point	
A. Locate Grid or Area (without electronic aids)		C. Message Drop Procedure (verbal)	
B. Establish Search Altitudes		D. Airspeed Control	
C. Grid Search Patterns		E. Low Speed Maneuvering	
D. Creeping Line Search Procedures		F. Low Level Navigation (without elec nav aids)	
E. Expanding Square or Sector Search		G. Judgement	
F. Satellite Digital Imaging System Procedures		VIII. SAFETY AWARENESS	
G. ARCHER Procedures		A. Clearing and Collision Avoidance	
IV. ELECTRONIC SEARCH PATT & PROC		B. Vigilance	
A. Locate Starting Point (with & without elec aids)		C. Cockpit Resource Management	
B. Establish Appropriate Search Altitudes		D. Risk Management	
C. VHF-DF Procedures			
D. Wing Null Procedures			
E. Aural (build-fade) Procedures			
<p>I certify that I have administered a CAP mission pilot flight check as indicated and that the above named member (evaluator initials blanks):</p> <p>_____ Has demonstrated proficiency required to fly as a mission pilot, see comments below.</p> <p>_____ Has demonstrated proficiency required to fly as a mission check pilot, see comments below.</p> <p>_____ Is not qualified, requires additional training and recheck. See comments below.</p>			
COMMENTS			
DATE	FLIGHT TIME	EVALUATOR'S NAME & GRADE	EVALUATOR'S SIGNATURE

INSTRUCTION PAGE FOR CAP MISSION PILOT CHECKOUT

These instructions specify how to fill out the CAPF 91. CAPR 60-1 and CAPR 60-3 requires specific actions and steps to be taken for the successful completion of a CAPF 91 flight check.

All items for the appropriate type check must be completed indicating S – Satisfactory, U – Unsatisfactory or V – Verbally briefed. Items or maneuvers not applicable to certain checks (such as SDIS or ARCHER) are marked as N/A. Pilots are evaluated on their ability to satisfactorily perform the tasks assigned, knowledge of procedures and judgment. Failure to meet the standards of performance for any task performed will result in an unsatisfactory evaluation.

MISSION CHECK RIDE PROCEDURE

The applicant for a CAPF 91 check ride should bring the following materials for review by the mission check pilot:

1. Evidence of current CAPF 5 valid for the aircraft used for the mission flight check.
2. Evidence to show completion of initial mission pilot qualification training requirements (CAPF 101 or MP-SQTR).
3. CAPF 91 with identifying data entered.
4. Valid FAA pilot certificate and current FAA medical certificate.
5. If applicable, CAP radio operator's permit and/or FCC restricted radiotelephone permit.

The mission check pilot will review all materials and conduct the CAPF 91. All forms will be returned to the applicant at the conclusion of the check ride for further distribution and entry into the CAP Pilot Ops Qual system.

O-2001
OPERATE THE AIRCRAFT AUDIO PANEL

CONDITIONS

You are a Mission Observer trainee and must demonstrate how to operate the aircraft audio panel.

OBJECTIVES

Demonstrate and discuss the use of the aircraft audio panel.

TRAINING AND EVALUATION

Training Outline

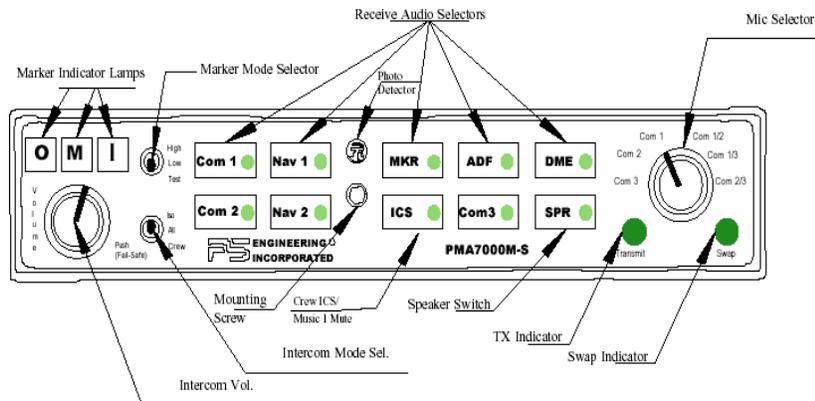
1. As a Mission Observer trainee, knowing how to set up and use the aircraft audio panel is essential.
2. An audio panel serves as the "hub" for the aircraft's communication and navaid equipment. Whatever type of audio panel is installed in the aircraft, it serves two basic functions:
 - a. Selecting the 'active' radio (COM 1, COM 2, etc.). This is the radio over which you will transmit when you use the push-to-talk switch or the hand mike.
 - b. Allows communication and navigational instruments to be directed to the aircraft's overhead speaker or to the headphones.
3. The position of the switch and the pushbuttons on the audio panel should be checked as part of each preflight. There is no set rules on how they should be set, and settings may vary according to the mission and the airspace you will be flying in. *The important thing is to realize how the panel is set up so that your equipment will function as you need and expect them to function.*
4. KMA 24. One of the most common older audio panels, the KMA 24 is still found in many CAP aircraft. The switch on the right-hand portion of the panel determines which radio you will transmit on; also, if none of the pushbuttons are depressed, the switch setting (e.g., COM 1) determines which radio you are listening to. The pushbuttons are arranged in two rows: the upper row is associated with the aircraft's overhead speaker, and depressing these pushbuttons will direct their associated equipment to the speaker (e.g., press the ADF pushbutton and the ADF will be heard on the speaker); the bottom row is associated with the headphones and serves the same function.



Depressing a pushbutton routes the signal from the associated instrument (e.g., a com radio or the ADF) to the speaker or your headphones, *regardless* of the setting on the COM switch. This comes in handy when you want to monitor two frequencies at the same time. For example, you have Center on the #1 radio and the COM switch in the COM 1 position. You will be flying near a local airport and want to listen to its CTAF. Set the CTAF in the #2 radio and depress the COM 2 PHONE pushbutton. You will now be able to hear both frequencies, but still will only be able to transmit on Center frequency. The CAP FM radio is usually routed through the TEL pushbuttons, and the DF unit is often routed through the ADF pushbuttons.

The two most common mistakes made with this type of audio panel include: transmitting on the wrong frequency because you set the desired frequency in one radio but failed to select the corresponding COM channel; and failing to hear a message over the FM radio because you failed to depress the appropriate pushbutton (usually the TEL pushbutton) to direct the call to the overhead speaker or headphones.

5. PMA7000MS. The PMA7000MS is CAP's newest audio panel, and is installed in conjunction with the new FM radio (TDFM-136). This audio panel was custom-designed to meet CAP SAR operational requirements. In addition to normal audio panel functions, this unit contains an automatic voice-activated (VOX) stereo intercom system with automatic squelch control.



Unit power is turned on and off by pushing the Volume knob. In the Off (or Fail-Safe) position the pilot is connected directly to Com 1 to allow communication capability regardless of unit condition (any time power is removed or turned off the audio selector will be placed in the fail-safe mode). The power switch also controls the audio selector panel functions, intercom, and marker beacon receiver. Unless the Mic Selector is in Com 3 mode, at least one of the selected audio LEDs will be on (Com 1 or Com 2).

The Volume control knob adjusts the loudness of the intercom for the pilot and observer only; it has no effect on selected radio levels or crewmembers' volume level. Adjust the radios and intercom volume for a comfortable listening level for the pilot. [Most general aviation headsets today have built-in volume controls; therefore, crewmember volume can be adjusted on the headset. For best performance your headset microphone must be placed within ¼ inch of your lips, preferably against them. It is also a good idea to keep the microphone out of a direct wind path.]

Mic Selector switch and receiver switches. Receiver audio is selected through two momentary and six latched, push-button, backlit switches. Because the rotary Mic (microphone) Selector switch controls what transceiver is being heard, the Com 1 and Com 2 push-buttons are of the momentary type and do not remain in when selected. Because of this, you will always hear the audio from the transceiver that is selected for transmit by the rotary Mic Selector switch (in other words, you can't transmit without listening to the receiver). You can identify which receivers are selected by noting which of the switch LEDs are illuminated. Push buttons labeled Nav 1, Nav 2, COM 3, DME, MKR (Marker), ADF and SPR (Speaker) are "latched" type switches. When one of these buttons is pressed, it will stay in the "in" position; press the switch again and it will be in the "out" position and remove that receiver from the audio. When selected, the SPR button will place all selected audio on the aircraft's overhead speaker (Note: the speaker amplifier is not active in the split mode).

When the Mic Selector switch is in the Com 1 position, both pilot and observer will be connected to the Com 1 transceiver. Only the person that presses their Push-to-Talk (PTT) will be heard over the aircraft radio. Turning the rotary switch to the Com 2 position will place pilot and observer on the Com 2 transceiver. The PMA7000MS gives priority to the pilot's PTT; if the observer is transmitting and the pilot presses her PTT, the pilot's microphone will be heard over the selected transmitter.

Split Mode. Turning the rotary switch to Com 1/2 places the PMA7000MS into "Split Mode." This places the pilot on Com 1 and the observer on the Com 2 transceiver. An example of this useful feature is when the pilot may want to talk to Air Traffic Control while the observer is checking weather with Flight Watch. Switching to Com 1/3, the pilot will be on Com 1 and the observer will be on Com 3 (the FM radio). In Com 2/3, the pilot is on Com 2 and the observer on Com 3. [Note: In split mode the pilot and observer are usually isolated from

each other on the intercom, simultaneously using their respective radios. Depressing the ICS button in split mode will activate VOX intercom between the pilot and observer positions; this permits intercommunication when desired between the crew. Pressing the ICS button again disables this crew intercom function.]

The table below summarizes the transmitter combinations (substitute Observer for Copilot):

Mic Selector	Normal		Swap	
	Pilot	Copilot	Pilot	Copilot
Com 1	Com 1	Com 1	Com 2	Com 2
Com 2	Com 2	Com 2	Com 1	Com 1
Com 3	Com 3	Com 3	No Swap	No Swap
Com 1/2	Com 1	Com 2	Com 2	Com 1
Com 1/3	Com 1	Com 3	Com 3	Com 1
Com 2/3	Com 2	Com 3	Com 3	Com 2

Intercom Mode. A 3-position toggle switch ("Intercom Mode Sel." in the figure) allows the pilot to tailor the intercom function to best meet the current cockpit situation. The following description of the intercom mode function is valid only when the unit is not in the "Split" mode (as mentioned before, the pilot and observer intercom is controlled with the ICS button when in the split mode).

ISO (up position): The pilot is isolated from the intercom and is connected only to the aircraft radio system. She will hear the aircraft radio reception (and side tone during radio transmissions). The observer will hear the crewmembers' intercom and the back seat scanners will hear the observer's intercom; neither will hear aircraft radio receptions or pilot transmissions.

ALL (middle position): All crewmembers will hear the aircraft radio and intercom.

CREW (down position): The pilot and observer are connected on one intercom channel and have exclusive access to the aircraft radios. Back seat scanners can continue to communicate with themselves without interrupting the pilot or observer.

The following table summarizes the intercom modes (substitute Observer for Copilot):

Mode	Pilot Hears	Copilot Hears	Passengers Hear	Comments
Isolate	A/C Radios Pilot Sidetone (during radio transmission) Entertainment 1 is Muted	Copilot and passenger intercom Entertainment #1	Passenger and Copilot intercom Entertainment #2	This mode allows the pilot to communicate without the others bothered by the conversations. Copilot and passengers can continue to communicate and listen to music
All	Pilot Copilot A/C Radio Passengers Entertainment #1	Copilot Pilot A/C Radio Passengers Entertainment #1	Passengers Pilot Copilot A/C Radio Entertainment #2	This mode allows all on board to hear radio reception as well as communicate on the intercom. Music and intercom is muted during intercom and radio communications
Crew	Pilot Copilot A/C Radio Entertainment #1	Copilot Pilot A/C Radio Entertainment #1	Passengers Entertainment #2	This mode allows the pilot and copilot to concentrate on flying, while the passengers can communicate amongst themselves.

Because improper setup of the audio panel can lead to confusion and missed radio calls, *do not reposition the switch or any of the pushbuttons without consulting with the Pilot-in-Command!*

Additional Information

More detailed information on this topic is available in Chapter 4 and Attachment 2 of the MART.

Evaluation Preparation

Setup: Provide the student access to the aircraft audio panel.

Brief Student: You are a Mission Observer trainee asked about setting up and using the aircraft audio panel.

NOTE: The performance measures are designed for the PMA7000MS; adjust as necessary for your aircraft.

Evaluation

Performance measures

Results

- | | | |
|---|---|---|
| 1. Set up and use the audio panel: | | |
| a. Power and volume controls. | P | F |
| b. Microphone selector switch and receiver switches (describe all positions). | P | F |
| c. Split mode (describe all transmitter combinations). | P | F |
| d. Intercom modes (describe all modes). | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2005
OPERATE THE AIRCRAFT DIRECTION FINDER

CONDITIONS

You are a Mission Observer trainee and must operate the aircraft Direction Finder.

OBJECTIVES

Operate the aircraft Direction Finder (DF) in both the Alarm and DF modes, and discuss how the DF should respond during a typical mission.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, knowing how the aircraft DF works and how to operate it is essential.
2. L-Tronics DF. The L-Tronics LA series Aircraft Direction Finder, the most common DR unit found in CAP aircraft, consists of VHF and UHF receivers, two- or three-element yagi antennas (normally mounted on the bottom of the aircraft) and circuitry. The controls consist of a frequency selector switch, an alarm toggle switch (works like a light switch), and a dual-knob control switch for volume (inner knob) and sensitivity (outer knob). There are two indications: a DF meter and a signal Strength meter. [Note: Some have only the DF meter, but the operation is the same.]



The DF unit is normally connected to the aircraft audio system. This connection allows an audible as well as a visual alarm when an ELT signal is detected in ALARM mode.

The Alarm mode is the normal mode for routine conditions. It enables the pilot to monitor the emergency frequency (121.5 MHz) without dedicating a communications radio to the task. **DO NOT USE THIS MODE DURING A DF SEARCH** because the DF function is disabled in the Alarm mode.

a. Normal setup. To select the Alarm mode, place the Alarm toggle switch on (up). Set the SENSitivity so that the needle just comes on-scale and the VOLume to a comfortable level (the ear will detect a weak signal far sooner than the alarm). [Note: The Alarm mode is designed to work with weak signals; if an ELT is transmitting nearby and the unit is set to full sensitivity, the receiver may overload.]

b. DF setup. If an ELT activates the Alarm, turn the Alarm toggle switch off (down) and verify or select 121.5 on the frequency switch. This activates the DF function and allows you to track the signal. Set the SENSitivity to maximum and the VOLume to a comfortable level. **The Alarm mode must not be used during a DF search because the DF function is not operable in the Alarm mode (toggle switch up).**

c. Searching for an ELT signal. The pilot should climb to an altitude of *at least* 3000 to 4000 feet AGL, if possible, and fly to the area of the reported ELT signal (but remember, an ELT search begins the minute you take off). If the ELT cannot be heard in the expected area, climb to a higher altitude. If this fails to acquire the signal, start a methodical search (e.g., area or expanding square). Unless the beacon is known to be a 406 MHz

EPIRB or a military beacon (which uses 243 MHz), switch between 121.5 and 243 MHz at least once each minute until a signal is heard. All civil beacons and some military beacons transmit on both frequencies.

d. Phases of a typical ELT search:

Initial heading. When first heard, the ELT signal will probably be faint and will build slowly in strength over a period of several minutes. Continue flying until a reasonable level of signal is acquired. The DF needle should deflect to one side and the Strength needle should come on-scale. Resist the urge to turn immediately and follow the needle; instead, make a 360° turn at no more than a 30° bank to ensure you get two needle centerings (approximately 180° apart) to verify the heading. When the turn is complete, center the DF needle and fly toward the ELT. Note your heading (write it down) for reference.

If the ELT is heard on both 121.5 and 243.0 MHz, compare the headings. If they differ by more than 45° or if the turn produces multiple crossovers, try a new location or climb to a higher altitude to escape from the reflections.

