

CAP STANDARD 73-1  
12 Nov 20



## Operations Procedures, Airplane

NATIONAL HEADQUARTERS CIVIL AIR PATROL  
Maxwell Air Force Base, Alabama

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# **Introduction**

## **1.1 Scope**

This pamphlet outlines standardized operational procedures that will be used by CAP aircrew when operating CAP aircraft, as identified in CAPR 70-1, *CAP Flight Management*, paragraph 2.

## **1.2 Pilot Responsibility**

Pilots will use these procedures as the CAP standard. However, these procedures do not substitute for sound judgment or common sense. Deviation from these procedures is authorized when necessary for safety of flight and protection of life. Planned deviations from standard shall be pre-briefed or, when unable due to operational necessity, communicated to ensure crew understanding. As always, the pilot in command (PIC) has the ultimate responsibility for the safe operation of the aircraft.

## **1.3 References and Precedence**

Pertinent references for CAP flight operations are FAA part 91, CAPR 70-1 and the airframe-specific Aircraft Flight Manual (AFM) or Pilot's Operating Handbook (POH). In the event of a conflict between this publication and the above references, the references will have precedence.

# **Mission Planning and Briefing**

## **2.1 Mission Planning**

The PIC and the mission base OSC/AOBD, if designated, jointly share responsibility for mission planning; however, the PIC has ultimate authority/responsibility. The PIC will ensure that the planning process adequately supports safe mission accomplishment.

CAPR 70-1 requires calculation of takeoff and landing distance (TOLD). Since aircraft performance is dependent on allowable weight and balance, the PIC will calculate weight and balance for each flight. Uploading into WMIRS is not required.

## **2.2 Briefing / Debriefing**

As a default, the crew will be in place and ready to begin the flight briefing no later than 30 minutes before scheduled takeoff time. A suggested crew briefing guide is provided at Attachment 1. The listed items may be briefed in any sequence and non-applicable items can be omitted. Items that are covered by written standards and well understood by all crewmembers, based on training status, may be briefed as "standard."

The PIC is responsible for providing appropriate passenger briefings to include use of safety belts, fire extinguisher, exits, emergency equipment and crew responsibilities. The PIC must brief the passengers on the use of sterile cockpit procedures during critical phases of flight. A suggested passenger briefing guide is provided at Attachment 1.

## **2.3 Pre-flight Risk Assessment**

Instructions for completing the pre-flight risk assessment worksheet (RAW) are provided in Attachment 2. The provided instructions have been written in reference to the paper-based form but are generally applicable to the electronic risk assessment. If a PIC will be flying multiple flights of the same type in a single day, they may elect to complete a single

RAW for their flying day using the worst-case conditions for each risk factor, then request that the FRO release the flights as a block.

## Mission Execution

### 3.1 Operations Under Basic Med

Basic Med certificated pilots may not operate CAP aircraft or perform missions that require a Class 3 Medical Certificate or higher (e.g., aircraft that can carry more than 6 occupants, with a certified takeoff weight greater than 6,000 pounds, or operations under FAR Exemption 6485). When a pilot operating under Basic Med acts as PIC for any portion of a sortie, the entirety of that sortie must be conducted within Basic Med limitations (i.e., below 18,000 feet MSL, below 250 knots, and within U.S. airspace). Additionally, Basic Med pilots must act as PIC when performing the role of a Safety Pilot. CAP Check Pilots (CPs) and Instructor Pilots (IPs) should be especially cognizant of this as it implies a need to identify when and how those responsibilities will change.

### 3.2 Preflight

Determination of aircraft airworthiness is supported by reviewing data contained in the Aircraft Information File (AIF). The AIF cover displays a summary of major inspections. The entries on the cover shall be compared to data from the Aircraft Flight Time log, and the current date, to ensure that inspection limits are not overflowed. The AIF Equipment, Inspection, and Document Requirements page lists documents that must be carried on the aircraft, to include the airworthiness certificate. This page also references 14 CFR Part 91.205 requirements for kinds of operations.

Aircraft tire pressures shall be checked with a gauge prior to the first flight of each day, at a minimum, and whenever tire inflation appears abnormal. Carbon monoxide (CO) detectors shall be checked prior to each flight.

The PIC shall review the Web Mission Information Reporting System (WMIRS) Maintenance Discrepancy Module for open, deferred, and recent discrepancy trends to determine whether equipment required for safe flight is operating properly. PIC knowledge of aircraft's VFR-day/night type certification, 14 CFR 91.205 equipment requirements, mission to be flown, and Kinds of Operations Equipment List (KOEL) limitations is vital. Inoperative instruments and equipment must be removed/deactivated and appropriately placarded. Required maintenance shall be recorded in accordance with 14 CFR Part 43 prior to flight.

