



Civil Air Patrol
Pilot Continuation Training

The Seven Skills of
Crew Resource Management

PROJECT OFFICER
HANDBOOK

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Civil Air Patrol Pilot Continuation Training

Schedule

15 Minutes	Introduction , Course Schedule, and Administrative Items
6 minutes	Play first half of the “Crew Resource Management” Video.
40 minutes	Present and discuss the seven skills of crew management (See lesson plan and ground instructor script). Use the first half of the video presentation as a primer for group discussion.
Break (15 minutes)	
5 minutes	Play second half of the “Crew Resource Management” Video.
10 minutes	Closing comments.

Inventory Checklist

Video DVD

Crew Resource Management Video

Lesson Plans

7 skills of crew management
Intro for CRM Video

Project Officer Handbook

Student Course Book

Recommended Critical Project Dates

- 65 days out - Set course date and location.
Request approval. Approval can be gained via fax, email, or online. (See approval request form)
- 60 days out - Send notification letter to all appropriate units/attendees.
See Page 7.

Determine class size.

Select and brief ground instructors.

Set ground course rehearsal date.

Start preparing for lecture presentation.
- 40 days out - Check on facilities.

Run ground course rehearsal.

Check equipment (video and overhead/computer projector).
- 5 days out - Re-check facilities and equipment.
- 1 day out - Set up classroom.

Course Instructor Training Program Critical Dates

- 60 days out - The course instructor/s should be selected and given their appropriate duties.

Classroom

The class size should be limited to allow student interaction and ensure quality instruction. The training should take approximately 2 hours depending on the amount of discussion.



**CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY**

MEMORANDUM FOR _____

FROM:

SUBJECT: CAP PILOT CONTINUATION TRAINING COURSE

1. On _____, _____ will conduct a "Crew Resource Management" CAP
Pilot
Date Unit
Continuation Training Course. Registration will be from 0700 to 0800 on _____.
Date
2. Attendance at this course is by reservation only. All pilots desiring to attend this course must
call _____ for a reservation.
Project Officer

Reservations must be made prior to _____.
Date

SAMPLE NOTIFICATION LETTER

Course Equipment Requirements

1. One or two television sets, elevated above the class for easy viewing from the rear of the classroom.

Coax cables and splitter, if two TV's used.

PRESENTER'S EVALUATION

COURSE LOCATION: _____

COURSE DATE: _____ NUMBER OF ATTENDEES:

PRESENTER'S NAME:

PRESENTER'S WING:

PLEASE RETURN THIS EVALUATION SHEET WITH YOUR VIDEO.

1. How satisfied were you with the presentation material?					
<input type="checkbox"/>	Very Satisfied	<input type="checkbox"/>	Satisfied	<input type="checkbox"/>	Not Satisfied

2. Would you use another Pilot Continuation Training Course?				
<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Explain:

3. Overall, how well do you think your attendees perceived the seminar?							
<input type="checkbox"/>	Excellent	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor

4. List any comments below:					



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LESSON PLAN

LESSON PLAN

INTRODUCTION

1. Lets start a sign in sheet so you get credit for the course. Please print your name. You must sign the sheet after your flight. Failure to sign the sheet after your flight may result in no reimbursement.

2. Everyone should have a class schedule. Let's review what we will cover during this course. (Review the Schedule)

3. An overview of the entire course follows:

- Introduction, Course Schedule, and Administrative Items (15 minutes)

This is where we are now.

- First half of the video (6 minutes)

As you watch the video mistakes will be obvious. Note them for the discussion that follows this portion of the video.

- Present and discuss the seven skills of crew resource management using the tape as a primer for the discussion and the PowerPoint presentation for clarification. (30 minutes)

- Second half of the video (5 minutes)

- Closing discussion and comments. (10 minutes)

Ground Rules

There is no smoking in the building. (Identify smoking area)

You must complete the training to obtain reimbursement.

(Discuss parking areas if appropriate)

(Other items as needed)

Seven Skills of Crew Resource Management

(Ensure each student has a copy of the handout)

GROUND INSTRUCTOR SCRIPT

The following discussion focuses on seven specific skills that ensure effective crew resource management.

(Introduce the video.)

We will first watch a short six-minute video. Pay close attention to what the pilot does wrong, as we will discuss his actions during the next portion of the course.

(Start the video)

(After the video) (Wait for the second “blank screen” before stopping the video for Part II)

Show PowerPoint slide #2 and read picture caption.

Introduce the seven skills of crew resource management.