While flying toward the ELT the DF needle may wander back and forth around center at 10- to 30-second intervals. This is caused by flying through weak reflections and should be ignored. Fly the heading that keeps needle swings about equal in number, left and right.

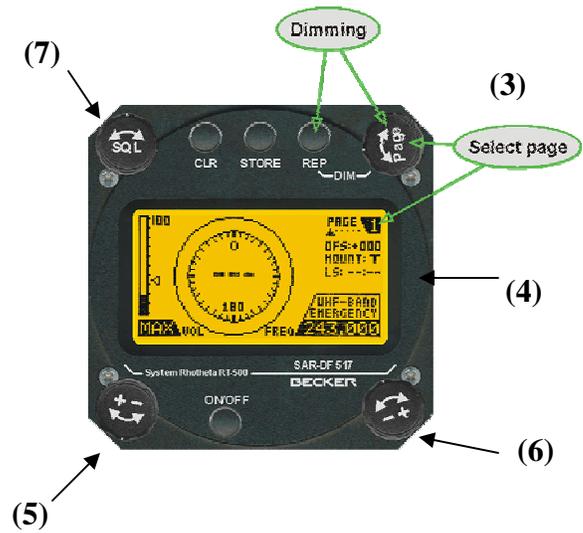
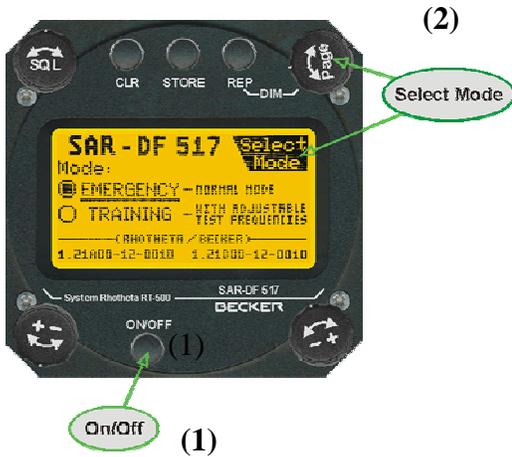
Signal fade. Don't become concerned if the signal slowly fades out as you fly towards the ELT. If this happens, continue on your heading for at least six minutes. If you are still headed toward the ELT the signal should slowly build in strength in three or four minutes and be somewhat stronger than before the fade. If the signal does not reappear, return to where the signal was last heard and try a different altitude.

Getting close. As you get close to the ELT the signal will get stronger, and you will have to periodically adjust the SENSitivity control to keep the signal strength needle centered (*do not* decrease the VOLume control as this could overload the receiver). You also need to do this if the DF needle gets too sensitive. Periodically yaw the aircraft and observe the DF needle respond (left and right).

Passing over the ELT. A "station passage" is often seen as a rapid fluctuation in signal strength and confused DF readings. Yaw the aircraft to see if the course has reversed (needle goes in the direction of the aircraft turn). If the course has reversed, continue on your heading for a few minutes. Then turn and make several confirmation passages from different angles while continuing your visual search.

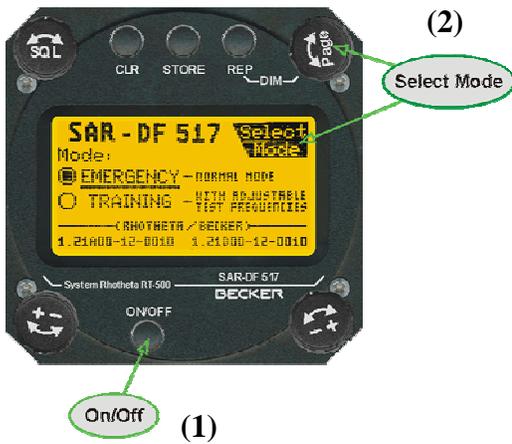
3. Becker SAR DF 517. The SAR DF 517 is a precision direction finder was developed for professional SAR (search and rescue) purposes. It has the ability to bear and analyse traditional 121.5 MHz and 243.0 MHz emergency frequencies in the VHF and UHF bands, maritime radio channel 16, and the new digitally encoded 406.025 MHz COSPAS/SARSAT emergency signal. This system incorporates a newly developed and patented antenna (small, rugged and wideband), as well as sophisticated bearing analysis algorithms, allowing delivery of a quick and steady indication for both the 121.5 and 406.025 MHz signals. It also has the ability to track a wide range of training frequencies for training exercises. The direction finder was developed for working under stressful mission conditions such as in an aircraft, helicopter or vehicle. The SAR DF 517 has two modes of operation:

a. Emergency Mode. This mode is used for actual SAR missions. In this mode the unit will search for 121.5 MHz, 406.025 MHz, Marine Channel 16 and COSPAS/SARSAT Emergency Signal Transmissions. Depending on selection, the unit will either SCAN all of these frequencies or search on a single selected frequency. To operate the unit in the emergency mode, follow the checklist below:

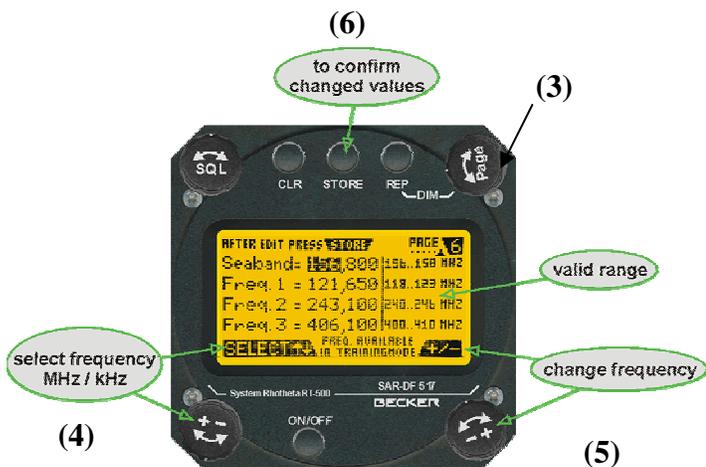


- 1) Turn ON
- 2) Select EMERGENCY
- 3) Select PAGE 1
- 4) Verify Correct Antenna Mounting
- 5) Turn Volume ON
- 6) Select EMERGENCY Frequency or SCAN mode.
- 7) SET SQUELCH LEVEL! (Set just above noise level.)

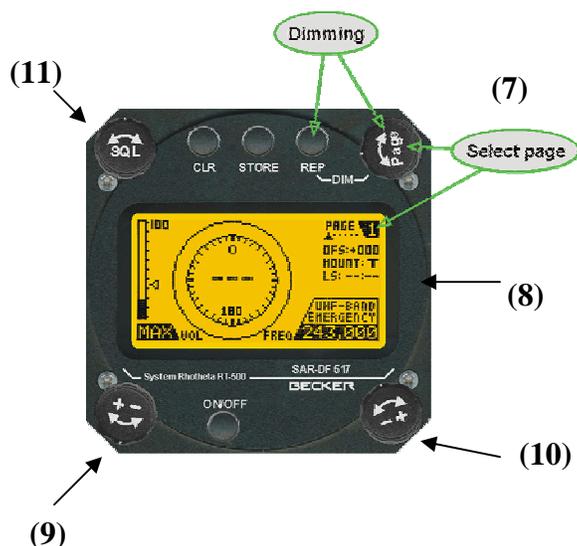
b. Training Mode. This mode is used for practice exercises. In this mode the unit will search for specific training frequencies entered by the operator, can also SCAN a group of training frequencies, but **EMERGENCY frequencies are ignored when in the training mode.** To operate the unit in the training mode, follow the checklist below:



- 1) Turn ON
- 2) Select TRAINING



- 3) Select PAGE 6
- 4) Select Training Frequency Band
- 5) Set/Verify Training Frequency. Change only if needed.
- 6) Press STORE button to save any changes made to training frequency. Not necessary if no changes made.



- 7) Select PAGE 1
- 8) Verify Antenna Mounting
- 9) Turn Volume ON
- 10) Select Training Frequency or SCAN mode.
- 11) SET SQUELCH LEVEL! (Set just above noise level.)

c. Becker SAR DF 517 Highlights:

- 1) SQUELCH Adjustment. It takes some practice to learn the correct setting of the squelch control. If the squelch is set to high, you may not be able to receive the ELT signal. If the squelch is set to low (in the noise level) you will receive erroneous ELT signals that may tend to “bounce” around the screen.
- 2) Don't be afraid to play with the squelch adjustment while in flight. You will quickly learn how to tell the difference between a valid ELT signal and an erroneous signal cause by noise.
- 3) Be sure to monitor your COMM radio also. Listen for the characteristic ELT “whooping” signal on the correct frequency (usually 121.5 MHz for EMERGENCIES or 121.775 for TRAINING). If you can hear the ELT on your COMM radio, but it is not being indicated on the DF-517, your squelch setting is probably too high.
- 4) The PILOT should not be watching the DF-517 display. The OBSERVER should be watching the display and giving bearing directions to the pilot. The pilot's job is to provide the crew a safe flight environment. FLY SAFE!

Additional Information

DF is covered in Task O-2108, *Assist in ELT Searches*, and may be performed concurrently with this task. More detailed information and figures on this topic are available in Chapter 10 and Attachment 2 of the MART as well as the User Manual for the Becker SAR-DF 517.

Evaluation Preparation

Setup: Provide the student with an aircraft and pilot, and a practice beacon.

Brief Student: You are a Mission Observer trainee asked to set up the aircraft DF unit and assist in locating a practice beacon.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Describe how the aircraft DF works.	P F
2. Set up the DF.	P F
2. Use the DF during a typical ELT search. Discuss how the DF should respond during the initial phase (include signal fade), when you are getting close, and when you pass over the practice beacon.	P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2006
PERFORM ELT SEARCHES

CONDITIONS

You are a Mission Pilot trainee and must perform ELT searches.

OBJECTIVES

Locate an Emergency Locator Transmitter (practice beacon) using the homing and wing null ELT search methods. Discuss the aural and metered search methods, and reflection and interference.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing how to plan for and locate an Emergency Locator Transmitter (ELT) is essential. There are several methods that can be used, the most common of which are the homing and wing null methods. You should also be familiar the aural and metered search method, and how reflections and signal interference can affect the search.

2. *Homing* is an electronic search method that uses the Direction Finder (DF) to track the ELT signal to its source. Tune the direction finder (DF) to the ELT operating frequency; the pilot will fly the aircraft to the transmitter. ELT's may transmit on either 121.5 MHz VHF, 243.0 MHz UHF, or both frequencies simultaneously. These emergency frequencies are *usually* the ones monitored during a search, but homing procedures can be used on any radio frequency to which *both* a transmitter and DF receiver can be tuned.

a. L-Tronics DF Unit. First you have to determine the direction to the ELT. When you fly directly toward a signal, the left/right DF needle remains centered. However, when you head directly *away* from the signal, the needle also centers. A simple, quick maneuver is used to determine if you are going toward or away from the signal. Starting with the left/right needle centered, the pilot turns the aircraft in either direction so that the needle moves away from center. If he turns left, and the needle deflects to the right, the ELT is in front. If the pilot turns back to the right to center the needle, and then maintains the needle in the center, you will eventually fly to the ELT. If, in the verification turn, the pilot turns left and the needle swings to the extreme left, then the ELT is behind you. Continue the left turn until the needle returns to the center. You are now heading toward the ELT, and as long as the pilot maintains the needle in the center, you will fly to the ELT.

Flying toward the ELT, maintaining the needle in the center of the indicator *is* the actual homing process. If the needle starts to drift left of center, steer slightly left to bring the needle back to the center. If it starts to drift right, turn slightly back to the right. Once you have completed the direction-verification turn, you will not need large steering corrections to keep the needle in the center.

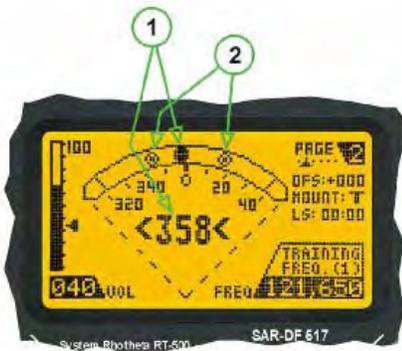
When passing over the ELT or transmission source, the left/right needle will indicate a *strong* crossover pattern. The needle will make a distinct left-to-right or right-to-left movement and then return to the center. This crossover movement is *not* a mere fluctuation; the needle swings fully, from one side of the indicator to the other and then returns to the center.

During homing you may encounter situations where the needle *suddenly* drifts to one side then returns to center. If the heading has been steady, and the needle previously centered, such a fluctuation may have been caused by a signal from a second transmitter. Another aircraft nearby can also cause momentary needle fluctuations that you might not hear, but the needle in the DF will react to it. Signal reflections from objects or high terrain can also cause needle fluctuations at low altitudes in mountainous terrain or near metropolitan areas.

b. Becker SAR-DF 517. Just like when using the L-Tronics DF, you will need to determine the bearing to the target. With the Becker DF, you will essentially follow the directions on pages of the display.



Page 1: 360° bearing



Page 2: expanded ±45°



Page 3: bearing text

1) Relative Bearing value. It is very important to realize that this is a relative bearing that is relative to the nose of the aircraft, NOT the heading to be flown.

2) Spread Maximum deviation of un-averaged bearing. Good bearing results even with a spread of 45° as a result of the averaging procedure. Note: as you approach near the ELT and the signal becomes very strong, the spread will narrow.

3) Receive level Field strength. Page 1 shows approximately 50%, Page 2 shows approx. 75%

4) Squelch level Squelch level must be above the noise level without a received signal.

5) Offset Corrects for antenna alignment (adjusted in the edit-menu).

6) Mounting Page 1 shows a BOTTOM mounted antenna. Page 3 shows TOP mounted.

7) LS: ---:--- Internal timer (LS meaning last signal) indicating the time since the last signal was received, displayed in min /sec

How do I read the above displays?

- Page 1 indicates that the target is 2 degrees to the right, so the observer would tell the pilot to turn 2 degrees right to center the ball at the top of the display.
- Page 2 indicates that the target is 2 degrees to the left, so the observer tells the pilot to turn two degrees to the left to center the ball at the top of the display.
- Page 3 indicates that the target is 6 degrees to the right, so the observer tells the pilot to turn 6 degrees to right (there is no ball displayed on this page).

How do you know when you are over the target?

- The “ball” will swing to the 180 degree position on PAGE 1 just after you pass over the target.

- When you are exactly over the target you may notice a “cone of influence” similar to passing over a VOR during which the signal may be lost momentarily before it swings to 180 degrees.

3. *Wing null*. The wing null (or wing shadow) method is based on the assumption that the metal skin of the search aircraft’s wing and fuselage will block incoming ELT signals from the receiving antenna during steep-banked turns.

Due to the length of the description of this search method and the number of figures, refer to the "Wing Shadow method (wing null)" section of the Mission Aircrew Reference Text (MART) for details.

4. The *aural* (or hearing) search technique is based on an assumption that an ELT's area of apparent equal signal strength is circular.

Please refer to the "Aural (or hearing) search" section of the MART for details.

5. To employ the *metered* search method, the observer uses a signal strength meter to monitor the ELT signal. Once the aircraft enters the search area, the observer plots two positions of equal meter strength.

Please refer to the "Metered search" section of the MART for details.

6. Signal reflection and interference. Radio signals reflect off terrain and manmade objects, and this can be a problem for search and rescue teams. In an electronic search, it is vitally important to know if the equipment is reacting to reflected signals and what you can do to overcome the problem.

Please refer to the "Signal Reflection and Interference" section of the MART.

Additional Information

Using the DF is covered in Task O-2005 (Operate the Aircraft DF), and may be performed concurrently with this task. More detailed information and figures on this topic are available in Chapter 10 and Attachment 2 of the MART and the user’s manual for the Becker SAR-DF 517..

Practice

Setup: The student needs access to an aircraft with an operable DF, a sectional and or a map of the practice area. Place a practice beacon in a suitable location for each type (method) of DF search. [Note: If you normally operate in or near congested airspace, you should conduct some of these practice sorties under ATC control inside the congested airspace.]