Any discrepancies noted during preflight that have not been documented in the WMIRS Maintenance Discrepancy Module shall be immediately reported to the Squadron Maintenance Officer and the airworthiness of the aircraft verified prior to flight. Discrepancies that might impact kind of operations/mission shall be brought to the attention of the FRO. Flying the aircraft with unreported damage could result in the PIC incurring liability for that damage.

### 3.3 Sterile Cockpit Procedures

The Pilot in Command (PIC) shall ensure that non-essential conversations, activities, and distracting actions do not occur during critical portions of flight as defined in CAPR 70-1.

### **3.4 Transfer of Aircraft Controls**

Pilots shall ensure positive exchange of controls. Both pilots must always know who has control of the aircraft. The pilot assuming control of the aircraft will state “I have the flight controls” The pilot relinquishing control will state “You have the flight controls.” Finally, the pilot flying states, “I have the flight controls.” Once assuming control of the aircraft, maintain control until relinquishing it as stated above.

### **3.5 Departure and Arrival Briefing**

PICs shall conduct departure and arrival briefings. A suggested briefing guide is provided at Attachment 3.

### **3.6 Use of Checklists and Callouts**

PICs shall use an approved aircraft checklist for ground and flight operations (ref: CAPR 70-1). CAP does not specify how the checklists shall be used in the cockpit. There are several industry-accepted methods for using checklists, to include: challenge and response, check-do, and do-check. One or more of these may be appropriate depending on crew number, checklist familiarity, and other factors. CAP aircrew should establish how and when they will call for, employ, and signal completion of checklists during the crew resource management portion of their flight brief. Use of mnemonics (ex: CGUMPS) to support checklist flow is permitted; however, an approved checklist must be used to validate completion. During multi-pilot operations, CAP encourages the use of call outs and/or techniques such as fingering pointing/calling as tools for improving crew situational awareness. Even when practiced during single-pilot operations, these techniques can increase crew awareness during critical flight phases and may result in identification of a critical error or oversight.

### **3.7 Automatic Flight Control System (AFCS)**

Flight using an AFCS shall be guided by the standards described in this section. These procedures are designed for single-pilot operations, while still enabling crew coordination during multi-pilot operations. Philosophically, the approach can be summarized as “Verbalize, Verify, and Monitor.”

When using the Autopilot (A/P) and/or the Flight Director (FD), if equipped, the Pilot Flying (PF) should callout and make all AFCS inputs (e.g., engagement, disengagement, mode and/or data changes). For example: “Autopilot, Heading Select Zero-Three-Zero, Flight Level Change Five Thousand, Speed One Hundred.” The Pilot Monitoring (PM) should verify that the AFCS has been properly configured, call out what they are seeing, and validate that AFCS setup is appropriate to the situation/clearance. Both pilots are responsible for monitoring FD commands, autopilot response, and flight path for expected performance. On some missions the Mission Observer might not be a Pilot. In these situations, the Mission Pilot should brief the MO on what to expect.

If the PF makes an AFCS change without making a callout, the PM should make the callout and the PF shall respond. A missed callout shall be challenged. During high workload operations, the PF can direct the PM to make AFCS changes. In these situations, the PM will repeat the direction and make the change followed by the PF verifying and calling out the results.

The A/P should only be engaged after the aircraft is stable and the appropriate altitude, heading/course, and vertical mode have been selected and verified. Use of the FD, if equipped, is recommended. The A/P should be disengaged when performance is not as expected or programmed. The FD should be off when it is not being followed. When the autopilot is engaged, any exchange of flight controls should be accompanied by a callout of AFCS modes (ex: "You have the flight controls, Autopilot, GPS, Altitude, Five Thousand" – "I have the flight controls, Autopilot, GPS, Altitude, Five Thousand.")

### 3.8 Coupled Go-Arounds

Cessna aircraft equipped with Garmin G1000 NXi and Electronic Stability and Protection (ESP) are capable of flying go-arounds with the autopilot coupled. However, this capability has implications regarding management of autopilot functions during approaches.

Specifically, after passing the final approach fix (FAF) on a precision approach, or when departing the last step-down altitude/fix on a non-precision approach, pilots should use ALT SEL to set "Selected Altitude" to the missed approach (MA) altitude. This ensures that, in addition to sequencing through the MA waypoints, the autopilot will command a climb to the correct altitude. Minimum Descent Altitude/Decision Altitude (MDA/DA) should NEVER be "bugged" into Selected Altitude. If the pilot initiates a coupled go-around at or below the MDA/DA, this setting will result in the autopilot commanding a level off at minimums. If not immediately recognized, this could result in inadequate vertical clearance margins during the missed. To prevent negative transfer between different avionics configurations, the ALT SEL - Selected Altitude technique discussed above should be used on all G-1000 variants.

