Captain Ray's

13

COMMANDMENTS

for

Safe CAP Flying

Lt Col Ray Phillips

Minnesota Wing Edition

Edited by Lt Col Kevin Dunlevy

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2023 Revision

by

Lt Col Raymond H. Phillips, CAP

A wise pilot examines the dangers ahead and takes careful precautions. The fool goes blindly on and suffers the disastrous consequences.

This is an example of why this booklet was written. Fortunately the following event occurred in the simulator and not in actual air operations.

As the crew pulled out onto the runway after receiving takeoff clearance they performed the required runway verification check. Very good. But then the Captain looked at the First Officer and said, "We were cleared for takeoff, right?" The First Officer replied, "Yeah, I think so." With that the Captain promptly shoved the thrust levers forward.

I froze the sim.

The conversation that followed heavily emphasized the necessity to never guess or assume and the possible disastrous consequences of doing so.

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For my first airline captaincy I flew a 29 seat turboprop for United Express. It was a small but capable aircraft with me as pilot, a first officer, and one flight attendant. One day the gate agent came to the cockpit and said there was a passenger with a tarantula in a box and the agent wanted to know if I would let the passenger board.

After contemplating the issue for a moment I denied boarding. I was not afraid that the spider would get out of the box—I was concerned that 29 other people in that small space would fear the spider would get out of the box.

The flight attendant was very thankful for that decision.

I often emphasize when giving training that pilots need to avoid assuming things and be prepared for eventualities.

One day while on approach to a runway I knew I had the runway made. The weather was perfect, there was no other traffic, and I was on short final, cleared to land.

Just then the guy in the tractor that was cutting the grass on the right side of the runway decided to cut the grass on the left side of the runway and crossed in front of me. So now I tell my students that whenever you are on approach you should be spring loaded to go around.

Foundation

COMMANDMENT

An edict or an order meant to provide order for, and protection to, the recipients.

I am not a rocket scientist, or brain surgeon, and most certainly am not the ace of the base. But I am a good observer — a skill that has made it possible for me to collect, over the years, little pieces of flying wisdom that have become these commandments.

Being an instructor, CAP "O" pilot, ferry pilot, charter pilot, and airline pilot, has given me a wide ranging exposure to flying everywhere from the Caribbean to the Canadian border—plus the priceless tutoring I received from some very excellent airline pilots along the way has taught me how to survive. Therefore, packed carefully in a pilot's flight bag and ready for use, these commandments become the guides able to assist in the most important and fundamental pilot action of all: decision making.

The commandments cover the broad spectrum of our daily existence aloft and help create a general, professional, and safe mind set. When used individually in specific situations, these commandments can make the decision-making smoother with a greater likelihood of a successful outcome. After all, for every endeavor there is a risk. Speed shrinks time and space and in turn increases the risks inherent in the in the

rapidly changing dynamics of flying. Altitude saves fuel, increases ground speed, and offers unending beauty, but could give you only 15 seconds of useful consciousness if mishandled. There are many other examples but the fundamental axiom is this: the greater the reward the greater the risk. This is true in flying and all of life.

So for us, the CAP aviators, the length and intensity of our reward is directly proportional to how safely and skillfully we manage our responsibilities. There is no greater reward than to know at the end of a difficult mission, or a long day aloft, or even a career, that you flew and managed well and safely. Please remember: the soul has its needs as much as the wallet. Therefore, in order to gain any and all rewards for our efforts, the consummate professional realizes his or her goals through study, caution, attention to detail, adherence to regulations, teamwork, wisdom, and skillful decision making. Hopefully the following pages will add to your life and career to the safety of those who depend upon you and to the successful missions of Civil Air Patrol.

PROFESSIONAL

Extremely competent in a job or a piece of work performed with competence, skill, and discipline.

The Thirteen Commandments

Once the maintenance supervisor politely asked me to fly a turboprop airliner from BDL to IAD with the right engine ITT inoperative. When I explained my concern at risking that engine and the aircraft, he told me to just match up the thrust levers.

He had politely asked. So I politely said, "No."

Commandment One

Always Make the Most Conservative Decision

CONSERVATIVE
That which is least likely to cause damage or injury.

Conservative decisions are the foundation for safe flying. Consider for a moment that the airline pilot operates a very large, highly flammable, people-filled object at 500 knots through a totally inhospitable environment. Adding to that the moral and legal requirements for safe delivery of the passengers, plus the pilot's own personal welfare, should lead to a conservative mindset. Although our situation is not as critical, the fundamental requirements are no different for the captain of a Cessna 172.

Your attitude/mindset underlies all your decisions in life whether inside or outside of the cockpit.

First of all, when you make a decision, make it as if you had to explain it to someone else. It keeps you from doing something foolish and it prepares you for the possibility of someday having to explain the decision to someone in authority.

Commandment One

LOGIC
Reasoned thought or argument. A relationship or interdependence of a series of events or facts. And if you are still not sure what it means ask Spock…he knows.

Secondly, thinking of explaining a decision adds to the useful tool of building a logic trail. Logic trails provide pathways to decision making that cover the pertinent issues relating to the situation. For example, when someone asks why you diverted you do not want to say, "Well, it seemed like a good idea at the time."

That is the wrong answer.

Another answer is to explain that you employed a logic trail that considered fuel, weather, aircraft condition, the intensity of the specific problem, normal and emergency procedures, the opinion of the other member aboard, and all other pertinent risk factors. Added together, the elements of the logic trail pointed the way.

That is the right answer.

In some cases, if the solution is not immediately clear, you may need to solve the problem in reverse. When chess champion Bobby Fischer was asked how he always knew the right move he replied he did not always know—he just eliminated all of the bad moves.

Commandment One

Akin to the conservative decision making process is the necessity to never assume. During a training event, while maneuvering for an emergency landing, an airline crew decided that they did not need to compute the landing distance for the aircraft. They "knew" that 10,000 foot runway was long enough. However there were several flaws in their effort to save time.

PRECISION
Accuracy and exactness.

First of all, precision (generally the opposite of guesswork), is safety. There are many variables that go into the requirement for landing distance including, but not limited to, runway surface condition, runway slope, density altitude, wind, temperature, aircraft condition, available brake energy, the effect of the emergency on aircraft performance and capability, and crew capability and work load. So in that sense raw runway length by itself is not a guarantee of a safe outcome.

Next is the danger of establishing for the pilot the bad habit of *solely* relying upon previous experience without a backup (it's called "guessing"). Guessing right can lull you into guessing frequently which will someday cause you to guess wrong. That can kill you.

