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SEPTEMBER 2001

AVIATION SAFETY FROM COVER TO COVER

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WINTER

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FRONT COVER:1981 Tomahawk II produced by the former Piper Aircraft Corp. (Piper photo)

BACK COVER:The Wheeler Aircraft Company originally produced this composite kit, now available from the Express Aircraft Company LLC.

WINTER

For some it is a wonderland - for others, it is the cold, black void between fall and spring

story and photos by H. Dean Chamberlain

Regardless of your point of view, winter poses some special restrictions on flight operations if you don't operate in Hawaii, Puerto Rico, or one of the other warm areas in this world. Because everyone can't—some don't even want to—live in such areas, now is the time of year for aircraft owners and operators to start thinking about what must be done to get their aircraft and themselves ready for winter ops.

THE AIRCRAFT

The first step is to review the aircraft's pilot operating handbook (POH) or flight manual. Each aircraft's operating manual lists those things that owners need to be aware of. For example, the type of oil viscosity and grease is specified for different operating conditions. The need for a winterization kit may be listed for certain temperatures. The kit may include the requirement for a baffle to be installed on the aircraft to keep the oil within a desired temperature range.

The flip side of a winterization kit is if you take your winterized aircraft on a mid-winter Caribbean vacation, you will have to remove the kit because of the warmer outside air temperatures. You may have to remove and reinstall the kit to match your operating environment or risk turning your exhaust valves into "crispy critters."

Along with the dangers of flying with frost and snow on the aircraft, the manual may talk about the care and feeding of the aircraft's battery and electrical system. Recommended cold weather starting techniques need to be reviewed and practiced. As more than one pilot has learned on a cold winter morning, weak batteries don't work well in the cold. A discharged battery or one with a minimal charge may freeze and self-destruct. If you have a discharged battery, don't use an automotive battery charger. The higher charge rate of 15 to 20 amps will warp the battery plates. A rate of three to four amps is better.

The manual will also list the proper operation and dangers of the aircraft's airborne heater. The manual will also explain the need for maintaining the proper tire pressure for those aircraft operated on wheels. If your aircraft has control cables, you may want to review your manual or talk to your mechanic about if the cables need to be adjusted for the colder temperatures they will be exposed to during the winter. The reason is the cables expand or contract with changing temperatures. This, then, changes the tension on the cables and how they feel moving the attached control surfaces. The proper use of skis will be explained for aircraft equipped with them in a supplement to the flight manual.

You may want to have the aircraft washed and waxed before the first snow. Wax helps protect the aircraft's surfaces from snow and ice.

An important item for all aircraft is whether or not the aircraft is approved for operation in icing conditions. This information includes the correct or

recommended use of any installed equipment needed and approved for flight into known icing conditions. Even the use of the lowly pitot heat system will be explained. If the aircraft has deicing boots or heated props, review how to operate them and how to check them for proper operation during the preflight.

Another valuable winter resource is the person who maintains your aircraft. Your FAA certificated mechanic is an excellent source of winter data. Now, it does pay to ask if he or she has ever lived or worked in cold country. Someone who has spent his or her whole career in Miami may not be the most knowledgeable about flight operations in Maine.

The various aircraft manufacturers are also good winter resources. Manufacturers are very knowledgeable about how their products operate in all kinds of conditions. If they were not, they would not be in business very long. Aircraft service bulletins and other documents detailing winter operations provide a lot of data on the safe use of the aircraft and its many subsystems.

One of the most critical winter review topics is the safe operation and safety check of the aircraft's heating system. It is important that the heating system be inspected for proper operation before it's used. Unless you are flying a turbojet aircraft that uses bleed air from the engine for heating, you probably have either the old exhaust heater shroud on the muffler system or one of the fuel-burning, self-contained heaters. Each has unique risks. If your heater is the shroud type system and if the exhaust pipe the shroud goes around has any holes in it, deadly carbon monoxide and other exhaust gases may enter your cabin area. More than one pilot has died from carbon monoxide related incapacitation. Many more have been able to recognize their own deterioration and shut off the cabin heater, open a window, and land safely.

Although a muffler shroud heating system poses special risks, self-contained, fuel-fired heaters have risks just as deadly as CO poisoning. If the unit is not properly maintained, there is the risk of an onboard fire since the unit functions like a mini furnace. In addition to the possibility of a fire, there is the fact the units burn aircraft fuel. Pilots need to consider the fuel consumption of the units when operating at max range. Although the fuel consumption may be miniscule, it should be considered as part of your normal flight planning.

Regardless of the type of heating system aboard your aircraft, the key to its safe operation is your knowledge of how it functions and ensuring it is safe to operate.

An interesting preflight item that can be very difficult to check is water in the fuel system. Although water in a fuel line can freeze at altitude and block fuel flow, a more insidious problem is water freezing in a fuel tank. Think of the amount of water possible in your tank. In the winter, you now have a large ice cube in your tank. Since it is frozen solid, any fuel in the tank will check clear of water. Then when you fly into an area above freezing, your flying ice cube melts, and you have water in your fuel. Engines don't like water. They don't run too well on H_2O, either. So, if your aircraft has been out in the weather, check it carefully, and let's keep any airborne ice cubes confined to your drink at 31,000 feet in the back of airline XYZ.

Ice can also lock or jam your flight controls. If the aircraft has been exposed to ice or snow, make sure the flight controls have not frozen or been jammed. The same applies if you deice your aircraft or move the aircraft in or out of a warm hanger if the aircraft has been covered with snow, ice, or frost. Be aware of the danger any time you have a chance of liquid water and a below freezing aircraft coming into contact.

THE PILOT

The proper care and feeding of your aircraft is important. No one argues with the role the aircraft plays in flight. However, the aircraft, being a machine, is fairly predictable. Put the right stuff in it, make the proper adjustments, and it will fly. The same is not true of the pilot. The problem is the pilot. Bad decision making and failure to properly control the aircraft are important risk factors for aircraft.

More than one accident has been caused by pilots who have run their aircraft off a snow-covered runway or hit a snow bank or flew into a snowy whiteout and lost control. The need for good weather briefs during the winter season is very important to help pilots avoid making bad weather related decisions.

A quick scan of the National Transportation Safety Board's (NTSB) Internet web site provided the following comments taken from NTSB accident/incident reports. The comments are only intended to point out some of the unique dangers winter poses for pilots and aircraft. Only select comments were taken from the complete reports.

ACCIDENT ONE

The instrument-rated commercial pilot received a weather briefing for a VFR cross-country flight. The briefer described deteriorating VFR conditions along the pilot's route of flight, and the pilot elected not to file an IFR flight plan. The pilot departed on the flight and encountered dark night conditions in mountainous terrain near his destination. Lowering cloud ceilings and blowing snow were reported in the vicinity of the accident site about the time of the accident. The airplane impacted mountainous terrain near the top of a ridge about 20 miles from the intended destination.

The NTSB determined the probable cause of this accident was: continued VFR flight by the pilot into instrument meteorological conditions (IMC) and his failure to maintain sufficient altitude and/or clearance from mountainous terrain. Factors relating to the accident were darkness, low ceiling, and snow.

ACCIDENT TWO

The pilot was advised that VFR flight was not recommended. He con-

tacted Norfolk Approach Control and requested permission to transition through their airspace. He indicated that he intended to fly south along the coast in an attempt to avoid the approaching winter storm. The airplane disappeared from radar/radio contact while over the Chesapeake Bay.

The pilot did not possess an instrument rating. It was a dark night with snow and fog. The NTSB determined the probable cause of this accident was the pilot's improper in-flight planning/decision making by continuing flight into known adverse weather conditions. Related factors were the dark night and the winter storm (snow and fog).

ACCIDENT THREE

The Cessna 150 was substantially damaged during a forced landing, just after takeoff. The pilot also provided the following: "It is my belief that [the airplane] was exposed to three weeks of terrible weather, high winds, sleet, blowing snow, and very cold (sub zero) temperatures. Some of this precipitation found its way into the fuel tanks vents and blocked them."

One of the preflight procedures in the pilot's operating handbook was: "Check fuel tank vent opening for stoppage."

According to the pilot, he performed a preflight inspection per the owner's manual. The fuel quantity was half full. The wing tank drains were "frozen stuck," and the pilot decided not to force them open. The pilot drained about six ounces of fuel from the fuel strainer, and found "no visible contaminants." He also noted that "the fuel vent next to the pitot tube appeared to be open."

This accident is a reminder that during winter operations, pilots must pay very close attention to all of the aircraft's various vents and openings because freezing temperatures can cause any water or moisture in them to freeze and either close the vent or restrict its opening. So it is important that fuel vents, pitot tubes, static vents, and engine air sources, to name a few, are open and usable. Ice or mud can close them if you are not careful.

WEATHER AND YOU

These examples show the importance of a good weather briefing, and, if you are not instrument rated, of remaining VFR in VFR conditions and the need for a good preflight.

One of the facts of winter life is the lack of daylight. Cold, long, dark nights, and the possibility of blowing snow or the dreaded whiteouts are all good reasons to be qualified and current for the intended flight. Add in the risk of cold and hypothermia to anyone forced down in the snow and you can begin to see the many dangers winter poses for the unprepared. That includes landing safely at a remote airfield and finding the FBO closed and the fuel pumps locked and no one within miles to help you. So you don't have to have an accident to be cold and miserable, you can find yourself in that situation after a safe flight—if you have not done your homework and a little prior planning.

THE KEY FOR A SAFE WINTER SEASON

The key to having a safe and enjoyable winter is to fly within the operating limitations of your aircraft and your own ability and ratings. Then you need to watch out for winter weather. Winter can provide some of the best flying available, but it can also be very unforgiving to anyone who takes it for granted.

To add to your winter safety, you need to remember to always file a flight plan. If it is a VFR flight plan, please remember to close it when you are safely on the ground. You don't want to close it before you land only to have an accident within sight of the runway and no one knows you have crashed. It has happened. In a recent case, the pilot was not missed until the next day although he crashed near the runway.

Be safe and have a great winter of flying.

Safety First

Watch Out for Winter

by Patricia Mattison

For some of us, winter is a time of snow, sleet, ice and other assorted bad weather. Occasionally there is a rare clear day that tantalizes even the most recalcitrant pilot to fly away winter boredom. However, weather being what it is here in Southeast Alaska, a beautiful clear day can quickly change to cloudy skies followed closely by snow and low visibility.

A reduction in visibility can happen rapidly or slowly and insidiously. A rapid reduction in visibility usually can be handled by a 180 degree turn to return to the departure airport. Slowly deteriorating visibility is the most hazardous. Thinking that visibility will improve as the flight progresses, the pilot continues to fly on towards the intended destination. Expecting to see an improvement, a pilot may continue until all hope of a course reversal is lost.

Flight into low visibility often results in a Controlled Flight Into Terrain or CFIT accident. Whiteout conditions and flat light are two of the largest contributors to this type of accident. Other restrictions to visibility are rain showers, low clouds, fog, and in other parts of the world blowing sand and dust.

Low visibility and the threat of bad weather doesn't seem to deter some pilots. Just last winter I was looking out of my dining room window when I heard an approaching airplane. I couldn't see it, because of clouds and snow, but it was there nonetheless. It is possible that visibility was better at altitude than it was from my earthbound house, but I somehow doubt it.

