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FEATURES

DEPARTMENTS

COVER: A LearJet 60 heads over water for Europe. Photo courtesy of LearJet.

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SEAPLANE SAFETY ISSUES
Part 2 - Seaplane Noise

by Phyllis Anne Duncan

Part 1 of this three-part series appeared in the March 1997 issue of FAA Aviation News and dealt with seaplane accidents over a 13-year period. For a copy of that issue, please contact Ms. Brenda Howard at (202) 267-7065 or send your name, address, and request to the address on the inside front cover or to the e-mail address: Phyllis.Duncan@faa.dot.gov .

I confess I have little patience with people who move into brand new houses near an airport that has been in existence for several decades and who then complain about the airplane noise. Washington Dulles is a case in point. When it opened in the early 1960's about the only thing disturbed was an errant steer or two, then came the building boom, and all of a sudden community associations in Sterling and Herndon, VA began to complain about "those noisy airplanes."

Swank neighborhoods in McLean and Great Falls, VA voice the same complaints about National Airport (opened in the 1940's). In both cases approach and departure profiles for those airports were altered to expose neighborhoods to the smallest noise footprint possible. The people on the ground are happier (although some won't be happy unless both airports are closed), but the pilots are not because the profiles mean operating at reduced throttle settings or cutting power at critical moments in flight—not to mention the interesting turns to stay over the Potomac River when approaching National Airport to land on Runway 18.

Fifteen years ago when I was house-shopping, I considered buying near the airport where I had learned to fly. The realtor showed me a house just a block or two from the airport grounds, and I remarked from the house's back deck that I had a view of the airport and its airplanes.

"Oh," she said, "don't worry. That noisy place will soon be closing down. The community association is seeing to that."

Imagine her surprise when I indicated that having the airport close by was a positive factor in any purchase decision I would make. (That airport is still in operation, by the way.)

Airports have their noise "problems," real or imagined, and seaplane operations seem to attract what many aficionados feel is undue attention. At the heart of many complaints about seaplanes is not the issue of safety, which, as we saw in part one of this series, we all need to work on. Some may use the catch-all "safety" to mask their real annoyance—noise.

Is It Really Noise?

Many times communities who don't like the noise of aircraft couch their complaints in safety terms. An airport and a community could have co-existed for dozens of years safely, but instead of coming out and saying they don't like the noise, people will write their legislators about the "safety problem." One would think airplanes rained out of the sky into their backyards on a daily basis.

One example was Annapolis, MD several years ago. The Maryland State Legislature was about to ban seaplanes from the Severn River because they were "unsafe," so said the legislators. In this case, FAA safety officials went before the appropriate committee and testified that there was no safety problem. It turns out the problem was the owners of half-million dollar, waterfront homes thought they would be disturbed by the noise from the single seaplane that had been operating there. Of course, the noise from their power boats was okay; it was just the seaplane that was noisy.

This story had a happy ending; the Maryland legislature did not ban seaplanes from the Severn. Not all occurrences such as these have had happy endings, though. More and more across the country, state and local jurisdictions have excluded seaplanes from waterways, even those where there had been a long and safe precedent of operation.

As we have seen in Part 1 of this series, quite often safety is not really the issue, given the accident history: only three boat/seaplane accidents and virtually no non-seaplane property accidents over the 13-year period. What it comes down to is that, well, a small airplane with a two-bladed prop is noisy. But that doesn't mean that aircraft and communities cannot come to a compromise that assures home owners of their serenity and pilots of their access. The Helicopter Association International (HAI) with their "Fly Neighborly" program has won over many a community that previously wanted helicopters banned from the airspace over its homes. There is no reason why the same can't be true of seaplanes.

FAA Noise Studies

FAA recommends that noise impact studies be developed at airports that have or expect adverse noise impacts with their neighboring communities. Grants may be issued to publicly owned airports for this purpose under the Airport Improvement Program, subject to the availability of funds and national priorities. Privately owned airports may be considered for funding when the airports are designated as "reliever" airports in major metropolitan areas with congested commercial airports. Most private airports and seaplane landing areas come no where

close to that many operations, but FAA is available to assist and advise on privately financed studies. Occasionally, the seaplane base operator will pay for the noise impact study, but for most seaplane operators the cost is exorbitant. And a contractor's report is likely to favor the position of the entity paying the bills.

Unless the community is Lake Union in Seattle, WA or Lake Hood in Anchorage, AK, the exposure to seaplanes is likely to be single aircraft for infrequent operations. Still, the amount of noise tolerated by any jurisdiction across the country varies according to the community. The federal standard for aircraft noise in a residential area is DNL 65 decibels (dB). (DNL is a measure of noise exposure over 24 hours.) According to how noise exposure is calculated, a Cessna 185 that makes 52 takeoffs per year—one a week—won't cumulatively exceed DNL 65 dB for a listener more than 2,000 feet from the start of the takeoff roll and 250 feet from the takeoff centerline.

Seaplane Noise - Takeoff and Landing

During takeoff an airplane or seaplane uses the most propeller velocity to become airborne. With certain exceptions, takeoffs are accomplished at full power, and power is reduced once the aircraft is established in the climb.

Overflights at 500 feet at cruise power settings can expose people on the ground to far more noise than a landing seaplane. "Dragging" the area before landing is a common practice especially if you are unfamiliar with the water landing area or if you have reason to suspect debris or obstacles might be in the water.

Landings are generally made at greatly reduced power settings, and, consequently, the noise comparison between takeoffs and landings favors landings. According to a Seaplane Pilots Association study, "In fact, seaplane noise levels at low throttle settings may be generally below background noise levels and thus are not measurable."

Most of the noise generated by any airplane comes from the propeller tips. Many are under the misconception that it is engine or exhaust pipe noise that people complain about because we tend to think in terms of automobiles. The propeller tip Mach number—the tip speed related to the speed of sound at the existing air temperature—and horsepower input to the propeller determine airplane noise output. The number of blades and the propeller's diameter also determine noise output to a lesser degree.

A rule of thumb is that doubling the horsepower at the same tip speed results in an increase in the sound level of five dB. To put it in everyday terms, a five percent increase in RPM will create an increase in the noise level of at least 1.5 dB. (It can increase 3-4 dB.) When tip speed is higher than .9 Mach, "noise levels increase dramatically," according to SPA.

Table 1 shows eight typical seaplanes and their noise levels as measured from a standard distance of 1,000 feet in a river valley setting. In larger water areas, noise levels may actually be less.

Noise studies have shown that a person perceives different levels of noise from an airplane depending upon the person's position relative to the airplane. The sound is greatest at the prop tips at about 105° from the front of the aircraft or about 15° aft of the wing tips. As you move forward, the noise level drops by about seven dB up to 30° off the nose then drops precipitously after that. When you move aft, noise decreases more rapidly, dropping up to 12 dB when 160° aft of the nose or about 70°aft of the wing tip. What this means is that when you are directly in front of or behind a seaplane, you perceive considerably less noise than if you were beside it.

As we said, propellers are noisiest when the tip speed is around .9 to .95 Mach, but three-bladed props make less noise than two-bladed props. Three-bladed props develop more thrust for a given rpm than a two-bladed prop at the same rpm; thus, the tip speed is not as great, and the noise is less. One seaplane FBO converted its Cessna 185's and 206's to three-bladed props and noted a five to six dB decrease for some model propellers.

Q-tip props are thought to be another route for noise reduction. The curled-up tips of the prop blades reduce the airflow off the end of the tip, much like winglets reduce wake vortex at wingtips. The manufacturer does not claim that the Q-tip prop reduces noise, but its diameter is two inches less than the props it replaces. At the same RPM as a non-Q-tip prop it produces more thrust at a less tip speed and thus less noise.