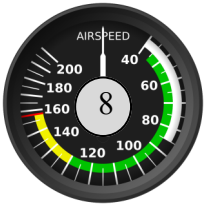
Commandment One

PRUDENCE
Care, caution, and good judgment in planning and action. Wisdom applied. A girl's name in colonial times.

But if it does not kill you it can still lead to the next issue: answering to higher authority. We never want to put Civil Air Patrol at risk when risk can be avoided. Risk is inevitable. Increasing the existing risk is incompetent. Replace guesswork with due diligence and risk analysis. People perish due to lack of knowledge. And while you are adopting the risk adverse mindset, please remember to always protect your license. In fact, if you spend your time protecting your license, you will in effect always make the most conservative decision. Hopefully this will also lead you in turn to watch the paperwork. Any paperwork requires a careful eye and attention to detail. I taught my students that although commercial flying has great rewards, it is riddled with land mines. Attention to detail is everything.

FOCUS

Conservative decision making is aimed toward protecting yourself, your crew, your passengers, your aircraft, your organization, and your license.



ATTENTION TO DETAIL
Paying careful attention to parts and particulars individually and in relation to the whole.

Commandment Two

Do Not Turn an Emergency into an Accident

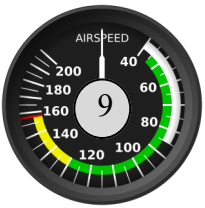
Discipline is an essential part of the success and safety of the aviator. Along with procedural discipline (adhering to standard procedures and nomenclature), there are the important disciplines of study and practice.

FOCUS

Speak the language with which the aircraft is written. Make sure your checklists and the names you use for objects and procedures are the same as used in the POH. The correct words avoid confusion between crewmembers and reduce the chances for mistakes and accidents.

DISCIPLINE
Behavior performed in accordance with rules of conduct. Behavior and order maintained by training and self control.

A pilot who is well studied and practiced will be able to meet the challenges of emergencies in a much calmer more effective manner. Knowing your job takes a lot of the fear out of facing difficult situations. Consequently, you will not cause a crash or fatality by rushing to solve a problem or respond to an emergency. So take enough time to methodically and carefully respond to the situation.



Commandment Three

Analyze and Extrapolate

EXTRAPOLATE
To infer from something that is known. To estimate outside of the observed range. To draw out to a possible conclusion. To impress your friends with big words.

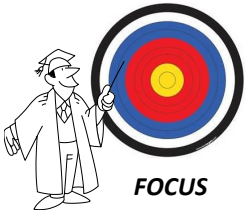
Be sure to think things out to their full, possible conclusions. Sometimes the end of the problem or emergency is not the end of the situation. For example the airliner's warning system indicates that the captain's windshield heat has failed. After properly performing the recommended checklist to restore the windshield heat, the heater still shows itself to be completely dead. Wisely, the captain, who was the pilot flying, turns control of the aircraft over to the first officer who is guaranteed to be able to see outside. After acknowledging that he has control, the first officer looks at the captain and says, "You should put your seat all the way down and all the way forward and know where your oxygen mask is." Why? Because transferring control is not the end of the problem. The captain needs to have his head below the level of the glare shield so he does not get a Canadian goose in the face. The heater prevents ice and fogging but also makes the windshield pliable in the event of a bird strike. In this example, the completion of the checklist and control transfer was not the completion of all necessary precautions.

Commandment Three

ANALYZE
To examine carefully and in detail so as to identify causes, key factors, relationships, and possible results.

Another example not often considered:
In high altitude cruise the warning system indicates the loss of the crew oxygen. The crew immediately knows that a descent to 10,000 feet is required for a guaranteed life sustaining atmosphere in case of the loss of cabin pressurization. Great idea. They even recalculate the fuel at the new, much lower altitude and discover that the fuel load is more than ample to meet all requirements. But then the captain says, "Hey, we should land anyway and not continue to our destination." Why would he say that?

In many aircraft, the memory item for an onboard fire begins with, "Oxygen mask don." In this case, although the crew has protection from oxygen starvation they do not have protection from smoke. Also, in the various aircraft I taught, the crew oxygen bottle is in the forward cargo compartment. If the bottle failed instead of the oxygen venting over the side you might have a cargo compartment full of O2. Imagine the possible explosive outcome.



FOCUS

Make sure the issue is completely resolved.

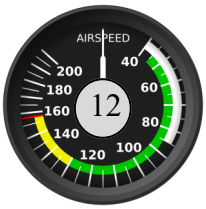
Commandment Four

Be in the Bubble:
Situational Awareness is a Sphere

Situational awareness is a pilots' continual application of its attention to its surroundings. Imagine you are a bubble boy (remember the movie?), and your are taking in what is going on in the cockpit, the cabin, the airspace around the aircraft, and the conditions at the destination and any alternate airports. I once gave a line check to an airline crew heading to Rochester, New York, in the middle of winter. With the combination of bad weather and a full passenger load in the aircraft we did not have a lot of extra fuel. I became concerned when the crew had flown at least two-thirds the distance to the destination and never double-checked the weather at the…*alternate airport*! Why do I say the alternate? Because if you discover at the destination you cannot land that is not the time to find out that the alternate is no longer viable. You are now fuel critical. Maintaining your situational awareness places you in the best position to react to the changing dynamics of flying, especially if something goes wrong.

SITUATIONAL AWARENESS

The pilot's perception of environmental elements with respect to time and/or space and the comprehension of their meaning, plus the analysis of their status after something has changed.



Commandment Five

Do Not Turn Control of the Aircraft Over to the Aircraft

SCRUTINY
A searching examination or investigation; close and continuous watching or guarding. A close and searching look. Traffic cams.

Electrons are fickle. One nanosecond they are here and the next they are gone. Considering that the various types of automation represent a stack of computers and sensory inputs of one type or another all trying to get along. I would be reluctant to press a few buttons and let the aircraft go without exercising the proper scrutiny.

FOCUS

The automation is not responsible for the safe conduct of the flight…you are!

Automation was designed to raise our level of safety, reduce workload and fatigue, and help us be more precise. However, the computer age has taught us "Garbage in garbage out." It has also taught us that computers, even if programed correctly, can sometimes get it seriously wrong. And, as mentioned before, flying is dynamic. The rapidly changing environment constantly requires a recalculation of the pilot's necessary actions. So keep an eye out.