Poor visibility is only one weather problem to conquer. Another potential problem is icing. Small airplanes don't deal well with ice accumulation, even in seemingly insignificant quantities. Once the airfoil leading edge is covered with even a thin layer of ice lift is lost. Rime ice is particularly hazardous. It forms rapidly and causes an airfoil to change shape and lose lift. Clear ice is difficult to see. It is virtually transparent and flows back on the leading edges and forms a clear glaze over the aircraft structure that is difficult to remove.

I once had an experience with unforecast icing in the clouds on an instrument flight. There was a rapid accumulation of a combination of rime and clear ice on the Cessna 172 I was flying at an altitude 10,000 feet. The plane began to descend—whether I wanted it to or not, because of lack of lift—to 7,000 feet, where it was warmer and the ice was able to break off. Only then was I able to maintain altitude. Fortunately the terrain was at about 6,000 feet. If icing had occurred in an area where there were really high mountains, I would have had a distinct problem. I could have been a statistic!

The best thing to do is to get the most thorough weather briefing possible and then take a good look for yourself. If you have even the smallest doubt as to the safe outcome of a flight, put it off. Delay until you have a good weather outlook and you feel confident about taking that flight.

Patricia Mattison is the Safety Program Manager at the Juneau (AK) Flight Standards District Office.

Dr. P. D. Sargent, educator, writer, speaker, and student pilot.

Dear Mr. Chamberlain,

Thank you for considering my article for the FAA Aviation News. As an old rookie, I have made all the right mistakes in learning to fly and have lived to tell the tale. For example, confusing instrument function, I once pulled the throttle to idle instead of pulling back on the yoke on take off. I quickly realized my folly and reversed the process as quickly as you could wink an eye. I would like to tell the tale of my adventures in learning to those who would listen.

Used to being "She Who Must Be Obeyed" as a former high school principal and erstwhile college professor, I have eaten plenty of humble pie in this new endeavor. However, my new found humility factor has made me totally obedient to only three souls: my flight instructor, my dentist, and my hairdresser. My flight instructor holds my life in her hands, and the latter two hold sharp instruments while hovering over me. I have made each promise not to tell my friends how obedient I am. They would never believe it.

Because of the safety factor, I decided to study for a pilot's certificate so that I could accompany my husband on cross-country flights. A former jet pilot, he was easy to encourage returning to his former passion—flight. Although I willingly accept new adventures, I little realized what a time commitment I was creating for myself. I firmly believe that we are never too old to learn, so the week I received my Medicare card I enrolled in ground school. Studying, flying, and taking exams, I certainly don't have time to sit on the front porch and rock in the rocking chair.

Our breakfast table conversation is sometimes a debate between Jeppesen and Machado, and our table grace always includes a little request to help me land smoothly. We have found a new experience to share, and I would like to share that with others as well.

Best regards,

Dr. P.D. Sargent

Reflections On A Journey Of Flight
The Ghost of Sorties Past

by Dr. P.D. Sargent

Last spring, as my husband and I were digging in the garden, Dick cocked his head to one side and peered, like a great eagle, deep into the sky. "747," he muttered. Shortly, he repeated the same keen attention skyward. Leaning on his shovel, he followed the plane that roared overhead. "F-16," he said excitedly. "I flew F-8's at Olathe, Kansas." With each passing day, as sunshine warmed the earth and we had the opportunity to dig and rake or plant or weed, Dick's attention drifted skyward.

"Just look at that cumulus cloud over there," he would exclaim. "Hear that helicopter? That's a Huey! They flew those in Vietnam."

I was keenly aware that this former jet pilot longed to relive the joy and freedom of the skies. I encouraged him to pick up the trail and go back to flying. After many thoughtful discussions, Dick said, "I would love to take it up, but, Honey, I'm 66 years old."

I reminded him that old did not mean dead, and a man who could build a 150-foot wall of 200-pound rocks with his bare hands was not too old to follow his Bliss.

I looked at his longing face turned skyward in the sunset and said quietly, "If not now, Dick, when?" Age is a poor excuse for refusing to live life to the fullest. I firmly believe that people make themselves sick through self-imposed boredom and old through disuse of their imagination and ingenuity. Our bodies also need new stimulus, exercise, and activity. At the time, I had no idea just how much physical

energy went into flying.

Dick began instruction at the Air Force Academy Aero Club, and I rode along with him the hundred-some miles round trip from our home in Golden, Colorado. Dick believed that the planes at the AFA would be well maintained and the instruction on the leading edge. It was not long before our conversations drifted to actual cross-country flights that we might make. His enthusiasm grew as we talked about traveling to visit some of his old friends from the Marine War College and others from the U.S. Naval Academy, both alma maters. Personally, I was more interested in visiting Santa Fe or San Francisco.

Dick talked about classes called "Pinch Hitter Courses" that taught spouses of pilots how to land the plane just in case the pilot became ill.

"You know, Tricia," he said, "a cockpit could be a coffin if the companion could not take over and fly the plane. I just wouldn't feel comfortable flying with you helpless to land the plane." His resolve was firm. I agreed with his point. I knew full well that pilots of any age can run into problems. One doesn't have to be sixty to have a heart attack. I understood the wisdom of flying with a buddy. I had waited all my life for the ideal marriage partner, and with only two years of marital bliss, I was going to do whatever was necessary to fly with him and to keep him from harm. We were planning to fly across the country together, and I needed to learn how to land the plane.

I explored the possibilities. When I finally realized that landing was the hardest part of flying, and flight rules and ground school would help immeasurably in understanding how the plane worked, I said, "Gee, if I have to go through this much work, I'll just earn a private pilot license." It has never been my nature to take the easy way!

I threw myself into Ground School, devouring Jeppesen's Manual, *Study Guide, Maneuvers,* and *FAR/AIM, and the Airport Flight Directory,* METAR and TAF Manual, and numerous other brochures and booklets. I viewed the videotapes about takeoffs and landings, spins and stalls, and sundry other flight maneuvers. I immersed myself in the literature and jargonese of the art. Every field has its own "alphabet soup" of acronyms and abbreviations, and flying surely has its share. I even had to learn a new alphabet! It is true that my learning curve was straight up.

We now drove to Colorado Springs three nights a week. I attended Ground School Tuesday and Thursday nights. On Friday, we drove down for an afternoon flight lesson, spent an overnight at the Academy, and took a morning flight as well. We packed a lunch to eat in the car as Dick drove and I crammed the reading and the FAA Test Questions into my willing brain. In the six weeks of my study, we had traveled some 2,700 miles. The commitment was strong for both Dick and me. He desperately wanted to fly, and I was determined to be a competent back up.

Everything was so new to me. My brain felt like a sponge, admittedly a dry sponge at first. My knowledge of mechanical things was zip. I had never taken an interest in how things worked, and most assuredly, I had never hung around after school in the auto mechanic's shop with "the guys." As a matter of fact, before taking on flying, I used to describe my car in the simple information I knew.

"What kind of car do you have, Tricia?" my friends might ask.

"White," I would reply.

No doubt, I had a new understanding of what it means to be "behind the power curve." In order to pass the exam on parts of the airplane, I now spent time in the hangar with the mechanic learning about manifolds, magnetos, carburetors, cylinders, spark plugs, and alternators. In Ground School, I amazed my instructor with my lack of knowledge about the venturi effect, ground effect,

Tricia with flight instructor Tommy at the U. S. Air Force Academy Aero Club, Colorado Springs, CO.

wind sheer, pressure altitude, and occluded weather fronts. With three college degrees, I was a babe-in-the-woods with the discussions concerning physics and meteorology. My interest in science always leaned toward the "warmer" sciences of biology, anatomy, and kinesiology. The E6B intimidated me now just as the slide rule had intimidated me in high school physics. Physics was never my "deal" but here I was in class pondering Newton's Law. All I knew about gravity was the 1950s song, that taught "What goes up, must come down . . ." At least I knew that much!

By sheer luck, brain sweat, and Dick's on-the-road picnics, I, who once knew no difference between a mango and a magneto, passed Ground School. I did not have *Magna Cum Laud* after my name, but I imagined the tag to be Deo Gracias. I could now concentrate on the practical aspects of flight and learn to land the plane as smoothly as I could park my little white Honda LX Accord.

Gone With the Wind

"Flying a plane is like driving a car," my instructor said. But truth, it is not. That 172 was not like my car.

Everyone remembers learning to drive. In America, getting the driver's license is a rite of passage, a legitimate document that identifies you as a *bona fide* adult. Driving the automobile is a two-dimensional experience. Unless you drive off a cliff or perform stunts like Evil Canevil, the action is performed on a flat plane, mostly horizontal. You turn left or right with the steering wheel, stop or go by using the gas pedal and the brake. In some cars, your foot may move from one pedal to another and even to the clutch to disengage the gears so you can shift from one power to the other. Driving gives the young adult new freedom. At age sixteen, pleasure is getting away from home.

Pleasure for some adults is getting off the ground. While the ability to drive a car opens up avenues of freedom, experienced pilots will say that, like nothing else, flight takes one out of the realm of reality, freeing the imagination to soar to greater heights. Unlike driving, the experience of flying is three-dimensional, for in addition to driving forward and turning left and right, the pilot may also move the plane up and down. The third dimension brings new meaning to the saying, "free as a bird." For example, rather than just turning left and right, the pilot may bank the plane 15, 30, or 45 degrees just the way birds do when searching the ground for a juicy morsel. Jet pilots and daredevils, of course, do even more dramatic turns. The pitch increases or decreases air speed. The throttle provides power. The mixture control adjusts the fuel flow.

Flying requires a fine coordination of hands and feet, eyes, ears, and speech. Unlike the driver of an automobile, who may communicate by cell phone to the babysitter, the grocer, or the spouse, the pilot must communicate with Ground Control, the Tower, or Flight Service. The cockpit "phone" is all business.

The pilot must be able to read signs of wind direction indicated by the windsock, blowing smoke, the bent of trees and grasses, and even the ripples on the lake below. Awareness must be honed. Perception must become acute. Scanning the skyscape for beacons, strobes, and landing lights will prevent the unfortunate mid-air crunch of metal, which could spoil your whole afternoon. Even your feet get into the act.

Using fancy footwork with the rudders is like dancing with the plane. The motions must be smooth, the whole operation oozes with finesse. Stomping on the rudder pedals, for example, will give you a fast Cha Cha while just the wiggle of the bones in the ball of the foot will produce the grace of a Strauss waltz. "Just use small movements, Tricia," the instructor would cry. "Just tiny corrections, just like when you are driving your car." Inwardly I smiled comparing my instructor to the brave souls who teach teens to drive. Instead of affecting a waltz step on the runway, my takeoffs were more like the Hokey Pokey. Flight instructors are brave souls.

Dancing along as crosswinds intrude upon landings, one learns to crab and then to slip, keeping the plane heading for the landing point on the runway. When the plane is aloft, the wind undulates, so the plane "rides the waves" like a boat on the water.

Some air is more active than usual, just as some waves are more exciting than others. Most student pilots, like me, do not cherish the thrill of the tidal wave but much prefer the smooth-as-glass movement of the plane through stable air.

In the summer, stable air over the Black Forest gives way to the omnipresent thermals that ebb and flow over the land. The AFA area in Colorado Springs is famous for its glider school that thrives on such rising warm air. While gliders ride the airflow, rising and soaring like seagulls above the ocean, small aircraft get tossed about like river rafts shooting the rapids on the Colorado River. For a new student pilot, that experience is nothing less than tumultuous.