Pilots must also ensure that the appropriate vertical mode (normally FLC) is selected during the Go-Around procedure as flying the missed approach in go-around attitude may result in an under-speed condition.

### 3.9 Go-Around Decision Making

Pilots should establish and brief predetermined criteria for executing a go-around. The following criteria are standard:

- Whenever "go around" is called by any member of the crew
- Failure to achieve a stabilized approach by 1/2nm or 300' AGL, whichever is first
- Landing past the first third or with less than planned GROL
- Prior to 150' AGL, if there is not a clear runway

### 3.10 Short-field Procedures

Pilots should use short-field procedures whenever runway length available is less than the calculated ground roll plus 1000 feet.

## Post-flight

### 4.1 Post Flight

Immediately after disembarking, CAP aircrew shall conduct a thorough post-flight inspection of the aircraft using Attachment 4. The PIC is responsible for documenting and entering all discrepancies in WMIRS. Discrepancies shall not be passed down verbally from pilot to pilot as a means of keeping the aircraft in an MC status. If there are any discrepancies that might impact airworthiness, insert the Aircraft Grounded Placard into the AIF front cover and leave the AIF, face up, on the pilot's seat prior to leaving the

aircraft. This ensures that the Major Inspections data is obscured, and the grounding card cannot be overlooked or displaced. Notify the Squadron Maintenance Officer immediately thereafter.

#### 4.2 Debrief

Aircrew will complete the debrief process at the end of the mission. Items of interest should include mission success, areas for improvement, crew coordination factors, and hazard identification/reporting.

## **Briefing Checklists (Attachment 1)**

### **Aircrew Briefing Guide**

- A.1 General
  - Time
  - Aircraft call sign/Mission #
  - Crew rest
  - Review AIF
  - Fuel, W&B, maintenance
  - RAW complete
  - Flight release approved
- A.2 Mission
  - Flight requirements
  - Takeoff time
  - Weather: Depart, Enroute, Arrival  
(present and forecast)
  - NOTAMS: Depart, Enroute, Arrival
  - Terrain
- A.3 Departure
  - Taxi: Airport Diagram/Hotspots
  - Runway
  - Airspace
  - Routing
- A.4 Enroute/Area
  - Cruise parameters
  - Routing, Fuel, ETE
  - Airspace
  - Maneuvers and Limits (Va)
- A.5 Recovery
  - Routing
  - Pattern entry
  - Landings
  - Taxi: Airport Diagram/Hotspots
  - Fuel
- A.6 Emergency Procedures
  - Crew responsibilities
  - Ground Emergencies
  - Takeoff emergencies
  - Emergency egress procedures
  - Airborne Emergencies
  - Physiological events
  - Divert fields: Weather, NOTAMS
- A.7 Additional Information
  - Potential traffic conflict
  - Radio procedures
  - Transfer of flight controls
  - Bingo fuel state

### **Passenger Briefing Guide**

- A.1 Prior to Flight
  - Flight authorized
  - Hold Harmless Agreement
  - Medical status
  - Prohibited electronic devices
  - Clothing
- A.2 Mission
  - Sterile cockpit procedures
  - Restricted maneuvers
  - Flight instruments
  - Clearing
  - Radio procedures
  - Transfer of flight controls
  - Takeoff
  - Departure
  - Arrival
- A.3 Emergency Procedures
  - Ground emergencies
  - Takeoff Emergencies
  - Emergency egress procedures
  - Airborne emergencies
  - Physiological events
- A.4 Risk Management Considerations

## **Risk Assessment Instructions, Airplane - (Attachment 2)**

**ASSESSMENT, GENERAL:** Select a risk factor, then select the descriptor representing the maximum risk anticipated during the flight, or during the flying day if assessing multiple flights (ex: Factor: Time of Day and last landing will occur during civil twilight falls under the “Reduced” column).

**DEPARTURE & ARRIVAL WEATHER:** A single row addresses current/forecast weather conditions at the departure and destination airports. Select VMC in the left most column, if applicable. Otherwise, select the appropriate IMC descriptor.

**BIRD STRIKE:** Select the highest AHAS risk that will be encountered at departure/destination airports, as obtained from the DoD/FAA AHAS website ([www.usahas.com](http://www.usahas.com)). Instructions on how to use the AHAS site are provided on [gocivilairpatrol.com](http://gocivilairpatrol.com) under Programs > Emergency Services > Aircraft Operations > Risk.

**ENROUTE CONDITIONS:** Several factors that could impact the enroute phase of flight have been combined under this heading. The descriptors are listed in the same order as the factors in the left column (e.g., Thunderstorms, Icing, then turbulence). Select the highest risk level.