For the first lesson it is best if the trainer flies the aircraft and let the student concentrate on the DF unit. Where possible, have the student direct the pilot (particularly for headings) by interpreting DF signals. Thereafter the trainer should let the student perform as much of the search duties as is practical.

As a minimum, the student should practice the homing and wing null search methods. Demonstration of the aural and metered search methods is desirable, but they may be simulated. [Note: It is highly desirable to have a ground crew available during practice. The observer can then lead the ground crew to the area where the practice beacon is located and let the ground crew find the beacon.]

The student should start out searching for a practice beacon located in an open area where the signal will not be reflected. At first, the practice beacon's location should be clearly marked (e.g., using an adjacent signal panel or wreckage simulations) so the student can see the results of his efforts.

After the student has successfully demonstrated basic proficiency, place the practice beacon in an open area but do not mark its location. Have the student locate the beacon and tell you its approximate location. This provides a good simulation of a night search. After the student has demonstrated proficiency, practice at least one DF (using the homing and wing null methods) at night.

After the student has mastered the basic ELT search methods, place a practice beacon in locations where the signal is weakened or reflected (e.g., inside a hanger, along a metal fence, or near a power transmission line).

Evaluation Preparation

Setup: Provide the student with an aircraft and pilot, a sectional and/or map of the local area. Place a practice beacon in a suitable location for each type of ELT search.

Brief Student: You are a Mission Pilot trainee asked to perform ELT searches.

NOTE: The performance measures are designed for the L-Tronics DF; adjust as necessary for your aircraft.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Locate a practice beacon using the following search methods:		
a. Homing to a non-reflected signal.	P	F
b. Homing to a non-reflected signal at night (combine with 1.d, if possible).	P	F
c. Homing to a reflected signal.	P	F
d. Wing null to a non-reflected signal (one during the day and one at night).	P	F
2. Locate a practice beacon using the following search methods (may be simulated):		
a. Aural.	P	F
b. Signal.	P	F
3. Discuss night and IFR searches, with particular emphasis on the hazards and precautions.	P	F
4. Discuss signal reflection and interference.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

LOCATE AND SILENCE AN ELT ON THE GROUND

CONDITIONS

You are a Mission Observer trainee and must locate and silence an ELT on the ground.

OBJECTIVES

Locate and silence an ELT on the ground, and discuss the legal issues involved.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, knowing how to locate and silence an Emergency Locator Transmitter (ELT) on the ground is essential. If you don't have a ground crew and you have determined the ELT signal is coming from an airfield, you can land and find the offending aircraft. You can use a hand-held DF unit (Little L-Per or Tracker) and/or a hand-held radio to locate the aircraft.

NOTE: Aircrews will not conduct searches off the main airport property as they are not normally equipped to do so. If aircrews conducting an airport search suspect an aircraft crash off the field, they should request additional assistance from local authorities and support from a CAP ground or urban direction finding team to locate the crashsite.

2. Sometimes you locate the hanger where the signal is coming from and find it is full of aircraft. Two methods are very useful in locating the ELT under these circumstances:

Signal-offset method

You can take advantage of the fact that reflected signals are generally weaker by tuning a hand-held radio further away from the primary frequency (signal-offset). Assuming the ELT is transmitting on 121.5, tune the radio to 121.55. Toggle back and forth between the two frequencies as you approach the suspected location until you hear a signal on 121.55. As you home in make 121.55 the primary and set 121.6 on the radio and repeat the process (you may even work up to 121.7). As you get further away from the initial frequency the area where the signal will break through the squelch becomes smaller and smaller (you can even turn up the squelch to get further isolation).

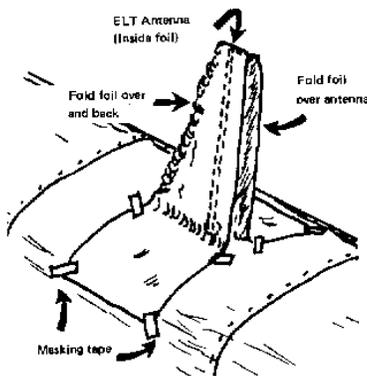
Use a hand-held radio without its antenna

Hold the radio by one of the suspect aircraft (its ELT antenna, if mounted on the exterior) and turn the volume down until you can just hear the signal, then move to the next suspect aircraft and hold the radio next to its antenna. If the signal is stronger you probably have it; if it is weaker or cannot be heard it's probably the other aircraft. If needed, repeat with the radio's antenna removed (*Warning: Do not key the radio's transmitter while it's antenna is removed!*). [Note: You may also incorporate portions of the signal-offset method with this method.] Another technique is to slip an aluminum foil "sleeve" over the suspect ELT antenna while holding the radio by the antenna; if the signal fades significantly, you have found the signal.

3. Once you have determined which aircraft the signal is coming from, you have to find the (physical) ELT. Most are located in the rear of the aircraft; also look for remote switches. The following gives some general locations:

- a. Single-engine Cessna: right side of the upper baggage area immediately aft of the baggage door.
- b. Multi-engine Cessna: left side of the fuselage just forward of the horizontal stabilizer. Accessed through a small push-plate on the side of the fuselage.

- c. Single- and multi-engine Piper: in the aft fuselage. Accessed through a small access plate on the right side of the fuselage (need a screwdriver).
 - d. Single- and multi-engine Bonanza: in the aft fuselage. Accessed through a small access plate on the right side of the fuselage (need a screwdriver).
 - e. Large piston twins (e.g., King Air) or small jets: if installed its probably in the rear section. No visible antenna. May have a small round push-plate that gives you access to the switch with your finger.
4. The preferred method of silencing a transmitting ELT is to have the owner (or a person designated by the owner) turn it off and disconnect the battery; second best is just turning it off. Some owners will take the switch to OFF and then back to ARMED; monitor the emergency frequency for several minutes afterwards to ensure the ELT doesn't resume alarming. If you cannot find the owner (or designee), you may have to install an aluminum foil 'tent' to limit the ELT signal range.



Take a piece of foil about one foot wide by about five feet long. Place the tip of the ELT antenna in the center of the foil and fold the foil down on both sides of the antenna. Let the ends lay flat against the fuselage; the flaps *must* extend at least 18" beyond the antenna. Fold the two sides of the 'tent' together to completely enclose the antenna and *securely* tape the foil to the fuselage (use a tape that won't damage the paint, such as masking tape).

5. Whatever you do, *do not leave an ELT/EPRIB in the alarm state unless ordered to do so by the IC/AFRCC*. You will have to consult your IC, AFRCC, and/or law enforcement to silence the ELT if the above methods are not practical. Last but not least, ensure the aircraft owner is notified that the ELT was disabled. If you can't obtain a phone number, you can put a sticker on the aircraft (not a window) stating that the ELT has been disabled.
6. AFRCC information. You need to keep a log of the ELT search in order to provide certain information to AFRCC. This information will be given to the Incident Commander, and is required before AFRCC will close out the mission:
- a. Date and time (Zulu) you left on the sortie.
 - b. Date and time the ELT was first heard.
 - c. Time in the search area and time enroute (hours and minutes; Hobbs).
 - d. Area(s) searched.
 - e. Actual location of the ELT, including latitude and longitude.
 - f. Date and time the ELT was located and silenced.
 - g. ELT model, manufacturer, serial number and battery expiration date.
 - h. Position in which you left the ELT switch: On, Off, or Armed.
 - i. Other (not required): 'N' or vessel number, make and model, owner information, and how the ELT was actuated.

7. *Legal issues.* Per CAPR 60-3 Chapter 1, CAP members will not enter private property and should not do anything that could cause harm or damage to the distress beacon or aircraft/boat. If entry is required the owner/operator or local law enforcement officials will make it.

A transmitting ELT is under the legal authority of the FCC, and federal law requires that it be deactivated ASAP. However, CAP members *do not have the authority to trespass onto private property*, either to gain access to the aircraft or to enter the aircraft to gain access to the ELT. You must gain permission from the owner before you enter a private hanger or an aircraft. In some cases, especially at an airport, FBO personnel have permission to enter aircraft on the premises and can assist you.

Normally, local law enforcement officials are happy to assist you. If they are not familiar with CAP and your responsibilities, a simple explanation often suffices. If this doesn't work, try calling AFRCC and have them explain the situation.

That said, when searching under the tasking of the AFRCC, CAP forces are "assisting" the FCC and no one else. If a local law enforcement officer prevents a CAP ground team from going on to an accident scene to deactivate the ELT, the deputy is in the wrong. Now, that does not mean you just shove your way past the deputy. You call your IC, who calls the AFRCC, who calls the Sheriff at home at 3:00 a.m. and explains that the Sheriff really doesn't want to get crosswise with the FCC. The Sheriff is usually only too happy to call the deputy and allow the ground team to enter the scene to deactivate the ELT.

NOTE: A *crashed* aircraft is under the authority of the National Transportation Safety Board (NTSB) *and no one else*. Federal law permits the NTSB to request assistance from federal, state and local agencies (including CAP) to secure a crash site.

Practice

Setup: The student needs a hand-held DF unit, a hand-held radio, and aluminum foil and tape.

First, place a practice beacon in an open location where it is visible to the student. Have the student use the hand-held DF unit and the hand-held radio to locate the beacon.

After the student is comfortable with the DF and radio indications, place the practice beacon in an open location but not visible to the student. Have the student DF to the beacon using both the DF unit and the radio.

Next, place the practice beacon in an area where the signal will be reflected, preferably in an aircraft that is inside a hanger. Have the student locate the beacon using the DF and/or the radio.

Have the student install an aluminum foil 'tent' over an ELT antenna on an aircraft.

Additional Information

More detailed information and figures on this topic are available in Chapter 10 of the MART.

Evaluation Preparation

Setup: Provide the student with a hand-held DF unit, a hand-held radio, a practice beacon, and aluminum foil and tape.

Brief Student: You are a Mission Observer trainee asked to locate and silence an ELT (practice beacon), and discuss the legal issues involved.

Evaluation

Performance measures

Results

- | | | |
|--|---|---|
| 1. Locate a practice beacon in an open area on the ground. | P | F |
| 2. Locate a practice beacon in an aircraft inside a hanger. | P | F |
| 3. Discuss the typical physical location of ELTs in various types of aircraft. | P | F |
| 4. Demonstrate (may simulate) how gain access to and silence an aircraft ELT. | P | F |
| 5. Install an aluminum foil 'tent' over an aircraft's ELT antenna. | P | F |
| 6. List information (required by AFRCC) that you should record during an ELT search. | P | F |
| 7. Discuss the legal issues involved in silencing an ELT. | P | F |

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2008
COMPLETE A MISSION SORTIE

CONDITIONS

You are a crew member trainee and must demonstrate how to complete a mission sortie.

OBJECTIVES

Obtain general and aircrew briefings with the mission pilot, assist in filling out the front page of a CAPF104, ensure releases are obtained, inventory sortie supplies, and give the scanners their sortie assignments.

Perform or describe mission duties during a sortie, actions upon return to mission base, fill out the remainder of the CAPF104, and perform a sortie debriefing.

TRAINING AND EVALUATION

Training Outline

1. The ability to complete a mission sortie is essential. A well prepared and thorough aircrew will help ensure the success of the mission.

2. *General briefing.* Soon after sufficient data have been assembled, and the mission base is functioning, there will be an initial general mission briefing that everyone must attend. The incident commander (or designee) introduces the staff and covers mission base and safety procedures. The IC then summarizes the situation, including a description of the search objective. A map may be displayed, and the areas to be searched (or the object or area to be assessed) will be outlined on the map. Usually, someone provides a time hack.

Other items covered include current and forecast weather conditions, the communications, flightline, taxi, and safety plans, status boards (for updates), logistics, and supply. You may be handed a sortie packet at this time, or the Briefing Officer may make assignments individually.

Thereafter, the general briefing is normally given each morning (or at the beginning of each operational period). Updates are posted regularly or after a significant development.

3. *Aircrew briefing.* A detailed briefing will be given to each aircrew (and ground team) prior to each sortie. Depending on the circumstances, the mission pilot may receive the briefing or the entire aircrew may be briefed together. It is important that you pay attention and ask questions. In this briefing, there are no stupid questions.

A. During the briefing, ensure you get enough information to fill out the left front of the CAPF 104:

- 1) Objectives and Search Area/Route
- 2) Terrain/Ground cover
- 3) Direction of tracks, track spacing, search altitude and airspeed
- 4) Hazards to flight and military routes (local and search area)
- 5) Aircraft separation
- 6) Weather (local and search area)
- 7) Communications call signs, frequencies and procedures
- 8) Actions to be taken if target sighted
- 9) Estimated time of departure and time enroute
- 10) Inbound and Outbound headings and altitudes
- 11) Whether using Local (preferred) or Zulu time

B. CAPF 104. A CAP flight plan and a sortie briefing form are required for each sortie flown by your aircrew. The front of the CAPF 104 serves both purposes.

MISSION FLIGHT PLAN/BRIEFING FORM		MISSION NO. MAS01-001	DATE 20-Jul-01	SORTIE NO. 1
INSTRUCTIONS: Pilot completes section pertaining to aircraft and crew (items above double line), and then gives form to Briefing Officer. Remaining items will be completed as required prior to flight. Complete reverse side after mission.				
CREW QUALIFICATION		Aircraft Equipment		FLIGHT PLAN INFO
PILOT: Act Type <input checked="" type="checkbox"/> Night <input checked="" type="checkbox"/> Instrument <input checked="" type="checkbox"/> Mountain <input checked="" type="checkbox"/> CO-PILOT: Mission _____ Trainee _____ OBSERVER: Mission <input checked="" type="checkbox"/> Trainee _____ OBSERVER: Mission _____ Trainee <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> CAP RADIO FREQ <input type="checkbox"/> SIGNAL FLARES <input checked="" type="checkbox"/> POLICE RADIO FREQ <input type="checkbox"/> FLARES <input checked="" type="checkbox"/> VOR <input checked="" type="checkbox"/> MESSAGE DROPS <input checked="" type="checkbox"/> ADF <input checked="" type="checkbox"/> SURVIVAL KIT <input checked="" type="checkbox"/> ELT <input checked="" type="checkbox"/> TRANSPONDER <input checked="" type="checkbox"/> NIGHT FLIGHT <input checked="" type="checkbox"/> DIRECTION FINDER <input checked="" type="checkbox"/> INSTRUMENT FLT <input checked="" type="checkbox"/> GPS <input checked="" type="checkbox"/> FIRE EXTINGUISHER <input type="checkbox"/> <input checked="" type="checkbox"/> FIRST AID KIT		CAP <input checked="" type="checkbox"/> FILED FAA <input type="checkbox"/> IFR <input type="checkbox"/> VFR <input checked="" type="checkbox"/> AIRCRAFT NUMBER <u>N99545</u> AIRCRAFT TYPE <u>C172P</u>
MISSION OBJECTIVES: Details here, such as route, grid, creeping line or expanding square search area.		TRUE AIRSPEED <u>110 KIA</u>		
SEARCH AREA/ROUTE (DESCRIPTION) Describe in sufficient detail that mission base knows exactly where you are going and in what sequence.		POINT OF DEPARTURE <u>BAK</u>		
TERRAIN/GROUND COVER Describe. Use descriptors from reverse		ETD/ATD <u>1300 Z/1310 Z</u>		
TYPE OF SEARCH PATTERN(S) Route, creeping line, etc.		OUTBOUND/INBOUND ALTITUDE <u>2,000 F 2,500 F</u>		
DIRECTION OF TRACKS N/S or E/W		ROUTE OF FLIGHT Flight plan detail of route		
TRACK SPACING 1 nm, 1/2 nm, etc.		SEARCH ALTITUDE 1,000 F		
SEARCH AIRSPEED 90		HAZARDS TO FLIGHT Towers, water fowl, parachuting, etc.		
HAZARDS TO FLIGHT Towers, water fowl, parachuting, etc.		DESTINATION AIRPORT <u>BAK</u>		
MILITARY LOW ALTITUDE TRAINING ROUTES VR 1617		CITY <u>Columbus, IN</u>		
AIRCRAFT SEPARATION (ADJOINING AREAS) As applicable		ESTIMATED TIME ENROUTE HRS. <u>1</u> MIN. <u>30</u>		
EMERGENCY FIELDS OVO, SER		FUEL ON BOARD HRS. <u>4</u> MIN. <u>10</u>		
WEATHER CURRENT LOCAL Describe		ALTERNATE AIRPORT <u>SER</u>		
FORECAST LOCAL Describe		PILOT'S NAME <u>Lance Largewatch</u>		
WEATHER CURRENT SEARCH AREA Describe		PILOT'S ADDRESS <u>Roswell New Mexico</u>		
MISSION BASE CALL SIGN Columbus base		FREQUENCIES FM - VHF - HF Channel <u>4</u>		
MOBILE CALL SIGN Ground Team 1		FREQUENCIES FM - VHF Channel <u>1</u>		
MOBILE LOCATIONS North side of Seymour		PILOT'S PHONE NO. <u>Classified</u>		
WHO TO CONTACT AND WHEN Mission base every 30 minutes for Ops Normal		NO. OF PERSONS ABOARD <u>3</u>		
ACTIONS TO BE TAKEN IF SAR OBJECTIVE IS LOCATED Call Ground Team 1 and direct to site		COLOR OF AIRCRAFT <u>W/B/R</u>		
CODE WORDS RECALL <u>ET Phone Home</u> FIND <u>Here it is!</u>		PROPOSED LDG TIME <u>14:30 Z</u>		
PILOT'S SIGNATURE		ACTUAL LDG TIME <u>14:40 Z</u>		
BRIEFING OFFICER'S SIGNATURE		FAA FLT PLAN CLOSED <input type="checkbox"/>		
OPS/CLEARANCE/DISPATCH SIGNATURE				

CAP Form 104 May 84 PREVIOUS EDITION IS OBSOLETE.