The whole concept of air patterns and wind is mysterious and sometimes even frightening. Poets and songwriters often write of balmy South Winds, "fragrant with balm, blown from the Southland, home of the palm." The lullaby croons, "birds in the treetops drowsily peep," and invites the refreshing soft winds to "blow, blow thou South Wind, rock them to sleep."

In flying, one quickly learns that the direction of the wind can influence its force and impact upon the earth, for while the South Wind may be soft and soothing, the raw West Wind can be brutally harsh and destructive.

The West Wind blows with such force and power where I live that it tears and shatters all obstacles that stand in its way. In Golden, Colorado, at the foot of Lookout Mountain, a tunnel of wind tore through our yard last year at 120 miles per hour. In the middle of the night, when the force was building its momentum, we rose

"New Horizons" for seniors. Tricia Sargent, pictured left, after her first flight. Below, Tricia and Tommy going over the importance of brakes.

(All photos in this article courtesy of Dr. P. D. Sargent)

from bed to close the shutters on our bedroom windows and waited to see what damage we would find at dawn.

Strangely, the morning sun shone bright and clear. We stepped out of the back door to see where once an aluminum dog fence stood was only a tangle of wire and shiny corner posts lying on the ground. The wind had bent the aluminum poles 90° to the ground, had twisted the wood on the railing of the deck like a compound-fractured bone, and had scattered shattered glass all over the driveway. Everywhere lay gnarled roots uprooted from the ground leaving deep wounds in the earth. Fence posts, ripped from their sockets piled up in pathetic heaps left behind by the fury of the storm.

We mourned the loss of the forty-foot tree that lay across the neighbor's yard, and we sat in awe, quietly contemplating the unearthly force of nature and paying the reverence due the fierce West Wind.

It was with the memory of that wind, that personally touched my life, that I rode the rocking horse thermals those first few lessons of flight. It was hard to keep my mind on the bouquet of dials, buttons, and knobs arrayed on the "dashboard" of the cockpit, scan the sky for other aircraft, and focus on straight and level flight. Each gage was critical to some function of the flight, and for many, there was no counterpart on the "dash" of my Honda. There were many names to learn: altimeter, airspeed indicator, vertical speed indicator, turn coordinator, suction gage, and artificial horizon to name a few. Thank God, I did know the one that was also included in my automobile package.

Every car has an ignition. Even I knew that, and probably, if I looked carefully under the hood, I would find some magnetos connected in that maze of wires somewhere. Most certainly, in all my years of driving I had given not one single thought to the concept of RPM. Now understanding RPM, and knowing where to look for it, was crucial to takeoffs and landings. It was in the search for such gages, amid the thrashing of the thermals, that I met the third dimension.

Keep On Dancin'

From the beginning, in exploring the third dimension I felt apprehension. Every time I had taken a written exam, there had been anxiety, but each and every hour in the air set off an alarm system of sheer terror. Thermals over the Black Forest in those first flights had created shock waves to my entire system. When the military instructor said, matter-of-factly "Tricia, that's just the way it is!" I pretty well dismissed the idea that flying was going to be fun.

"What am I doing?" I thought. "Why do I put myself through this exercise in fear?" I sensed the instructor's impatience with me and thought he would be relieved if I just went away. Most of his students were young cadets who expected terse instruction and immediate performance. They were used to hearing barking commands and many of them displayed the attributes of NFOD. That's "No Fear of Death."

That hunch was not all wrong, for as it turned out, one day he pointed out that as we have an airport just minutes from our home, I might consider lightening the travel burden by changing flight schools. As tactful as he tried to be, I got the message. He had no idea that his style of teaching contributed to my trembling.

I might tremble a bit, but a quitter I am not! I began lessons almost immediately at Jefferson County Airport and this time I picked a young woman instructor who had a sense of humor and a zest for life. Her career goal was to be a commercial pilot with a big airline. Thirty-five years my junior, she became my mentor and my role model.

"Hey, Tricia!" she said laughing, "do you like riding in a boat?"

"Of course," I said, "I love the water."

"Well, the air, like water, is made up of waves." she said. "Riding the waves is fun!" From the look on her face and her confidence in the sturdy Cessna 172 training plane, I saw her point. Now with some twenty hours in the air, the terror gave way to mere anticipation.

Each day after a flight, Dick would ask expectantly, "Did you have fun?" I knew he had fun every time he soared aloft, but I assured him that fun would follow competence. Competent I still was not. I thought of all my 17-year-old students. Unlike those teens, who believe themselves to be indestructible and invincible, I was thoughtful and deliberate in my approach to flight. Adults realize their fallibility; youths do not. Flying is risky business and learning everything I could brought me closer and closer to competence. I so wanted to be able to manage the plane, make the turns, the stalls, the takeoffs, and, especially to make the landings smooth and accurate. I wanted to make the plane stay at a particular airspeed and altitude. I wanted to set the site-picture firmly in my mind. Enjoyment would come when I could execute these things and quit having sweaty palms practicing "engine out."

I was soon dancing with the plane more smoothly down the taxiway. Sliding my heels down to the floor, I tap-danced with the rudder, and the taxiway became my ballroom. Daily, my confidence grew with taxiing, but each time I turned the key in the ignition, I glanced over the cowling to see the fueling station just a few yards directly in front of me. Great tanks of fuel were parked right in front of the parking area. "Dear God," I thought, "help me keep the throttle on whoa, horse, not go, horse!" New pilots often confuse the direction of the instruments since throttle-out is idle but carburetor-heat-out is on full blast. "Who invented such instruments, anyway?" Those first takeoffs were acts of avoidance of Slam Dancing. My students would have called that contact, "A Blast, Man"!

I had to admit that takeoffs were a blast. Now, that was fun!! I enjoyed the power burst and the lift-off toward the beautiful mountain peaks. I kept the horizon on the cowling, and the plane gained altitude at exactly 500 feet per minute. I memorized the routine in the flight pattern for "Touch and Go's." Although I still needed help with "Touch," I sure loved to make that plane "Go." Dick was not surprised that I liked the takeoff. "You just like the power," he said. Predictably, I mentioned the fact that jet pilots, like him, probably loved power too.

However, landing still remained a challenge, for like most student pilots, timidly trying to settle the plane down, I tried not to bounce, porpoise, or just plain dump the nose wheel into the asphalt. It took some time before I actually put the plane on the ground without help. My instructor had been busy giving me the "Thumbs Up" signal with every new achievement. Her positive reinforcement rewarded me with each task conquered. She was enthusiastically bouncing in her seat when I finally made that first landing. Like the good cheerleader that she was, she was excited. Dick was ecstatic. I was numb. I went home that afternoon and slept. The mental energy was unbelievably exhausting. I was tired, but I could land.

Landing was one thing but with forty-plus hours of flight, landing with finesse was now the goal. We took off for a nearby non-towered airport to practice using UNICOM while doing touch and go's on a different field. With seven more successful landings, I didn't say smooth as silk, landings, I was feeling pretty good. We headed back to Jeffco and I realized that solo was not far off and cross-country planning loomed large. I strafed the ground with my eyes, searching for the landing strip. The ATC instructed us to approach 29 Left, but I could not locate the field no matter how hard I focused. I realized how crucial that feat would be on a solo flight. I felt a twinge of panic.

"There's the lake," my instructor said. "And there's Storage Tech.

Now the field is just across the street from the shopping Mall," My ears perked up. My blue eyes grew steely gray, and like an eagle, I zeroed on the area of the Mall, "There's Dillards," my instructor said, "And over there's the field."

"Now, that's more like it," I thought,

I could always find a Mall. "From 200 above the ground, Jeffco airport appears to be just an inch and a half above Dillards! A combat class shopper, I finally saw a landmark that made sense. At last, I could clearly see that flying was going to be fun!

File Your Flight Plan

On reviewing my experience, I found several factors to be significant.

1. **Age is not a consideration.** There is a circle of octogenarian pilots at Jeffco who fly frequently and enjoy the thrill of reliving their World War II experiences. Just when I received my Medicare card, I signed up to learn how to fly. With perseverance, I will get my pilot's license, or is that certificate, before my next birthday. Learning keeps the mind active. Hopping in and out of the cockpit, conducting a preflight examination of the plane, climbing up ladders to check the fuel, and stooping to chain down the empennage keeps you fit.

2. **Flying becomes safer when the pilot has a back up.** Anyone, at any age, can have a heart attack or a stroke in mid-flight. Pilots who love their spouses (or significant other) might look thoughtfully at the circumstances in which they place them when they take off on a cross-country flight with a companion untrained to land. Charter and some corporate pilots fly all the time with no backup pilot. When they crash, they take their passengers with them.

3. **Choose your instructor.** Interview the person to be assured that their teaching style matches your learning style. Not all good pilots can teach everybody. If he or she reminds you of your parent trying to teach you to drive the car, find someone else.

4. **Pleasure follows competence.** When one has mastered the basic skills of flying, finesse brings confidence. Finally, "as the night follows the day," fun follows form.

All in the Family

Couples who share flying experiences face special challenges in learning to work and communicate as a team. This is especially true of IFR flight into weather conditions. Several reports from ASRS files describe the various things that can go wrong—and right, too—when a flying duo is "in the clouds."

'Gee' Whiz

While cruising on altitude and navigation autopilot at 9,000 feet IFR in mostly IMC conditions, I had to leave my seat for physiological relief. The passenger in the co-pilot seat, my wife, has accompanied me on approximately 100 hours of cross-country flight in various single- and multi-engine aircraft. I asked her if she would answer the radio if Center called with a frequency change. She said no, since she is nervous about making radio calls. I informed Center that I would need to be off frequency for two minutes and I'd report back on. That was approved.

While I was in the back of the airplane...Center called to see if I was back on frequency yet. [My wife] thought she would answer the radio call and tell them I wasn't back yet. She reached across and pushed what she thought was the push-to-talk switch on my yoke. She had actually pushed the autopilot disconnect switch on my yoke. At that time a passenger in the back of the airplane asked my wife a question. My wife turned around and spoke with the other passenger for a moment. When my wife turned forward she saw that the aircraft was in a descending turn. I was on my way back up to the cockpit when she pulled back on the yoke and leveled the wings. I was forced to the floor when her pullback resulted in approximately two G's. In a couple of seconds she eased the back pressure and I was able to return to the cockpit and correct the al-

titude and heading deviations.

A pre-flight briefing for the spouse on how to use a handheld microphone might have prevented inadvertent activation of aircraft controls and this excess 'G' situation. Training in wing-leveling techniques, on the other hand, is best left to the watchful eye of a certified instructor.

The Thrill is Gone, Baby

A pilot on her first IFR flight after passing the instrument check believed she had planned for every contingency. When it became necessary to divert to an alternate airport after reaching cruising altitude, she and her pilot spouse in the right seat handled the diversion well...except for one small detail.

It was my first IFR flight, since receiving my instrument rating. Conditions at departure and arrival airports were VMC (current and forecasted), but I was determined to file IFR to gain experience…. Upon reaching enroute altitude, I tuned in the ATIS for the destination. I was shocked to hear "300 feet overcast, one mile in fog." My personal minimums were written down in advance and an attempt of this low IMC was out of the question—particularly since a missed approach would require holding over the ocean in a single-engine aircraft.

My spouse suggested that we try our alternate. ATIS there reported 800 feet broken and two miles. I asked my spouse to get out the alternate approach plates. Spouse is a private pilot...and instrument student, and in flight [was] asking a lot of questions. [It was the] spouse's first time in IMC. I informed ATC that I wanted to go to the alternate, which was immediately granted…. Approach gave us vectors for the VOR approach...[and] instructed me to maintain 2,500 feet until established, cleared for the approach, report FAF inbound.