In addition to a person's relative position to the seaplane, noise decreases as the seaplane moves away from the person, generally three to seven dB decrease for each doubling of the distance. For example, if a seaplane's noise level is 87 dB at 1,000 feet, that level should decrease to around 82 dB at 2,000 feet. These figures are approximate, and factors such as temperature, obstacles in the vicinity, and strong winds can affect the noise level as perceived by a person. Vegetation such as thick, tall grass or trees can attenuate noise significantly, but a seaplane operating on open water will have very little help from the surrounding flora. A person's distance from the

Table 1. Seaplane Takeoff Noise Levels

Aircraft	Horsepower	Blades	Max A-weighted Sound Level
Taylorcraft	85	2	65 dB
Seabee	215	2	81 dB
Stinson	215	2	82 dB
C-180K	235	2	86 dB
C-U206G	300	3	88 dB
C-TU206G	300	3	88 dB
C-185	300	2	92 dB

Table 2. Noise Level Thermometer

	Seaplanes	Other
110dB		• Inside discotheque
		• Chain saw @ 100' (130dBA @ 3')
100dB	• Inside cockpit of high perf. single	
	• C-185 seaplane 2-blades @ 750'	• Lawnmower @ 3'
	• C-185 seaplane 2-blades @ 1000'	
90dB		
	• C-206 seaplane 3-blades @ 1000'	
	• C-180 seaplane 2-blades @ 1000'	• Bus or truck @ 50'
	• Stinson seaplane @ 1000'	
80dB	• Seabee w/Franklin @ 1000'	
	• Super Cub w/150hp @ 750'	• Bus or motorcycle @ 100'
		• Inside pickup truck @ 60 mph
		• Neighbor's lawnmower @ 100'
70dB		
	• C-172 overhead cruise @ 1000'	• Dishwasher on in kitchen @ 10'
	• Taylorcraft seaplane @ 1000'	• Heavy rain with no wind
	• Ranger Widgeon cruise overhead @ 1000'	• Car @ 100'
60dB		• TV on in living room @ 10'
		• Conversation @ 5' - inside
		• 3.5 miles from takeoff at small airport
		• DC-10 at 240 knots overhead @ 5000'
50dB		
		• Robin singing @ 50'
		• 5 mph wind in trees @ 50'
40dB		
		• Quiet House @ 5:30 AM - inside
30dB		

Note: These data were all measured by the authors of a Seaplane Pilots Association (SPA) report. If adding items to this table, please relate the noise level to distance and if possible to actual horsepower and specific brand of equipment, as there is much variety in the noise output from different types of machinery. Aircraft sound levels are at full takeoff power unless noted otherwise.

seaplane and the type of seaplane are the most significant factors in determining the impact of seaplane noise. By virtue of the seaplane's "ideal" operating locale—open water on whose shores may be houses with outdoor decks, docks, pools—noise impact from a seaplane may be attenuated very little.

What is Too Much Noise?

As we said earlier, the answer to this question depends. People who live on one of those airport residential areas are probably way more tolerant of airplane noise than residential areas where people have little or no experience with aviation. An airplane developing full power on takeoff is music to my ears and perhaps yours, but to some it is a dissonant cacophony. And these may be the very people who think nothing of subjecting their entire neighborhood to their riding lawn mowers or leaf blowers. Somehow, they believe that the seaplane—perhaps because it is bigger—is noisier, and many are surprised when comparative tables show common, neighborhood noises which are as loud or louder than seaplanes. However, people become inured to lawn mowers, dishwashers, etc., because they are in common usage. The seaplane showing up in the neighborhood may be a rare occurrence, and, as such, it attracts more attention than the newest yuppie toy, the lawn tractor.

Table 2 (Page 3) is a comparison of the sound levels of various seaplanes and common neighborhood noise. It is interesting to note that a quiet house at 0530 has a perceived sound level of 30 dB and that the next noisiest thing after a robin singing at 50 feet is a DC-10 overhead at 5,000 feet.

Am I Compatible with the Neighborhood?

Out of courtesy and to save a lot of grief, every seaplane operator should ask him- or herself this question.

- How does my seaplane noise compare to background noise in the neighborhood? If the neighborhood is sandwiched between an interstate highway and your seaplane operations, your noise could get lost in the background.

- How does my seaplane noise compare with any power boats, motorcycles, trains, trucks, lawn mowers, etc., in the vicinity? A chain saw or motorcycle 25 to 50 feet away far exceeds seaplane noise at 1,000 feet.

- What is the community's normal activities and what kind of noise does this produce? Obviously, if you want to operate near a retirement home or progressive assistance community, the normal noise levels may be fairly low, and your single takeoff would be highly disruptive.

- What is the frequency of seaplane activity as compared to similar noise impacts? If the community has little objection to one neighbor who operates a motorcycle in the neighborhood on a daily basis, they may not notice seaplane noise. However, if you consistently operate at times of quiet in the neighborhood, your seaplane activity will stick out like a sore thumb. One good thing: Outside of Alaska, very little seaplane activity occurs at night, so you're not likely to disrupt anyone's sleep. (Of course, if you operate near a neighborhood where the majority of people work a night shift and sleep during the day...)

- What are the cumulative effects of seaplane noise when compared to peak noise levels in a community? If everyone in the community mows their lawns starting at 1000, your takeoff may go overlooked at the time.

What all these questions are trying to do is instill a sense of community in you, the seaplane pilot. You may only be transiting the area, but you want to leave people with a good impression of seaplanes and seaplane pilots.

SPA publishes a water landing directory, and it also has field directors who are very familiar with their part of the country. A little homework on the community before you fly into it will go a long way in your having a good, safe operation. If you work it right, the next seaplane pilot who flies into the area you left will have an easier time of it.

Education goes a long way as well. As we said, many people assume that a seaplane is noisy because of its size and their lack of familiarity with it. Some communities may only be convinced after hiring someone to come in and measure noise levels at various times and for various noise-makers. And there will always be some who will never change their minds about seaplane noise no matter how many charts and graphs you show them.

A favorite vacation spot of mine is a lakeside cabin in the northeast. The neighbors there think nothing of the constant din from power boats and personal watercraft because it is a waterfront community; they expect boats to be noisy. But when I mentioned I wanted to land a seaplane there, you would have thought I had suggested devil worship. It turns out another aspect of aviation had ruined it there for seaplanes: The local national guard regularly flies its helicopters and its C-130's low and slow and noisily over the lake. And no amount of logical argument could dissuade them that the noise of a C-172 on floats would be lost among the skiboats and JetSki races.

For the most part, if you work with a community, listen to its concerns, present them with convincing evidence, you may be able to turn their concerns. When all else fails, offer people rides in a seaplane. Show them how safely you operate, how you take community issues in consideration during your operation. Always keep in mind that even though airplane noise is music to your ears, you may have been startled out of peaceful reverie by a blatting motorcycle or the whine of a chain saw.

As HAI puts it, "Fly Neighborly!"

FEATURE

OPERATIONS AT NONTOWERED AIRPORTS

Part 2
STAYING THE COURSE

by Phyllis-Anne Duncan

After you've hung around enough airports without control towers—or "nontowered airports" as we bureaucrats like to call them—you see pretty much an infinite number of nonstandard traffic patterns being flown. (For the purposes of this article, assume that a nontowered airport is either one where no tower exists or one where there is a tower but the tower is closed/not operating.)

There are those absolutely conscientious people who adhere to the published traffic pattern altitude (TPA), the 45° downwind entry, the turns to base and final over the established checkpoints. Then there are those who are, well, somewhat inventive. Whatever pattern gets them on the ground works for them. Unfortunately, this "whatever pattern" attitude is about as "clueless" as the movie of the same name.

Statistics have shown that the most likely place for a midair collision is the traffic pattern of a nontowered airport on a VFR day. The likelihood of a midair is reduced when pilots not only see and avoid but also when they approach a nontowered airport in an orderly, standard fashion and broadcast their intentions on the radio (if so equipped).

The regulations stipulate that all turns in airplanes in the vicinity of an airport shall be to the left, unless otherwise indicated, and that's about all the regulations say. For aircraft on instrument flight plans, there are specific procedures to follow and instructions given by controllers, not to mention radar coverage and separation standards. However, if that IFR flight plan ends with an instrument approach to a nontowered airport, then the same standards and recommendations apply as for VFR pilots at those airports.

Which is why FAA, along with industry, many years ago developed recommended standard entries and recommended standard traffic patterns for nontowered airports, as well as standard traffic pattern altitudes.

Why only "recommended?" Because at nontowered airports pilots must have the flexibility to react to changing wind conditions, intrusion of other traffic, and other possible emergencies they may encounter in the traffic pattern where there is no positive control—where the pilot-in-command is the local controller as well. Safe operations at nontowered airports is not a gray area of a pilot's pilot-in-command authority; it's definitely one of our responsibilities as well.

And, after all, we in the FAA rely on a system of voluntary compliance with the regulations, and the FAA feels that voluntary observance of standard traffic pattern procedures improves the safety and efficiency when operating at nontowered airports. It's as simple as everyone being where they are expected to be.

Of course, we have to say that the use of any standard traffic pattern procedure we describe here *does not alter the responsibility of each pilot to see and avoid other aircraft.*

General Practices

- Special circumstances or conditions—usually terrain or a man-made obstacle of some sort—may prevent the use of the recommended standard traffic pattern. If that is the case, learn the pattern in use for the particular airport. That may mean a phone call to the airport to talk to the manager or a local CFI—since the non-standard pattern or the fact that it is non-standard may not be published anywhere.

- A pilot should familiarize him- or herself with all available information about an airport—particularly an unfamiliar one—as part of preflight planning. There are plenty of commercial publications which depict or describe airports, providing such information as runway orientation, length, and width; any aids to navigation or approach; lighting; traffic pattern altitude and direction; etc. Some state aviation agencies publish state airport guides, and FAA's *Airport/Facility Directory* (AFD) also includes this information. The AFD is reissued with any changes received every 56 days; state or commercial publications may be updated only annually or not at all. The one caveat to any printed source of this information is that it is the airport management's responsibility to report any changes in time for publication.