CAP Flight Plan

The right side of the front of the CAPF 104 serves as the CAP flight plan. It lists details of your aircraft, your intended route of flight, anticipated flight time, fuel available versus fuel you intend to use (plus reserve), and souls on board -- all meant to let the mission staff know where you are going and when you should return and to facilitate rescue efforts in case of an emergency.

The mission pilot must consider many things as she fills out the flight plan. Since the primary purpose of the plan is to let mission staff know where your aircraft is going and when it will return, the "Route of Flight" is one of the most important blocks on the flight plan: ensure it clearly describes your intentions, including any fuel or rest stops. The "Estimated Time Enroute" is also very important: if a sortie isn't back within a reasonable time past this estimated time of return, mission base will attempt to contact you and a search may be started.

As you plan the sortie, the pilot should consider Inbound/Outbound headings and altitudes; if no altitudes are assigned and you will be flying below 3000' AGL use 'odd' altitudes, such as 1300' or 2300' if the terrain and obstacles allow, in order to avoid normal traffic during your transits.

Once you have planned the route and have a time estimate, add some time to drop down and verify sightings (normally 15 minutes to descend to 500' AGL, circle, and return to 1000' AGL).

Now the pilot should double-check "Estimated Time Enroute" against "Fuel Onboard." If the time enroute exceeds fuel load *minus reserve* (e.g., a "round robin" sortie or extended sortie where you plan to refuel), ensure the "Route of Flight" thoroughly explains your intentions and lists your fuel stop.

CAP Briefing Form

The left side of the front of the CAPF 104 serves as the sortie briefing form. It lists mission objectives, describes the search area or route, defines terrain and ground cover (try to use the terminology from the POD chart on the bottom of the reverse side), gives details of the search pattern to be used, lists hazards to flight, defines current and forecast weather in the search area, and lists other mission details. Be thorough and thoughtful as you fill out this form. It is very important. [If possible, the aircrew should hold an informal group briefing as you complete this form. Crew resource management demands prior agreement on details of the search.]

Your briefing kit should contain:

- 1) CAPF 104 and CAPR 60-1
- 2) Airport diagram, taxi plan/procedures, emergency-landing areas
- 3) Current and Gridded sectionals (if gridded sectionals are not current, mark "Not for Navigation")
- 4) Maps (road atlas, county maps, topo maps)
- 5) Checklists

If flying grids and no aircraft will be in the adjacent grids, plan your turns outside the grid for breaks.

Finally, review your planning aids (marked-up charts and notes) for accuracy and legibility. Also, you should write in your Cap Flight number on the form, in the "Flight Plan Info" section. This helps the communications personnel. Ensure you have the (operable) equipment to accomplish the objective.

After reviewing the plan with the crew, the mission pilot signs the form.

4. *Operational Risk Management (ORM)*. Operational Risk Management (ORM) is a practical way to accomplish the mission with the least possible risk. It is more than just common sense (although plain common sense is very important) and more than just a safety program. It can be used to identify and assess anything that might have a negative impact on a mission. ORM is a method of getting the job done by identifying the areas that present the highest risk, then taking action to eliminate, reduce or control the risks. It can be very flexible and can take from a few seconds to a few hours or days.

The Air Force uses a six-step "building block" approach:

Identify the hazards
Assess the risks
Analyze risk control measures
Make control decisions
Implement risk controls
Supervise and review

Accept no unnecessary risks. Unnecessary risk comes without a commensurate return in terms of real benefits or available opportunities. All CAP missions and our daily routines involve risk. The most logical choices for accomplishing a mission are those that meet all mission requirements with the minimum acceptable risk.

Make risk decisions at the appropriate level. Making risk decisions at the appropriate level establishes clear accountability. Those accountable for the success or failure of the mission *must* be included in the risk decision process. The appropriate level for risk decisions is the one that can allocate the resources to reduce the risk or eliminate the hazard and implement controls. Levels include the incident commander, aircraft or mission commander, ground team leader, or individual responsible for executing the mission or task.

Accept risk when the benefits outweigh the costs. All identified benefits should be compared to all identified costs. The process of weighing risks against opportunities and benefits helps to maximize unit capability. Even high-risk endeavors may be undertaken when there is clear knowledge that the sum of the benefits exceeds the sum of the costs. Balancing costs and benefits may be a subjective process and open to interpretation. Ultimately, the balance may have to be determined by the appropriate decision authority.

Integrate ORM into CAP practices, procedures and planning at all levels. Risks are more easily assessed and managed in the planning stages of an operation (this includes planning for a sortie). Integrating risk management into planning as early as possible provides the decision maker the greatest opportunity to apply ORM principles. Additionally, feedback (lessons learned) must be provided to benefit future missions/activities.

5. *Preparing to leave.* Once you have been briefed and the front of the CAPF 104 is complete and signed, the briefing officer will sign the CAPF 104 and direct the pilot to air operations. Here, the chief or director will inform the crew of any changes and release the flight by signing the CAPF 104.

Now is the time for final preparations for the flight. Check the crew equipment and supplies (e.g., headset, charts, maps, plotter, log, checklists, camera, drinking fluids and snacks) and review flightline rules. The final visit to the restroom is made.

The pilot presents the CAPF 104 to the flightline supervisor for final release, and then begins the aircraft pre-flight. Check the aircraft's mission-related equipment and supplies such as binoculars, charts and maps, flashlights, survival equipment, and airsick bags. All windows should be cleaned, if necessary.

[NOTE: If you are assigned an unfamiliar aircraft (not the one you usually fly), the pilot should perform a *very* thorough preflight. Look at (and touch) all antennas, check the struts carefully, check the tires and brakes carefully, and note any significant scratches and dents. You don't want to be blamed for someone else's mistakes.]

Prior to each flight, the pilot will brief the crew. This briefing will include specific information concerning the aircraft such as how to use the seat belts and shoulder harnesses (both must be used at or below 1000' AGL), emergency exit/egress procedures including the order of emergency egress, the no smoking policy, the fuel management plan, and startup and taxi emergency procedures. Duties for each crewmember during the start up, taxi, takeoff, and transit phases of the flight will be assigned. The pilot should inform you when the "sterile cockpit" rules will be in effect. [When more than one flight is accomplished by the same crew during the day,

subsequent briefings are not required to be so detailed but must, at a minimum, highlight differences and changes from the original briefing.]

During the actual search or assessment, the aircrew must be completely honest with each other concerning their own condition and other factors affecting search effectiveness. If you missed something, or think you saw something, say so. If you have a question, ask. If you spot the target, the most important thing to do is *notify mission base immediately*. The recovery must be started as soon as possible.

The mission pilot must take current flight conditions into consideration (e.g., gross weight, turbulence, and terrain) and perhaps add a margin of safety to the assigned search altitude and airspeed. Log these deviations from the assigned search parameters; when you get back from your sortie you can debrief what you did and why.

A. Transit to the Search Area

- 1) Relax sterile cockpit rules
- 2) Maintain situational awareness
- 3) Double-check navigational settings to be used in the search area
- 4) Review search area terrain and obstacles
- 5) Update in-flight weather and file PIREP
- 6) Review methods to reduce fatigue or combat high altitude effects during the search

B. Approaching the Search Area

- 1) Exterior lights on (maximize your visibility so others can "see and avoid")
- 2) Review search objectives
- 3) Double-check radio, audio panel and navigational settings
- 4) Check navigational equipment against each other (detect abnormalities or failures)
- 5) Pilot stabilizes at search heading, altitude and airspeed (not < V_y) at least two miles out

C. In the Search Area

- 1) Log (time and Hobbs) and report "In the Search Area"
- 2) Enter deviations from assigned search parameters in Observer Log
- 3) Hourly Updates - Altimeter setting (closest source) and fuel assumptions
- 4) Report "Operations Normal" at assigned intervals
- 5) Pilot limits time spent below 800' AGL (no lower than 500' AGL) during daylight
- 6) Pilot maintains at least 2000' AGL during nighttime
- 7) Monitor for crew fatigue and high altitude effects
- 8) If you sight the objective, notify mission base at once
- 9) Log all "negative result" sightings

D. Departing the Search Area

- 1) Log (time and Hobbs) and report "Out of the Search Area"
- 2) Pilot double-checks heading and altitude assigned for transit to next search area or return to base

6. *Return from the sortie.* After a short break you will assemble the crew to complete the CAPF 104 and prepare for debriefing. Any drawings or markings made on charts or maps should be transferred onto the CAPF 104 or attached to it. Make sure everything is clear and legible. [NOTE: *The two most common entries overlooked* when completing the CAP flight plan (front side of the CAPF 104) are "ATD" and "Actual LDG Time."]

MISSION DEBRIEFING FORM									
TYPE OF SEARCH: Visual: <input checked="" type="checkbox"/> Electronic: _____			SEARCH PATTERNS USED: Track Crawl (route)						
SEARCH VISIBILITY: (Distance you can see an auto clearly) 1 NM			SEARCH ALTITUDE: (Above ground) 1000 AGL		SEARCH SPEED: 90 Kts		TRACK SPACING: 0.0 NM		
SECTIONAL GRID: N		N		N		N		N	
SEARCHED: (Lat/Long) W		A B C D		W		A B C D		W	
SEARCHED: Route/ Electronically BAK to SER to to									
TIME OF DAY: 13:10 Z to 14:40 Z			Crew Comments about Effectiveness Exec _____ Good _____ Fair <input checked="" type="checkbox"/> Poor _____						
OBSERVERS/ SCANNERS: Number 2			Crew Remarks of SAR Effectiveness Route was easy to follow, but haze reduced contrast and washed out colors						
TERRAIN: Flat <input checked="" type="checkbox"/>		Rolling Hills _____		Rugged Hills _____		Mtns _____		TURBULENCE: Light: _____ Mod _____ Heavy _____	
COVER: Open <input checked="" type="checkbox"/>		Moderate _____		Heavy _____		Light Snow _____		Deep Snow _____	
COORDINATES OF SIGHTINGS: (Lat/Long) W		W		W		W		VOR Radials	
FLYING TIME: Enroute. (To/From Grid) 0.4 Hrs			Search Time (In Grid) 1.1 Hrs			Total 1.5 Hrs			
NOTE: If part of a grid was searched, draw area covered below in relation to landmarks. Indicate sightings. No sightings.									
Also use for drawings or sketches, and to list attachments.									

OPEN, FLAT TERRAIN					MODERATE TREE COVER AND/OR HILLY					HEAVY TREE COVER AND OR VERY HILLY									
SEARCH ALTITUDE (AGL)		SEARCH VISIBILITY			SEARCH ALTITUDE (AGL)		SEARCH VISIBILITY			SEARCH ALTITUDE (AGL)		SEARCH VISIBILITY							
Track Spacing		1 mi	2 mi	3 mi	4 mi	Track Spacing		1 mi	2 mi	3 mi	4 mi	Track Spacing		1 mi	2 mi	3 mi	4 mi		
500 Ft					500 Ft					500 Ft									
5 mi	35%	60%	75%	75%	5 mi	20%	35%	50%	50%	5 mi	10%	20%	30%	30%	5 mi	10%	20%	30%	30%
1.0	20	35	50	50	1.0	10	20	30	30	1.0	5	10	15	15	1.0	5	10	15	15
1.5	15	25	35	40	1.5	5	15	20	20	1.5	5	5	10	15	1.5	5	5	10	15
2.0	10	20	30	30	2.0	5	10	15	15	2.0	5	5	10	10	2.0	5	5	10	10
700 Ft					700 Ft					700 Ft									
5 mi	40%	60%	75%	80%	5 mi	20%	35%	50%	55%	5 mi	10%	30%	30%	35%	5 mi	10%	30%	30%	35%
1.0	20	35	50	55	1.0	10	20	30	35	1.0	5	10	15	20	1.0	5	10	15	20
1.5	15	25	40	40	1.5	10	15	20	25	1.5	5	5	10	15	1.5	5	5	10	15
2.0	10	20	30	35	2.0	5	10	15	20	2.0	5	5	10	10	2.0	5	5	10	10
1000 Ft					1000 Ft					1000 Ft									
5 mi	40%	65%	80%	58%	5 mi	25%	40%	55%	60%	5 mi	15%	20%	30%	35%	5 mi	15%	20%	30%	35%
1.0	25	40	55	60	1.0	15	20	30	35	1.0	5	10	15	20	1.0	5	10	15	20
1.5	15	30	40	45	1.5	10	15	20	25	1.5	5	10	10	15	1.5	5	10	10	15
2.0	15	20	30	35	2.0	5	10	15	20	2.0	5	5	10	10	2.0	5	5	10	10

CAP 104 Reverse

Most of the information required on the reverse of the debriefing form is self-explanatory and serves to emphasize the need to take good notes during the sortie (e.g., the observer log).

The "Time of Day" section requires you to enter the time you were in the search area; this helps debriefers and planners to determine if the weather or the sun's position affected search effectiveness.

The "Flying Time" section requires you to insert transit time [(Enroute (to/from grid))], the time you spent actually searching or assessing [Search Time (in grid)], and the "Total" time. These times are easily determined if you noted your takeoff, in search area, out of search area, and landing times and Hobbs readings in your log.

O-2102
DEMONSTRATE PLANNING AND FLYING A ROUTE SEARCH

CONDITIONS

You are a Mission Pilot trainee and must demonstrate how to plan and fly a route search.

OBJECTIVES

Demonstrate how to plan and fly a route search.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, the ability to plan and perform a route search pattern is essential.
2. General. Because of the accuracy and reliability of the present Global Positioning System and GPS receivers, CAP aircrews are now able to navigate and fly search patterns with unprecedented effectiveness and ease. The GPS has become the primary instrument for CAP air missions, and it is vital that observers know how to setup and use the GPS. However, observers must also be familiar with the other navigational instruments onboard CAP aircraft: these instruments complement the GPS and serve as backups in case of GPS receiver problems.

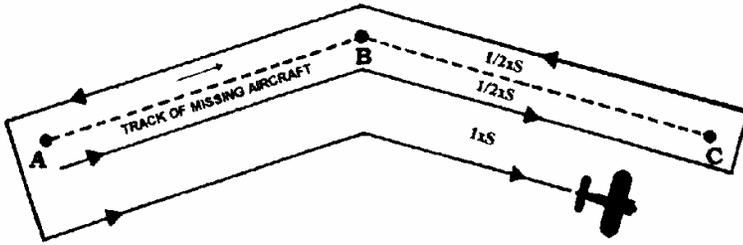
The pilot (or the observer acting as mission commander) must be aware of how many scanners will be on board in order to assign which side of the aircraft they should scan. *Planning and executing a search pattern with only one scanner on board is quite different from one where you have two scanners.* Likewise, having an observer and two scanners on board will allow the observer to spend more time assisting the pilot without seriously decreasing search effectiveness.