The clouds started at 2,000 feet MSL. I intercepted the approach course and started the descent. We entered the clouds and held the MDA (640 feet). We reported the FAF. I worried as time passed that we would not see the airport…. Nav indication 'To' and GPS indicated airport still ahead. We broke out of the...clouds to find 800 foot broken [conditions] around the airport. Saw the airport and landed safely. Spouse was thrilled and really impressed. I, too, was elated.

It wasn't until hours later, as we continued our trip in a rental car and reviewed the flight, that I realized I had descended to MDA before the FAF…. This occurrence was caused by inexperience, but I could have (and will in the future) do better cockpit coordination, review all possible plates for myself beforehand, and walk my spouse through my plans on the ground to avoid (minimize) questions at critical times.

This article originally appeared in Callback *from NASA's Aviation Safety Reporting System.*

Checklist for Flying Companions (Wisdom from ASRS Reporters)

For Left Seat Occupants

- Conduct pre-flight briefings for right seat non-pilot companions that identify do not touch controls and devices, as well as the proper use of handheld mikes and other emergency communication devices.
- Conduct verbal "walk-throughs" of important flight details on the ground—not during critical maneuvers such as missed approaches.

For Right Seat Occupants

- Be an attentive and supportive partner in cockpit management, not a source of distraction, criticism, or confusion for the flying pilot.
- If acting as pilot in command, mentally perform the flying tasks and checklists as if flying from the left seat.

Another good idea is for non-pilot companions to take a Pinch-Hitter's course to familiarize themselves with how to control and land an airplane. Check with your local airport, flight school, or Flight Standards District Office for information.

H. Dean Chamberlain photo of Mario Toscano

Computers and the CFI: Taking advantage of the gadgetry

by Jim Stover

Consider how many of us experienced flight instruction 25 years ago. We began each lesson with a less-than-clear understanding of what was in store for us, and we never even received a course syllabus. We called Flight Service for a briefing, and our pencils broke somewhere in the middle of the synopsis. We ended up with a lot of writing, but little understanding of the overall weather picture. Somehow we managed.

Now we have useful tools that help us do a better job with our students—computers. Even though they're still a challenge for many of us, they aren't as bad as they used to be. With a full array of planning software, word-processing tools, and other goodies, their usefulness outweighs their hassle. Flight instructors who understand the advantages available to them and to their students enjoy some advantages over those who still live in the 20th century.

For less than $1,500 you can get a decent computer with a printer and all the necessary hardware and software to do nearly everything. Some companies allow you to tailor your selection based on your anticipated needs, and then they ship your computer in the mail within a week. Because you are a CFI, this may also be a business deduction for you, depending on your situation and use.

So, how do we as instructors apply the advantages of computers to make our instruction better? As in most advances, there are timesavers and time-wasters.

THE GOOD

Electronic mail is wonderful. Once you gain access to a computer with a modem, acquire an e-mail account. Some companies offer free e-mail. Most providers of Internet access include e-mail as part of the Internet contract. Select an e-mail address your students (customers) can remember, like your name. Remember to add this address to your business cards,

Go through the menu selections for the program and set up your electronic address book so that your flight-instructing list contains the names of all your students or prospective students who have e-mail addresses. Many programs allow users to set up a suspense file. Set yours to reflect dates for flight reviews, "Wings" program expirations, instrument proficiency checks, or other dates when students may require instruction. Be sure to ask if students want to receive a reminder. Most appreciate your concern for their flying proficiency and currency.

Perhaps the best advantages of e-mail are that, unlike some phone calls, they are free for long distance and they do not require a 10-minute conversation to ask a simple question. E-mail is a huge timesaver and money-saver for these reasons alone. Use e-mail to confirm flight dates and changes, make periodic inquiries, and keep contact with students.

The Direct User Access Terminal System (DUATS) is another information age service offering value to

users. Prior to a flight or lesson, access this service to obtain text and graphical weather information. Take a few minutes to transpose key information to a piece of paper that you can take with you on your flight. The downside of DUATS is that, for even a local flight, you get international flight warnings and numerous inapplicable FDC NOTAMs that can take some time to sift through.

Once you have a picture of conditions for your flight, call the Flight Service Station (FSS) and get a briefing. (See sample briefing form on he right.) My opinion is that an FSS briefer consistently offers the best interpretation and understanding of developing weather conditions. How many times did you as a student call FSS only to find yourself writing at warp speed and, having obtained the weather, have little comprehension of what was out there? Armed with a general picture, you stand a good chance of comprehending outside conditions and asking intelligent questions.

The word processor is one of the true benefits of the computer age. Boundless applications exist for the benefit of those who wish to take advantage of them. Gone are the days when you had to retype whole documents when only one portion changed.

I see two great advantages here. First, when teaching classes, instructors can implement easy changes in the syllabus or lesson plan. Class lessons, once entered into a word processor, are relatively simple to update. Changes to the course outline require less than an hour. Every new class receives a new course outline with lessons learned from the last course incorporated into the new document.

The same applies to in-class exams when the FAA changes questions in the test bank. They send out the changes, you put them in. You are up to date in minutes. If your class has problems with a concept or needs more work with navigation questions, make an overhead transparency printed from the file. Project the transparency on technology's answer to the chalkboard—the dry erase board—and write on the board over the projected image. It's effective and easy. While you're at it, copy pages of the FAA's test supplements onto transparencies to familiarize students with the specific charts, graphs, and diagrams available during their knowledge test.

The second opportunity a computer offers is to provide students with

Weather: 1-800-992-7433

Briefing Elements
1. Pilot Rating (w/VFR/IFR):
2. Aircraft N-Number:
3. Departure Airport:
4. ETD and ETE:
5. Route of Flight:
6. Destination:
7. Altitude:
8. Type of Brief:

Standard Brief from FSS

Adverse Conditions:

VFR Recommentation:

Synopsis:

Current Conditions:

Forecast Conditions:

Winds Aloft: 30 60 90 12

NOTAMS:

a more detailed, written record of their next flight. Consider developing a "flight profile" for each lesson. I have one for each flight lesson I teach. At the end of each lesson, the student and I confirm our next appointment and which lesson number we plan to cover. When I get home, I open the flight profile for that lesson and tailor the flight for that student. If previous tasks require review, I add them into the profile.

Here's the magic. Attach the flight profile to an e-mail and send it to the student that evening. Be consistent so your student knows when to expect it. When your student receives the document, he or she knows exactly what will be covered and in what order, has the homework assignment for reading, and knows what to study. That student also knows that to show up without the profile filled in with respect to weather, a flight assessment, weight and balance, and performance numbers is to show up unprepared.

Print the profile before class on the front and back of an 8-by-11 inch page in the landscape mode (sideways). Fold the page in half, and your profile takes up as much space as an approach plate. It should resemble a church program (which, between praying for better weather and maintenance-free avionics, is where this idea occurred to me). The lesson sequence appears on top. You or your students can make easy reference to the weather as it is on the inside facing you. The performance parameters and other information are a matter of instructor preference, but I think they add significantly toward helping students develop good preflight habits.

Note in the example that I have added key points under several topics to alert the student that these teaching points of emphasis are part of the lesson's preparation.

In addition to the set of flight profiles, I also keep a separate document for each lesson, called "teaching notes." After each lesson I record items I can improve upon. After reading articles in aviation magazines about how other instructors teach a particular skill, I insert a reminder to attempt a better tactic. I make sure to reference the document by magazine or book and page, so I can evaluate its efficacy after the lesson.

Note that I also include a weight and balance table as well as a center of gravity moment diagram in my profile. Technology strikes again—this information was inserted by "cutting and pasting." Good scanners are available for under $100, and they allow you to "insert" pages from an appropriate pilot operating handbook (POH). I teach in eight different aircraft and therefore have eight different "pictures" for my profiles. In total, I spend about

Aircraft Performance Review

Vx: _____ Vy: _____ Vso: _____ Best Glide:_____

Va: _____ Vno: _____ Vne: _____

Performance

Pressure Alt: _____ Temperature: _____ Density Altitude: ____

Takeoff Parameters and Distance: _____

Accelerate/Stop Distance: _____

Climb Parameters and Performance:_____

Landing Parameters and Distance: _____

Weight and Balance

ITEM	WEIGHT	ARM	MOMENT
Aircraft (BEW) N			
Fuel			
Front Passengers			
Rear Passengers			
Baggage Area			
Totals			

as much time constructing the next lesson, usually five to 15 minutes, as I do without a computer, except now I have a record of my plan that I can use and provide to my students at my convenience.

The World Wide Web is a maze of information, some of which is particularly useful. Several free websites allow you and your students to fill out an instruction calendar. You control the schedule but, by adding your students' names to the list of people with authorized access, each pilot can schedule his or her own flight lessons. The program informs you by e-mail that your calendar has been changed.

The Internet also offers many sites where information about various aspects of aviation abounds. Most Internet service providers (the companies that sell subscriptions so that you can access the web via a modem) offer some space on their computers where you can create your own web page to advertise your services.

Other applications also exist. Programs to compute income taxes can cost as little as $20. Several companies make software that makes tracking business expenses and earnings simple. Effective tax planning will likely save you more than the cost of these programs.

THE NOT SO GOOD

Technology, more specifically information, can overwhelm us. Too much information is as bad as too little information. There are so many websites that a busy schedule prevents traveling to each one to look for information. Here are some areas I think still fall short.

The FAR/AIM on CD. These little Frisbees are loaded with information,

Flight Profile

Syllabus: Private Flight Lesson: 4 (8/29/00) Student: Walker

Objectives: Review procedures from Lesson 2. Introduce slow flight, power on stalls, power off stalls, and flight under instrument conditions.

Homework: View stalls and slow flight from Private Pilot Maneuvers. Read and study Airplane Flying Handbook, Chapter 5, pp. 5-1 to 5-7 and Chapter 9, pp. 0-1 to 9-6.

Flight Plan

ACTION	START TIME
Prelight:	5:30
Weather (instructor supervised)	5:35
Instrument instruction (primary and secondary inst)	5:45
Collision avoidance	5:40
Wake turbulence	5:45
Preflight inspection	5:55
Required certificates and documentation	
Flight:	
Engine starting procedures	6:20
Obtain ATIS	6:22
Radio communications: ground and tower	6:24
Taxiing: steering and aircraft controls, x-wind taxi	
Radio communications: tower	6:26
Taxi and before takeoff checks	6:30
Normal or x-wind takeoff (student performed)	6:35
Climb and departure	
Proceed to training area	
Emergency field selection	
Flight training	6:40
Slow flight demonstration and practice	6:50
Power off stalls demonstration and practice	7:00
Power on stalls demonstration and practice	7:10
Instrument flying: climbs, descents, and s&l	7:22
Traffic patterns	7:25
Normal approach and landing	7:30
Post Flight:	
Parking and serving airplane	7:45
Securing aircraft	7:50
Lesson review.	

and I still find it incredible that manufacturers can put an inch and a half book written in tiny print on the "A" side with room to spare. They are, if you ask me, nearly useless. Like my boss used to say, "It briefs well at the board, but doesn't execute." [Editor's note: FAR and AIM are available at <http://www.faa.gov/avr/armhome.htm>.]

Computer-based training merits a detailed look, though it is roughly twice as expensive as traditional, video-based instruction.