- At nontowered airports served by air carriers, all pilots must be alert for air carrier aircraft executing straight-in approaches. Straight-in approaches are the decision of the pilot-in-command, and communication of position and intent over the common traffic advisory

1. Enter the pattern in level flight, at traffic pattern altitude, and abeam the midpoint of the runway.

2. Maintain traffic pattern altitude and stay on the downwind leg until abeam the approach end of the runway.

3. The turn to final should be planned so that the airplane is established on a 1/4-mile final for the runway.

4. After takeoff or during a go around, continue straight ahead until beyond the departure end of the runway.

5. If remaining in the traffic pattern, turn to the crosswind leg when you are beyond the departure end of the runway and within 300 feet of traffic pattern altitude. Re-enter the downwind leg at traffic pattern altitude.

6. When departing the traffic pattern, fly straight out or exit with a 45° turn beyond the departure end of the runway but after reaching traffic pattern altitude. The 45° turn should be to the left for a left traffic pattern and to the right for a right traffic pattern.

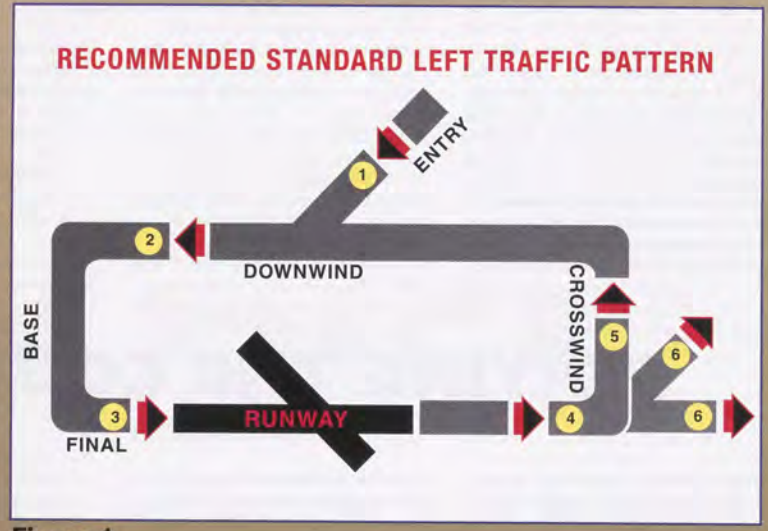


Figure 1

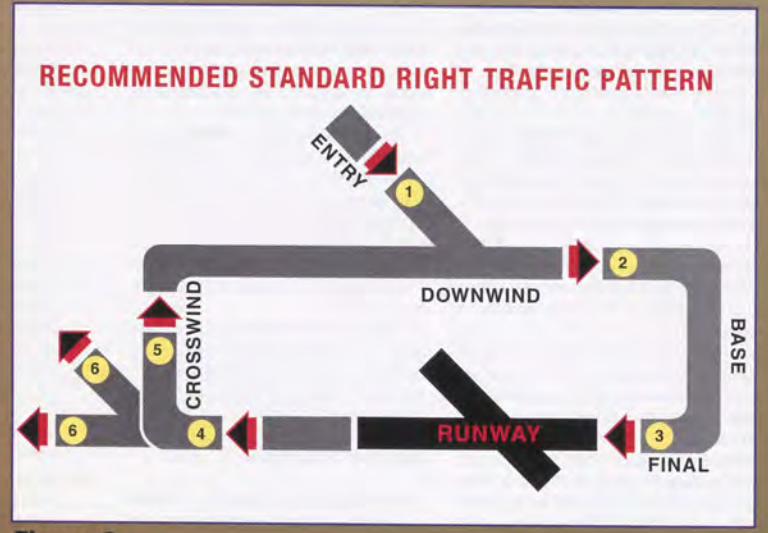


Figure 2

frequency (CTAF) is vital for the air carrier pilots as well as any general aviation pilots in the pattern.

- All operators should look carefully at the need for straight-in approaches. There may be times when weather or traffic conditions favor the safety of the standard traffic pattern.

- Pilots practicing instrument approaches at nontowered airports need to learn more about the airport's busy traffic times and try to avoid those times. Even so, the safety pilot or instructor must be alert for other aircraft in the pattern. Practice instrument approaches should not interrupt the normal flow of traffic, and pilots in the pattern must again be alert for aircraft on a straight-in approach.

Recommended Standard Traffic Pattern

Figure 1 is a diagram of a standard left traffic pattern, applicable for all runways, unless the airport displays light signals or visual markings that indicate use of a right traffic pattern. A right traffic pattern is shown in Figure 2.

- Airplanes entering the traffic pattern at a nontowered airport should avoid the flow of traffic until established on the entry leg.

- Arriving airplanes should be at traffic pattern altitude before entering the pattern and should use a 45° angle to the downwind leg for entry. Entry should be abeam the midpoint of the length of the runway.

- Remember that the traffic pattern altitude is usually 800 to 1,000 feet above ground level (AGL)—that is, above the airport's elevation. Some publications report TPA as mean sea level (MSL), meaning the traffic pattern altitude has been combined with the elevation. An example would be an airport with an elevation of 600 feet plus an 800-foot AGL traffic pattern; aircraft should enter the pattern at 1,400 feet on the altimeter. In your preflight planning, make certain you know which figure is being used. Large or turbine-powered airplanes operate at higher traffic pattern altitudes, usually 1,500 feet AGL. Some military aircraft operate at traffic patterns of 2,500 feet or higher.

Maintain traffic pattern altitude on the downwind leg until you are abeam the approach end of the runway, and extend the downwind far enough to assure a 1/4-mile final. Again, terrain or obstacles may make that shorter or longer, but bear in mind that as you extend the downwind longer and longer, you will be equivalent to a straight-in approach.

It may seem overly simplistic to say, "Remember to land into the wind," but accidents and incidents have occurred on days of light wind, and two aircraft land on the same runway but in opposite directions. This is where talking on and listening to the radio becomes important. (Traffic advisory practices will be featured in Part 3 of this series in the May/June issue.)

Airplanes taking off or on go-around should fly straight ahead until they are beyond the departure end of the runway. Sometimes flight instructors, trying to get in as many pre-solo, practice takeoffs and landings as possible during a one-hour session, have their students turn crosswind to downwind too quickly. This is a "perfect" setup for the classic climbing high wing aircraft having a midair with a low wing aircraft established on downwind.

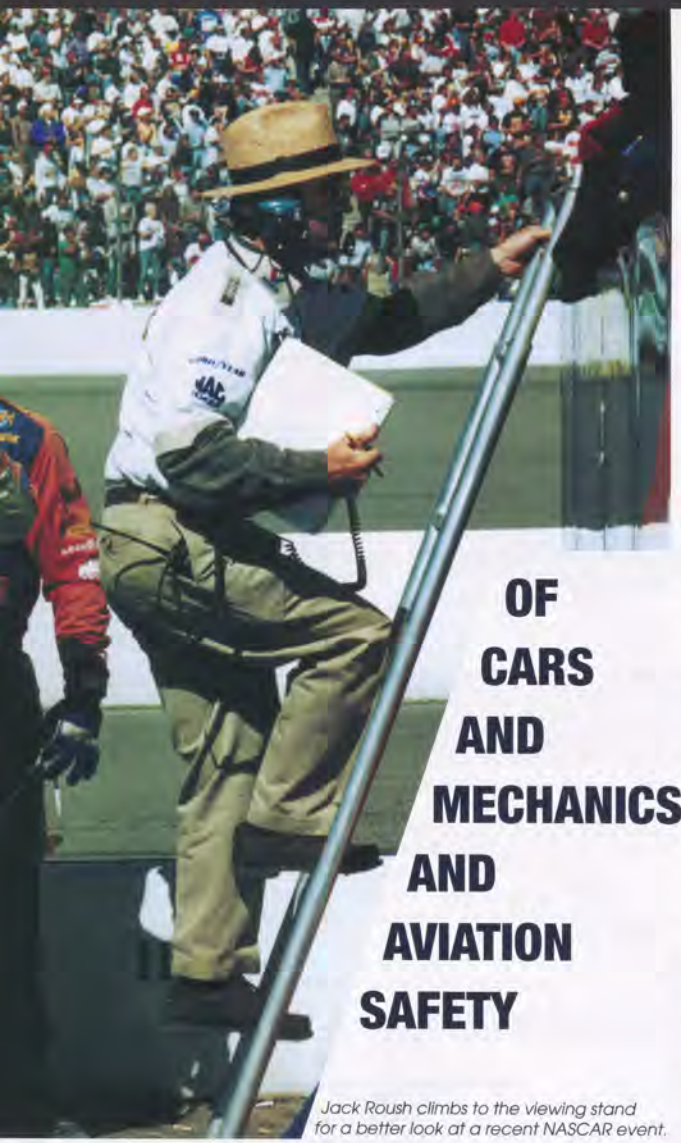
Similarly, if you are remaining in the traffic pattern, don't turn to crosswind until you are beyond the departure end of the runway and have climbed to within 300 feet of the traffic pattern altitude. Then, enter the downwind leg at the traffic pattern altitude.

If you are departing the pattern, continue straight out or exit the pattern with a 45° turn when beyond the departure end and after reaching traffic pattern altitude.