When you are planning and flying search patterns, always perform a stupid check -- as in "Hey! Wait a minute. This is stupid." Use this to see if your headings, waypoint positions, lat/long coordinates and distances look sensible. At a minimum, perform this check after you finish planning, when you start your pattern, and periodically thereafter. For example, you've just entered a set of lat/long coordinates into the GPS and turned to the heading shown on the GPS. You know the coordinates represent a lake southwest of your position, so check the heading indicator to see you're actually traveling in a southwesterly direction. Or, you know the lake is approximately 25 miles away; check the distance indicated on the GPS! You'd be surprised how many mistakes this method will catch.

Pre-planning (plotting) your search pattern results in the most effective search. Pre-planning sets the details of the sortie in your mind and makes entering your data (correctly) into the GPS much easier. This allows the pilot and observer to concentrate on their primary task by minimizing navaid setup time and reducing confusion. Worksheets can be used (see the *Flight Guide*, MART Attachment 2) to pre-plan your search patterns, but they are just one method.

3. Route search pattern. The route (track line) search pattern is normally used when an aircraft has disappeared without a trace. This search pattern is based on the assumption that the missing aircraft has crashed or made a forced landing on or near its intended track (route). It is assumed that detection may be aided by survivor signals or by electronic means. The track line pattern is also used for night searches (in suitable weather). A search aircraft using the track line pattern flies a rapid and reasonably thorough coverage on either side of the missing aircraft's intended track.

4. Search altitude for the track line pattern usually ranges from 1000 feet above ground level (AGL) to 2000 feet AGL for day searches, while night searches range 2000 to 3000 feet AGL (either depending upon light conditions and visibility). Lat/long coordinates for turns are determined and then entered into the GPS as waypoints, which may then be compiled into a flight plan.



The search crew begins by flying parallel to the missing aircraft's intended course line, using the track spacing (labeled "S") determined by the incident commander or planning section chief. On the first pass, recommended spacing may be one-half that to be flown on successive passes. Flying one-half "S" track spacing in the area where the search objective is most likely to be found can increase search coverage.

5. You may use a worksheet to draw the route and to log coordinates and distinctive features. As a backup, note applicable VOR radials and cross-radials. The GX55 has a function called "parallel track offset" that is very handy for route searches. This function allows you to create a parallel course that is offset to the left or right (up to 20 nm) of your current flight plan. This function can also be useful on when you wish to search a 'corridor' of airspace.

Additional Information

Search patterns are covered in Tasks O-2102 thru O-2105 and may be combined in any fashion. More detailed information and figures on this topic are available in Chapter 11 of the MART.

Practice

Setup: Give the student a route search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

The route may be along a highway (to avoid straight lines) and should be of sufficient length (out and back) to allow the student time to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' to 2,000' AGL, 100 knots, and one mile track spacing is recommended.

Depending on the level of proficiency of the pilot, one or more of these tasks may be practiced simultaneously:

Planning. All mission sorties must be thoroughly planned: this ensures the pilot and crew can accomplish the sortie objectives safely and precisely. Treat each sortie as if it were an actual mission. Each time the student practices a sortie all required paperwork should be completed as part of the drill. The student should sign herself and the aircraft into the mission, receive her assignment from you (the briefing officer), plan the sortie, and complete the flight plan and preliminary mission data portions of the CAPF 104. Review the weight and balance, fuel assumptions, and information entered onto the CAPF 104 thoroughly.

Preflight and pilot briefings. Ensure the student performs a thorough preflight of the aircraft. Acting as a crewmember, receive pilot safety and mission briefings from the student. Perform safety assignments as directed by the student (e.g., collision avoidance during taxi and in flight).

Equipment. To the extent possible, the student should operate the communications and navigation equipment. The student should set up and enter information into the equipment (especially the GPS) prior to taxi. [Where necessary for safety or training, the training pilot should take over the aircraft controls while the student sets up navigation equipment (particularly the GPS) in flight.]

Initial training. Depending on the proficiency and skills of the student, the training pilot may need to demonstrate all aspects of a route search with the student sitting in the right seat. This gives the student time to absorb the information and work on such skills as setting up, entering data, and using the navigational equipment without the added responsibilities of the PIC.

For each practice sortie, watch for:

- 1) Proper setup of the navigational equipment, particularly the GPS. [Depending on whether or not the student has access to a GPS simulator, the training pilot may fly the aircraft while the student practices setting up and entering information into the GPS. However, by the time the student is ready for evaluation he must be able to fly the aircraft safely while accurately entering the required information into the GPS.]
- 2) Stabilized entry into the search area. The aircraft should be at search altitude and airspeed 3-5 miles before entering the search area.
- 3) Accurate and precise navigation. The student should maintain altitude, airspeed and track in the search area. Watch for proper wind drift correction and airspeed adjustments. Ensure the turns are started soon enough to stay inside the search area without requiring steeply banked turns (standard rate turns are preferred, but no more than 30° bank should be used). While the emphasis is on the use of the GPS, ensure the student can navigate using the VOR(s) or other means.
- 4) Safety. The student should spend most of her time looking outside the aircraft (see and avoid). Initially, the student will spend too much time with her eyes inside the aircraft (e.g., manipulating the GPS) until she is comfortable and proficient with the equipment. Get the student into the habit of *not looking inside the aircraft for more than five seconds at a time* to manipulate communications and navigational equipment.

Evaluation Preparation

Setup: Give the student a route search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

The route may be along a highway (to avoid straight lines) and should be of sufficient length (out and back) to allow the student time to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' to 2,000' AGL, 100 knots, and one mile track spacing is recommended.

Run the sortie as it would be during an actual mission. Have the student sign in, sign in the aircraft, and complete all required paperwork. Brief the sortie as if you were the Briefing Officer during a mission.

Brief Student: You are a Mission Pilot trainee asked to plan and fly a route search.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Sign yourself and your aircraft into the mission.	P	F
2. Receive a sortie briefing, asking questions as necessary.	P	F
3. Plan a route search from Point A to B and back. Include:		
a. Estimated time enroute and fuel requirements.	P	F
b. Position coordinates for the route (lat/long and VOR radials/cross-radials).	P	F
c. Altitude restrictions, obstacles and other hazards (e.g., MTRs and SUAs).	P	F
d. Discuss observer/scanner assignments for all possible combinations.	P	F
4. Fill out the flight plan and preliminary mission data on the CAPF 104.	P	F
5. Preflight the aircraft and perform pilot safety and mission briefings.	P	F
6. Demonstrate and discuss safety during each critical phase of the flight. In particular, demonstrate collision avoidance and enforce sterile cockpit rules.	P	F
7. Demonstrate proper ATC communications.	P	F
8. Setup the CAP FM radio and perform all required radio reports (may be simulated).	P	F
9. Perform the route search. Demonstrate:		
a. Proper use of nav aids (GPS as primary; VOR as backup).	P	F
b. Proper use of radios (ATC as required, and CAP FM radio reports).	P	F
c. Entry at the proper point, stabilized at search altitude and speed.	P	F
d. Accurate altitude and speed control in the search area.	P	F
e. Turns accomplished accurately using less than 30° bank angle.	P	F
f. Accurate navigation and track spacing.	P	F
g. Proper observer/scanner direction (may be simulated).	P	F
10. Demonstrate proper attention to fuel management.	P	F
11. Properly secure the aircraft at the end of the sortie (ready for next sortie).	P	F
12. Fill out the remainder of the CAPF 104 and debrief the sortie.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2103
DEMONSTRATE PLANNING AND FLYING A PARALLEL TRACK SEARCH

CONDITIONS

You are a Mission Pilot trainee and must demonstrate how to plan and fly a parallel track search.

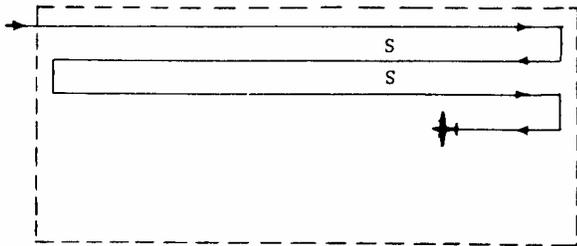
OBJECTIVES

Demonstrate how to plan and fly a parallel track search.

TRAINING AND EVALUATION

Training Outline

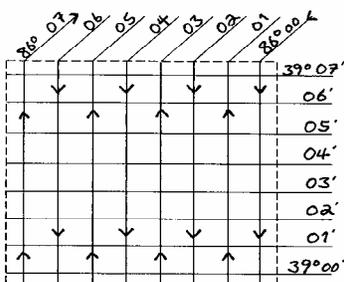
1. As a Mission Pilot trainee, the ability to plan and fly a parallel track search pattern is essential.
2. Parallel Track search pattern. The parallel track (sweep) search pattern is normally used when one or more of the following conditions exist: a) the search area is large and fairly level, b) only the approximate location of the target is known, or c) uniform coverage is desired. This type of search is used to search a grid.
3. The aircraft proceeds to a corner of the search area and flies at the assigned altitude, sweeping the area maintaining parallel tracks. The first track is at a distance equal to one-half (1/2) track spacing (S) from the side of the area.



4. You may use a worksheet to draw the route and to log coordinates and distinctive features. As a backup, note applicable VOR radials and cross-radials. You can use this to enter the latitudes and longitudes that define the entry point and bound the grid, or to generate a flight plan.

Grid Coordinates

SECTIONAL: STL (N)S GRID# 104 A B C (D)
 ENTRY POINT: N 39°07.5' W 86°00'
 EXIT POINT: N 39°07.5' W 86°07'



	NAVIGATIONAL AIDS	
IDENTIFIER	FREQUENCY	RADIAL
1. <u>OOM</u>	<u>110.2</u>	<u>090°</u>
2. <u>ABB</u>	<u>112.4</u>	<u>330°</u>

5. In the worksheet example, you will be searching STL Grid #104-D, which is a quarter-grid measuring 7.5' x 7.5'. Plot the grid's coordinates and draw the pattern starting at the entry point (northeast corner); include track spacing (one nm) and the direction of the legs (north/south). You will enter the entry point coordinates as a waypoint (N 39° 07' W 86° 00'; northeast corner). As you fly to the entry point, set up at search altitude and speed about 3-5 miles out.

You may fly the pattern using the GPS' continuous latitude/longitude display (e.g., present position). Remember, latitude increases as you go north; longitude increases as you go west. Even though you are using the GPS lat/long display, it's still helpful to note your headings for the legs (in the example, north and south). Once you have flown a couple of legs you will have two headings that you can shoot for that will correct for any wind; it's easier to use the heading indicator as your primary indicator and check your accuracy with the GPS. [Note: if you're not using your VOR heads, set the top OBS with one heading (e.g., north) and the lower OBS to the other heading -- use all available equipment.]

Also, always enter relevant VOR cross-radials onto your worksheet and use them as a backup and to verify important positions.

6. All the data you need set up this search pattern in the GX55 is on the worksheet:

- Type of Grid and Sectional (US grid, STL).
- Type of pattern (Parallel Line).
- Grid 104D2, where '2' indicates entering the northeast corner of D quadrant. *
- Spacing (1 nm).
- Direction of Travel (N/S).

* The GX-55 identifies the corners of quadrants by numbers: 1 = enter the NW corner; 2 = NE corner; 3 = SE corner; and 4 = SW corner. In our example you would enter "104D2."

Note: If you wish, record this data separately (e.g., a list or table) to make it even easier to enter into the GX-55. The example, above, has the data listed in the sequence that you enter into the GX-55.

Additional Information

Search patterns are covered in tasks O-2102 thru O-2105 and may be combined in any fashion. More detailed information and figures on this topic are available in Chapter 11 of the MART.

Practice

Setup: Give the student a one-quarter-grid search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

This search method is most often used inside a grid, and the student has to master several tasks in order to be proficient in flying a parallel track inside a grid.

Depending on the level of proficiency of the pilot, one or more of these tasks may be practiced simultaneously:

Planning. All mission sorties must be thoroughly planned: this ensures the pilot and crew can accomplish the sortie objectives safely and precisely. Treat each sortie as if it were an actual mission. Each time the student practices a sortie all required paperwork should be completed as part of the drill. The student should sign herself and the aircraft into the mission, receive her assignment from you (the briefing officer), plan the sortie, and complete the flight plan and preliminary mission data portions of the CAPF 104. Review the weight and balance, fuel assumptions, and information entered onto the CAPF 104 thoroughly.

Preflight and pilot briefings. Ensure the student performs a thorough preflight of the aircraft. Acting as a crewmember, receive pilot safety and mission briefings from the student. Perform safety assignments as directed by the student (e.g., collision avoidance during taxi and in flight).

Equipment. To the extent possible, the student should operate the communications and navigation equipment. The student should set up and enter information into the equipment (especially the GPS) prior to taxi. [Where necessary for safety or training, the training pilot should take over the aircraft controls while the student sets up navigation equipment (particularly the GPS) in flight.]

Initial training. Depending on the proficiency and skills of the student, the training pilot may need to demonstrate all aspects of a parallel track search with the student sitting in the right seat. This gives the student time to absorb the information and work on such skills as setting up, entering data, and using the navigational equipment without the added responsibilities of the PIC.

For each practice sortie, watch for:

- 1) Proper setup of the navigational equipment, particularly the GPS. [Depending on whether or not the student has access to a GPS simulator, the training pilot may fly the aircraft while the student practices setting up and entering information into the GPS. However, by the time the student is ready for evaluation he must be able to fly the aircraft safely while accurately entering the required information into the GPS.]
- 2) Stabilized entry into the search area. The aircraft should be at search altitude and airspeed 3-5 miles before entering the search area.
- 3) Accurate and precise navigation. The student should maintain altitude, airspeed and track in the search area. Watch for proper wind drift correction and airspeed adjustments. Ensure the turns are started soon enough to stay inside the search area without requiring steeply banked turns (standard rate turns are preferred, but no more than 30° bank should be used). While the emphasis is on the use of the GPS, ensure the student can navigate using the VOR(s) or other means.
- 4) Safety. The student should spend most of her time looking outside the aircraft (see and avoid). Initially, the student will spend too much time with her eyes inside the aircraft (e.g., manipulating the GPS) until she is comfortable and proficient with the equipment. Get the student into the habit of *not looking inside the aircraft for more than five seconds at a time* to manipulate communications and navigational equipment.

Evaluation Preparation

Setup: Give the student a one-quarter-grid search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

The student will enter and fly the grid using the parallel track search method long enough to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' AGL, 90 knots, and one mile track spacing is recommended.

Run the sortie as it would be during an actual mission. Have the student sign in, sign in the aircraft, and complete all required paperwork. Brief the sortie as if you were the Briefing Officer during a mission.

Brief Student: You are a Mission Pilot trainee asked to plan and fly a parallel track search of a grid.