Commandment Six

Use Rules of Thumb

As difficult as it is to define, the spark of life that animates you clearly distinguishes you from the computers running your aircraft. Despite their modern sophistication, only living beings can exercise a certain depth of understanding and intuitive sense that the electronic number crunchers cannot achieve. Computers are simply tools, not all-knowing.

Don't let the airplane fly you.

FOCUS

Therefore it is essential that the pilot continually oversee the operation of the aircraft and employ the "sanity check" essential to insuring that things will turn out as desired. To help in this endeavor I use rules of thumb. They not only give good general guidance confirm what you are trying makes sense but they have the added benefit of keeping your head in the game which avoids inattention or complacency. For my aircraft I recommend three

COMPLACENCY
A feeling of quiet pleasure or security, often while unaware of some potential danger, defect, or disaster.

helpful rules a pilots' essential sanity check:

3:1. The first one is the three-to-one glide ratio for descents. This ratio provides a good descent rate while keeping the airspeed within an acceptable range and making air pressure changes easier on the passengers' ears, since our CAP aircraft are unpressurized. The ratio also ensures that you will make an assigned crossing restriction if flying IFR.

1:10. Second is the one-to-ten speed ratio. For airliners, in level flight at flight idle power it takes one mile to loose ten knots. This is a great tool to have available when, for instance, ATC issues a crossing restriction that requires a reduction of both altitude and airspeed. This also works for the CAP driver but the distance is obviously reduced. If you descended into the traffic pattern in your 182 at cruise speed and then reduced power to a traffic pattern setting it would require about one average runway length to slow for the crosswind turn. Consider it to be approximately **0.25:10**.

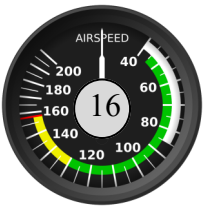
4000:1 The third one concerns the fact that the airlines are flying electric airplanes now. Most likely at least once their careers the pilots will loose both of their FMS units on the same flight. Although there are ways to back up communication and navigation, they will suddenly realize that all of their projections are gone and they will have no idea how long they can fly. But in my

Commandment Six

Last airplane, for example, just divide the remaining fuel by 4000 and that is the remaining time in hours to fuel exhaustion. The CAP 172 pilot can plan on a conservative average of 9 gallons per hour and the 182 pilot a conservative average of 12 gallons per hour. I recommend always noting the time of engine start for computational purposes to back up those swaying Cessna fuel gauges.

FOCUS

Many pilots make fuel planning in flight too complicated. Remember that it is simply a time/consumption problem. Assuming you did your due diligence and visually checked the tanks for the fuel level—and they were full or at the markers—multiply the engine time by the assumed average fuel consumption to determine how much you have used. Subtract that answer from the beginning fuel load and that is how many gallons remaining. Divide the gallons remaining by the assumed fuel consumption and that is how much time is remaining until you have to talk to the Wing Commander.



SANITY

Soundness of judgment. Reasonable. Being rational, or sensible. Finding another organization.

Commandment Seven

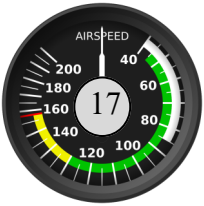
Prioritize Your Actions and Responses

PRIORITIZE
To arrange or do in order of priority. To do the most important thing first. To remember your spouse's birthday.

Not everything has to be done immediately. When training new airline crews I give them a low-grade equipment failure in the middle of a busy departure just to see if they will drop everything to solve the problem. Instead of cleaning up the airplane, watching for traffic, and complying with ATC instructions, some crews will attend to a generator offline or a failed pack and in effect sacrifice safety. Even in a 172 you can allow yourself to be distracted if you are not on guard. To prioritize you have to perform your actions according to their relative safety.

FOCUS

Do not sacrifice the essential (safety) for the immediate.



Commandment Eight

Use Resource Management

FLEXIBLE
Able to be modified or adapted. Flying with someone you don't like.

Flexibility in thinking is very important. Learn to see people and things as assets that can be utilized to accomplish important tasks. Remember that the pilot sitting next to you is a resource. You also may have observers, scanners, able body passengers, AWOS, ASOS, ATC, Flight Service, cell phones, maintenance, law enforcement, computing capability, GPS, a POH, and so on. It is a fact that the Airbus factory in France will talk to an Airbus directly over the radio if no one else can solve the problem.

RESOURCE
A source of supply, support, or aid, especially one that can be readily drawn upon when needed.

I once flew out of radio range of our controller on a transcontinental flight and was unable to determine the new frequency from the high chart. So, knowing we were passing over Moline, Illinois, I called the tower (from 39,000 feet!). He was very helpful and the problem was soon resolved.

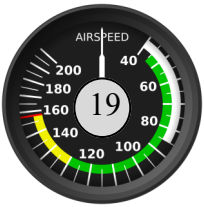
Commandment Eight

I once used a deadheading captain to be the relay man between the University of Pittsburgh Medical Center and the flight attendant who was assisting a passenger during a medical emergency. The extra crewmember in the cockpit really made a difference. *See the story that begins on page 21.*

Which, by the way, leads us to Commandment Nine on page 22.

FOCUS

Never troubleshoot an airplane when it is acting like an airplane.



Anyone that works on a flight crew can tell you that the airlines each have a unique and special culture. In one sense it is semi-military with uniforms and a very specific chain of command. On the other hand, airlines usually have a relaxed atmosphere where crewmembers are on a first name basis and a rigid military style hierarchy is not readily apparent. (Somewhat like Civil Air Patrol).

That is why I was surprised and concerned one day while deadheading in the back the airplane. One of the flight attendants approached me, bent down and whispered, "Captain Phillips, you are wanted in the cockpit."

Concerned may not be the right word—I involuntarily flinched and gripped the armrests. "Captain" Phillips? Cockpit? Uh oh.

Fortunately it was not all that exciting. The captain had asked for me because he needed assistance with an errant laptop that was part of the onboard equipment and he thought I could help. After working on it for a while I discovered that the boot sector had failed and the laptop needed to be replaced.

But then again so did my nerves.

I do not expect you to believe what I am about to tell you...but here it goes.

The older Beech Bonanzas had a history of doors opening in flight but it was not on my mind that morning. I was preparing to ferry a V35 for a dealership. I had set up my "nest" -which included placing my carefully folded VFR chart on the empty seat next to me.

Sure enough, on departure, the passenger door popped open accompanied by a strange sound akin to "zziipp". The chart tore at the fold. Half of the chart was sucked out of the door and the other half remained on the seat undisturbed. Honest.

In fact I had to return to the field and buy a new chart in order complete the delivery.