(Slide #3)

The seven skills of CRM are as follows:

Mission or flight analysis

Assertiveness

Decision Making

Communication

Leadership

Adaptability and flexibility

Situational Awareness

Let's start with mission or flight analysis.

MISSION/FLIGHT ANALYSIS

(Slide #4)

What is Mission or Flight Analysis?

Mission Analysis refers to the ability to develop short term, long-term and contingency plans, as well as to coordinate, allocate and monitor crew and aircraft resources.

PHASES OF MISSION or FLIGHT ANALYSIS include:

Preflight

In-flight

Post flight

PRE-FLIGHT ANALYSIS involves:

Planning – We have checklists and procedures to aid us in mission planning.

Preparation – Using all the resources available to us at the appropriate time.

Briefing – Briefing every aspect of the coming flight (within reason) will ensure all involved are ready to assist in a positive manner throughout the flight.

CHARACTERISTICS OF AN EFFECTIVE BRIEF

(Slide #5)

Professional – Effective checklist use will demonstrate professionalism and build instant creditability with crewmembers.

Stays Focused – Briefings should not be interrupted and should be held in an environment that allows each participant to stay focused on the task at hand.

Assigns Responsibilities – An effective briefing is where flight responsibilities are assigned.

Interactive – The briefing is a two-way communication. This is the time to ask questions and clarify all aspects of the flight.

Complete – The briefing must be complete covering the flight from preflight until post flight.

How would you rate our PICs briefing using the previous criteria?

IN-FLIGHT MISSION ANALYSIS involves:

Short-term Planning – A flight rarely goes as planned. Reacting to a changing environment should be a group effort with the PIC as the leader.

Was the PIC in the video reacting to change in a positive manner?

Monitoring Mission Progress – The entire crew is responsible for monitoring flight or mission progress. Individual crewmembers may have specific responsibilities during the flight and should keep the rest of the crew informed as to their progress. Did the PIC assign specific crew duties?

Identifying and Reporting Challenges or Changes – Knowing when aspects of the flight have changed from the briefed scenario is essential. Each noted change should be shared with the entire crew to ensure the change has not unknowingly affected a certain aspect of the flight.

Our observer was reporting changes in the form of low oil pressure, smoke in the cockpit, and finally a scream, but was our PIC receiving the changes in an effective manner?

POST- MISSION ANALYSIS is:

(Slide #6)

Selective Review – Only the appropriate aspects of the flight should be reviewed. Laboriously going over the entire flight or mission moment by moment will result in a bored crew who will benefit little from the successes or failures of the flight.

The CAPF 104 will serve to de-brief the mission, however a few, underlined few, comments concerning how well the crew worked together will be effective in improving CRM for the next flight.

Interactive – Interaction with the crew is essential to ensure all pertinent aspects of the flight are covered. Ask your crew for their comments. Ask them how you as the PIC can improve.

Timely – We all lead busy lives and if the post mission analysis is not completed shortly after the flight, we will be on to something else, wasting a valuable opportunity to learn from the flight/mission.

Now on the assertiveness.

ASSERTIVENESS

(Slide #7)

(Pause and let the class read the picture caption.)

WHAT IS ASSERTIVENESS?

The willingness/readiness to actively participate, state, and maintain a position until convinced by the facts that other options are better.

This requires the initiative and the courage to act. Unfortunately Civil Air Patrol has had fatal accidents where the crew member “not flying”, did not take the initiative to voice their concerns prior to the accident. Every occupant of the aircraft has the right and the responsibility to be assertive if, in their mind, something is not right with the flight.

COMFORT LEVEL

Comfort level is the degree to which you feel comfortable with what is happening, while taking into account that flying a mission can be dangerous and demanding.

Whenever comfort level is exceeded, "Speak Up".

We all have different comfort levels. Do not give other crewmembers the benefit of doubt. If you feel uncomfortable, chances are others in the aircraft feel the same way. Be assertive and verbalize your uncomfortable feelings.

BEHAVIOR CONTINUUM – See yourself below?

(Instructor ask your students to look at the chart in their student handout and assess where they fit in the columns.)

PASSIVE	ASSERTIVENESS	OVER AGGRESSIVENESS
Overly courteous "Beats around the bush" Avoids Conflicts "Along for the ride."	Active Involvement Readiness to take action Provide useful information Makes suggestions	Domination Intimidation Abusive / Hostile

BARRIERS TO ASSERTIVENESS

Position of Authority – While the pilot-in-command has the overall legal responsibility for the safe conduct of the flight, all crewmembers have a moral responsibility. Do not be intimidated by an overbearing crewmember.