Handheld flight computers and checklists have more ways to go wrong than Corrigan. A bright, sunny day means the LED crystals are unreadable. The batteries give out at the most inopportune time, like when you're using the calculator, and replacements are not standard at the FBO. The function keys of flight computers require considerable practice to use efficiently. In a bouncy airplane, one-handed operation of the calculator is nearly impossible. And finally, my E-6B is faster. The checklist calculators usually cost too much, and if you want to edit the list to include items you think are key to a preflight, you'll need a separate list. They're gadgets I can live without.

THE FINE PRINT

If you have worked on a computers before, you know they have "senior moments" when they lose things, forget things, malfunction when hit by lightning, or just stop working altogether.

Experienced computer operators follow the motto "save early and often." Back up all your valuable lesson plans and flight profiles—daily is good for frequently accessed files, and monthly is adequate for everything else. Two sets of backups are more than sufficient, but never use your last backup disk, except to make a copy. This is experience speaking. Losing your hard work is ugly.

Incompatibility between different systems, such as Microsoft and Apple, sometimes presents problems. For the most part, though, those problems are minimized. With a little bit of experience, you'll learn to save and distribute files that work, despite any idiosyncrasies with your students' computers.

Cost and obsolescence are the downsides of investing in technology. My car is 16-years old and runs fine, mostly. Last year, my 6-year old computer went the way of the dumpster for a host of reasons. Three years is the current life expectancy.

Lastly, technical support often falls short. If you want help, find an eighth grader whose parents complain he/she is always on the computer. Offer to pay him/her $5 an hour to bring you up to speed. You think I'm kidding. Before he /she arrives, however, back up everything.

The times have changed, and there's no excuse for delivering disorganized instruction or settling for half-understood concepts. A computer can put all the information we need right at our fingertips, which makes us better instructors and our students better pilots.

This article is reprinted with permission from the NAFI Mentor.

Bombardier, Inc. photo

Interior Confusion

by Bill O'Brien

Airplanes are just like people. They have personalities, likes and dislikes, and, as they get older, they begin to fray a bit at the edges. And, just like people, when they are showing their age, a few make a trip to aviation's answer to a plastic surgeon and get a makeover. The aviation makeover usually consists of a brand new shiny coat of paint, replacing of windows, state of the art avionics package, and an interior to die for.

Interior makeovers come in all sizes and shapes—from expensive Corinthian leather to less expensive polyester, from imported teakwood tabletops to Formica card tables. With all the options available it's really easy for mechanics to get a little confused and fall outside the regulatory guidelines of the Federal Aviation Regulations (FAR). I hope that the following overview and review of certificate requirements for different type certificated aircraft will be helpful and help to reduce the interior confusion.

Overview

When replacing interiors, or just a couple of the interior's component parts, the FAR's still require that the interior repair or alteration is airworthy. Airworthy means that the interior must meet its original type design or approved alteration and be in a condition for safe operation. Simply put, if you are going to put an interior in a Piper PA-28R-200 *Arrow*, then that interior must meet the same CAR-3 type design requirements that the PA-28R was type certificated under. If you are installing an interior in a Gulfstream 4 then that interior must meet the same FAR Part 25 type certificate requirements.

Airworthy's second requirement, "condition for safe operation," means that the new interior is designed in such a way that it can be inspected for wear and be maintained in an airworthy or safe condition. Another way of looking at "condition for safe operation" is to ensure that on every flight the seats' locking pins, lock, and seat belts are securely attached and the VCR won't leave its rosewood cabinet in rough air and cold cock the vice president of accounting. Although not exactly an "airworthy requirement," a replacement interior should not be so poorly designed that it becomes a maintenance nightmare that consumes hundreds of man hours to open up and reinstall just to perform required airframe inspections.

Interiors come in all shapes, sizes, and complexity, and it is the complexity of the interior work that determines if the alteration/repair is going to be major or minor. If the interior change is major, then approved data will be needed to make the modification. If it is a minor alteration or repair, then acceptable data is okay. For example, if a major interior change guts the cabin, requires the addition of reinforced

stringers, new wire bundles, and lead-lined doublers plates to suppress the radiation from the nuclear-powered port-a-potty the CEO wants installed, no one will argue with you that this is a major alteration and approved data is needed. But is it major or minor repair or alteration if just the soiled headliner, rug(s), and seats fabric are being replaced?

If the headliner, seat fabric, and rugs are being replaced on your Piper and the replacement fabric and rugs are the same as the original, then the interior work is a minor repair. If the replacement fabric and rugs are different, say instead of the original type design 100% polyester fabric and rugs, the new material is 80% wool and 20% polyester and the new material meets the burn requirements of Part 23, then we have a minor alteration.

The same minor repair/alteration example would hold true if the same components were being replaced on a Gulfstream 4. These changes to the interior are either minor repairs or minor alterations because weight and balance, structural strength, performance, powerplant operation, or other qualities affecting airworthiness were not affected and the minor repair or alterations can be done by elementary operations. (ref : FAR Part 1, definitions of major repairs/major alterations)

Cessna photo

Now let's look at the material/fabric fire protection requirements for CAR-3 Certificated Aircraft. These aircraft simultaneously make up both the oldest and vast majority of aircraft found in the U.S. aviation fleet. These are the Beech, Cessna, and Piper aircraft of days of our youth. The 10-year-old kids, who hung on the airport fence in the late nineteen fifties, are now in their fifties and they are buying these older aircraft and revitalizing them in high hopes of recapturing their four decade old dream.

CAR-3 aircraft that are used for Part 91 operations with interiors where smoking is not permitted, the interior materials shall be flash-resistant. (ref. CAR-3, section 3.388) In CAR-3 aircraft interiors where smoking is permitted, the wall and ceiling linings, the covering of all upholstering, floors, and furnishings shall be flame-resistant. (ref. CAR-3, section 3.388)

When a mechanic buys material in bulk to refurbish the interior, seats, and ceiling liners for a CAR-3 aircraft used in Part 91 operations, a manufacturer's statement declaring that the material meets the American Society for Testing and Materials (ASTM) or similar national standard for either flash resistance or flame resistance for the applicable installation would be acceptable. A manufacturer's statement is acceptable because neither the old Civil Aeronautics Administration (CAA) nor the Federal Aviation Administration (FAA) has published an FAA fire standard for either flash or flame resistance interior materials for CAR-3 aircraft. The FAA accepts and recognizes a national standard, so the mechanic who bought the fabric/material in bulk should reference the manufacturer's statement and the national standard that the fabric/material meets in the aircraft's maintenance records.

If no "standards" statement is made in the aircraft's logs then at the aircraft's next annual inspection the IA

has a problem. He/she is looking at a new interior that may or may not meet CAR-3 requirements. In other words he/she may have an "unapproved interior" and the fabric might have the flame resistance of a box of matches. So if the IA can't chase down the mechanic who installed the interior and get the necessary "standards" statement in the logbook, then the only other alternative is to have a laboratory check and certify that the fabric meets the ASTM or any other nationally recognized flash or flame-resistant standard or do a burn test in accordance with Part 23, Appendix F.

A Suggestion

To avoid mucking around with the flash/flame/burn federal requirements when you buy interior fabric/material in bulk for CAR-3 aircraft, the best way to satisfy the regulations is to have an approved FAA Repair Station perform and sign off a Part 23 burn test. If your fabric passes Appendix F requirements, then it exceeds the CAR-3, section 3.88 requirements and you can tell your customers that they are better protected in case of an accident.

What about the fire protection for FAR Part 23/25 Certificated Aircraft interiors? Requirements for interiors for Part 23/25 are straightforward, none of this flash and flame dual CAR-3 standards. If you buy in bulk the fabric and materials must meet Part 23, Appendix F or Part 25 Appendix F burn test requirements. The applicable Appendix F test must be performed by an FAA Repair Station which will certify that all materials and fabrics meet the regulation. This statement must be made part of the aircraft's maintenance records. If you buy interior fabric or materials that will be used on both Part 23 and Part 25 aircraft be sure that the Repair Station certifies that the material/fabric meets both Part 23 and Part 25 requirements.

If a CAR 3, Part 23, or Part 25 aircraft has an interior installed under a STC, then the new interior is considered a major alteration, and the STC number must be noted on Block 8 of the FAA Form 337 and in the aircraft's maintenance records. It is not necessary to state in the aircraft's maintenance logbooks that the interior meets burn requirements of Appendix F of either Part 23 or Part 25. The fact that the STC is FAA-approved data and it calls out the name and ID number of the cloth or material to be used satisfies the burn test requirement. Also don't forget that under the law passed by Congress in October of 1966, the owner of the aircraft must have a letter from the STC holder that authorizes the owner to install the STC.

Some Things To Consider

A few suggestions that a mechanic or a repair station that is into re-mods should consider are:

1. Keep copies of all Flash/Flame/Burn tests and certifications with the bulk fabric/materials you have in stock and a copy in a secure

Cessna photo

place, just in case you are asked by your friendly FAA inspector.

2. Keep samples of fabric and material and their invoice numbers used in the aircraft's interior modifications so replacement is a snap verses a chore.

3. Be careful of dry cleaning chemicals/soaps/detergents that are used to clean interiors. They can degrade the fire protection of the fabric. Remember on CAR-3, Part 23, and Part 25 aircraft the flash/flame and burn requirements are part of the aircraft's type design. If a mechanic suspects that the interior no long meets the rule, then samples of the interior fabric should be tested.

4. If your company recently bought a Part 23/25 aircraft or if your company is considering a purchase of a used aircraft built under these type design standards, then a burn test of the interior materials is strongly recommended.

How Are Interiors Approved?

If you want to completely re-do your aircraft's interior, add a wet bar, entertainment center, phones, etc., we are talking a major alteration here. Any major alteration requires approved data. The three ways where you can get approved data are: Have an appropriately rated Designated Engineering Representative (DER) draw up and approve the data, the second is the STC route, and the third is the FAA field approval.

A word here about field approvals. FAA inspectors are not in the business to compete with DER or holders of STC. We will do field approvals for addition of equipment like a TV or a sound system, but full re-mod of interiors are big projects and literally will take up a good bit of our time, so hiring a DER or buying an STC should be your first choice. FAA Repair Stations also have an option of taking DER-approved data and making it into a process specification approved under the Repair Station's Operating Limitations. For example, Poteen's Aviation Interiors, an FAA Part 145 Repair Station, has an order from a Lear Jet operator to re-mod six of their jets. Since the interiors are all the same, the DER-approved data for the alteration can be made part of the Repair Station's process specifications. The process specifications can be enlarged to cover recordkeeping, Instructions for Continued Airworthiness, and replacement of parts.

Which brings up an interesting point. How would a mechanic or repair station sign off a repair to a non-standard piece of electronic gear that is not TSO, not PMA, and not part of the original type design? What standard will you reference? You say that there are no such animals on your corporate jet! What about the Sony TV, GE VCR, RCA stereo, and Panasonic microwave in the galley. Are you trained and equipped to repair a 21-inch Sony TV? How about a microwave? How do you fix these non-standard pieces of equipment when they no longer work as advertised? How do you repair or replace a VCR after the owner installs the tape in backwards and the four tape pick-up heads merge into one?