Adherence to a standard traffic pattern at nontowered airports—along with standard advisory practices and the pilot's duty to see and avoid other aircraft—is a safe alternative to a control tower. It is voluntary, but everyone should volunteer. It's sort of like giving blood—it only takes a few minutes of your time, it doesn't hurt, and everybody benefits. (Although you do get a cookie and some orange juice after giving blood...)

Of course, there will always be one pilot who decides that he or she is too experienced or his or her airplane too hot to have to deal with a standard traffic pattern. Peer pressure on such a pilot may effect an attitude change, and the exercising of peer pressure would be preferred to possible enforcement action for a careless or reckless operation.

It is certainly preferable to the worst of all possible alternatives—a midair collision.



OF CARS AND MECHANICS AND AVIATION SAFETY

Jack Roush climbs to the viewing stand for a better look at a recent NASCAR event.

by Phil Randall

Over 30 years ago a recent college graduate was faced with the choice of becoming an Air Force fighter pilot or to continue on as an engineer with Ford Motor Company. He chose automobiles over airplanes, and the rest is Motor City history.

Today, he wears many hats in his various operations. One day he's a high powered businessman, wielding the future fortunes of the auto world as president of his engineering company that employs more than 1400 people in the U.S. and Mexico. The next you might find him at one of his race team's facilities where his teams are preparing for the next event on the circuit. Or you could find him at the race track where he'll most likely be under the hood of one of his cars helping get it race-ready.

When the day's work is completed and if there is enough daylight left, you'll often find him fulfilling that dream of long ago—high over the track in the cockpit of his vintage World War II, P-51 Mustang airplane, nicknamed "Old Crow." Even though cars were his choice of career, the lure of the sky never left him.

That man is Jack Roush.

So what does Jack Roush have to do with the Federal Aviation Administration (FAA) Aviation Safety Program Aviation Maintenance Technician (AMT) Awards Program? Quite a lot if you are referring to the FAA's 1997 National AMT/NASCAR AWARDS CONTEST.

Actually his association with the program began in 1995 when I was trying to find a way to increase participation in the AMT awards program. (See the May/June 1996 issue of *FAA Aviation News* for articles on the award program and the 1996 AMT/NASCAR contest.) The AMT awards program had been started several years earlier to encourage AMT's to obtain "recurrent" training and to give their employers an incentive to send them to extra training by giving the employers an award, too. But, in three years, I'd only had 60 or 70 AMT's apply and receive awards. I wanted to increase that, and I was looking for something that would appeal to AMT's to get them involved in the program.

At the time I was a Principal Maintenance Inspector assigned to the FAA's Winston-Salem Flight Standards District Office. One day while performing surveillance on Atlantic Aero, Inc., an FAA-certificated Maintenance Repair Facility located at the Piedmont Triad International Airport, near Greensboro, I noticed that most all of the AMT's tool boxes had at least one Winston Cup decal on them. Having grown up in the Carolinas, I attended my first race at Darlington, in 1957, the Rebel 300. Since that spring day I have been an avid fan of NASCAR racing, so I thought, why not have a contest where the winner gets to do something related to NASCAR? I decided that the winner could be an honorary pit crew member on one of the racing teams.

I took my idea of a national contest to FAA headquarters in Washington, DC. Initially the idea was met with skepticism and some criticism—what did car mechanics have to do with aviation safety. With the help of some of the top officials in the FAA's Flight Standards maintenance and general aviation divisions, I got the approval to proceed with the idea, but only in North Carolina for the first year as a test. I was elated. Did they forget or not know that North Carolina is Winston Cup? We couldn't help but succeed!

The next step was finding a team owner with an interest in aviation and one that would go along with the idea. Knowing that several of the top Winston Cup teams and drivers had their planes maintained by Atlantic Aero, I went to the management of Atlantic Aero and asked for their help. Dan Derby, the Vice President of Avionics and Line Services for Atlantic Aero, talked with Jack Roush about the idea and Jack gladly accepted.

The 1996 Contest was a huge success with an increase of over 750% participation in the AMT Awards program in North Carolina. We received applications from all over the United States, Europe, and South America, and there were quite a few upset people when I sent their applications back to them and told them that they had to live in North Carolina to participate.

The winner of the 1996 contest was Alan White, an employee of Mountain Air Cargo in Denver, North Carolina. Alan was an honorary pit crew member on the Family Channel car driven by Ted Musgrave at the October 20th race at the Rock (North Carolina Motor Speedway in Rockingham, NC). Alan spent most of his time talking with Jack Roush about preparing the car and aviation. "It was a day I will never forget, and Jack Roush is an amazing man," says White.

Because of the success realized by the contest, I received the okay to begin preparation for holding a national contest in 1997. Atlantic Aero asked if they could donate the prizes for the contest, and what prizes they are...

The 1st Place winner will be an honorary pit crew member on one of the Roush Racing teams at the 1998 TranSouth Financial 400 at Darlington Raceway. He or she will also receive round trip air fare for two to the race, along with hotel accommodations, and rental car while attending the race.

The 2nd Place winner will attend the three-day course offered by the Fastrack Driving School at the Charlotte Motor Speedway. He or she will also receive round trip air fare to Charlotte, along with hotel accommodations, and rental car while attending the course.

There will be three 3rd Place winners. The first name drawn will receive a Valvoline team jacket, the second a Family Channel team jacket, and the third an Exide team jacket.

Fourth Place will have 500 winners. Each will receive a special FAA AMT/NASCAR 1997 Awards Contest "T" shirt.

To enter you must be an FAA Aviation Maintenance Technician; then, apply for and receive one of the five phases of the awards program. That's all there is to it! However, you must apply before November 30, 1997. Look for a distinctive poster which has a detachable application form at your local FBO, FAA office, or maintenance facility. Or give me a call at (910) 631-5191.

Actually I consider myself a big winner overall. The AMT awards program is now becoming the success we had hoped it would, and I've gotten to know Jack Roush. The first time I met Jack was the day we had the photos taken for our 1996 contest poster and while most wanted to talk racing, Jack and I talked airplanes. I learned that he owned six airplanes, but his favorite is the P-51 Mustang.

At Daytona in July, an FAA video team shot footage of the three Roush teams maintenance technicians for a promotional video for our 1997 contest. I spent most of my time leading up to race day talking with various crew members of the three Roush teams. They were all interested in talking about our contest and the work the aviation maintenance technicians performed. I told them that the work they performed on the race cars was a lot like that performed by the aviation maintenance technicians on aircraft. They both are professionals trained to do two very similar things. The Winston Cup maintenance technicians work to ensure that their team's cars perform at peak performance level and are safe for their drivers. The FAA-certificated Aviation Maintenance Technicians strive to ensure the aircraft that they work on are airworthy and safe for the operator. I told them that the FAA's AMT insignia was a hex-head bolt with three significant words inscribed on it: Knowledge + Professionalism = Safety. They were pretty impressed.

It may be hard for most people to understand the admiration I have for Jack Roush. When I start telling them that Jack did this or Jack has a particular type of aircraft they just don't understand where I'm coming from. Jack Roush is a man with many talents and a love that we share for aviation and aviation safety. He lent his time and name to improving safety, and that is something all of us should admire him for. I am honored to have gotten to know him.

Jack, on behalf of the FAA's Aviation Safety Program AMT Awards Program and myself, thank you!

Mr. Randall is the FAA's Regional Airworthiness Safety Program Manager for the Southern Region. The success of the 1996 FAA AMT/NASCAR Contest was due in no small part to Phil's unrelenting drive and persuasiveness. It was through his dedication to the AMT Awards Program, as well as Jack Roush's commitment to safety, that is responsible for the contest going nationwide in 1997. All involved with this contest and the interest in safety that it fosters are to be congratulated.—Editor.

SEN. GLENN SETS RECORD TO HONOR WRIGHT BROTHERS

On December 17 last year, Senator John Glenn (D-Ohio) piloted his twin-engine Beechcraft *Baron* from Dayton, OH to Washington, DC in one hour, 36 minutes—an average speed of 229 mph, setting a record recognized by the National Aeronautic Association (NAA) for "Speed Over a Recognized Course."

Glenn chose December 17 to honor the 93rd anniversary of the Wright Brothers' first flight. Said Sen. Glenn, "Orville Wright, the first chairman of NAA's Contest and Records Committee, encouraged all pilots to set records. This flight honors Orville and Wilbur as America's first aviation pioneers."

Glenn himself is an aviation pioneer, if not icon, and previous record-holder because of his historic 1962 flight as the first American in orbit. The Senator has maintained an active interest in aviation since his days as a Marine pilot and astronaut.

Co-pilot for Glenn's flight was an FAA employee, Phil Woodruff, director of the agency's aviation education program. Mr. Woodruff is currently a Congressional Fellow on Senator Glenn's staff.

The record will be published in the 1997 edition of NAA's World and United States Aviation and Space Records book, the definitive reference work for aviation records. For further information, including a kit explaining how pilots can set aviation records, contact NAA at 1815 N. Ft. Myer Drive, Suite 700, Arlington, VA 22209; phone (703) 527-0226; fax (703) 527-0229; or e-mail naa@ids2.idsonline.com .