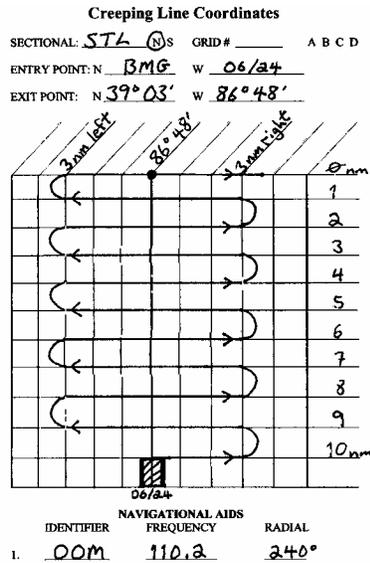
Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Sign yourself and your aircraft into the mission.	P	F
2. Receive a sortie briefing, asking questions as necessary.	P	F
3. Plan a parallel track search of a grid. Include:		
a. Estimated time enroute, time in the grid, and fuel requirements.	P	F
b. Position coordinates for the entry and exit points (lat/long & VOR radials/cross-radials).	P	F
c. Position coordinates for the grid legs (lat/long and VOR radials/cross-radials).	P	F
d. Altitude restrictions, obstacles and other hazards (e.g., MTRs and SUAs).	P	F
e. Discuss observer/scanner assignments for all possible combinations.	P	F
4. Fill out the flight plan and preliminary mission data on the CAPF 104.	P	F
5. Preflight the aircraft and perform pilot safety and mission briefings.	P	F
6. Demonstrate and discuss safety during each critical phase of the flight. In particular, demonstrate collision avoidance and enforce sterile cockpit rules.	P	F
7. Demonstrate proper ATC communications.	P	F
8. Setup the CAP FM radio and perform all required radio reports (may be simulated).	P	F
9. Fly the grid search. Demonstrate:		
a. Proper use of nav aids (GPS as primary; VOR as backup).	P	F
b. Proper use of radios (ATC as required, and CAP FM radio reports).	P	F
c. Entry at the proper point, stabilized at search altitude and speed.	P	F
d. Accurate altitude and speed control inside the grid.	P	F
e. Turns accomplished accurately using less than 30° bank, and stays inside the grid.	P	F
f. Accurate navigation and track spacing.	P	F
g. Proper observer/scanner direction (may be simulated).	P	F
10. Demonstrate proper attention to fuel management.	P	F
11. Properly secure the aircraft at the end of the sortie (ready for next sortie).	P	F
12. Fill out the remainder of the CAPF 104 and debrief the sortie.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

5. In the worksheet example (above), assume you will be searching along a highway between two towns. Draw the pattern starting at the entry point; include track spacing (one nm) and make each leg extend three nm east and west of the highway. You will enter the entry point coordinates as a waypoint (N 39° 10' W 85° 53'). As you fly to the entry point, set up search altitude and airspeed three to five miles out, then fly the pattern using the GPS' continuous lat/long display. In this example, you will initially fly a constant latitude line of N 39° 10' until you reach W 85° 47' where you will turn right 180° and stabilize on a constant latitude line of N 39° 09'; repeat this process until the search is completed.

If the route is along a cardinal heading such as the highway example above, then the pilot will simply fly the creeping line using continuously displayed latitude and longitude. However, when the route is not a straight line aligned with a cardinal heading, another method may be used to fly a creeping line search pattern.



Assume that the aircraft will be flying a creeping line for ten miles southwest along an (imaginary) extended runway centerline (06/24 at BMG), and it is desired to fly three miles to either side of the extended runway centerline with one-mile track spacing. Draw the pattern starting at the entry point (Runway 06, BMG); include track spacing (one nm) and make each leg extend three miles either side of the extended centerline. In the right column enter the distance from the waypoint for each leg, starting at ten miles and counting down. Enter the exit point's lat/long (N 39° 03' W 86° 48'; ten miles southwest of the end of runway 06) in the GPS as a waypoint.

Enter the airport (BMG) as a destination and fly to it. Set the aircraft up at search altitude and airspeed three to five miles from the airport. Select the waypoint you created as your new destination.

When you fly over the end of Runway 06, zero (reset) the CDI display on the GPS. This sets up a *route* in the GPS that represents a direct line between the entry (end of runway 06) and exit points. The GPS should show ten miles to the destination, and the CDI will be centered.

Use the distance to the destination to establish and maintain one-mile track spacing; use the CDI deviation indication to indicate when you have gone three miles to either side of the line.

The pilot begins his first turn, for example to the right. By maintaining the distance from the destination constant (e.g., ten miles) the aircraft will be flying *almost* perpendicular to the extended runway centerline. Watch the CDI, which will begin showing that the aircraft is deviating from the intended route to the right. When the aircraft has deviated by almost three miles (the length of your right leg) the pilot will begin a turn to

the left. The turn will be completed so that the aircraft will now be flying in the opposite direction at a distance of nine miles from the destination (the one-mile track spacing).

Now watch the CDI begin to return to center while maintaining a constant nine-mile distance from the destination. Continue as the CDI begins to deviate to the left, and the next turn (to the right) will begin as you approach a three-mile deviation. Continue this pattern until you have completed your search.

Note: By using this technique you will actually be flying arcs instead of the usual squared (rectangular) legs. This is of little concern since the purpose is to cover the entire search area in a methodical manner.

This method is very handy when you are assigned a creeping line while airborne. It's easy to plan, set up and perform once you have mastered the technique.

You can also fly this pattern along a Victor airway. You can fly a similar pattern using the DME; it will be like flying a series of DME arcs.

This method can also be used along a winding river or a road, but the pilot must plan a line that roughly bisects the winding route and then vary the length of the legs as conditions warrant on the ground below.

6. In the GX55, the creeping line is similar to the parallel line pattern, but the starting point is a selected waypoint rather than a grid. The pattern will straddle the center of your flight plan. All the data you need set up this search pattern in the GX55 is on the worksheet:

- Type of Grid and Sectional (US grid, STL).
- Type of pattern (Creeping Line).
- Starting Waypoint (the airport, BMG).
- Spacing (1 nm).
- Direction of Travel (the runway heading, 060°).
- Leg Length (3 nm *).
- Start Side (Right).

* 9.9 nm is the longest leg length you can select on the GX-55.

Additional Information

Search patterns are covered in tasks O-2102 thru O-2105 and may be combined in any fashion. More detailed information and figures on this topic are available in Chapter 11 of the MART.

Practice

Setup: Give the student a creeping line search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

Two kinds of creeping line searches should be practiced: one along a highway and the other along the imaginary extended centerline of an airport runway. The highway will demonstrate how to do a creeping line along a route with curves, where the student will have to make constant adjustments in order to ensure proper leg length. The extended runway centerline will demonstrate how to do a creeping line without regular ground references.

The student will enter and fly the pattern long enough to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' AGL, 90 knots, three mile legs, and one mile track spacing is recommended.

Depending on the level of proficiency of the pilot, one or more of these tasks may be practiced simultaneously:

Planning. All mission sorties must be thoroughly planned: this ensures the pilot and crew can accomplish the sortie objectives safely and precisely. Treat each sortie as if it were an actual mission. Each time the student practices a sortie all required paperwork should be completed as part of the drill. The student should sign herself and the aircraft into the mission, receive her assignment from you (the briefing officer), plan the sortie, and complete the flight plan and preliminary mission data portions of the CAPF 104. Review the weight and balance, fuel assumptions, and information entered onto the CAPF 104 thoroughly.

Preflight and pilot briefings. Ensure the student performs a thorough preflight of the aircraft. Acting as a crewmember, receive pilot safety and mission briefings from the student. Perform safety assignments as directed by the student (e.g., collision avoidance during taxi and in flight).

Equipment. To the extent possible, the student should operate the communications and navigation equipment. The student should set up and enter information into the equipment (especially the GPS) prior to taxi. [Where necessary for safety or training, the training pilot should take over the aircraft controls while the student sets up navigation equipment (particularly the GPS) in flight.]

Initial training. Depending on the proficiency and skills of the student, the training pilot may need to demonstrate all aspects of a creeping line search with the student sitting in the right seat. This gives the student time to absorb the information and work on such skills as setting up, entering data, and using the navigational equipment without the added responsibilities of the PIC.

For each practice sortie, watch for:

- 1) Proper setup of the navigational equipment, particularly the GPS. [Depending on whether or not the student has access to a GPS simulator, the training pilot may fly the aircraft while the student practices setting up and entering information into the GPS. However, by the time the student is ready for evaluation he must be able to fly the aircraft safely while accurately entering the required information into the GPS.]
- 2) Stabilized entry into the search area. The aircraft should be at search altitude and airspeed 3-5 miles before entering the search area.
- 3) Accurate and precise navigation. The student should maintain altitude, airspeed and track in the search area. Watch for proper wind drift correction and airspeed adjustments. Ensure the turns are started soon enough to stay inside the search area without requiring steeply banked turns (standard rate turns are preferred, but no more than 30° bank should be used). While the emphasis is on the use of the GPS, ensure the student can navigate using the VOR(s) or other means.
- 4) Safety. The student should spend most of her time looking outside the aircraft (see and avoid). Initially, the student will spend too much time with her eyes inside the aircraft (e.g., manipulating the GPS) until she is comfortable and proficient with the equipment. Get the student into the habit of *not looking inside the aircraft for more than five seconds at a time* to manipulate communications and navigational equipment.

Evaluation Preparation

Setup: Give the student a creeping line search to plan and fly. The student should have a sectional chart, plotter, and worksheets as needed.

The student will enter and fly the pattern long enough to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' AGL, 90 knots, three mile legs, and one mile track spacing is recommended.

Run the sortie as it would be during an actual mission. Have the student sign in, sign in the aircraft, and

complete all required paperwork. Brief the sortie as if you were the Briefing Officer during a mission.

Brief Student: You are a Mission Pilot trainee asked to plan and fly a creeping line search.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Sign yourself and your aircraft into the mission.	P	F
2. Receive a sortie briefing, asking questions as necessary.	P	F
3. Plan a creeping line search. Include:		
a. Estimated time enroute, time in the search area, and fuel requirements.	P	F
b. Position coordinates for the entry and exit points (lat/long & VOR radials/cross-radials).	P	F
c. Position coordinates for the legs (lat/long and VOR radials/cross-radials).	P	F
d. Altitude restrictions, obstacles and other hazards (e.g., MTRs and SUAs).	P	F
e. Discuss observer/scanner assignments for all possible combinations.	P	F
4. Fill out the flight plan and preliminary mission data on the CAPF 104.	P	F
5. Preflight the aircraft and perform pilot safety and mission briefings.	P	F
6. Demonstrate and discuss safety during each critical phase of the flight. In particular, demonstrate collision avoidance and enforce sterile cockpit rules.	P	F
7. Demonstrate proper ATC communications.	P	F
8. Setup the CAP FM radio and perform all required radio reports (may be simulated).	P	F
9. Fly the creeping line search. Demonstrate:		
a. Proper use of nav aids (GPS as primary; VOR as backup).	P	F
b. Proper use of radios (ATC as required, and CAP FM radio reports).	P	F
c. Entry at the proper point, stabilized at search altitude and speed.	P	F
d. Accurate altitude and speed control inside the search area.	P	F
e. Turns accomplished accurately using less than 30° bank angles.	P	F
f. Accurate navigation and track spacing.	P	F
g. Proper observer/scanner assignment (may be simulated).	P	F
10. Demonstrate proper attention to fuel management.	P	F
11. Properly secure the aircraft at the end of the sortie (ready for next sortie).	P	F
12. Fill out the remainder of the CAPF 104 and debrief the sortie.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

DEMONSTRATE PLANNING AND FLYING A POINT BASED SEARCH**CONDITIONS**

You are a Mission Pilot trainee and must demonstrate how to plan and fly point based searches.

OBJECTIVES

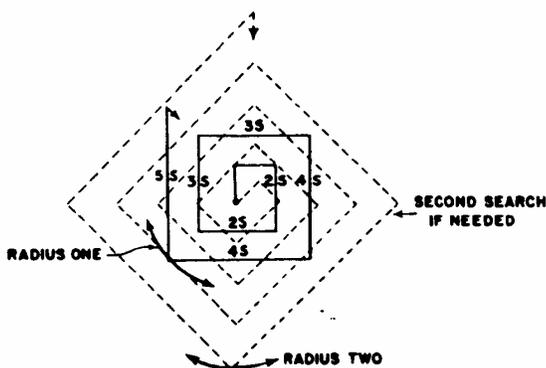
Demonstrate how to plan and fly an expanding square search.

TRAINING AND EVALUATION**Training Outline**

Point-based searches are organized around a point on the ground. These patterns are used when the approximate location of the target is known and are not intended to cover large areas. Examples are the expanding square, sector and circle search patterns.

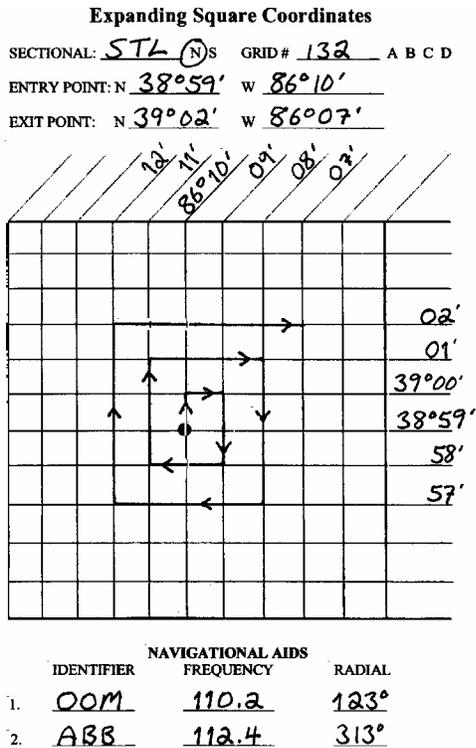
1. Expanding Square search pattern. The expanding square search pattern is used when the search area is small (normally, areas less than 20 miles square), and the position of the survivors is known within close limits. This pattern begins at an initially reported position and expands outward in concentric squares. If error is expected in locating the reported position, or if the target were moving, the square pattern may be modified to an expanding rectangle with the longer legs running in the direction of the target's reported, or probable, movement.

If the results of the first square search of an area are negative, the search unit can use the same pattern to cover the area more thoroughly. The second search of the area should begin at the same point as the first search; however, the first leg of the second search is flown diagonally to the first leg of the first search. Consequently, the entire second search diagonally overlays the first one. The bold, unbroken line in the figure illustrates the first search, while the dashed line represents the second search. Track spacing indicated in the figure is "cumulative," showing the total width of the search pattern at a given point on that leg. Actual distance on a given leg from the preceding leg on the same side of the pattern is still only one "S," the value determined by the incident commander or planning section chief.



2. The GPS is used because this pattern requires precise navigation and is affected by wind drift. Even using the GPS, it is helpful for the pilot to orient the expanding square pattern along the cardinal headings to reduce confusion during turns. [Or, you can enter the pattern as a flight plan and it will direct your turns.]

3. You may use a worksheet to draw the pattern and to log coordinates and distinctive features. As a backup, note applicable VOR radials and cross-radials.



4. Fill the worksheet with the lat/longs that describe the expanding square. Starting at the entry point (e.g., a 483' AGL tower), draw the square by going one mile north, then one mile east, then two miles south, and so on. You set it up this way because it is best to fly the square by first flying due north and then making all subsequent turns to the right; right turns are used because they allow the observer and scanner(s) to see the ground during the turns. You use cardinal headings because they are easiest for the pilot to fly. Length and width of the pattern may be modified to suit the requirements and conditions of the individual search.

Enter the lat/long of the starting point (N 38° 59' W 86° 10') into the GPS and save it as a waypoint. As you fly to the entry point, the pilot should set up at search altitude and speed about 3-5 miles out (this ensures a stabilized entry so that you can begin searching immediately). The pilot should fly the pattern using the heading indicator and continuously displayed latitude and longitude on the GPS.

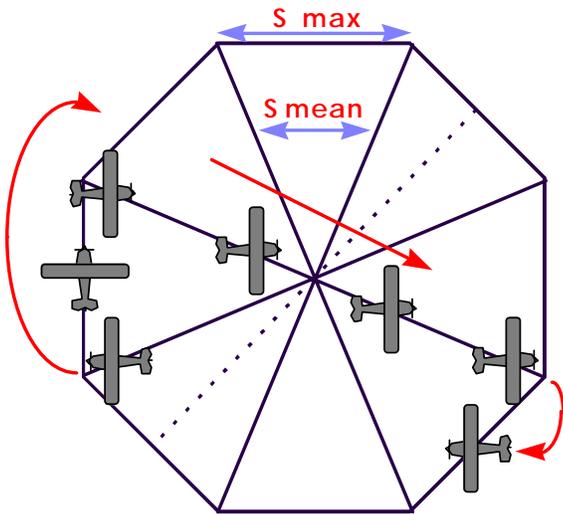
Note: If the aircraft doesn't have an operable GPS the first leg should be flown directly into or directly with the wind. Every other leg will thus be affected by the wind in a relatively consistent manner.