First, solve the problem before you install the equipment. If you get a field approval or an STC for an installation of an non-standard piece of interior equipment such as a TV, VCR, stereo, microwave, etc., make sure that the STC or the Field Approval includes "Instructions for Continued Airworthiness,"(ICAW). What is an ICAW? The FAA approved ICAW, included with the STC or Field Approval, will tell you how maintenance can be performed on these non-standard pieces of equipment. For example, the horizontal hold on your aircraft's TV doesn't hold anymore. The ICAW may allow you to take it to the nearest factory authorized dealer for that make and model TV and have them do the repair. Once back on board the aircraft, the ICAW may call out some inspections or operational checks to perform and you are back in business. In the logbook state that the repairs were accomplished in accordance with the STC or Field Approval's ICAW and the FAR § 43.13 performance rule and § 43.9 maintenance record keeping rule are satisfied.

For an STC installation, the ICAW is required by FAR Part 21, section 21.50, but sometimes the ICAW are missing or not exactly what you need. If the ICAW are not satisfactory, contact the STC holder and ask for an ICAW that meets your needs. If the equipment was installed under a FAA Field Approval, ICAW are not required of FAA Field Inspectors as of this date by FAA Headquarters, but I'm working on it. However, there is no law that prohibits an FAA inspector from providing you with one, if you ask. An ICAW is a good idea because if the next time a piece of non-standard equipment packs up, the ICAW will save you and the FAA a lot of trouble. The ICAW can also list replacement parts that are authorized for that aircraft under that particular STC, DER, or Field Approval installation.

Conclusion

In closing, aircraft interior installation and maintenance are perhaps one of the most overlooked components found on an aircraft. However, NTSB accident data tells us that many people survive the initial accident, yet many die because of smoke and fire related injuries caused by the fires that fed on the aircraft's interior or failure of interior components. I have personally been at accident sites where pilots and passengers have been fatally injured because of something simple like a hand-held fire extinguisher was improperly secured and was turned into a lethal missile, propelled by the force of impact, or a seat belt failed because its corroded attachment bolt was hidden by the interior panel and was hard to inspect.

Don't become a statistic, if you have ways of avoiding it.

Bill O'Brien is an Airworthiness Aviation Safety Inspector in FAA's Flight Standards Service.

Baton Rouge Second Annual Kids' Day

by M. Kay Fulkerson

On April 26, the Baton Rouge Flight Standards District Office (FSDO) and the Air Traffic Control Tower at the Baton Rouge Metropolitan, Ryan Field, hosted the Second Annual Kids' Day 2001. Support from everyone on the airport helped make this a success with over 1,000 boys and girls attending.

Our experience proves that an event of this size can be safe, fun, and educational for all concerned. The parents and teachers were involved with interest in aviation written all over their faces.

Thirty years ago a young boy or girl could go to the local airport with their parents and look at all of the airplanes without the restrictions of airport security. (The thought of crossing that imaginary line today and its repercussions gives one goose bumps.) We must spark the interest in airplanes in the young. About the only way we can do that in this day and age is to open our airports and let the children come in and touch and look at an aircraft.

Three years ago, the Baton Rouge FSDO had an open house. Everyone asked, "Where are the airplanes?" What is the FAA without airplanes? That got the FSDO manager, Sheryl Hammans, thinking, so she decided to get the entire airport involved, not only the FAA. Well, last year Kids' Day was well received by the public. The manager felt that if we can encourage even a few young people to get involved in aviation, we have a chance of developing new pilots and mechanics for the future.

This year the local Experimental Aircraft Association(EAA), Chapter 244, conducted 114 Young Eagle flights that allowed children to fly in a real airplane. Most of today's pilots were exposed to airplanes in a similar manner. The local balloon club gave over 110 tethered hot air balloon rides giving the young a feel of what it is like to hover above the trees without wings.

Pedal cars were provided for the very young. A 60-foot racetrack was marked inside a local hangar. Even though kindergarten kids like to see airplanes, they are too small to fly, but they too can have fun at the airport. In a couple of years, they will be old enough to take their first flight with the EAA's Young Eagles.

Forty-two aircraft were on static display or flew during the event. The kids were able to sit in the airplanes and helicopters and hold the controls of even the military aircraft. The smell of aviation fuel and the feel and the touch of an aircraft can be very addictive.

Four large model airplanes were on static display including the famous Piper J-3 *Cub* and the P-51 *Mustang*. Even the model airplane clubs are not what they were a few years ago. Now you must be a member to even go out to the flying club and watch the model airplanes fly. Here, the model airplane pilots allowed the young boys and girls to get a first hand look at a miniature airplane and find out how they fly.

Sixty-five individuals toured the Air Traffic Control Tower. Air traffic control is another way to get involved in a very rewarding career in aviation. Airplanes can't fly without the professionals on the ground, especially the mechanics.

It took 31 exhibitors, 27 contribu-

tors, five volunteers, 22 FAA administration and aviation safety inspectors, and 10 air traffic controllers to make the day a success. This does not count the parents, teachers, and kids. We planned the event during a school week; thereby, allowing the school kids to make this a field trip. If the truth were really known, the teachers were as excited as the children were. We need teachers who can teach aviation in the classrooms. They must have a love for aviation in order to be a good aviation teacher.

One of our local aviation medical examiners talked about aviation medicine and how it relates to the pilot. He explained even the simplest body functions and how they react when the pilot is in an airplane. A local pilot examiner, who is also a high school teacher, explained what makes an airplane fly. He made physics simple and interesting.

FAA Inspector Mike Chapman demonstrated the night vision goggles that he uses in the Army National Guard. Over 60 kids saw first hand how the military flies safely at night by trying the goggles on in a very dark room.

FAA Inspector Mary Donahue demonstrated to 60 kids how an airplane flies. She made it fun for all ages.

The day was not only fun, but also educational. Even the older pilots who attended said that they did not know some of the information that was explained. It just goes to show that we are never too old to learn when it comes to aviation.

The contributors supplied food, cold drinks, and door prizes for everyone who attended.

Our goal was to create interest in aviation and encourage the young to follow a career path in aviation. Their support greatly contributed to Kids' Day 2001, and we look forward to future events with even greater public interest. The temperature was a mild 75 degrees with not a cloud in the sky. The wind was very light. It was a perfect day for such an event.

Everyone talks about how much it costs to fly. Have things really changed in year 2001? Not at all, in fact one works less hours to get flight lessons.

In the 1950's, a student could take flying lessons for about $11.50 per hour. The high school student at that time was making about $.75 per hour working in the local grocery store. This amounted to working about 15.3 hours for one hour dual flying time. Now in the year 2001, a student can take a flying lesson for about $50.00 per hour. It sounds like a lot of money, but look what the high school kids are making after work. At least $5.00 per hour would sound about right. At that rate, it would take 10 hours of work in the part time job to have enough money to fly for a one-hour period of dual flying time. It amounts to the young kids in the year 2001 work 5.3 hours less to get one dual flight lesson. What is more important, a new car or learning to fly? When they say it costs too much, does it really?

We hope by having Kids' Day, we have encouraged some young boy or girl here in Louisiana to become a pilot or mechanic or controller. The shortage of airmen is not next week, not next year, but now.

If you own an airplane, take a young friend for a ride. That ride may be all it takes for the starting of a new aviation career.

M. Kay Fulkerson is the (operations) Safety Program Manager at the Baton Rouge FSDO.

"HOT" Seats and You

by H. Dean Chamberlain

As a result of a civilian, surplus military-jet aircraft accident in February 2001, a safety suggestion was sent to FAA Headquarters concerning the use of "hot" ejection seats in such aircraft. Although FAA approves the use of "hot" ejection seats in aircraft designed with them, the seats have to be maintained in accordance with the manufacturer's recommendations.

At issue is the safety of such seats. No, we are not talking about the safety of the seat's design; we are talking about the maintenance and continued airworthiness of such seats. The basic question is, "Will the seat work as advertised in an emergency?" Or more simply, will the seat get you out of the aircraft when you want to get out of the aircraft?

In the case of the submitted safety recommendation, the aircraft discussed was an Aero Vodochody L-39. According to one U.S. company's website, Czech Jet, Inc. which specializes in the maintenance, servicing, and training for the L-39, the L-39 is used in 16 countries as a military training and light attack aircraft. The L-39 aircraft—one was the military jet used in the most recent James Bond movie—has become popular in the United States as an "affordable" military jet for those wanting such an aircraft. In the U.S., the aircraft are certificated by FAA as experimental, exhibition under 14 Code of Federal Regulations (CFR) §21.191(d).

According to the safety suggestion and the Czech Jet Inc.'s website, some of the Czech-built military aircraft ejection seat systems in the U.S. are not being maintained properly. Czech Jet states their inspections and servicing of L-39 ejection systems have found some seats and associated equipment not being inspected properly, poor documentation of maintenance and servicing, parts installed wrong or not removed when required, and life dated components such as the critical seat rocket motor out of date. In some cases, important safety pins were found either not installed properly or not removed when they should have been removed. The seats would not have worked in some cases.

What this means to those who ride on "hot" seats or work around "hot" ejection seats and systems, is that the seats may not function when needed or that they might accidentally fire when work is being performed on the seat or cockpit area if the seat has not been properly maintained or made safe after a flight. Add in the risk of the canopies ejecting if inadvertently activated, and the risk of "hot" seats becomes higher for those sitting on them or working near them if they lack the knowledge to know if the seats are safe to be around. Then, add in the possible lack of knowledge of a passenger to operate the seat or even know the proper body position to eject, and the risk of death or serious injury increases as more people become exposed to the seat and cockpit area of aircraft with "hot" ejection seats.

Therefore, it is important for anyone, pilot, passenger, mechanic, or anyone helping someone getting in or out of a "hot" seat or working on a "hot" seat, to know, understand, and comply with all safety procedures involving such seats. This includes the proper maintenance procedures, record keeping, safety features, and how to properly operate the seat and any related safety systems. Proper instruction in how to correctly strap into any parachute that might be part of the system is also important when flying in any aircraft with a "hot" and properly armed ejection seat. Each person riding in or working on an ejection seat system should know how to properly arm the seat and how to properly "safety" the seat.

For more information about surplus military ejection seats, for example, those in the L-39, interested readers can contact Aero Vodochody at <www.aero.cz> or call the company in the Czech Republic at 420-2 8603 1111. Another source of information about the L-39 is Czech Jet Inc. at <www.L39.com> or by telephone at (408) 394-4213. According to the Czech Jet's Internet website, "Czech Jet Inc. is a leading U.S. source for L-39 information, training, support, restoration, operation, ejection seats maintenance, and service of the Aero Vodochody L-39 aircraft." Readers may also contact the EAA Warbirds of America online at <www.warbirds-eaa.org> or by telephone at (920) 426-4800 for information about surplus military aircraft.

Failure to know and follow the aircraft manufacturer's recommended safety procedures could result in serious injury or death.

FAA Releases Runway Incursion Risk Categories

As part of an ongoing effort to increase runway safety and target safety resources, the Federal Aviation Administration (FAA) has established four risk categories to capture the severity of runway incursions and explained them in a new report.

"Reducing runway incursions is one of our highest priorities," said FAA Administrator Jane F. Garvey. "For the first time we have classified incursions by risk. This allows us to target resources and solutions to help turn the tide on runway incursions."

The report, FAA Runway Safety Report - Runway Incursion Severity Trends at Towered Airports in the United States, analyzed the 1,369 runway incursions reported from 1997 through 2000 and showed that 81 percent of the incursions fell into the two lowest risk categories. It also found that the number of high-risk incursions leveled off during the four-year period, but total incursions rose as the number of less severe incidents increased.