**PIC CURRENCY:** For initial solo flight, do not mark “181 Days or more.” Instead assess the risk based on the number of days since last flight. The time periods provided under this factor are not appropriate for initial solo flight. If a significant number of days have elapsed since last flight, this should be addressed under “Are there additional risks...” and the FRO should be informed.

**TOTAL SCORE:** When using the electronic system, risk scores will be calculated and the flight release routed appropriately. When using paper, note the number of points for each factor and write that number in the column to the far right to aid in totaling the values. The PIC must seek a release based on the resulting score on the information provided at the bottom of the sheet. For some factors, a specific risk level/descriptor results in an assessment of elevated risk or special conditions. These special conditions must be honored regardless of the cumulative risk score generated by the chart.

**FREE TEXT AREAS:** It is impossible for any pre-planned risk assessment tool to predict the full range of risks that might present themselves in an operational environment. Accordingly, the PIC shall apply RM principles, knowledge, and judgment, to identify and assess any other significant, known risk factors using the provided space. The PIC should consider these additional factors when determining the level of flight release to seek.

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## **Departure and Arrival Briefing (Attachment 3)**

### **Departure Briefing**

Runway conditions  
Runway in Use  
Runway Length  
Actual Wind Direction  
Wake Turbulence Potential  
Type of Takeoff  
Initial intentions/first IFR fix

### **V-Speeds**

V<sub>r</sub>  
V<sub>x</sub>  
V<sub>y</sub>  
Glide

### **Arrival Briefing**

Descent Briefing  
Star/Arrival procedures  
Descent profile  
Discuss when descent will begin.  
Airspeeds  
Restrictions, Turbulence, etc...  
Descent WX  
Delays/holding

### **Airport INFO Briefing**

Arrival Weather  
Current ATIS/AWOS/ASOS info  
NOTAMS

### **In case of Emergency...**

Engine Failure Before Lift-Off  
Engine Failure After Lift-Off

### **Questions?**

### **As Required**

Terminal area terrain and obstacles  
Runway conditions

### **Instrument Approach Briefing**

Name of Airport and assigned Approach  
Initial/Procedure turn altitudes  
Any Step-down Altitudes  
Final Inbound Course  
MAP (Time/distance to)  
MDA/DA and actions to land or execute  
Missed.  
Missed Approach instructions  
Any notes, cautions or warnings on plate  
Any special instructions / confirm all  
VOR/ILS/GPS/Radio settings

### **Questions?**

## **Post Flight Checklist (Attachment 4)**

### **POST-FLIGHT CHECKLIST AIRPLANE**

*This checklist shall be performed after every flight where the pilot disembarks the aircraft*

#### **EMPENNAGE**

CONDITION OF ALL COMPONENTS..... CHECK  
TAIL TIE-DOWN / GUST LOCKS ..... IF REQUIRED

#### **RIGHT WING**

CONDITION OF ALL COMPONENTS..... CHECK  
MAIN GEAR ..... CHOCK (L OR R)  
WING TIE DOWN ..... IF REQUIRED

#### **NOSE**

CONDITION OF ALL COMPONENTS..... CHECK  
ENGINE COOLING AIR INLETS ..... INSTALL COWLING PLUGS  
TOW BAR ..... REMOVE & STOW

#### **LEFT WING**

CONDITION OF ALL COMPONENTS..... CHECK  
PITOT TUBE ..... INSTALL COVER  
WING TIE DOWN ..... IF REQUIRED  
MAIN GEAR ..... CHOCK (L OR R)

#### **POST-REFUELING**

FUEL ..... VERIFY QUANTITY  
FUEL FILLER CAPS ..... SECURE

#### **FINAL CABIN / LOCKUP**

PARKING BRAKE ..... RELEASE  
AIF ..... ENTER DATA / INSERT GROUNDING CARD, IF REQUIRED  
LOOSE/REMOVABLE EQUIPMENT ..... INVENTORY  
CABIN ..... STOW LOOSE ITEMS / REMOVE TRASH  
BAGGAGE DOOR ..... CHECK AND LOCK  
LOCK BOX ..... ATTACH, IF REQUIRED

**REPORT ANY NEW DISCREPANCIES IN WMIRS**

## Change Record

| Issue Date | Change Summary  |
|------------|---|
| 8 Jun 20   | Moved risk assessment instructions to Attachment 2 and renumbered all attachments. Removed "DT50" from 3.10. Revised Attachment 4 - post-flight checklist. Aligned 4.1 instructions with CAPR 70-1 9.11.11.1. |
| 25 Aug 20  | Added requirements for checking tire pressure and CO detector   |
| 12 Nov 20  | Updated Instrument Approach Brief "MDA/DH" to "MDA/DA"  |
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