Experience – Just because a certain crewmember has a ton of experience and you do not, does not mean your opinion is of less value. A fresh perspective on any situation can be an enlightening experience.

Rank – During flight operations, rank is meaningless. Skills and the ability to work with others as equals (a crew) is imperative to successful and safe accomplishment of the flight.

Lack of Confidence – We all suffer from a lack of confidence at sometime during our life. Do not let your lack of confidence keep you from speaking up when you feel uncomfortable with a situation.

Fear of Reprisal – Many times the fear of reprisal is larger than the actual reprisal. CAP cockpits should be non-threatening, in fact if a crew member makes a cockpit otherwise he/she should be called on it. Do not fear reprisal, after all what can an overbearing crewmember do to you? If you are safely on the ground, he or she can do absolutely nothing.

Now on to Decision Making.

DECISION MAKING

(Slide #8)

What is Decision Making?

Effective decision-making refers to the ability to use logical and sound judgment to make decisions based on available information.

This includes:

Assessing the Problem – The first step in solving a problem is to properly identify or accept the problem. Did our PIC accept the fact that he had a problem? What kept him from accepting the warning signs that were pointed out to him by the observer?

Verifying Information – All information must be confirmed. Normally we do this by searching our minds for comparable information. When comparable information is lacking we must use outside information, be it from a human or mechanical source to verify the information. Have you ever been in a situation that you were confronted with something totally new and you had trouble understanding because you had no frame of reference? Bottom line, when confronted with an aircraft emergency you should have studied or thought about your actions well in advance of the flight.

Identifying Solutions – Before a decision can be acted upon the solution has to be identified. In a crew situation solutions may come from different crewmembers. If there are differences crewmembers must work together to identify the proper solution.

Anticipating Consequences of Decisions – Certain individual's ability to anticipate the consequences of a decision may seem uncanny at times, but most likely the ability comes from the successful outcome of past decisions in similar situations.

Informing Others of Decision and Rationale – The Pilot-in-command informing his/her crew of a decision to deal with a particular set of circumstances would be an example of the decision making process during CRM.

Evaluating Decisions – Decisions should be constantly evaluated during their prosecution. This is the responsibility of the entire crew.

The next skill is a big one, communication.

COMMUNICATION

(Slide #9)

WHAT IS COMMUNICATION?

Communication is the clear and accurate sending and receiving of information, instructions, or commands, and providing useful feedback.

TYPES OF COMMUNICATION

Verbal – (Involves Words)

Spoken

Written

Non-Verbal – (Everything but Words)

Gestures

Voice Intonation

Can you identify an example of negative non-verbal communication during the video?

(Happened just after the observer warned the pilot about taxiing off the taxiway. The pilot issued the observer a disgusted look that basically said “keep your mouth shut.”)

PROCESS OF COMMUNICATION

Simple: Sender Conveys ideas or information to others and the receiver hears or takes in information and provides feedback.

SENDER'S RESPONSIBILITY

Communicate in Appropriate Mode – The situation will dictate the appropriate mode. The appropriate mode of our video flight went from the observer informing the PIC to a scream announcing their impending death.

Verbal versus Non-verbal – Each mode can be effective if properly done.

Convey Information Accurately and Concisely – Not too little or too much. Too much communication can make the receiver tune out.

Provide Information at the Appropriate Time – Information given at an inappropriate time will more than likely be disregarded.

Request Verification or Feedback – We really don't know how we are being received if we don't encourage feedback.

RECEIVERS RESPONSIBILITY

(Slide #10) (Pause and let the class read the picture caption.)

Actively Listen – Actively listening enables the communication to be completed.

Active verses Passive Role – All our crewmembers must take an active role in communications within and out of the cockpit.

Take Action as a Result of Communication – All communication requires an action. The action may be actively doing something or it may be doing nothing.

Answer or Respond to Communications – Confirming communications requires an answer or response. Obviously that response can be made several different ways. However, if the response is communicated it has to be effective and appropriate for the situation.

Ask for Clarification of Unclear Communication – The old saying, there are no dumb questions is true. We must communicate effectively to function as a crew.

BARRIERS TO COMMUNICATION

(Slide #11)

Noise – From the beginning of our mission noise can distract and hamper communication. Nowhere is immune, briefing room, flight line, or cockpit. Noise management is important.

What are some techniques for noise management? Example: Sterile cockpit procedures, noise canceling technology, etc.