On February 20, 1997, the 35th anniversary of his historic orbital flight, Sen. Glenn announced his retirement from the U.S. Senate at the end of his current term.

CALENDAR OF EVENTS

May 3 and 4, 1997 - The third annual Shell Air and Sea Show honors the armed forces with "A Salute to the U.S. Military" at a two-day extravaganza. The show will feature the finest military and civilian aerobatics performers, and all five branches of the military will participate, including the USAF Thunderbirds performing for the Air Force's 50th Anniversary. The Air and Sea show takes place along four miles of Ft. Lauderdale's beach, between Oakland Park Blvd. and 17th St. At the premiere event in 1995 some 800,000 spectators attended the two-day show which also features land and water entertainment events. For further information contact the show's hotline at (954) 527-5600.

June 6 -8, 1997 - Mid Atlantic Air Museum World War II Commemorative Weekend, Reading Regional Airport, Reading, PA; contact Pete Malashevitz, 11 Museum Drive, Reading, PA 19605; (610) 372-7333; Web site: http://avialantic.com/maamww97.html

June 21 - 22, 1997 - Jack B. Poage Airshow feature modern military, Warbirds, and civilian aerobatics, Carroll County Airport, Westminster, MD; contact June Poage at (410) 876-7200; Web site: http://avialantic.com/poageshow/airshow1.html

July 30 - August 5, 1997 - 45th Annual Experimental Aircraft Association (EAA) Fly-In Convention, Wittman Regional Airport, Oshkosh, WI; in addition to safety seminars, air shows, static displays, exhibition areas, and homebuilding workshops, Oshkosh '97 will also feature the first NTSB public session held outside of the Washington, DC area; contact EAA public relations at (414) 426-6523; Web site: http://www.fly-in.org

Spring Maintenance: Are you safe to fly?

by H.Dean Chamberlain

As one who hates the cold, I love working on our annual spring maintenance article because by definition warm weather must be right around the corner. If not, the clock continues to tick down to the 4th of July which is always hot in Washington. So much for my annual political comment on the weather.

I also hate wearing heavy winter clothing in a small aircraft. Compounding the problem is the fact that most small general aviation aircraft don't have enough convenient storage space for a stick of gum in the cockpit let alone a flight map. Now you can begin to understand my plight in trying to have fun flying single engine aircraft in the winter. You would think that the small aircraft manufacturers would provide at least some room for necessities such as maps, charts, and pilots wearing winter clothing. But such is not always the case.

The result is many northern pilots avoid this frustration by not flying during the winter. Now that warm weather is slowly creeping up from the south, we pilots must once again start thinking of getting back into the cockpit.

Since this is a spring maintenance article, I am expanding our traditional comments because each year it becomes more difficult trying to find creative ways of reminding pilots to clean the spider webs out of their aircraft before they take off on their first flight of the year. By now, many pilots have already done so. So this year we are diverging a little.

This year we are more concerned about the people who fly and maintain aircraft than we are on how to do a proper preflight. The aircraft operating manuals and maintenance manuals tell you how to fly and maintain the aircraft you fly. A well maintained aircraft is not the leading cause of aircraft accidents. As everyone knows and the accident statistics show, the leading cause of accidents starts with "P"--"P"eople. Gone are the days when equipment shared a leading role in accidents. Of the two types of people associated with aircraft—pilots and mechanics—pilots cause the majority of the accidents, although mechanics are not entirely blameless as this article will show.

So to start our spring maintenance "people" program, let's begin with our most dangerous item: the pilot.

PREFLIGHTING THE PILOT - THE PAPER CHECKS

Our first "P" maintenance check is a paper check on the pilot. Is your medical current and appropriate for your flight rules? If you fly an aircraft that requires self-certification that the pilot is okay to fly, are you physically safe to fly? Is your "biennial" flight review current? If not, you should review FAR § 61.56, Flight review, for information on how to get current. If you have not been flying within the last 90 days and made the appropriate number of takeoffs and landings, your recent flight experience for being pilot in command

(PIC) of an aircraft carrying passengers has expired. FAR § 61.57, Recent flight experience: Pilot in command, outlines the recurrency requirements to be PIC during the day, at night, for tail wheel aircraft, and for instrument flight. If you are a certificated flight instructor (CFI), have you checked the expiration date on your instructor certificate? Remember, if you are a CFI, it is easier to renew your CFI certificate than to get recertificated. These simple paper checks are the easiest part of getting ready for spring.

PREFLIGHTING THE PILOT - FLIGHT OPS

The hardest part in preflighting the pilot is evaluating your own skills. If you have not been flying recently, are you current enough to be safe? You may not be. This is the time you should be critically evaluating your own proficiency and more importantly, you should be thinking about arranging a recurrency flight or two with your local CFI. Just remember in contacting your local CFI, you want to fly with someone who is well qualified in the type of aircraft you normally fly. It goes without saying, you also want someone who is well versed in all of the recent changes in the regulations and the *Aeronautical Information Manual* (AIM). You may want to even fly with someone different from the CFI you normally fly with just to have another opinion of your flying skills.

This recurrency training is a good time to make sure you meet all of the appropriate PIC requirements for day, night, and IFR currency if so qualified. No personal check out would be complete if we failed to remind you that all of this training can go towards qualifying you for a phase of the FAA's Pilot Proficiency Award Program, more commonly known as the "Wings" program. Ask your local CFI or FAA Safety Program Manager for details. A good checklist or planning guide for your recurrent training is the appropriate FAA Practical Test Standards (PTS) for your rating. If you can still meet the practical test standards for your level of certification, this indicates that you know how to fly and are current.

MULTI-ENGINE AIRCRAFT

If you only occasionally fly a multi-engine aircraft, are you really current in the aircraft? Since single-engine emergencies take their toll of pilots and contribute to a disproportionate number of twin accidents, are you able to safely fly single engine? Do you remember what Vmc is? If not, this might be a good time for a flight review. If you decide to get recurrent, pick a current and well qualified instructor pilot who can explain the dangers of Vmc demonstrations and density altitude. Remember the rule for determining a failed engine? Dead foot: Dead engine. You don't want to ever secure an operating engine during an actual engine out situation. Regardless of the type of single-engine emergency you might have, you must always fly the aircraft.

More than one NTSB accident report states that the cockpit crew became so preoccupied with a problem that they either failed to fly the aircraft, or they applied the wrong procedures. The most recent example of this is the accident involving American Eagle Flight 3379, a BAe Jetstream 3201, at Morrisville, NC, Dec. 13, 1994. According to the report's executive summary, the flight crashed during an instrument approach to the Raleigh-Durham International Airport. Thirteen passengers and the two crewmembers were fatally injured, and the other five passengers survived. The weather at the time of the accident was ceiling 500 feet, visibility two miles, light rain and fog, temperature 38° F, and dew point 36°F.

The summary states, "The National Transportation Safety Board determines that the probable causes of this accident were: 1) the captain's improper assumption that an engine had failed, and 2) the captain's subsequent failure to follow approved procedures for engine failure, single-engine approach and go-around, and stall recovery. Contributing to the cause of the accident was the failure of AMR Eagle/Flagship management to identify, document, monitor, and remedy deficiencies in pilot performance and training."

This accident points out that pilots must know their aircraft, its operating limitations and indications, proper flight and emergency procedures, and be well qualified in the aircraft. One way to reduce your risk when flying is to establish your own personal flight minimums and always stay above them. When you operate close to the ground, you must be very proficient and qualified. This is where recurrency training becomes very important if you are not current. Currency and good judgement may be the two most important attributes a pilot can bring to a cockpit.

CHARTS AND PUBLICATIONS

Continuing your paper check, do you have current charts? If you don't subscribe to an annual service, it is easy to forget about your chart's expiration date. After all, you don't want to be caught dead with an expired chart. Both your insurance company and the FAA/NTSB frown on expired charts when the old charts arrive at an accident site the same time you do. If your charts are current, when was the last time you reviewed the chart's legend. Do you remember all of the various symbols?

Do you remember how to read a weather report? If you have a computer, do you remember how to access the FAA-sponsored DUATS weather and flight planning service?

If your copy of the AIM still has the title, *Airman's Information Manual* on it, it is time to buy a current edition. You might be surprised to learn the AIM has a new name. It is now the *Aeronautical Information Manual*. It is also updatable. You will have to insert changes as they occur to keep your manual current.

Do you remember how to check NOTAM's and how to find a copy of the published NOTAM's?

Do you remember how to read an *Airport/Facility Directory* (AFD)? If not, now might be a good time to practice. Have you ever updated your current charts with the data listed in the back of the AFD or in NOTAM's? We bet most people don't. Do you?