Commandment Nine

Use Good Cockpit Management

Here is an important concept: learn from other people's mistakes. We have more than one hundred years of flying experience now and it has taught us many crucial lessons. In the airlines one of the crucial lessons is: if things start to go wrong let the First Officer be the pilot flying if not already doing so. In CAP, if you are the plane commander and you are flying with another current and qualified CAP pilot, you may want to give the other pilot the controls.

In the early days of airline flying, when airliners were crashing on a regular basis, one of the common denominators was that the captain was trying to fly the airplane and handle the emergency at the same time. In some cases they died proving that multitasking does not work well. Scientists have recently stated that multitasking does not really take place within the human brain. What occurs is rapid electrical switching between tasks that makes it appear like multitasking but in effect the brain is really only doing one thing at a time. Therefore it is better for the captain to manage.

Related note: researchers now say a person that holds a cell phone to their ear while driving loses 40% of their ability to drive. And then there is texting….

Commandment Nine

LEADER
A guider or director. The head of an organization or unit. The one responsible. You.

What I mean by "manage" is that the captain is the one ultimately responsible for the safe outcome of the flight. Conceptually that translates to the captain being the ultimate decision maker. The captain has to collect the data, analyze with situation, employ whatever resources necessary (including consulting with other qualified crewmembers), and determine a course of action.

FOCUS

Pilots are fliers. Captains are managers and leaders.

Let me share a real life example: One day in 2008 we had just crossed the Kansas/Colorado border heading westbound when the A flight attendant called and said, "I think this guy back here is having a heart attack." I told her to standby and turned to my FO who had also heard the call and said to him, "Richard, it is your airplane." I had been the flying pilot when we were notified of the emergency and knew I would be needed for other things. I briefed the speed, altitude, next fix then verified the handoff of controls.

Commandment Nine

Step two was to ask the Danny, the deadheading captain in the in the back of the airplane, if he was available to assist. He readily accepted my request for help. After entering the cockpit, I quickly briefed Danny on the situation and put him on the satellite phone to coordinate the conversation between the doctor and the flight attendant that was ministering to the victim. (By the way, if you ever have to deal with one of these ground station doctor/FA situations it figuratively takes a crewmember completely out of the cockpit).

As a consequence of this division of labor (a type of resource management), I was unloaded and free to think, plan, investigate possible options, make decisions, and communicate those decisions to flight attendants, passengers, and ATC.

To finish the story, the passenger had some combination of minor ailments that looked like a heart attack. After the administration of a can of Coca Cola (I am not kidding), and something else that I cannot remember, he turned out to be fine. Richard, Danny, and I returned to our original roles and the flight continued to the destination.

Commandment Nine

Another type of cockpit management is personal organization. With an aircraft traveling at two to three miles per minute you should have all necessary documents and information readily available and computer inputs complete. If briefings or decisions have to be delayed due to disorganization (for example: the appropriate charts are not readily available), a lot of real estate is going to pass under the nose bringing you closer to the point where that information or decision is needed.

Therefore lost time can increase workload and complexity - especially during the last 20 minutes of the flight. In an extreme example it could effect safety.

FOCUS

Airspeed is not the only thing that is "everything". So is safety.

SAFETY

Freedom from the occurrence or risk of injury, danger, or loss. The prevention through wise action or management of that same injury, danger, or loss .

Commandment Ten

Take Good Care of Your Passengers & Fellow Crewmembers

RESPONSIBLE
Answerable or accountable, as for something within one's power. Being honest, trustworthy, reliable, and capable.

When I became enamored with airplanes and flying as a kid I did not conceptualize the necessity to deal with, or be responsible for, others aboard my airplane. I guess it was the "fighter pilot" mentality. But the reality of our mission and level of responsibility is that we must look to the welfare of, and provide guidance to, other CAP members.

FOCUS

Leaders are successful when they set the example for professionalism, treat others with respect and kindness, and show a little humility.

When it comes to your flight mates, please remember that the plane commander needs to have his crew behind him. It seems to be a law in life that if you wish to elicit a certain response from another individual you must first treat them with the same. For example, to get respect you must

show respect for others. To be liked you must be likable, and so on. If you want your fellow crewmembers to support you they must first feel you support them.

This is not difficult. Treat your crewmembers with basic human respect and the CAP level of courtesy. Look them in the eye and call them by name. Be sure and give them a thorough briefing prior to departure (and please do not brief over your shoulder but face your "audience"). Also, it is important to remember that they are safety officers who also have eyes, ears, and noses. More than one airline flight attendant has saved an aircraft in the past so make sure you have connected with your companions so you will function as a team.

FOCUS

It is not what you say but how you say it.

Plus, wisdom and common courtesy requires that we do not lie to the people with us. If something is wrong with the airplane and/or situation crew members need to be properly prepared to respond to and obey the plane commander.

Commandment Eleven

Always Do Your Homework Before Calling Air Traffic Control

Be careful of what you ask of ATC...you might get it. Make sure you have well thought out your request and that you are prepared to respond. When ATC makes a request of you think before you say, “Sure, we can do it.” Later we will talk about energy management with which it is important to remember that modern aircraft do not always slow down well. Including some Cessnas.

More importantly, do not turn control of the aircraft over to Air Traffic Control. In the modern philosophy and practice of flight operations, the plane commander and the controller are partnered together to determine the best course of action in any given situation. However, that does not relieve the plane commander of being the ultimate authority aboard the aircraft and the last line of defense in the safe operation of the flight.

During an airline training simulator session recently a crew was put into holding. They did everything well regarding the hold including slowing down, setting up the hold

properly, informing ATC of the entry, etc. But, things went downhill from there. Instead of evaluating and planning, the captain called the dispatcher on the radio and said, "What do I do?"

EVALUATE
To judge or determine the significance or assess the impact of a situation or set of circumstances.

Not good.

Where is the captain we depend upon? The captain should have: (1) evaluated the situation for weather, fuel, and alternate airport opportunities, (2) consulted with the FO for the FO's evaluation, and (3) determined a safe course of action. That is when he would have been prepared to call the dispatcher to: (1) obtain any additional information, (2) obtain any company instructions and (3) if instructions were safe to follow under the circumstances.

Doing the homework first works for the CAP pilot as well. Evaluate the situation, ask for any necessary additional information, then decide a course of action. Please remember to remain within regulations as much as possible and always make the most conservative decision.