Rank/Experience – Rank and experience can be intimidating, especially to new individuals to the organization. Bottom line rank means nothing when it comes to successful mission accomplishment. Experience should enhance mission accomplishment, however if it is used in an intimidating manner it will degrade effective communication.

Can you think of a situation in the video where rank or experience degraded communications either in or outside the cockpit? Example: Remember the pilot's statement "Look I've been flying for 30 years, the plane is fine!" just before the engine quit.

Task Overload – The more equipment we get in our aircraft the more complex our flight becomes. Being proficient with the aircraft and all the systems increases the crew's ability to not become overloaded. Not properly using the crew can certainly result in an overloaded pilot.

Can you think examples of task overloading? Example: Constant update requests from mission base via the FM radio.

Gender – Even in this day and time an unthinking individual can let gender become a barrier to communication.

Do you remember the part in the video when the pilot said "no thank you darling, I've been doing this for more years than you've been born." That statement certainly ended the conversation.

Attitudes – A negative attitude sets a negative tone from the beginning of the mission. Conversely, a positive upbeat attitude can inspire the best in individuals.

The pilot was obviously in a bad mood due to lack of sleep from the beginning of the mission. His negative attitude upset and worried his crew. What were the crews alternatives?

Culture – We all come from different cultures and it is our responsibilities to not let our differences block effective communication.

(Pause and let the class answer the picture caption.)

On to Leadership.

LEADERSHIP

(Slide #12)

WHAT IS LEADERSHIP?

The ability to direct and coordinate the activities of other crewmembers while encouraging the crew to work together as a team.

Notice rank has nothing to do with the definition of leadership.

TYPES OF LEADERSHIP

DESIGNATED LEADERSHIP

The pilot in command fits this category of leader. He/She is legally responsible for the safe conduct of the flight. The elements of a designated leader are:

Responsible – At the time of flight release a PIC or leader is designated. That responsibility cannot be delegated.

Makes Final Decisions – The PIC is responsible for the final decision. However the final decision should not be rendered until the decision is coordinated with the entire crew.

Normal Mode of Leadership – The mode of leadership is set in FARs and CAP regulations. The mode is a broad method of action and depends on the PIC to ensure the normal mode is followed to a successful outcome.

FUNCTIONAL LEADERSHIP

Leadership by Knowledge or Expertise – During a flight functional leadership may be passed among the crew.

What are some examples of how functional leadership can be shared during a mission? Example: Observer helps direct the pilot while interpreting data from the Becker SAR/DR.

Occurs when the Need Arises – Leaders immerge when circumstances arise that fits their knowledge base. Our missions can become complex and not all the crewmembers share the same knowledge base. Individual situations can draw on a specific crewmembers knowledge base and until that situation changes or is resolved, the knowledgeable crewmember/s may take a leadership role. Also realize leadership can be shared at any time.

Can you give examples when leadership was transferred or shared during some of your missions?

Could the PIC in the video have shared leadership during the mission? (Preflight, cockpit duties, etc.)

RESPONSIBILITIES OF LEADERSHIP

(Slide #13)

Crew Performance – While the PIC is responsible for overall crew performance, sharing and directing crew performance issues will allow the crew to work as a team.

Direct Actions – Directing every action related to the flight is the overall responsibility of the PIC, however, how he/she directs is important. Ruling with an iron fist seldom produces effective results. Directing in a manner that employs the entire crew will ensure success.

Ask for Assistance – Real pilots don't ask for help, not true. As pilots we receive assistance from everywhere, flight service, air traffic control, etc. So not taking assistance from your crew who has a vested interest in the success of the flight is a waste of valuable expertise.

TRAITS OF AN EFFECTIVE LEADER

(Slide #14)

Think about effective leaders you have experienced in the past and see how many of the following traits they possess.

Respected

Decisive

Delegates Tasks

Provides Feedback

Leads by Example

Keeps Crew Informed

Open to Suggestions

Builds Team Spirit

Directs and Coordinates Activities

Maintains a Professional Atmosphere

Knowledgeable of how to do the Mission

Now on to adaptability and flexibility.

ADAPTABILITY and FLEXIBILITY

(Slide #15)

WHAT IS ADAPTABILITY and FLEXIBILITY?

Adaptability and Flexibility refers to the ability to alter a course of action when new information becomes available.

SITUATIONS THAT REQUIRE QUICK ADAPTATION

When Un-briefed Situations Arise – Flying is a series of changing situations, therefore un-briefed situations should be manageable. A mental review of all possible scenarios prior to the flight will help even if the situation is totally new.