5. In the GX55, the expanding square will radiate from a starting waypoint according to the spacing between lines and at an angle selected by you. All the data you need set up this search pattern in the GX55 is on the worksheet:

- Type of Grid and Sectional (US grid, STL).
- Type of pattern (Expanding Square).
- Starting Waypoint (483' AGL tower, N 38° 59' W 86° 10').
- Spacing (1 nm).
- Direction of Travel (due north, 000°).

* 9.9 nm is the longest leg length you can select on the GX-55.

6. Sector search pattern. A sector search pattern is also best planned on the ground, as it involves multiple headings and precise leg lengths. The pilot will fly over the suspected location and out far enough to make a turn, fly a leg that is equal to the maximum track spacing, and then turn back to fly over the point again. This continues until the point has been crossed from all the angles.



This search pattern provides concentrated coverage near the center of the search area and provides the opportunity to view the suspected area from many angles (this minimizes terrain and lighting problems).

7. Circle search pattern. A circle search pattern may be used when you have a prominent ground reference. The pilot executes a series of 'turns around a point' (circles of uniform distance from a ground reference point). Once the first circle is flown, the pilot moves outward by the desired track spacing and repeats the maneuver. This pattern is usually only used to cover a very small area, which is dependent upon search visibility (the pilot must be able to see the ground reference). Its benefit is that you only need to be able to locate and see the ground reference point, and no prior planning is needed. However, the pilot must constantly correct for the wind.

Additional Information

Search patterns are covered in tasks O-2102 thru O-2105 and may be combined in any fashion. More detailed information and figures on this topic are available in Chapter 11 of the MART.

Practice

Setup: Give the student an expanding square or sector search to plan and perform. The student should have a sectional chart, plotter, and worksheets as needed. A qualified Mission Pilot should be available to assist the trainee.

Brief the pilot. The pilot should fly the pattern long enough to allow the student time to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' to 2,000' AGL, 90 knots, and one mile track spacing is recommended.

Depending on the level of proficiency of the student, one or more of these tasks may be practiced simultaneously:

Planning. All mission sorties must be thoroughly planned: this ensures the pilot and crew can accomplish the sortie objectives safely and precisely. Treat each sortie as if it were an actual mission. Each time the student practices a sortie all required paperwork should be completed as part of the drill. The student should sign

herself into the mission, ensure that the pilot signs in the aircraft, receive her assignment from you (the briefing officer), plan the sortie, and assist the pilot in completing the flight plan and preliminary mission data portions of the CAPF 104.

The pilot should review the weight and balance, fuel assumptions, and information entered onto the CAPF 104 with the student.

Preflight and pilot briefings. Ensure the student receives pilot safety and mission briefings from the pilot. The student will perform safety assignments as directed (e.g., collision avoidance during taxi and in flight).

Equipment. To the extent possible, the student should operate the communications and navigation equipment. The student should set up and enter information into the equipment (especially the GPS) prior to taxi. [Where necessary for training, the trainer should assist the student in setting up navigation equipment (particularly the GPS) in flight.]

Initial training. Depending on the proficiency and skills of the student, the trainer may need to demonstrate all aspects of a point-based search. This gives the student time to absorb the information and work on such skills as setting up, entering data, and using the navigational equipment.

For each practice sortie, watch for:

- 1) Proper setup and use of the navigational equipment, particularly the GPS. Ensure that the student does not change any navigational or communications equipment setting without the knowledge of the PIC.
- 2) Proper ATC and CAP FM communications technique and terminology. Initially, have the student tell the pilot and/or trainer what she intends to say *before* she transmits.
- 3) Proper and attentive collision avoidance practices during the critical phases of flight.
- 4) Safety. The student should spend most of her time looking outside the aircraft (see and avoid) when enroute to the search area, and most of her time acting as a scanner while in the search area. Initially, the student will spend too much time with her eyes inside the aircraft (e.g., manipulating the GPS) until she is comfortable and proficient with the equipment. Get the student into the habit of *not looking inside the aircraft for more than five seconds at a time* to manipulate communications and navigational equipment.
- 5) Accurate situational awareness at all times.

Evaluation Preparation

Setup: Give the student an expanding square or sector search to plan and perform. The student should have a sectional chart, plotter, and worksheets as needed. A qualified Mission Pilot should be available to assist the trainee during the planning and flying stages.

A search target should be positioned in the search area, if possible.

The pilot will enter and fly the pattern long enough to allow the student to demonstrate proficiency in all aspects of the search. Search altitude, airspeed and track spacing should be selected to match terrain and conditions: 1,000' AGL, 90 knots, three mile legs, and one mile track spacing is recommended.

Run the sortie as it would be during an actual mission. Have the student sign in, sign in the aircraft, and complete all required paperwork. Brief the sortie as if you were the Briefing Officer during a mission.

Brief Student: You are a Mission Observer trainee asked to assist a Mission Pilot in planning and performing a point-based search.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Sign into the mission.	P	F
2. Receive a sortie briefing, asking questions as necessary.	P	F
3. Assist in planning a point-based search (expanding square or sector). Include:		
a. Estimated time en route, time in the search area, and fuel requirements.	P	F
b. Position coordinates for the entry and exit points (lat/long & VOR radials/cross-radials).	P	F
c. Position coordinates for the legs (lat/long and VOR radials/cross-radials).	P	F
d. Altitude restrictions, obstacles and other hazards (e.g., MTRs and SUAs).	P	F
e. Discuss observer/scanner assignments for all possible combinations.	P	F
4. Assist in filling out the flight plan and preliminary mission data on the CAPF 104.	P	F
5. Receive pilot safety and mission briefings, asking questions as necessary.	P	F
6. Demonstrate and discuss safety during each critical phase of the flight. In particular, demonstrate collision avoidance and enforce sterile cockpit rules.	P	F
7. Demonstrate proper ATC communications.	P	F
8. Setup the CAP FM radio and perform all required radio reports (may be simulated).	P	F
9. Perform the point-based search (expanding square or sector). Demonstrate:		
a. Proper use of nav aids (GPS as primary; VOR as backup).	P	F
b. Proper use of radios (ATC as required, and CAP FM radio reports).	P	F
c. Proper scanner assignment (may be simulated).	P	F
d. Ability to spot the search target (if applicable).	P	F
10. Demonstrate proper attention to fuel management.	P	F
11. Ensure the aircraft is secured at the end of the sortie (ready for next sortie).	P	F
12. Assist in filling out the remainder of the CAPF 104 and debrief the sortie.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

O-2106
PLAN AND COMMAND A CAP FLIGHT

CONDITIONS

You are a Mission Pilot trainee and must plan and command a CAP flight.

OBJECTIVES

Plan and command a CAP flight. Perform preflight tasks and briefings, check and fill out applicable aircraft logs, perform briefings for all critical phases of flight, and perform after-landing tasks.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Pilot trainee, knowing the mission pilot's responsibilities during each phase of flight so as to command the flight is essential. In all cases follow the aircraft checklists: the observer should read each item to you and then you will perform the item and repeat back performance of the item.

2. *Prior to Startup*

One of the most overlooked assets you have in the aircraft is the glove box. This area is ideal for items such as small, laminated sheets for the crew and passenger briefing, crosswind chart, public relations cards (like those from the CD program), FM radio frequencies and callsigns, ELT deactivation stickers, and a GPS cheat-sheet. Other items could include a small cleaning rag (like for glasses) to clean the GPS display and a backup flashlight. Check the glove box periodically and purge unnecessary stuff.

For every CAP flight the PIC must ensure the crew is wearing a proper CAP uniform (CAPM 39-1) and is carrying a current CAP Membership card. For non-CAP passengers, refer to CAPR 60-1.

- a. After you have obtained a flight release, fill in all required information on the aircraft Flight Log. Ensure proper entries for mission symbol, mission number, crew names, and FRO name.
- b. It is important for the mission pilot to understand how to find data in aircraft logbooks. Familiarize yourself with your aircraft's engine, propeller, airframe, and avionics logbooks so that you can identify items such as the time of the last mid-cycle oil change (40-60 hours, not to exceed four months), last 100-hour inspection or annual, and instrument requirements (i.e., ELT battery, pitot-static system, transponder and altimeter current). Also, check other items such as the expiration dates on the carbon monoxide detector and fire extinguisher, and the date of the last VOR check.
- c. Check the Discrepancy and Maintenance Logs to ensure the aircraft is airworthy and mission ready. When you preflight, verify these discrepancies; if you find a new discrepancy, log it and assess airworthiness and mission readiness. [Document and Minimum Equipment requirements are in the *Flight Guide*.]
- d. Perform a Weight & Balance and determine fuel assumptions (e.g., fuel burn, winds, power setting, and distance) and reserve (CAPR 60-1 requires a minimum of one hour of fuel remaining upon landing, computed at normal POH/AFM cruise fuel consumption).
- e. During loading, ensure that all supplies and equipment correspond to what you used in your Weight & Balance.
- f. Ensure your aeronautical charts are current.
- g. Make sure the parking area is clear of obstacles; arrange for a wing-walker if one will be needed to clear obstacles.

3. *Engine Startup and Taxi*

Aircraft checklists

- a. *Always* use checklists in CAP aircraft. Whenever possible, have the right-seat crewmember read the checklist items to you while you check the items and repeat back accomplishment of each item.
- b. Make sure you or the right-seat crewmember keeps the checklist close at hand so that it can quickly be opened to confirm and complete emergency items. Brief the right-seat crewmember on how to use the emergency checklists (e.g., read the bold face items first and then continue with the rest of the items).
- c. Perform the passenger briefing, brief fuel assumptions, and brief crewmembers on taxi, takeoff and departure assignments, and enter navaid settings (e.g., GPS destination or flight plan).
- d. All crewmembers must wear their seat belts at all times. Although CAPR 60-1 only requires that the shoulder harness be worn at or below 1000' AGL, but all crewmembers should wear them at all times unless other duties require their removal (e.g., observer taking photos).

Startup

- a. Turn the Rotating Beacon ON and signal the marshaller before starting the engine.
- b. Include the DF unit's Alarm light self-test in your scan during startup. The light should blink for several seconds; if it doesn't your unit may be inoperative. Also ensure the Audio Panel and FM radio are set up properly (normally, the DF is set in the 'Alarm' mode).
- c. When >3000' DA (typical Cessna), lean the engine immediately after starting and for maximum power before takeoff.
- d. Obtain ATIS and Clearance (read back all clearances and hold-short instructions). Then verify you are within the Crosswind Limitation. For VFR in Class G airspace, you must have 3 statute miles visibility (unless you are current IFR; if this is an IFR flight, verify weather is at or above landing minimums and check that a VOR check was performed within the last 30 days).
- e. Remember to check your brakes as you begin your roll.

Taxi

- a. Review crew assignments for taxi, takeoff and departure. Make sure each crewmember knows in which direction they should be looking.
- b. Once you begin taxiing *the sterile cockpit rules begin; all unnecessary talk is suspended and collision avoidance becomes the priority of each crewmember*. Sterile cockpit rules focus each crewmember on the duties at hand, namely concentrating on looking outside the aircraft for obstacles and other aircraft. The rules will *always* be used during the taxi, takeoff, departure, approach, and landing phases of flight; but the pilot or observer may declare these rules in effect whenever they are needed to minimize distractions.
- c. Follow CAPR 60-1 requirements for taxi operations (taxi no faster than a slow walk when within 10 feet of obstacles; and maintain at least 50' behind light single-engine aircraft, 100' behind small multi-engine and jet aircraft, and 500' behind heavies and taxiing helicopters). Remember to read back all clearances and hold-short instructions.

4. *Takeoff, climb and departure*

Takeoff

- a. Ensure you are within crosswind limits of the aircraft's POH (or the CAP limit of 15 knots if none is given in the POH).
- b. *Remind the crew that midair collisions are most likely to occur in daylight VFR conditions within five miles of an airport at or below 3,000' AGL!* This means that most midair collisions occur in the traffic pattern. Since the pilot has only one set of eyes, this (and aircraft design) leaves several 'blind spots' that the observer and scanner must cover -- particularly between your 4 and 8 o'clock positions.
- c. *Always* look for landing traffic before taking the active runway!

- d. The FAA's "operation lights on" encourages pilots to keep aircraft lights on when operating within 10 miles of an airport, or wherever flocks of birds may be expected.

Climb

- a. Make shallow S-turns and lift your wing before turns when climbing to increase your chances of spotting conflicting aircraft.
- b. Keep your emergency checklist close at hand and open to the Emergency Procedures section.

Departure

- a. Collision avoidance! Maintain sterile cockpit until well clear of traffic and obstacles and keep the crew appraised of conflicting traffic and obstacles. When above 1000' AGL the crewmembers can remove shoulder harnesses but it is best to leave them fastened unless it interferes with a task (e.g., video sortie).
- b. Lean the engine (burn gas, not valves). For a typical C172 with an EGT: For economy setting, lean to peak EGT then richen 50 degrees rich-of-peak; for max continuous power, lean to peak EGT then richen 100 degrees rich-of-peak.
- c. Update fuel assumptions and set the altimeter to the closest source at least hourly.
- d. Maintain situational awareness.

5. Approach, descent and landing

Approach

- a. Obtain ATIS/AWOS and contact approach control. Review the taxi plan/diagram and make crew assignments for approach, landing and taxi. *Sterile cockpit rules are now in effect.*
- b. Collision avoidance! Lights on within 10 miles of the airport. Read back all landing and hold-short instructions.
- c. *Remind the crew that midair collisions are most likely to occur in daylight VFR conditions within five miles of an airport (especially non-towered airports) at or below 3,000' AGL! This means that most midair collisions occur in the traffic pattern, particularly on final approach.*

Descent

- a. Richen the fuel mixture during descents and don't shock-cool the engine. A well planned, partial power, mixture rich, cowl flaps closed descent is best.
- b. Enhance collision avoidance by making shallow S-turns and lifting your wing before turns during descent to check for traffic.

Landing, shutdown and post-flight

- a. It is recommended practice not to use the brakes during normal landings; a well-executed approach and landing allows you to roll out and taxi off the runway without the need for braking. Save the brakes for short-field landings and emergencies.
- b. Defer the after-landing check until the airplane is brought to a complete stop clear of the active runway (minimizes distractions).
- c. Fill in all remaining information on the aircraft flight log. Double-check entries for mission symbol, mission number, crew names, and FRO name. Enter any new problems into the Discrepancy log.
- c. If this was the last flight of the day install chocks, tie-downs, Avionics/control lock, and Pitot tube covers/engine plugs.
- d. Check that the Master Switch and Parking Brake is OFF and that the Fuel Selector Switch is in the 'Right' or 'Left' position for refueling. Remove any trash and personal equipment from the aircraft. Lock the aircraft windows, doors and baggage compartment.
- e. Check the general condition of the aircraft, check the oil, and refuel. Clean the leading edges and the windshield and windows and replenish cleaning supplies, if necessary.

Additional Information

More detailed information on this topic is available in FAR 91 Subpart C, CAPRs 60-1 and 66-1, and Chapter 12 of the MART. A "Mission Checklist" in Attachment 2 of the MART summarizes the steps in this task guide.

Practice

Setup: Give the student a flight to plan and fly. The flight should include planning to land at an unfamiliar airport in controlled airspace -- Class B, if practical and be of sufficient length to force the student to plan a refueling stop. The student should have access to CAP regulations and forms and aircraft logs.

The student will fly long enough to demonstrate proficiency in all aspects of the flight. Flight altitude and airspeed should be selected to match the local practice area.

The trainer should play the role of an aircrew member, particularly for receiving briefings and instructions from the mission pilot trainee.

Depending on the level of proficiency of the pilot, one or more of these tasks may be practiced simultaneously:

Planning. All CAP flights must be thoroughly planned: this ensures the pilot and crew can accomplish the flight safely. Each time the student practices a flight all required paperwork should be completed as part of the drill. Review the weight and balance and fuel assumptions thoroughly.