Commandment Twelve

The Pilot Flying is an Insurance Policy

This one is simple: the pilot flying needs to always keep in mind that he or she is the insurance policy that we are not going to have an accident today. We do not want a repeat of Eastern Airlines flight 401 again.

Flying and airplanes are unforgiving.

If you recall, 401 (an L-1011), drilled a big hole in the Florida Everglades for no other reason than the pilot designated to fly was trying to fix a light bulb and not attending to his responsibilities. So if you are designated as the pilot flying do not get involved or distracted by other things. Fly the airplane.

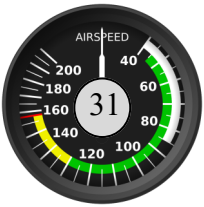
In addition, please also remember that even if the parking brake is set and the engine is running the aircraft is flying. Someone has to mind the store.

Commandment Thirteen

Demand of Yourself
Zero Tolerance, Perfection, and Discipline

Demand of yourself zero tolerance, strive for perfection, and be disciplined. I once gave a heading of 300 to a crew in training. Instead of cranking the heading bug around the compass rose as is normally practiced, the captain gave the heading control knob a single, energetic spin and it stopped at 299. (He should have been in Las Vegas). The problem arose when, being satisfied with his first attempt, he left the heading at 299 . I put the device in flight freeze and explained that 300 was not 299 or 301...it was 300. The pilot set himself up for two problems: (1) an off course heading which can result in a collision hazard, unplanned fuel consumption, a late arrival, etc. (2) perhaps worse, the pilot accepted substandard work. Adopting a "That's good enough." attitude touches everything you do as a pilot and could someday dearly cost you and the others with you.

Precision and disciplined flying is essential to safety. Many of our predecessors in aviation history have died showing us the wrong way to do things. Among those lessons is the necessity to aim for the most exacting



performance in aircraft control and navigation, don't invent your own procedures, and double check everything. In addition, you should keep in mind the following essential practices related to zero tolerance, perfection, and discipline.

1. There is a relationship between AIRSPEED, ALTITUDE, VERTICAL SPEED, and GEOGRAPHY. Do not get fixated on one at the expense of the other three. Otherwise your planning will suffer—particularly in the approach phase. More than one flying pilot under my training has asked for delay vectors while being vectored to a localizer because of concern they would not get all of the required duties completed before approach clearance was issued. I have had to ask, "Why are you doing 250 knots?" The response is usually "Oh."

2. Think of what the result will be now and down the road when you turn something on or turn something off. Keep track of what you are doing.

3. Do one thing at a time. Do not mix procedures and complete a procedure before moving on to the next procedure. Not following these procedural concepts could lead to something not being done properly.

Commandment Thirteen

Imagine a controller says, “CAP Flight 1252, turn left heading two seven zero and descend and maintain three thousand.” To the controller that is a single instruction, but to the pilot they are two separate procedures. Make sure you begin to perform the first procedure properly, then address the next procedure or something essential could be left undone. This step-by-step procedure is directly related to safety.

4. The modern transport category airplane is really “a press and read airplane.” The pilot cannot effectively perform unless every FMS or guidance panel input is verified on the related display. You can avoid a lot of difficulties by confirming the avionics display the results of the inputted commands. All of our Cessnas have instruments and advanced avionics too—make sure they are saying the right thing.

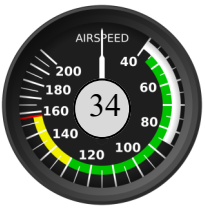
For example during one sim session in cruise, it was quiet for a few minutes in the cockpit. I noticed that the FMA (Flight Mode Annunciator), said ROLL instead of NAV and the moving map display indicated that we were drifting off course. The FO noticed it first and brought up the subject. The conversation that ensued would have been hilarious if it had not been so unprofessional (and dangerous)….

Commandment Thirteen

FO: Why are we in ROLL mode?
CA: I don't know. What did you do?
FO: I didn't do anything! What did you do?
CA: Well, I didn't do anything!

Spend a few minutes analyzing this conversation and the lack of corrective action. How many commandments did they break? This booklet noted that the flying pilot is the insurance policy that we are not getting killed today. In this example, the flying pilot stopped flying the aircraft—an aircraft which was now free to drift into unprotected airspace. Also, crew resource management broke down and instead of fixing the problem they preferred to find fault.

EGO
The equipment pilots bring aboard for which there is no room in the cockpit.



One summer we were facing a serious line of thunderstorms and even with our repeated requests and explanations ATC would not allow us to turn away from this massive, airplane-eating wall that we were about to penetrate. The only choice was to declare an emergency and turn anyway. Fortunately we had TCAS.

Okay, fine! Don't tell me…

After leaving the gate at OAK in our brand new Airbus we were taxing up TANGO taxiway as instructed when we were met head-on by two large fire trucks. In accordance with the airport traffic laws (I wrongly assumed), the trucks pulled off to the right and left of the taxiway .

How nice.

I should have realized what was up when they parked on each side of the taxiway at perfect 45 degree angles facing us.

As we progress forward I suddenly lost all visibility. The pumpers had opened up and were putting us through their version of car wash. Then we were congratulated over the radio for our inaugural departure from Oakland.

I had been flying other routes and did not realize this was the first departure from Oakland for my company.

So fine, don't tell me. Just don't expect me to taxi straight.

Supplements

I was once preflighting the right propeller of a Jetstream 4100 when I discovered that the leading edges of two of the five blades were facing each other. Think about that for a minute.

Sometimes I hate Murphy.

The Pilot Manager

Flying has always been much more than a stick and rudder skill. Accordingly, the emphasis of this book is on decision making and management of all of the pilot's responsibilities. To capsulize, the pilot manages five things: risk, resources, information, energy, and people.

RISK

The easiest way to mitigate risk is always make the most conservative decision.

MITIGATE
To lessen the force or intensity. To make less severe.

RISK
The chance of suffering loss. The stock market.

RESOURCES

Think outside of the box. Remember that your resources include the pilot sitting next to you, publications (electronic and otherwise), additional crewmembers, passengers, ATC in its various forms, dispatch (the equivalent to a CAP mission base), AFSS, law enforcement, and so on.

INFORMATION

With the radio, instrumentation, the picture outside of the window, and reports by other crewmembers there is a lot coming at you. You have to focus on what is most important at the time.

The Pilot Manager

ENERGY

Smooth, efficient handling of your aircraft pays great benefits toward helping CAP stay financially healthy, increasing member satisfaction, and fostering the feeling of a job well done. This also involves the skillfulness of your planning. If you are high and/or fast for a sustained period and expect to solve the problem at the last minute you may find yourself not having enough flaps, landing gear, or open windows with hands stuck out to fix the problem.