When a Routine Mission Becomes an Emergency – Using your crew to help with the emergency can make the difference between a successful or unsuccessful outcome. Responsibilities during an emergency can and should be assigned prior to the flight.

When Transitions Occurs – As with changes, transitions are inevitable. Take transitions as they come and complete each in a timely and efficient manner.

When a Crew Member is Incapacitated – Talk with your crew about secondary duties. Know who has what expertise. Knowing who can step in for who can make adapting to the situation easy.

When Interactions Are Strained – Our pilot in the video certainly strained any interaction with his crew.

MAINTAINING ADAPTABILITY / FLEXIBILITY

(Slide #16)

Anticipate Problems – Think about the flight in advance.

Recognize and Acknowledge any Change – Each crew member should be free to identify and point out change.

Determine if a Regulatory or Habitual Response is Appropriate

Offer Alternative Solutions – Good crew communication will allow all crewmembers to offer solutions.

Provide and Ask for Assistance – Asking the crew for assistance upfront will set the tone and allow a well thought out collective response to any changes.

Interact Constructively with Others – People want their efforts recognized. Constructive interaction promotes a feeling that even if their idea is not appropriate for the current situation, they are encouraged to continue offering suggestions when needed.

SETTING THE TONE FOR ADAPTABILITY/FLEXIBILITY

(Slide # 17)

Establish an Open, Professional Atmosphere.

Ensure the crew understands the mission.

Can you give situations where you had to be flexible to ensure mission accomplishment?

SITUATIONAL AWARENESS

(Slide #18)

What is Situational Awareness?

Situational Awareness refers to the degree of accuracy by which one's perception of his current environment mirrors reality.

PERCEPTION VERSUS REALITY

View of Situation – Flying requires us to view the big picture and the little picture at the same time. While we have to deal with the cockpit environment we also have to be cognizant of the larger outside environment.

Incoming Information – Information comes in from varied sources, the crew, the radio, visually, audible, and through feel. We must filter information in regard to it's matter of importance. What might be unimportant this minute might be of high importance the next.

Example: Fighting the feelings of vertigo are of low priority during VMC conditions, but rises to the top of the list when in rough weather during night IMC conditions.

Expectations & Biases – We all have expectations as to what should happen next and our biases could lead us down the wrong path. We have

to be open to change and be willing to embrace it when it happens.

Incoming Information versus Expectations – We have to beware of molding incoming information to what we were expecting it to be. Information that is similar to what we were expecting can easily be misconstrued.

Example: When flying using a sectional chart it is easy to make the landmarks you are viewing fit the landmarks on the map, even when the landmarks you are viewing are not portrayed correctly on your sectional chart. Our video pilot expected his aircraft to be operating properly, therefore he rationalized the smoke in the cockpit was not a problem.

Can anyone give examples of experiences when their perception was not reality?

FACTORS THAT REDUCE SITUATIONAL AWARENESS

(Slide #19)

Insufficient Communication – The pilot in the video was not communicating in a sufficient manner and his situational awareness of a potentially dangerous situation was clouded by faulty expectations.

Fatigue / Stress – Fatigue is an insidious killer. When fatigued you simply don't care and you are willing to accept less than perfect performance from yourself, your aircraft, and your crew. The human reaction to stress is to focus on the problem. This can also be described as tunnel vision. Fatigue reduces our ability to effectively deal with stress, which narrows our focus at the expense of the big picture.

Can anyone give examples of how fatigue has affected their flying?

Task Overload – If we are not up to the task, not proficient, not knowledgeable, or encumbered with other responsibilities, we are susceptible to task overload.

Task Under load – Not having enough to do can be just as dangerous as having too much to do in the cockpit. Being lulled into a false sense of security because there does not seem to be a lot going on can set one up for a surprise when the unexpected happens. We all know about empty field myopia, where your eyes focus a few feet in front of the aircraft, allowing an approaching aircraft to go unnoticed. Task under load can set up a similar situation for your brain. Your brain enters a state of empty field myopia, where the obvious may become clouded or even invisible. How do you combat task under load? Plan your activities during the flight. Be thinking ahead of the aircraft.

“Press on Regardless” Philosophy and Degraded Operating Conditions - Both of these factors can result in mental tunnel vision. An overwhelming need to complete the mission can cloud serious safety issues. Couple “get home itis” with degrading operating conditions such as bad weather and you are set up for disaster.

Ask the class for examples of experiences when they had a need to press on when they really should not have.

Give the class a 15-minute break.

Play second half of the “Crew Resource Management” Video
Prompting the class to look for examples of the seven skills of CRM.

Closing comments.