FLIGHT PLANNING AND FLIGHT PLANS

The final paper item is planning a traditional flight. When was the last time you sat down and worked out a detailed flight plan manually? Now might be a good time to do one. It is so easy to use computerized flight planning programs these days, that many pilots have probably forgotten how to use an E6B computer, plotter, and map to work up a flight plan. (And speaking about computers, have you checked the batteries in your electronic flight computer, transceiver, or handheld GPS receiver recently? They might be dead. Remember to carry extra batteries or recharge your rechargeable ones before your next flight.)

A good thing about doing a traditional flight plan is it reminds you to file an FAA flight plan after you call your local Flight Service Station (FSS) for a weather briefing. IFR pilots don't have this problem. They have to file to fly. But some VFR pilots seem to forget. Or, they forget to open their flight plan, or they forget to close it upon landing. For the VFR pilot, a filed and activated flight plan is one of the best insurance policies you can take out on a flight.

The government spends millions of dollars each year providing a national search and rescue infrastructure for aviators, sailors, and others, to save lives. Do your part, by filing a flight plan.

You can also help yourself and others by occasionally monitoring the aviation emergency frequency, 121.5 MHz, in flight and before you shutdown your engine. You might just save a life, or save someone from having to "find" and turn off your aircraft's ELT long after your last "hard" landing inadvertently activated your ELT.

AIRCRAFT MANUAL REVIEW

If you have reviewed all of your paper items and feel comfortable with the results, there is one last thing to check before scheduling your recurrency flight. That item is reviewing the pilot operating handbook (POH), aircraft flight manual (AFM), or operating handbook for the aircraft you fly.

Once you have reminded yourself of the aircraft data, you are ready to aviate, right?

Maybe, maybe not.

PREFLIGHT

You still have to be able to preflight the aircraft. Do you remember your responsibilities as a PIC in determining your aircraft's airworthiness? This is why it is important to schedule your checkout with a CFI that is current in the aircraft. A good CFI will know the types of potential problems your aircraft may develop and how to check for them. If you are a rental pilot, you don't normally have the access to aircraft data that an aircraft owner has, but it is important that pilots have a working knowledge of their aircraft's systems and limitations. Knowledge of maintenance procedures help. To learn more about your aircraft or the type of aircraft you fly, you should talk with your mechanic about your aircraft and how to safely maintain it. Your mechanic plays an important role in your flight safety.

Pilots depend upon the professionalism and dedication of the men and women who work on their aircraft. It is not an understatement to say, pilots bet their lives and those of their passengers on the quality of work done by the professionals in aviation maintenance. But like the new and still evolving relationship between today's doctors and their patients where the patients have to question their doctors' recommendations and ask for and understand medical options and even ask for second opinions, so to must aircraft owners, operators, and pilots question their maintenance professionals. The following accident shows why it is important for pilots to understand why something is done and the proper way is should be done.

NTSB ACCIDENT REPORT

A recent NTSB accident report detailed a maintenance problem that contributed to the crash of a Learjet 35A in Fresno, CA, on Dec. 14, 1994. The report states, "Both pilots were fatally injured. Twenty-one persons on the ground were injured, and 12 apartment units in two buildings were destroyed or substantially damaged by impact and fire." According to the report, "The National Transportation Safety Board determines that the probable causes of this accident were: 1) improperly installed electrical wiring for special mission operations that led to an in-flight fire that caused airplane systems and structural damage and subsequent airplane control difficulties; 2) improper maintenance and inspection procedures followed by the operator; and 3) inadequate oversight and approval of the maintenance and inspection practice by the operator in the installation of the special mission systems."

According to the report, the aircraft had had a special high-power electrical system installed in it so that the aircraft could be used to help train military fighter pilots. "Three hundred amps of DC power were made available for cabin use in running ECM sources while aircraft was operated in restricted category as defined under public use." At the time of the accident, the Learjet was returning to Fresno airport after participating in a training exercise involving a California ANG fighter squadron based at Fresno.

Why this accident is included in a general spring maintenance article is that following the accident, NTSB discovered that this aircraft had been improperly modified and that 14 other aircraft had been similarly incorrectly wired. Three aircraft had been properly wired. Apparently, although the original modification design had been correct, at some point one of the mechanics modifying the aircraft made a mistake and incorrectly wired one of the aircraft. Subsequent mechanics based their installations on the incorrectly wired aircraft. The result was 15 incorrectly wired aircraft. You might ask how could this happen when each aircraft had had the proper FAA Form 337 made out for the major alteration and each had been inspected and signed off by a mechanic with inspection authorization (IA). The NTSB said, "The Safety Board believes that a qualified mechanic should not have overlooked basic electrical power wire installation practices, such as ensuring proper current overload protection for the entire system. Similarly, the failure of the FAA-certified avionics inspector to compare the actual installation with the specified installation instructions is inexcusable."

What this means for every pilot and mechanic is that all aircraft work has to be done according to approved instructions and manuals to ensure the continued airworthiness of the aircraft. As the Fresno accident points out, you can't trust the work done on one aircraft as a guide for making similar modifications on other aircraft. The first modification might have been done wrong. You must always check the approved instructions.

This also means that aircraft owners, operators, mechanics, IA's, and pilots must always question work to ensure it is done correctly. This comment is not meant to reflect on the professionalism and quality work done by the thousands of people in the aviation maintenance business, but it is meant as a reminder that because human factors problems can compromise an aircraft's safety both in the cockpit and in the hangar, that everyone must always be alert for anything that can compromise safety.

Knowing that things can happen, should cause everyone to be more alert to prevent such things. The key is when in doubt ask questions until you are satisfied with the answers. Like the patient, you should ask for a second opinion if you don't trust the first one. Safety is too important to guess about.

IS IT SUMMER YET?

In summarizing, spring is the time for everyone in aviation to regain their currency if it has expired, renew their outlook and interest in aviation, and to rededicate themselves to working for aviation safety. Zero accidents is the FAA's safety goal. It should be yours. Have a safe and fun-filled summer of flying. And remember, the greatest American outdoor summer event is an air show. Support your local airport and its activities. ✢

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SPRING TIME AND PILOT CURRENCY

by

H. Dean

Chamberlain

The previous article asked, "Are you safe to fly?" For further help in answering that question, let's start with a test of your aviator's knowledge. Can you answer the following questions?

1. Can you read this weather report? METAR KDCA 171254Z 25006KT 5SM BR FEW006 OVC010 20/18 A2966 RMK CIG 009V012 SLP044 T01950183

2. Can you read this weather report? TAF KDCA 171720Z 171818 32009KT P6SM OVC040 TEMPO 1923 5SM -SHRA OVC020 FM0000 30014KT P6SM OVC040 TEMPO 0206 BKN040 FM0600 32013G23KT P6SM BKN050 FM1200 33014G24KT P6SM BKN050 TEMPO 1216 SCT050

3. If a certificated pilot changes his or her permanent mailing address and fails to notify the FAA in writing, how long can the pilot still exercise the privileges of his or her certificate after the move?

4. Who is responsible for determining if an aircraft is in condition for safe flight?

5. Where may an aircraft's operating limitations be found?

6. When are flight crewmembers required to keep their safety belts and shoulder harnesses (if installed) fastened?

7. When two or more aircraft are approaching an airport for the purpose of landing, which one has the right away?

8. What are the VFR minimum cloud and visibility requirements?

9. What are the appropriate fuel reserves for a VFR day and night flight? If you are an instrument pilot what are the IFR day and night fuel minimums?

10. What are the minimum currency requirements to be PIC and carry a passenger during the day? At night?

11. Based upon the new medical rules, how long is your particular class of medical certificate effective? Is your medical current? If so, when does it expire?

12. Which cruising altitude is appropriate for a VFR flight more than 3,000 feet above ground level on a magnetic course of 135 degrees?

13. What are the pilot requirements to operate within Class B airspace?

14. What are the communication requirements to operate within Class C airspace?

15. What are the entry requirements to operate within Class D airspace?

16. What are the two-way radio communications failure procedures while on an IFR flight?

17. What is the blood alcohol percentage by weight or more that no person may act or attempt to act as a crewmember on a civil aircraft?

18. When may a pilot in command deviate from any rule in FAR Part 91?

19. Where may a pilot operate an aircraft in aerobatic flight?

20. When must a pilot use supplemental oxygen?

As a certificated pilot, you should have answered all of the questions correctly. If not, it's time to break out the books.

Many of us start each new year like the proverbial tin man after a summer rainstorm. We might be a little rusty, but we are still salvageable. Like most things these days, all we need to be recycled into a current and safe pilot is a little elbow grease, some time, and a qualified certificated flight instructor (CFI). We won't mention that important little nasty word, M-O-N-E-Y. But, like it or not, money is an important part of flying and staying current, or regaining currency if we lose it.

The bad thing about spring is that it arrives for some of us about the same time as the post-holiday bills. So what can you do to regain your currency when you don't have much of the other kind of currency?

First, you can start rebuilding your knowledge by reviewing your pilot operating handbooks and pilot training handbooks. The good thing about studying on your own is that the out of pocket cost is zero. A thorough review of the current FAR and Aeronautical Information Manual (AIM) is important before your first take off. A detailed review of a current chart for your local area is also important before

that first flight.