PEOPLE

Ultimately, the beginning and end of the job comes down to people. There are times when a plane commander has to be like an orchestra leader who finds himself coordinating the actions of other crewmembers, ground personnel, communicating with the FRO, and perhaps others just to see the aircraft leaves safely and on time. You must win the respect and cooperation of a whole host of individuals in order to be effective as a plane commander (or an officer). So please remember that you will be treated the way you treat others. As previously stated, it is a law in life.

MANAGE
To take charge or care of. To handle, direct, govern, or control in action or use.

“Your Airplane.”

Pilots naturally want act like pilots and fly the airplane. Most have Type-A personalities that are aimed toward achievement and, specifically for pilots, they have the need to demonstrate competency. The problem comes when the plane commander is the flying pilot and something goes wrong. As mentioned before, in the earlier days of airline flying before better crew coordination, airliners were crashing on a regular basis. Researchers discovered that one common denominator was that captains were trying to fly the airplane and handle the emergency at the same time. That did not always work. And now modern research has discovered that we really do not multitask. Our brain switches rapidly between tasks creating the illusion that we are doing multiple things at the same time but we are not.

Therefore it is safer for the other qualified CAP pilot to fly while the PC takes care of managing the situation. If the PC is the pilot flying when the emergency begins and transfer of controls can be accomplished without increasing the risk, then it should be done. Tell the other pilot what they should do and then say,
“Your airplane.”

When “I don't know.”

Is The Right Answer

On October 30, 1935. Boeing Model 299, later to become the famous B-17, crashed on takeoff killing the Boeing test pilot and other persons important to the project. The takeoff was attempted with the elevators locked. They did not use a checklist.

FOCUS

There is no room in the cockpit for anyone’s ego. Better to replace it with good communication, resource management, and teamwork.

The importance of checklist usage policy and not relying on memory cannot be understated. We have been there: it is 0200 at the end of a very long day and you are preparing for the last approach. The weather is bad, fuel is at legal minimums, and outside it is very dark and you are tired. You are briefing for an ILS that you have done a hundred times before and perhaps even that same day, but you brief it as if you had never seen it before because it removes the risk of thinking you remember something when you don’t.

Human memory is faulty, especially under difficult circumstances. For example, the

When “I don't know.”

Is The Right Answer

Emergency Evacuation Checklist, once had been a memory item in the airlines, but is now mounted in plain sight to be performed as a “read and do” checklist. The FAA discovered that in real life situations no one can ever remember the items.

At times, during training, I would ask an applicant to recite a procedure or emergency checklist that is not a memory item to see if they attempt it or indicate the need to consult the required handbook. I do not count it against them if they begin to list the items, but I used it as a teaching tool to illustrate the necessity to avoid memory and use the checklist.

There are times during an oral exam and in flying when the correct answer is, “I don’t know.”

MEMORY

The capacity of retaining and reviving facts, events, impressions, or recalling previous experiences.

FORGET

To cease or fail to remember; be unable to recall . To be my age.

When “I don't know.”

Is The Wrong Answer

Scripture warns us that “people perish due to lack of knowledge.” If that message was originally applied to an agrarian society then we in our 500 knot technical society, should be careful to keep up on our studies.

My friend Randy was also my boss for awhile. One day, while we were working together in the simulator, Randy came up with some obscure piece of information that we needed but I could not recall. When I asked him how he remembered that information he replied, ”It is easy when you have read it ten times.”

We are required to do more than just study for the biennial or Form 5. It is important for us as aviators to inculcate the necessary information so that it becomes part of us for ready use when the chips are down. In fact, this practice will make sure we have the right answer and keep us out of dangerous situations to begin with.

INCULCATE

To implant through repetition. To implant through repetition.

The Two-Question Pilot

Late one night during bad weather we were informed by Boston Center that we should expect the visual approach to 15R. We were the "little guy" - a 29 seat turboprop. ATC obviously wanted to save 4R (a much longer runway), for larger aircraft. But after reviewing the approach plate my captain, Sam, looked at me (I was the flying pilot), with the best professorial expression and said, "Do you want to do this?"

It was an important lesson. Although we could meet the weather and performance minimums, we would be maneuvering at night in low ceilings below the height of the skyscrapers and low over a lot of other industry and humanity. The lesson then is this: before performing a function in the aircraft you should always ask yourself two questions, not just the first one...

Is it legal?

Is it smart?

Even the FAA will tell you that the FAR's are the minimum requirement for safe operations. It takes the addition of the pilot's skill, experience, and judgment to insure the desired outcome.

We told Boston Center "unable" and shot ILS 4R.

Thoughts on Leadership

The exercise of good leadership is essential to safety. The connection may not be immediately apparent but there are several factors in play. To understand this, it is important to define leadership for the plane commander.

INFLUENCE
The capacity or power of persons to be a compelling force in the actions, behavior, and opinions, of others.

In a word, leadership is *influence*. Properly applied, a positive influence enables leaders to get the necessary reaction and cooperation from subordinates. The crew is more of a team and they work better and, consequently, more safely. How do leaders positively influence those for whom they are responsible? Here are seven basic principles:

TREAT YOUR CREW WITH RESPECT

This is a core CAP value. Your ultimate goal is the safe, timely completion of the mission and not to be personally served. There are, however, times when a leader needs to exercise authority but only to achieve your ultimate goal of the safe completion of the mission or to protect the organization. Leaders should not allow disrespect from others but also not be the cause of that disrespect.

Thoughts on Leadership

SET THE EXAMPLE

If you are cynical or self-centered you may think that setting the example is a quaint idea, but your uniform, speech, job skills, and conduct must always reflect the highest principles of the organization. You have an obligation to your squadron, your Wing, CAP, and your good name and reputation to do the best you can. But bad -mouthing others and making excuses accomplishes nothing...and I have heard all of them in the airlines: “the rampers are not doing their job”; “management hates us”, “the pay is lousy”; “scheduling sucks”; “the bid sucks”; “our overnight is too short”; “our overnight is too long”; and on and on and on. An airline pilot does not have to love the company but making sure the company stays on time does a lot to get the pilots paid on time. Also, complainers makes himself and everyone around them miserable. In CAP you have accepted a high calling, so be true to the profession and the people that depend upon you. If you have a legitimate complaint use the proper channels to resolve the problem.

LISTEN

If you want to be listened to you have to learn to be a listener. It is that simple. If you get in the habit of listening, one day a fellow crewmember may keep you from loosing your license or having an accident.