Between 1997 and 2000, there were 266 million takeoffs and landings at U.S. towered airports. The 1,369 incursions that occurred during that period were distributed among 297 of the 459 airports that have control towers. The remaining 152 airports had no incursions. A team of aviation experts reconstructed, analyzed, and placed each incursion into four categories of increasing risk:

- Category D incursions represent little or no risk of collision, but meet the definition of a runway incursion.
- Category C incursions decreases separation, but has plenty of time and distance to avoid a potential collision.
- Category B incursions decreases separation further, and a significant potential for collision exists.
- Category A incursions is the most severe category with the margin of safety so low that a collision is barely avoided because extreme action is taken.

Over the four years, seven percent of the incidents fell into the most serious category, another 12 percent were potentially serious, 35 percent allowed time to avoid a collision, and the remaining 46 percent represented little or no risk. In doing the analysis, team members from diverse aviation backgrounds considered variables such as aircraft types, human performance, airport characteristics, and environmental factors. These variables will now be used to classify future runway incursions. Also, improved runway incursion data collection and reporting practices will focus on why the incursion took place, so the aviation community can find the right solution for the problem.

The report also concluded that:

- Based on their proportion of total takeoffs and landings, no single aircraft operation type (commercial, general aviation, military) accounts for a significantly greater proportion of runway incursions.
- Airport volume alone is not a reliable indicator of runway incursion trends, but the 32 busiest airports accounted for 37 percent of the high-risk (category A and B) incursions.
- The most common type of incursion involved two general aviation aircraft and fell into the two lower-risk categories.
- Taking steps to reduce category C and D incursions also may prevent higher-risk incursions.
- Because the cause of runway incursions may involve a mix of aircraft types, airport layout and procedures, a measure of airport complexity should be developed to better identify what causes incursions.

Working with members of the aviation community, the FAA has installed new runway safety technology; has stepped up training, education, and awareness; and has improved airport markings and lighting to help reduce incursions at airports around the country. The new data will help the agency focus runway safety resources in areas where they are most needed.

For those interested in reading the report, it can be found at <www.faa.gov/runwaysafety>, click on "Current Events" and scroll down to "FAA Runway Safety Report."

• 10-MILE RADIUS

I am writing about the article in the Jan/Feb 2001 edition of *FAA Aviation News*, pages 25/26. There is a discussion about the NDB 35 approach at Holyoke, Co., but the approach plate depicted is for the VOR approach at Clarion, Pa. Did I miss something?

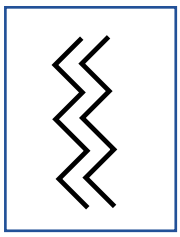
Also, I could have been confused by the references to "remain within 10 miles." It seems that some pilots think the 10 NM ring is a "limit." I believe it is not. The requirement to remain within 10 is made in the profile view with the wording: "Remain within x miles;" or with the statement, "one minute holding pattern." (the one minute of flight, limiting the distance flown.)

Please clarify.

Skip Lacey
Via email

The Clarion County approach plate was just used to illustrate a 10 NM circle.

You are correct about the 10 NM radius ring or distance circle not being a limitation unless the chart states it is a limitation. The ring or circle shows scale. The new (2001) FAA Instrument Flying Handbook, FAA-H-8083-15, states in part the following, "The majority of NACO charts contain a reference or distance circle with a 10 NM radius. Normally, approach features within the plan view are shown to scale; however, only the data within the reference circle is always drawn to scale. The circle is centered on an approach fix and has a radius of 10 NM, unless otherwise indicated. When a route segment, outside of the circle, is drawn to scale, the symbol interrupts the segment."

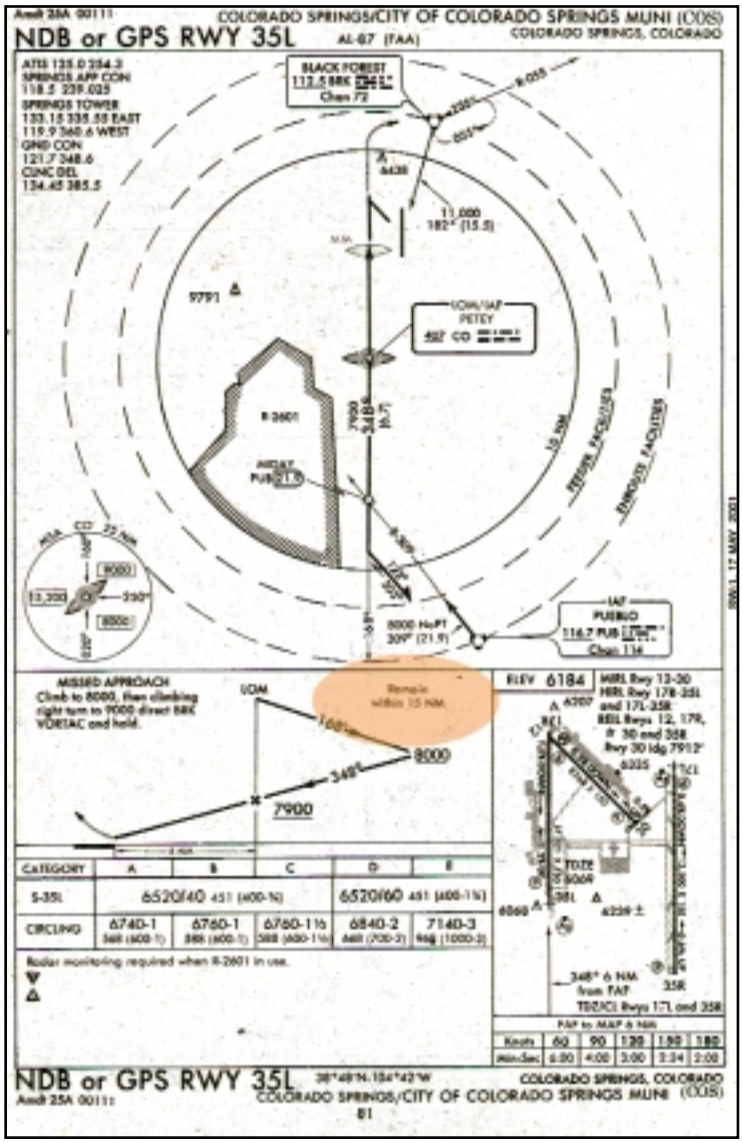


"Dashed circles, or concentric rings around the distance circle, are used when the information necessary to the procedure will not fit to scale within the limits of the plan view. They serve as a means to systematically arrange this information in its relative position outside and beyond the reference circle. These concentric rings are labeled en route facilities and feeder facilities."

Regarding your comment about the reference to "remain within 10 NM," we cannot emphasis enough the importance of complying with that or any other guidance published for a given approach procedure. Your flight safety depends upon complying with such guidance. Each procedure provides certain terrain clearances depending upon the type of approach and category (speed) of aircraft. Once you exceed the stated distance or altitude listed for any procedure you start reducing your margin of safety. To better understand what we are talking about, we suggest you review the United States Standard For Terminal Instrument Procedures (TERPS) manual. You would be surprised just how little margin of error is provided when you exceed the primary area of protection provided for a given procedure. For example, quoting from the TERPS, "Obstacle Clearance. A minimum of 1,000 feet of clearance shall be provided in the primary area. In the secondary area, 500 feet of obstacle clearance shall be provided at the inner edge, tapering uniformly to zero feet at the outer edge."

Although there are some other criteria mentioned, this statement gives you an idea of what protection you have in the published procedure and what protection you don't have when you exceed the published procedure.

The new FAA Instrument Flying Handbook *gives a very good explanation using color to highlight the important elements of an approach chart including discussing all of the elements on the plan view.*



NEW CONVECTIVE DATA SERVICE

If you have not visited the Aviation Digital Data Service (ADDS) Internet site recently, you may not know about the latest service provided by the FAA and the National Weather Service (NWS). For those not familiar with ADDS, the FAA funds and directs ADDS and the experimental weather products that it displays. These products have not been developed by and are not endorsed by the NWS.

The latest project is displaying the current convective and extrapolated significant convection activities. As noted in the planned *Aeronautical Information Manual* (AIM) change that *FAA Aviation News* reviewed, the new National Convective Weather Forecast (NCWF) is a supplement to, but not a substitute for, the information contained in Convective SIGMET. However, as the change notice explained, "convection, particularly significant convection, is typically associated with thunderstorm activity."

The NCWF is updated every five minutes using data from the Next Generation Weather Radar (NEXRAD) and cloud-to-ground lightning data.

Designed to show high-resolution convective forecast data in a small volume of airspace, the output will show location, speed, and direction of moment of certain types of convective activity.

The system does have limitations that pilots need to remember. For example according to the AIM change, "NCWF extrapolation forecasts are more accurate when predicting the location and size of well organized, unchanging convective storms moving at uniform speeds. The NCWF does not work well with sporadic, explosive cells that develop and dissipate in minutes."

The change said, "In displaying forecast cell locations, the NCWF does not distinguish among level 3 through level 6 of the NCWF hazard scale." Nor does NCWF detect or forecast:

(a) some embedded convection.

(b) Low-topped convection containing little or no cloud to ground lightning (such as may occur in cool air masses).

(c) Rapidly evolving convection.

"The NCWF cannot provide information on specific storm hazards such as hail, high winds, or tornadoes."

As the proposed AIM change said, "the NCWF is most accurate for long-lived mature multi-storm systems such as organized line storms. NCWF does not forecast initiation, growth, or decay of thunderstorms. Therefore, NCWF tends to under-warn on new and growing storms and over-warn on dying storms. Forecast positions of small, isolated, or weaker thunderstorms are not displayed."

The NCWF also is only available in the 48 contiguous states.

With all of its limitations, the NCWF promises to provide pilots a new and dynamic visual way to help plan their flights. You can check out both the NCWF and the many other features of the ADDS web site at <http://adds.awc-kc.noaa.gov>.

INFORMATION ON AIRPORT DELAYS AVAILABLE ON CNN

Immediate information on airport delays began airing on June 5 as a "ticker" on the bottom of screens on CNN Airport Network. In an effort to provide timely airport delay status information to travelers, House Aviation Subcommittee Chairman John Mica (R-FL), Federal Aviation Administrator Jane F. Garvey, the CNN News Group Chairman and CEO Tom Johnson, and American Association of Airport Executives (AAAE) President Charles Barclay jointly announced this timely new information service for passengers.

The airport delay information comes directly from the Federal Aviation Administration's (FAA) Air Traffic Control System Command Center web site, <www.fly.faa.gov>, which provides real-time airport status information. Passengers should continue to check with their airline for specific flight information. The new CNN service will provide a ticker that will read: "FAA airport delay advisory" and "Check with your airline for details." It will then scroll the city/airport name, the airport's abbreviation code and the delay time. If there are no delays greater than 60 minutes, the ticker will not appear.

"I am pleased that CNN and the FAA cooperated to create a service to keep airline passengers updated about delays. This is a great example of how the government can work with industry to make the traveler's experience a better one. Information about delays is critical to traveling passengers and this will be a great assistance in helping passengers plan their travel," said Chairman Mica.

"Chairman Mica and Secretary of Transportation Mineta must be applauded for their leadership on this project," said Garvey. "As a result of this joint effort, millions of travelers will have access to information from the FAA's Command Center. We are committed to providing travelers with the most current information so they may make informed decisions."