The reason is the FAR, AIM, and charts have probably changed several times since you last reviewed them if you have not kept current over the winter. If you have computer access to the Internet and other computer services such as DUATS or FEDWORLD, you can review the aviation information provided by FAA, other government agencies, and commercial services.

Your next stop should be a visit to your local airport. You should ask about any changes in the area since you last flew as well as arrange to take some refresher training from your local CFI. It is important to make sure your CFI is current and knowledgeable in the type of aircraft you plan on flying.

If you want to refresh or improve your knowledge skills, you might want to attend a ground school class at the FBO. For minimal cost, you might even want to attend an aviation course at your local community college if it offers such a program.

While you are at the airport, if you have an aviation frequency radio scanner, you can monitor the local transmissions to get a feel for the information flow. Clearances are always tough to copy if you are out of practice.

If you have one near you, stop by your local FAA Flight Service Station for a refresher weather briefing. You can also contact your local Flight Standards District Office's (FSDO) Safety Program Manager for information about any upcoming safety meetings you can attend.

These are only some of the many things you can do to review current information needed to operate safely within the National Air Space System without paying a lot of money before your first flight.

As a certificated pilot, you know that as long as you have a current Flight Review, you are not required to fly with anyone before you take off on your first flight of the new season. You may not have flown all winter, but the only prohibition is that you cannot carry a passenger and be PIC without meeting the currency requirement listed in the questions.

But like many things in life, being legal may not be the same as being safe. If you haven't flown for several months, especially if you are a low-time pilot, it is both prudent and safe to have a current CFI onboard for that first flight. In lieu of a CFI, a pilot who is current in type of aircraft to be flown and who is willing to be PIC, remember, you cannot be PIC with a passenger onboard, is the next best way of insuring your safety on your first flight of the season.

Another way to save money while improving your flying skills is to share the learning experience by either flying in the back seat and observing another pilot's training or offering to share your learning experience by letting another pilot fly along on your recurrency training flights. This shared flight training technique is used by many flight schools that routinely train students with one student at the controls along with the CFI and another student observing from the back seat. In many cases, one student flies an outbound leg, lands, and changes position with the observing student who then flies the return portion of the flight. Not only do you get the chance to learn from the other pilot's flight, you also have another set of eyes onboard to watch for traffic. It is a classic win-win situation.

If you are flying with a CFI, you may want to discuss doing a flight review as part of your checkout. This way, you add another two years to the flight review required by FAR §61.56.

If you are an instrument pilot, this might be a good time to update your instrument currency with an appropriately rated instructor by completing an instrument competency check listed in FAR §61.57.

Also, if you are flying with a CFI, don't forget, this time can count towards the requirements of the FAA's Safety Program's "Wings" or Pilot Proficiency Awards Program. Pilots meeting the requirements of Advisory Circular 61-91H are issued a certificate and a small set of wings for completing the program. Seaplane pilots now can earn a special set of SEAWINGS by completing the special requirements for seaplane pilots. Completing any phase of the Wings Program can serve as a required flight review.

Whether flying with a CFI or a safety pilot, before you take that first flight, you need a plan. Yes, a plan. You need a plan or an organized way to regain currency while minimizing your cost. One such organized plan available to everyone is the FAA Private Pilot Practical Test Standards (PTS). Since all pilots should be able to meet or exceed the Private Pilot PTS, those standards provide both a great knowledge and practical test outline for your recurrency training. By following and meeting or exceeding the PTS from planning your flight, to preflighting your aircraft, to flying the maneuvers, to landing and securing your aircraft, you should be able to regain proficiency in an organized and cost efficient manner.

In closing, it is important to differentiate between two commonly used aviation terms. You can be current under the regulations to exercise the privileges of your certificate such as being PIC while carrying passengers, etc. But meeting the basic legal requirements is not the same as being both current and proficient. We are using the term "proficient" to mean being able to operate an aircraft safely from the moment it is unchocked and started through takeoff and flight until it has landed and is chocked again with the outcome never being seriously in doubt. We owe it to everyone we fly with, over, and near that our flight is never a threat to their safety.

Plus, it will make your insurance company very happy, not to mention the FAA. Have a safe 1997 season of flying.

FAA SAFETY HOTLINE:

1•800•255•1111

TIRES MAKE THE WORLD GO ROUND

by H. Dean Chamberlain

Poor pun. But without tires, the world would soon come to a screeching halt. The aviation world is no exception. Yes, as a seaplane rated pilot, I know some seaplanes don't need tires, but aviation has evolved a long way since the days when large Pan Am flying boats ruled the air and waves.

Because tires are so important, I stopped to watch a demonstration given by an aircraft brake manufacturer's representative on the proper care and use of his company's wheel and brake assemblies at the 1996 Sun 'n Fun Fly-In in Lakeland, Florida. He would disassemble a brake and wheel and then reassemble both to show the proper installation and workings of the brake assembly.

It was interesting to think about how such a simple looking system could stop an aircraft landing at a speed of a hundred or more miles per hour.

Later, I picked up material from a major tire manufacturer on the proper care and use of aircraft tires to complete the brake-tire combination.

My interest in tires and brakes started years ago when I was involved in the management of a military flying club. I spent more than one Saturday morning helping to change tires on club aircraft after some student ruined the tire by locking the brakes after landing. Skidding can wear good tread down to the tire's cords in one landing. Such damage makes the tire unserviceable.

During that same period, I had an opportunity to watch a major aircraft company do a new brake certification test on a large, wide-body passenger jet. As part of the test, the aircraft was loaded to gross weight, accelerated to rotation speed, and then the flight test crew hit the brakes.

The proposed brake system did its job; the aircraft stopped within the requirements of the certification test. The test did have its cost. Most of the wheel and brake assemblies became red-hot and their fusible plugs melted and let the air out of most of the tires. Fusible plugs are a safety device designed into high-pressure wheel assemblies to reduce the danger of the tires becoming too hot and over inflated and possibly exploding. Because of their use in a gross-weight rejected takeoff, the new tires used for the test were no longer serviceable. Since there was the potential risk of plane's magnesium wheels catching fire because of the heat build up from the energy absorbed by the tires in stopping the aircraft, crash/rescue fire fighters were on scene in case any of the wheels caught on fire and threaten the safety of the aircraft.

This was an expensive test, but it was well worth the cost because it proved the new braking system could stop the wide-body jet up to rotation speed in case of an aborted takeoff. Rotation speed is an important speed in air carrier operations because once they are at or above rotation speed the normal operational procedure is to fly the aircraft off the runway rather than braking it to a stop. But sometimes the crew might decide to stop the aircraft rather than completing the takeoff as happened in New York several years ago. The fact some crews might decide to abort rather than continue the takeoff is why high speed brake tests are an important part of FAR Part 121 aircraft certification.

But what about the little guys? Although most general aviation pilots don't have to think about stopping something the size of a jumbo jet, the fact is they have to be able to stop their GA aircraft at any time on any type or size of runway. In fact, GA pilots may have to stop their aircraft in proportionally much less runway than a jumbo jet pilot. The reason is air carrier pilots have to meet specific accelerate-stop runway distances in planning their takeoffs that many GA pilots may never consider or even know about.

Simply stated, if an air carrier pilot doesn't have enough runway to accelerate to rotation speed and at that moment be able to stop based upon load and other conditions, the pilot can't use that runway. Single-engine GA pilots operating under FAR Part 91 don't have such a requirement. In fact, it's a fair bet to say most single-engine aircraft flight manuals don't even list such data.

As a result, many GA pilots of small, single-engine aircraft may be betting their lives and the lives of their families and friends on the stopping ability of their aircraft's brakes and tires when taking off on very short runways without knowing the accelerate-stop distance for their respective aircraft. Most GA pilots simply don't know how much runway they must have to stop on without going into the trees or whatever else is off the far end of the runway.

Since lives may be at stake in a rejected takeoff, that moment is not the time to wonder how and if your brakes will work or stop you before you hit

the trees. So take a moment to review the following information on tires, brakes, and their wheel assemblies. Someday, you may be glad you did.

THE NEGLECTED COMPONENTS

Brakes and tires may be the two most neglected components on an aircraft even though most flights start and end with aircraft tire tread on the ground. Although aircraft preflight checklists have a reminder for pilots to check the brakes and tires for wear, some pilots may only give them a cursory look. This may be especially true of pilots of low-wing aircraft when the aircraft are sitting on the ramp and rain or snow is falling. It takes a dedicated pilot to crawl under a low-wing aircraft at such times to check the wheel assemblies, especially if the pilot is wearing good clothes. (Maybe that is why high-wing aircraft were invented.) The good news is once a pilot goes under a low-wing aircraft to check the tires and brakes, they are also in a great position to check the fuel sumps. So it is a win-win adventure for the truly disciplined pilot. It need not be a challenge of the spirit and body. Just don't try to kick the tires while you are down under that low-wing.