Thoughts on Leadership

PROVIDE FEEDBACK AND ENCOURAGEMENT

When the door closes and the aircraft is under way the plane commander becomes the sole supervisor of the members on board. Most individuals like to know that their boss, for however short a time it might be, appreciates their work and presence. Learn the names of the crewmembers. Take time to give your crew a good briefing and see if they have any needs. This may also require you to counsel, if correction or guidance is necessary (but always do that in private). By doing these things you are fulfilling your role as a leader and ensuring an homogenous, well-functioning crew.

KEEP THE GOAL IN MIND AND BE PROACTIVE

We were late for departure one day at my airline because the captain literally folded his arms and said, "When they do their job I will do mine." He was unhappy with the support personnel because things were not going well on the ramp. That day I promised myself I would never act that way as a captain. That promise led me to be an orchestra leader. There were times when I had to coordinate the activities of the orchestra (the gate, the ramp, the flight attendants and the FO), just to start the concert on time. There were times I was already tired when I returned to my seat but we left as scheduled!

PROACTIVE

Prepare for an event or situation. To initiate change instead of reacting to events. Confess to the Chief Pilot before he finds out on his own.

Thoughts on Leadership

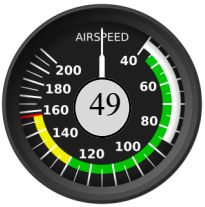
CHOOSE RESPECT FOR YOURSELF

Everyone has to occasionally choose between being liked or being respected. It is often not a pleasant choice. You can even loose friends by making this choice but you will gain so much more.

Taking the long view is paramount: earning the respect of the other members pays much higher dividends as we live our lives. I have worked for four airlines. I obtained my last three airline jobs not because I am some aeronautical hero or can interview well, but because of the recommendations given by people I've worked with in the industry. In fact, I was invited to work at airline three before I even thought of applying with them. The person you are now and the job you are doing now will have consequences upon the job you hope to obtain in the future. A person's reputation precedes them.

It is no different in Civil Air Patrol. We are working with and for people while we serve that higher calling.

RESPECT
The esteem for, or a sense of, the worth or excellence of another.



Dealing with Failure

This final section may not be pleasant but for some it can be necessary. Up to this point we have been considering the ideal. But for the pilot the ideal becomes married to the reality of being human and the result is you and me and the other human pilot sitting next to us. I have seldom heard a pilot say, and only rarely have I had to courage to say, "Man, I was terrible today!" But from time to time or task to task we do perform poorly and no one is more aware of it than we are. Pilots have a tendency to take it much harder than the convenience store clerk because of the psychological factors inherent in people that do things like flying.

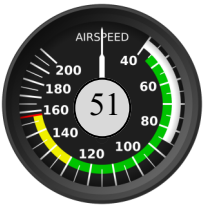
Job choice is usually affected by personality traits and skill sets. For example, the kind of person that is drawn to the front seat of an airliner is usually: (1) highly intelligent, (2) quick thinking, (3) careful, (4) structured (does the same thing in the same way every day and is willing to do so), and (5) not only has a need to demonstrate excellence and competence, but cannot tolerate anything less in themselves or others. This excellence-competence-intolerance mix can produce a lot of pride. Positive pride can be an important component in ensuring excellence, but within the pilot it can also be turned into an ego crusher.

Dealing with Failure

When things do not go well and it is our fault, intolerance is turned inward. People miss calls, dial in the wrong frequency, misread checklists, etc. Worse, sometimes we fail oral exams or checkrides. I failed my very first airline oral. It wasn't fun. It is a tough peer group; heaven forbid we should fail at something in front of our colleagues.

But all things must be taken in balance. And balance is the purpose of the following suggestions:

1. Remember that most people are not thinking about you. Human beings spend the great majority of their time thinking about themselves and not others.
2. *Everyone* in your peer group has done something stupid in an airplane or an interview or the training environment. You are not alone.
3. If you tend to negative self-talk, stop listening to yourself and get a good, balanced review from your instructor or the other pilots you fly with.
4. Admit your mistakes; the truth will set you free. And you will garner more respect from your peer group.
5. Build upon your mistakes and take steps to ensure they will not be repeated. Like stated above, I failed my first airline oral. I have never failed an oral since then. Ever.



Dealing with Failure

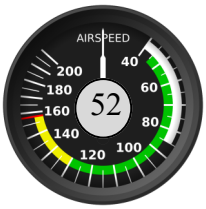
6. Don't look for your self esteem solely from within the narrow confines of the organization. Others on the outside love and respect you. When you lose your perspective ask for theirs.

It does not matter if the plane commander is the flying pilot or not … he or she is still the plane commander.

FOCUS

Your dispatcher/FRO is your partner and advisor, but not the pilot in command. *Page 27.*

FOCUS



Summaries

One hot summer day in Florida the ramper handed me a slip of paper as we walked out to the aircraft. It said 70 pax and about the same amount of bags. Even though we were operating off of a shorter than average runway for an Airbus, I was not concerned due to the light load. Later, having finished my preflight duties early, I stood in the forward galley with the "A" flight attendant and greeted the passengers as they came on board. It did not take long for she and I to realize that we were boarding a lot more than 70 passengers. So I asked two of the flight attendants to separately do a recount to verify. They both came up with a total of 120 passengers instead of the 70 on the paperwork. I asked the FO to redo the weight and balance again without too much concern but then suddenly "the light came on" in my slow but functioning brain. I rushed down to the ramp and asked if I could get access to the baggage compartment and they immediately complied. Three of us walked up the conveyor belt to the aft baggage compartment and recounted the bags. The bag load was double what was reported. As you know, takeoff power is calculated on the aircraft weight. The potential for an accident was significant.

Don't assume. Watch everything. Be proactive.