Preflight and crew briefings. Ensure the student performs a thorough preflight of the aircraft. Acting as a crewmember, receive pilot safety and crew briefings from the student. Perform safety assignments as directed by the student (e.g., collision avoidance during taxi and in flight).

Equipment. To the extent possible, the student should operate the communications and navigation equipment. The student should set up and enter information into the equipment (especially the GPS) prior to taxi. [Where necessary for safety or training, the training pilot should take over the aircraft controls while the student sets up navigation equipment (particularly the GPS) in flight.]

For this flight, watch for:

- 1) Thorough knowledge of aircraft and CAP regulations, logs and paperwork.
- 2) Proper use of checklists during all phases of flight.
- 3) Accurate and thorough planning for all phases of flight (e.g., taxiways and airspace restrictions).
- 4) Thorough briefings to the crew during all phases of flight.
- 5) Proper use of sterile cockpit rules and collision avoidance techniques (e.g., safe taxiing, observing airport signs, reading back ATC instructions, and S-turns to look for traffic during climb and descent).
- 6) Situational awareness and proper attention to fuel status and altimeter settings.
- 7) Proper shutdown, inspection, securing and cleaning of the aircraft after flight.

Evaluation Preparation

Setup: Give the student a flight to plan and fly. The flight should include planning to land at an unfamiliar airport in controlled airspace -- Class B, if practical, and should be of sufficient length to force the student to plan a refueling stop (this won't be performed). The student should have access to CAP regulations and forms and aircraft logs.

The student will fly long enough to demonstrate proficiency in all aspects of the flight. Flight altitude and airspeed should be selected to match the local practice area.

The trainer should play the role of an aircrew member, particularly for receiving briefings and instructions from the trainee. Whenever flight safety allows, act as an inexperienced observer to force the pilot to do most of the work (e.g., setting up radios and nav aids and talking on the aircraft radio).

Brief Student: You are a Mission Pilot trainee asked to plan and fly a CAP flight.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Compute Weight & Balance, list fuel requirements and state fuel reserve.	P F
2. Receive a briefing and obtain a flight release.	P F
3. Prior to the flight:	
a. Referring to the aircraft log books, identify last mid-cycle oil change, last 100-hour inspection and annual, instrument requirements (i.e., ELT battery, pitot-static system, transponder and altimeter current), expiration dates on the CO detector and fire extinguisher, and the date of the last VOR check.	P F
b. Identify outstanding squawks in the Discrepancy Log.	P F
c. Identify minimum equipment for VFR (day & night) and IFR.	P F
4. During aircraft preflight:	
a. Verify outstanding squawks.	P F
b. Dispose of sumped fuel properly.	P F
c. Clean windows, as necessary.	P F
5. Prior to startup:	
a. Fill in Aircraft Log, and state time left to oil change and annual.	P F
b. Perform passenger and crew briefings, and assign responsibilities.	P F
c. Determine crosswind and state crosswind limit.	P F
6. During startup:	
a. Turn rotating beacon ON before starting engine.	P F
b. Setup the DF, Audio Panel and FM radio.	P F
7. During taxi, takeoff, departure, approach, decent and landing:	
a. Demonstrate challenge-response method for checklists.	P F
b. Demonstrate proper collision avoidance and taxi procedures.	P F
c. Read back all ATC clearances (including hold-short directions).	P F

- d. State and enforce sterile cockpit rules. P F
 - e. Maintains situational awareness at all times. P F
 - f. Demonstrate proper attention to fuel status and altimeter setting. P F
8. After landing:
- a. Fill out the Aircraft Log and enter discrepancies (if necessary). P F
 - b. Properly shutdown, inspect, secure and clean the aircraft (as if last flight of the day). P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

PREPARE FOR A TRIP TO A REMOTE MISSION BASE

CONDITIONS

You are a Mission Observer trainee and must prepare for a trip to a remote mission base.

OBJECTIVES

Prepare for a trip to a remote mission base, acting as mission commander. Assist in performing pre-trip planning and inspections, preflight tasks and briefings, filling out a CAP flight plan, and after-landing tasks.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Observer trainee, the ability to prepare for a trip to a remote mission base is essential.
2. *Before you leave.* The urgency of events, coupled with a hasty call-out, may leave you and other crewmembers feeling rushed as you prepare to leave for a mission. This is where a good pre-mission checklist comes in handy. As a minimum, check the crew (and yourself) for the following:
 - A. Proper uniforms (CAPM 39-1) and credentials
 - 1) CAP Membership
 - 2) CAP Motor Vehicle Operator
 - 3) ROA
 - 4) 101/101T (note experience and tasks to be accomplished)
 - 5) Ensure the pilot has necessary credentials (e.g., license, medical, and photo ID)
 - B. Check personal equipment
 - 1) Clothing sufficient and suitable for the entire trip
 - 2) Personal supplies (civilian clothing, headset, charts, maps, plotter, log, checklists, fluids and snacks)
 - 3) Personal survival equipment (in addition to the aircraft kit) suitable for the entire trip
 - 4) Sufficient money for the trip (credit cards, some cash or traveler's checks, and coin)
 - 5) Cell phone (including spare battery and charger)
 - C. Check aircraft equipment
 - 1) Current aeronautical charts for the entire trip, and gridded charts for the mission area
 - 2) Maps for the mission area (e.g., road atlas, county maps, topo maps), plus clipboard and markers
 - 3) Tie-downs, chocks, Pitot tube cover and engine plugs, fuel tester, sick sacks, and cleaning gear
 - 4) Survival kit (fits trip and mission area terrain), headsets, flashlight, binoculars and multitool
 - D. Ensure the pilot reviews the Aircraft Logs
 - 1) Note the date and the starting Tach and Hobbs times to ensure you won't exceed:
 - a) Mid-cycle oil change (40-60 hours, not to exceed four months)
 - b) 100-hour/Annual
 - c) 24-month checks (Transponder, Pitot-Static system, Altimeter and ELT/battery replacement date)
 - d) 30-day VOR check for IFR flight and AD compliance list.
 - 2) Check the status of the Carbon Monoxide Detector and Fire Extinguisher
 - 3) Pilot reviews the Discrepancy Log and makes sure the aircraft is airworthy and mission ready
 - E. Pilot obtains FAA Weather Briefing and CAP Flight Release
 - 1) Perform Weight & Balance (reflecting weights for the crew, special equipment and baggage)
 - a) Include fuel assumptions (fuel burn, winds, power setting, distance, and fuel stop)
 - b) Ensure fuel reserve (land with one hour's fuel, computed at normal cruise)
 - 2) Verify within flight time and duty limitations (CAPR 60-1, Chapter 2)
 - 3) Obtain FAA briefing (ask for FDC and Local NOTAMs and SUA status) and file FAA Flight Plan

- a) Enter 'CPF XXXX' in the Aircraft Identification section
 - b) Put the 'N' and 'Cap Flight' numbers in the Remarks section
 - 4) Assist in filling out an "Inbound" CAPF 104 or 84 (leave copy for FRO)
 - 5) Pilot briefs the crew on the fuel management plan (assumptions, refueling stops, and reserve), Local and FDC NOTAMs, and SUA status
 - 6) Review "IMSAFE" and pilot obtains a CAP Flight Release
 - 7) Pilot requests Flight Following
- F. Pilot preflight
- 1) Ensure proper entries in the Flight Log (e.g., mission number & symbol, crew & FRO names)
 - 2) Check starting Tach and Hobbs times to ensure you won't exceed limits (e.g., oil change)
 - 3) Review the Discrepancy Log and make sure the aircraft is airworthy and mission ready
 - 4) While preflighting, verify any outstanding discrepancies. If new discrepancies discovered, log them and ensure the aircraft is still airworthy and mission ready. [Be extra thorough on unfamiliar aircraft.]
 - 5) Verify load is per your Weight & Balance (baggage, survival kit, extra equipment and luggage)
 - 6) Double-check aeronautical charts, maps and gridded charts (also clipboard and markers)
 - 7) Ensure required aids onboard (Flight Guide, distress and air-to-ground signals, fuel tester, tools)
 - 8) Windshield and windows clean, and chocks, tie-downs, Pitot tube covers and engine plugs stowed
 - 9) Right Window holding screw removed (video imaging mission) and stored
 - 10) Check and test special equipment (cameras, camcorder, slow-scan, repeater), including spare batteries
 - 11) Parking area clear of obstacles (arrange for a wing-walker if one will be needed to clear obstacles)
 - 12) Perform passenger briefing and review emergency egress procedure
 - 13) Review taxi plan/diagram and brief crew assignments for taxi, takeoff and departure
 - 14) Remind crew that most midair collisions occur in or near the traffic pattern
 - 15) Enter settings into GPS (e.g., destination or flight plan)
 - 16) Organize the cockpit
- G. Startup and Taxi
- 1) Pilot briefs checklist method to be used (e.g., challenge-response)
 - 2) Seat belts at all times; shoulder harness at or below 1000' AGL
 - 3) Double-check Intercom, Audio Panel and Comm Radio settings
 - 4) Rotating Beacon Switch ON and pilot signals marshaller before starting engine; lean for taxi
 - 5) Ensure DF and FM Radio are operable and set properly (FM radio check if first flight)
 - 6) Select initial VOR radial(s) and GPS setting
 - 7) Obtain ATIS and Clearance (read back all clearances and hold-short instructions)
 - 8) Pilot computes crosswind and verify within Crosswind Limitation
 - 9) Verify 3 statute miles visibility (VFR in Class G - unless PIC is current IFR)
 - 10) If IFR, verify weather at or above landing minimums and date of last VOR check
 - 11) Begin sterile cockpit
 - 12) Pilot signals marshaller before taxiing; checks brakes at beginning of roll
 - 13) Pilot taxis no faster than a slow walk when within 10 feet of obstacles
 - a) Maintains at least 50' behind light single-engine aircraft
 - b) Maintains at least 100' behind small multi-engine and jet aircraft
 - c) Maintains at least 500' behind heavies and taxiing helicopters
- H. Takeoff, Climb and Departure
- 1) Pilot double-checks assigned departure heading and altitude
 - 2) Pilot leans engine for full power (> 3000' DA)
 - 3) Look for landing traffic before taking the active runway
 - 4) Keep lights on within 10 miles of the airport and when birds reported nearby
 - 5) Begin Observer Log with takeoff (time and Hobbs) and report "Wheels Up"
 - 6) Pilot uses shallow S-turns and lifts wing before turns during climbing to check for traffic
 - 7) Keep shoulder harnesses buckled (never remove at or below 1000' AGL)
 - 8) Keep crew apprised of conflicting aircraft and obstacle positions

9) Keep checklists close at hand and open to Emergency Procedures

I Enroute

- 1) Maintain situational awareness
- 2) Pilot leans engine for economy cruise
- 3) Ensure pilot updates fuel assumptions and sets altimeter to closest source at least hourly

J Approach, Descent and Landing

- 1) Pilot plans approach and descent (remembers fuel mixture and cooling)
- 2) Double-checks radio and navigational settings
- 3) Obtain ATIS/AWOS and contact approach control
- 4) Review taxi plan/diagram and brief crew assignments for approach, landing and taxi
- 5) Remind crew that most midair collisions occur in or near the traffic pattern, especially on final
- 6) Begin sterile cockpit
- 7) Turn lights on within 10 miles of the airport
- 8) Pilot double-checks assigned approach heading and altitude
- 9) Pilot uses shallow S-turns and lifts wing before turns during descent to check for traffic
- 10) Read back all clearances and hold-short instructions
- 11) Log (time and Hobbs) and report "Wheels Down"

3. *Arrival at mission base*

A. Park and Secure Aircraft

- 1) Look for marshallsers, follow taxi plan, pilot signals marshaller that ignition is OFF
- 2) Double-check Master Switch OFF
- 3) Fuel Selector Switch to Right or Left (refueling)
- 4) Avionics/control Lock and Pitot tube covers/engine plugs installed
- 5) Pilot completes the Flight Log and enters squawks in Discrepancy Log
- 6) Chocks and Tie-downs installed and Parking Brake OFF
- 7) Remove trash and personal supplies/equipment
- 8) Lock the windows, doors and baggage compartment
- 9) Check oil and arrange for refueling
- 10) Clean leading edges, windshield, and windows
- 11) Replenish cleaning kit

B. Check in with Flight Line Supervisor and Safety Officer

C. Close FAA Flight Plan, call FRO

D. Sign personnel and aircraft into the mission (Administration)

E. Assist in completing and submitting 'Inbound 104' (keep a copy)

F. Report any special equipment to Logistics (cameras, camcorder, slow-scan, repeater)

G. Inquire about fuel billing, lodging, transportation and meals

H. Note time to report for duty and ask for sortie assignment (get briefing packet)

The mission staff will probably show you around mission base and inform you of transportation, lodging and meal arrangements. They will also tell you when to report for duty, normally by telling you when the general briefing will be held.

Additional Information

More detailed information and figures on this topic are available in Chapter 13 and Attachment 2 of the MART.

Practice

Setup: Give the student an assignment to go to a remote mission base. The base should be located on a large (unfamiliar) airport in controlled airspace -- Class B, if practical. The student should have access to mission materials and a CAPF 104.

The student will assist in planning a simulated a trip to a remote mission base. All tasks that can be performed will not be simulated.

The trainer should play the role of the mission pilot, particularly for performing inspections and giving briefings and instructions to the observer trainee. The observer will be given preflight and pilot briefings.

For this simulated sortie, watch for:

- 1) Thorough knowledge of documents and equipment required for an extended stay at a remote base.
- 2) Assists pilot in completion of the CAP flight plan.
- 3) Assists pilot with accurate and thorough planning for the trip.
- 4) Proper actions upon arrival at mission base.

Evaluation Preparation

Setup: Give the student an assignment to go to a remote mission base. The base should be located on a large (unfamiliar) airport in controlled airspace -- Class B, if practical. The student should have access to mission materials and a CAPF 104.

The student will assist in planning a simulated a trip to a remote mission base. All tasks that can be performed will not be simulated.

The trainer should play the role of the mission pilot, particularly for performing inspections and giving briefings and instructions to the observer trainee. The observer will be given preflight and pilot briefings.

Brief Student: You are a Mission Observer trainee asked to prepare for a trip to a remote mission base.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Check for proper uniform, credentials and equipment.	P F
2. State the flight time and duty limitations per CAPR 60-1.	P F
3. Assist in checking the aircraft:	
a. Check for required equipment on board (e.g., tie downs, survival kit, cleaning gear).	P F
b. Clean windows, as necessary.	P F
4. Assist in filling out a CAP flight plan.	P F
5. Receive a briefing from the mission pilot:	
a. Fuel assumptions and fuel stop.	P F
b. Airspace restrictions, NOTAMS, and destination airport diagrams.	P F
6. Upon (simulated) arrival at mission base:	

- a. Secure the aircraft and arrange for refueling. P F
- b. Sign yourself and the aircraft into the mission. P F
- c. Assist in completing your "Inbound" CAPF 104. P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

P-2119
DEMONSTRATE HOW TO COMPLETE A CAP AIRCRAFT INSPECTION

CONDITIONS

You are a mission pilot about to leave for a mission, and you must perform a safety inspection on your aircraft.

OBJECTIVES

Demonstrate proper performance of a CAP Aircraft Inspection (CAP Aircraft Inspection Checklist, CAPF 71).

TRAINING AND EVALUATION

Training Outline

1. Top of CAPF 71:
 - a. Date/Tach time of last 50-hour oil change, last 100-hour inspection, last Annual inspection
 - b. Wing, 'N' number, make/model/year, and current Tach time
2. Aircraft Records
3. Aircraft Interior
4. Aircraft Exterior
5. Exterior and Interior Lighting for proper operation

Additional Information

More detailed information on this topic is available in the "Instructions for use of the CAP Aircraft Inspection Checklist" (last page of the CAPF 71).

Evaluation Preparation

Setup: Ensure that an aircraft is available for the student to inspect. Copy of a current CAPF 71.

Brief Student: Demonstrate a proper CAP aircraft safety inspection.

Evaluation

<u>Performance measures</u>	<u>Results</u>
1. Demonstrate a proper aircraft safety inspection using the CAPF 71.	P F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.