"CNN is pleased to be playing such an important role in getting valuable airport delay information from the Federal Aviation Administration directly to the traveler," said Johnson.

"A lack of information only compounds the frustration passengers experience when they are stuck at the airport because of a delayed or cancelled flight," said Barclay. "Thanks to the leadership of Chairman Mica and Administrator Garvey, and to the cooperation of CNN Airport Network, this summer millions of passengers will have access to additional, real-time information about the aviation system's status."

The list of major airports and their

abbreviation codes on the ticker will include: Atlanta (ATL), Baltimore (BWI), Boston (BOS), Charlotte (CLT), Chicago (ORD), Cincinnati (CVG), Cleveland (CLE), Dallas/Fort Worth (DFW), Denver (DEN), Detroit (DTW), Houston (IAH), LaGuardia (LGA), Las Vegas (LAS), Los Angeles (LAX), Miami (MIA), Minneapolis (MSP), Newark (EWR), New York (JFK), Orlando (MCO), Philadelphia (PHL), Phoenix (PHX), Pittsburgh (PIT), Reagan National (DCA), Salt Lake City (SLC), San Francisco (SFO), Seattle (SEA), St. Louis (STL), and Washington Dulles (IAD).

CNN Airport Network is the only live, satellite-delivered television service that provides up-to-the-minute news and information to the traveling public. Launched in 1992, the service is now offered in 35 of the nation's busiest airports, covering more than 1,600 gates and other viewing areas.

FAA APPROVES AIRPORT MOVEMENT AREA SAFETY SYSTEM

After extensive testing, the Federal Aviation Administration (FAA) announced that it would begin using an alert warning system at the country's 34 busiest airports to help prevent runway accidents. Already in use at San Francisco and Detroit, the Airport Movement Area Safety System (AMASS) provides air traffic controllers with visual and aural alerts of potential runway accidents caused by runway incursions.

"This new tool provides passengers an extra margin of safety on the runway," said Administrator Jane F. Garvey. "While technology like AMASS is crucial, the FAA believes that heightening and maintaining the awareness of pilots, controllers, and airport vehicle operators through education is the best way to improve runway safety."

The AMASS is an enhancement to the Airport Surface Detection Equipment Model 3 (ASDE-3) radar. The system works by processing surveillance data from the ASDE-3, the airport surveillance radar, and the terminal automation system. It then determines conflicts based on the position, velocity, and acceleration of airborne arrival aircraft with ground-based aircraft and vehicles. Currently, 33 major airports have commissioned the ASDE-3, which enables controllers to observe airport surface movements, particularly at night and when visual observation is impaired by bad weather.

Maintenance and oversight of the AMASS was transferred from Washington headquarters to FAA facilities in San Francisco and Detroit in June. The remaining 32 airports are scheduled to have the system in operation by the end of 2002. Developing AMASS into a useful, reliable warning system to meet user requirements has been an extremely complex technical challenge. The AMASS is comprised of two subsystems, one built by Northrop Grumman Systems Corp. Norden Systems, and the other built by Dimensions International, Inc.

In its continuing effort to improve runway safety, the FAA is working closely with the aviation community to promote and support increased education, training, and awareness for pilots, controllers, airport personnel, and vehicle operators.

NOTICE OF UPCOMING NTSB GENERAL AVIATION FINAL ACCIDENT REPORTS NOW AVAILABLE

According to a National Transportation Safety Board (NTSB) media release, the NTSB has added a new feature to its web site that gives notice of pending releases of probable cause briefs of general aviation accidents. The new feature debuted the week of June 20.

Under the new procedure, the Board will list accidents on its web site for which final reports are nearing completion and indicate the week of their anticipated release. The accidents will be listed by accident number, date, location, and aircraft registration number. For example, the initial list contains 103 general aviation accidents and states that the final reports are expected to be available the week of July 2.

"Although the Safety Board has been publishing final accident reports on its web site for several years, we realize that it has sometimes been difficult for interested persons to know when a particular report would appear," NTSB Acting Chairman Carol Carmody said in announcing the new procedure. "Now, affected family members, news media representatives, and the general public will be better able to prepare for the release of final accident reports."

The NTSB issues almost 2,000 aviation accident and incident reports a year. They are published on the Board's web site, <http://www.ntsb.gov>. The list of accidents for which probable cause briefs are pending can be found at <http://www.ntsb.gov/aviation/pc_release.htm>.

NATA DEBUTS AIRPORT COMMUNITY RELATIONS TOOLKIT

The National Air Transportation Association (NATA) has released its Airport Community Relations Toolkit. The Toolkit is the next major step in the American Aviation Access Initiative (AAAI), a NATA program designed to improve turbine-powered aircraft access to general aviation airports throughout the United States.

"This Toolkit goes beyond identifying the economic benefits an airport represents and emphasizes the quality of life aspects of a community airport," said NATA immediate past chair Linda Barker. "Although the economic ben-

efits are certainly important, it is by stressing the improved quality of life—medical access, public safety access, business access—that community residents may appreciate the real benefits of their airport."

The Toolkit is a comprehensive workbook designed to assist aviation businesses in establishing and maintaining good airport community relations. It comprises five sections: Developing a Community Relations Program, Implementing Community Outreach Elements, Communicating Effectively and Resolving Conflicts, Pulling It All Together-Strategies for Action, and Additional Resources. Each section includes detailed steps on building trust and establishing a good rapport with community groups and leaders, the FAA, public officials and the media.

"The Airport Community Relations Toolkit serves two additional purposes," concluded Barker. "First, we've identified solutions that will eliminate or reduce residents' concerns about an airport. Second, in evaluating concerns we've explored mechanisms that might be most effective in reaching out to a community to address specific issues."

The Toolkit is priced at $30.00 and may be ordered from NATA by contacting Kathy Bailey-Sumlin at 800/808-6282.

NEW TAXI ADVISORY CIRCULARS PUBLISHED

Two new FAA advisory circulars (AC) have been published. One is for taxi operations for general aviation pilots, and the other one is designed for air carrier pilots. AC 91-73, Part 91 Pilot and Flightcrew Procedures During Taxi Operations and Part 135 Single-Pilot Operations, is designed for general aviation operations. AC 120-74, Part 121, 125, and 135 Flightcrew Procedures During Taxi Operations, is the air carrier version.

Both AC's provide guidelines for the development and implementation of standard operating procedures for conducting safe aircraft operations during taxiing. Topics include safe practices, runway incursion issues, importance of situational awareness, and special procedures required during low visibility conditions.

Both are available on the FAA's Internet website at <www.faa.gov/avr/afs/acs/ac-idx.htm>.

AD'S NOW ON THE INTERNET

Aircraft Certification and Flight Standards Services have announced that all current Airworthiness Directives (AD) from the 1940's to present are now available in electronic format for full text searching on the Internet. They are in the Regulatory and Guidance Library (RGL).

The direct address for the RGL is <www.airweb. faa.gov/rgl>. It is also on the FAA's home page. You can find it by clicking on "FAA Organizations" and then "Aircraft Certification Service."

FAA SAFETY FORUMS AT AMERICA ONLINE

The following is the 2001 proposed schedule of FAA aviation safety forums produced by FAA Aviation Safety Inspector and Safety Program Manager Mr. Buz Massengale from the Tampa Flight Standards District Office. Each Wednesday, Massengale holds his online safety meeting starting at 9:30 p.m. Eastern time. The meetings are held in the "Wright Hall" chatroom on America Online (AOL). For AOL members, use the keyword "FLY" then enter the Wright Hall chatroom. The online meeting qualifies as a safety seminar under the FAA's "Wings" program. For more details about the online safety meeting, you can contact the Tampa FSDO's website at <www.faa.gov/fsdo/tpa>.

2001 SCHEDULE

9/5 Pilot, Teach Thyself
9/12 (Pilot's) Attitude Determines Altitude
9/19 Making a Clean Brake
9/26 Pilot Proficiency Award (WINGS) Program

10/4 Hypoxia: Air Apparent
10/11 NO FORUM
10/18 Cross-country Flight
10/25 Aircraft Flight Manual

11/8 Holiday Flying
11/15 Vision: The Eyes Have It
11/22 NO FORUM - THANKSGIVING
11/29 Aviation Trivia Contest

12/6 Maximum Performance Takeoff
12/13 NO FORUM
12/20 Vital Signs: Engine Instruments
12/27 What Are Your Top Safety Concerns for 2001?

Editor's Runway

from the pen of Phyllis-Anne Duncan

Nature of the Beast

The October 2000 Editor's Runway got more reaction than any other editorial since we've being doing them in *FAA Aviation News*. That was where I recounted ditching work back in 1976 to see the Concorde land for the first time at Dulles International Airport in Northern Virginia. I lamented the horrible accident that had occurred months before and, while acknowledging the tragic loss of life, hoped that the Concorde would fly again. After its publication I got calls and e-mails, people stopping by the office, to comment that I had put their feelings into words. Such is the mission of commentary.

Almost a year after its first fatal accident, a Concorde in British Airways colors made a four-hour test flight over the North Atlantic. With redesigned wiring, puncture-proof tires, and Kevlar-lined fuel tanks, Concorde passed the first test flight since the accident. The hopes are for a return to service later this year.

The problem-solving that went into the problem of tire fragments puncturing fuel tanks serves as an example of the nature of aviation. Since the first hot-air balloon rose in 1783, pilots, designers, builders of aircraft have tweeked and tuned and adjusted. In the "old" days, you had to build the redesign to see if it would fly or if the problem had been taken care of—classic trial and error. Today, a lot of the problem-solving can be done and tested on computers before the test flight has to occur, and the outcome is a great deal more predictable than the trial and error method and a lot less costly.

People in aviation seek to solve problems. I believe that it is in the nature of the beast, that we do this thing that not many others do and that we don't take it for granted. When a problem occurs, there is a ripple effect, then a reverse wave when we all put our minds to that problem. Human beings first flew because they wouldn't take no for an answer, and "can't be done" wasn't part of their vocabulary. In aviation, it seems, there is always a new frontier to be explored, no problem too difficult to address. Even when an accident reveals a problem to be ameliorated, to paraphrase Nike, we just do it. To do less is to demean the human tragedy involved. The key is that we put our collective aviation minds to the problem and are not satisfied until it's solved.

But an accident doesn't always have to be the impetus. Like the reason for climbing a mountain (it's there), sometimes we open our aviation minds simply because we can. Airbus has designed and already has commitments for the purchase of the world's largest passenger airplane. Boeing has unveiled the design for a hypersonic aircraft. The multiple-force fighter aircraft is already in the air—a truly remarkable accomplishment considering each of the U.S. armed forces had different needs which were combined into a single aircraft, including vertical takeoff and landing capability.

This human ability to solve problems, to think about what might be is why we no longer squat in caves and why, someday, we will have aircraft that skirt space; we will have spacecraft that flirt with faster-than-light propulsion. And aviation can take credit for it. From the first human who looked at a bird and wondered to the myth of Icarus to the drawings of daVinci to Montgolfier and Lillenthal and the Wrights to Yeager and Cochrane to Collins (Michael and Eileen) to the Skunk Works and the Jet Propulsion Laboratory, an infinite line of aeronautical genius stretches forward into an unknown but promising future that has its origins in what we call aviation.

I think; therefore, I fly.

Next issue will be a special ballooning one to coincide with the Albuquerque Balloon Fest and a poem in this space. I'll apologize now: Poetry, as you'll see, is not my forte.

'Til next time.

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of Transportation

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