The CAP Aviator's Dictionary

Analyze—To examine carefully and in detail so as to identify causes, key factors, relationships, and possible results. *Page 11.*

Attention to Detail—Scrutinize and pay careful attention to parts and particulars individually and in relation to the whole. *Page 8.*

Commandment—An edict or order meant to provide order for, and protection to, the recipients. *Page 1.*

Complacency—A feeling of quiet pleasure or security, often while unaware of some potential danger, defect, or disaster. *Page 14.*

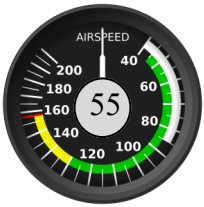
Conservative— That which is least likely to cause damage or injury. *Page 5.*

Discipline—Behavior performed in accordance with rules of conduct. Behavior and order maintained by training and control. *Page 9.*

Ego—The equipment pilots bring aboard for which there is no room in the cockpit. *Page 34.*

Evaluate— To judge or determine the significance or assess the impact of a situation or set of circumstances. *Page 29.*

Extrapolate—To infer from something that is known. To estimate outside of the observed range. Draw out to a possible conclusion. To impress your friends with big words. *Page 10.*



Flexible—Able to be modified or adapted. Flying with someone you don't like. *Page 18.*

Forget— To cease or fail to remember; be unable to recall. To be my age. *Page 43.*

Influence- The capacity or power of persons to be a compelling force in the actions, behavior, and opinions, of others. *Page 46.*

Inculcate— To implant by repetition. To implant by repetition. *Page 44.*

Leader—A guider or director. The head of an organization or unit. The one responsible. You. *Page 23.*

Logic—Reasoned thought or argument. A relationship or interdependence of a series of events or facts. And if you are still not sure ask Spock … he knows. *Page 6.*

Manage—To take charge or care of. To handle, direct, govern, or control in action or use. *Page 40.*

Memory— The capacity of retaining and reviving facts, events, impressions, or of recalling previous experiences. *Page 43.*

Mitigate—To lessen the force or intensity. The make less severe. *Page 39.*

Precision– Accuracy and exactness. *Page 7.*

The CAP Aviator's Dictionary

Prioritize—To arrange or do in order of priority. To do the most important thing first. To remember your spouse's birthday. *Page 17.*

Proactive—Prepare for an expected event and/or situation. To initiate change instead of reacting to events. Confess to the Chief Pilot before he finds out on his own. *Page 48.*

Professional— Extremely competent in a job or a piece of work performed with competence, skill, and discipline. *Page 2.*

Prudence- Care, caution, and good judgment in planning and action. Wisdom applied. A girl's name in colonial times. *Page 8.*

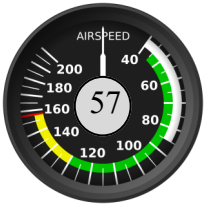
Respect- The esteem for, or a sense of, the worth or excellence of another. *Page 49.*

Responsible—Answerable or accountable, as for something within one's power. Being honest, trustworthy, reliable, and capable. *Page 26.*

Resource- A source of supply, support, or aid, especially one that can be readily drawn upon when needed. *Page 18.*

Risk—The chance of suffering loss. The stock market. *Page 39.*

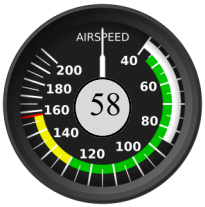
Safety—Freedom from the occurrence or risk of injury, danger, or loss. The prevention through wise action or management of that same injury, danger, or loss . *Page25.*



Sanity—Soundness of judgment. Reasonable. Rational. Sensible. Finding another organization. *Page 16.*

Situational Awareness- The pilot's perception of environmental elements with respect to time and/or space and the comprehension of their meaning, plus the analysis of their status after something has changed. *Page 12.*

Scrutiny—A searching examination or investigation; minute inquiry. Surveillance; close and continuous watching or guarding. A close and searching look. Traffic cams. *Page 13.*



FOCUS

Your attitude/mindset underlies all your decisions in life whether inside or outside of the cockpit. *Page 5.*

Conservative decision making is aimed toward protecting yourself, your crew, your passengers, your aircraft, your organization, and your license. *Page 8.*

Speak the language with which the aircraft is written. Make sure your checklists and the names you use for objects and procedures are the same as used in the POH. The correct words avoid confusion between crewmembers and reduces the chances for mistakes and accidents. *Page 19.*

Make sure the issue is completely resolved. *Page 11.*

The automation is not responsible for the safe conduct of the flight...you are! *Page 13.*

FOCUS

Don't let the airplane fly you. *Page 14.*

Many pilots make fuel planning in flight too complicated. Remember that it is simply a time/consumption problem. Assuming you did your due diligence and visually checked the tanks for the fuel level—and they were full or at the markers—multiply the engine time by the assumed average fuel consumption to determine how much you have used. Subtract that answer from the beginning fuel load and that is how many gallons remaining. Divide the gallons remaining by the assumed fuel consumption and that is how time is remaining until you have to talk to the Wing Commander. *Page 16.*

Do not sacrifice the essential (safety) for the immediate. *Page 17.*

Pilots are fliers. Captains are managers and leaders. *Page 23.*

FOCUS

FOCUS

Airspeed is not the only thing that is "everything". So is safety. *Page 25.*

FOCUS

Leaders are successful when they set the example for professionalism, treat others with respect and kindness, and show a little humility. *Page 26.*

FOCUS

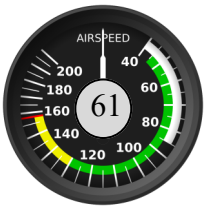
It is not what you say but how you say it. *Page 27.*

FOCUS

Your dispatcher/FRO is your partner and advisor, but not the pilot in command. *Page 52.*

FOCUS

Flying and airplanes are unforgiving. *Page 30.*



FOCUS

FOCUS

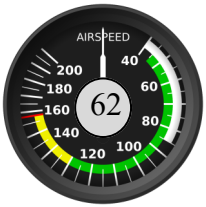
It does not matter if the plane commander is the flying pilot or not … the plane commander is still the plane commander. *Page 52.*

FOCUS

There is no room in the cockpit for anyone's ego. Better to replace it with good communication, resource management, and teamwork. *Page 34.*

FOCUS

Never troubleshoot an airplane when it is acting like an airplane. *Page 19.*



Sometimes an instructor does not need to speak to teach or change the behavior of a flight crew. There is a lot of sensory input in a cockpit. The instruments are constantly changing the displayed information to show aircraft progress through the air and over the ground. The plane and instruments create a certain background noise. And, of course, there is the presence of motion and vibration.

While one of my crews was maneuvering near the airport after a minor emergency, the captain chose to make an announcement consisting completely of false information in an attempt to avoid passenger distress. Lying is always a bad policy. It is not what you say but how you say it.

So at the conclusion of his announcement I froze the simulator and all motion, vibration, and noise suddenly stopped. The captain looked at the FO and said, "I'm in trouble for lying to the passengers."

He then proceeded to make a very good and factual announcement. I unfroze the sim and we went on with the event … never having to say a word to the crew.

Thank you for your service to Civil Air Patrol and for flying safely.

- Lt Col Ray Phillips