BRAKE CHECK ITEMS

Generally speaking for most of us who fly aircraft with disk brakes, we may only give a quick look at our brakes to see if there is some material on the pads, to check for any obvious hydraulic fluid leaks, and to see if a tire is attached. But according to one manufacturer's aircraft disk brake service manual there are some other checks that the average pilot may want to consider.

Although the following are some of the listed on-aircraft maintenance instructions written for mechanics inspecting an aircraft brake assembly still on an aircraft, the instructions provide additional information for all. No, we are not suggesting that pilots carry a torque wrench in their flight bags to check the bolts on their brakes since this check list is designed for mechanics, but it does give you something to think about when preflighting your aircraft.

1. Visually inspect the brakes for corrosion, cracks, or other visible damage. Check inlet fitting bosses and anchor bolt lugs for cracks and fluid leakage.

2. Check back plate attachment bolts to insure they are properly torqued and have not worked loose. Gaps between the back plate and cylinder would be evidence of this.

3. Check fit of brake cylinder anchor bolts in torque plate bushings for sloppiness. This can be accomplished by grasping the cylinder and moving it; slight movement is normal. Excessive movement is cause for removal and detailed inspection.

4. Linings should be visually checked for extreme chipping on the edges. Lining worn to minimum thickness of an 1/8 inch (2.54 mm) must be replaced. If you wear off more lining material you will also take off the heads of the brass rivets that hold the lining into the back plate and the rest of the lining will fall off.

5. Visually check torque plate for corrosion, cracks, loose anchor bolt bushings, or other visible damage. Anchor bolt bushings must be flat against torque plate surface.

Although this list is only representative of a typical disk brake assembly, it does provide more items to check and what to look for than the typical pilot preflight checklist. If you find something that doesn't look right, contact your aircraft maintenance technician for help.

The manual also says that it is important to visually check wheel assemblies for "corrosion, cracks, or other visible damage." Wheel nuts should be checked to make sure the nuts are installed on the bolts and have not worked loose. The book said that bolt threads should be flush to 1-1/2 threads beyond the nut.

Pilots should also check their brake disks for "rust, excessive grooves, large cracks, or other visible damage."

THE REAL BRAKE CHECK

For most of us, the real check for all brakes is when the aircraft is first moved. The aircraft should be started moving in a safe direction, and then the pilot should apply the brakes to see if the brakes stop the aircraft. Since most aircraft have differential braking, you are looking for even braking on both sides of the aircraft with the same amount of braking. If not, you should shut down the aircraft and have the brakes checked by a maintenance technician.

The key to doing the first brake check after startup is to always point the aircraft in a safe direction. One that would NOT damage you or your aircraft or anything else if you suddenly discover you don't have brakes. Or, as your insurance company would remind you, "If you must hit something, please make sure it is cheap to repair or replace."

NEW BRAKE LININGS

Finally, the manual pointed out that after new brake linings are installed on an aircraft, they must be properly conditioned to ensure they provide the estimated service life. Depending upon which type of brake lining is installed, metallic or organic, there is a specific conditioning procedure designed for each. The procedures are not interchangeable. So if you want the most life from your brakes, and if your mechanic does not condition them, you need to follow his or her instructions to the letter. Failure to follow instructions could result in premature wearout of your brake linings.

TIRES

Brakes and wheels are only part of the stopping story. To paraphrase an old expression from the automotive world, tires are where the rubber meets the road. Another manufacturer summed up the importance of aircraft tires and the design challenge of aircraft tires by stating in one of its brochures, "Aircraft operating conditions require a wide variety of tire sizes and construction. The modern aircraft tire is a highly engineered composite structure designed to carry heavy loads at high speeds in the smallest, lightest configuration practical. In many cases, retreadability is also a design requirement."

These comments are from a Goodyear Tire and Rubber Company publication "Aircraft Tire Care and Maintenance, What You Should Know About Aircraft Tires." The title says it all. The manual was written to help aircraft owners and maintenance technicians get the maximum life from their aircraft's tires.

TYPES OF TIRES: BIAS AND RADIAL

Like automobiles, aircraft can use either bias or radial tires. Check your aircraft manual for the specified type of tire recommended for your aircraft. If changing type tires, owners need to make sure the type of tire being considered is approved for use on the aircraft because bias and radial tires may have different operating characteristics and limitations. Like cars, types of aircraft tires should not be mixed unless approved by the aircraft maintenance manual. For example, although the nosewheel tire construction may be different than the main tires, the mains should be of the same construction whether radial or bias.

READING TIRES

Since it is common to retread aircraft tires, buyers need to know and understand the markings used on tires. Of particular importance is the Technical Standard Order (TSO) used to certificate the tire. Like automobile tires, aircraft tires have specific speed and load ratings. It is important that those ratings not be exceeded. The correct tire rating data for each aircraft is listed in the aircraft's manuals.

PREVENTIVE TIRE MAINTENANCE

Goodyear states that proper tire preventive maintenance is an operator's best way to reduce tire expenses to the lowest level. It also says that proper tire inflation is the single most important part of a good tire preventive maintenance program.

Tread Chunking
A pock mark condition in the wearing portion of tread—usually because of rough or unimproved runways. Remove if fabric is visible.

Unlike coins that are either heads or tails, tires can be over inflated, under inflated, or within approved pressure. Of the three states, under inflation is the most damaging and potentially dangerous. Under inflation causes a tire to flex too much, which shortens tire life by uneven tread wear on the edges and excessive heating. Over inflation also can cause uneven tread wear in the middle of the tread, reduce traction, make the tread more susceptible to cutting, and increase stress on aircraft wheels. Goodyear also recommends "...that only dry nitrogen be used for tire inflation as nitrogen will not sustain combustion and will reduce degradation of the inner-liner material due to oxidation."

PREFLIGHTING TIRES

Without a pressure gauge, pilots can only look to see if the tires are inflated about "right." The only way to tell if a tire is properly inflated is with an accurate (tested) tire pressure gauge used on a daily basis. Once the pressure is checked, pilots should check the tire for wear, cuts, or other damage.

Tires used on training aircraft need to be checked carefully for hard braking or skid wear. Skidding is when someone locks the brakes after landing and skids the locked wheel and tire assembly down the runway. The result can be a ruined tire with one spot worn down to the core threads on an otherwise perfectly good tire. If a tire has a side wall crack or cord is showing, such a tire is no longer serviceable.

The need to check tires for wear and damage is why many pilots don't like wheel covers on aircraft. It is easier to inspect a wheel assembly when everything is in view. The extra knot or two of airspeed the wheel covers provide may not be worth not being able to check the tire without having to move the aircraft.

PRESSURE CHECKS

Goodyear had several important suggestions about how to check aircraft tires.

Check tire pressure only on cool tires. Allow at least two or three hours after landing.

Use only the airframe manufacturer's recommended inflation pressure. You must determine if the pressure listed is the "loaded or unloaded" pressure. Unloaded pressure is no load on the tire. Because of the weight of the aircraft, tires installed on an aircraft are "loaded." Your maintenance manual should have the conversion factor to convert between unloaded and loaded pressures.

When flying from a cold region to a

warmer region, you must adjust your tire pressure for the "worst" condition which is the colder area. When flying into a colder area, tire pressure should be adjusted for the anticipated colder requirement before departure. "An ambient temperature change of 5 degrees F (3 degrees C) can produce approximately 1% pressure change."

Excessive inflation pressure should never be bled off from hot tires. All adjustments to inflation pressure should be performed on tires cooled to ambient temperature.

It is normal for mounted tubeless tires to lose a slight amount of pressure because of gas diffusion through the tire casing.

Because tires can "stretch or grow" after being installed, it is important that they not be mounted until they have been inflated for a minimum of 12 hours and reinflated if necessary to recommended inflation pressure.

Nylon tires may develop a "flat spot" after sitting for a period of time. Factors such as load, temperature, and tire deflection can effect the development of the flat spot. Goodyear recommends that aircraft with nylon tires being parked for long periods (30 days or more) be jacked up to reduce the weight on the tires. Normally, flat spots should roll themselves out during taxiing.

Impact Break
Rupture of tire carcass in tread or sidewall area, usually from extremely hard landing or penetration by foreign object. Tire is to be scrapped.

REJECTED TAKEOFFS

The company also has a special recommendation for tires involved in a rejected takeoff (RTO). "Tires subjected to above normal braking energies during an RTO should be removed and scrapped. Even though visual inspection may show no apparent damage, tires may have sustained internal structural damage that could result in premature failure. Also, all wheels must be checked in accordance with the applicable Wheel Overhaul or Maintenance Manual after an RTO."

TIRE FACTS THEY DON'T TEACH AT HARVARD

1. Dual tires mounted on the same land gear axle have limitations within which their diameters must match to ensure equal load bearing.

2. Chemical contaminants such as oil, grease, and tar should be removed to protect the tire. A recommended way is to wipe the tire off with denatured alcohol followed by washing with soap and water.

3. Since sunlight and weather can have some affect on rubber tires, tires on aircraft tied down outside can be protected more by covering them with protective, sunlight reflective coverings.

4. Runway defects, chuck holes, runway cracks, stones, and other items such as nuts and bolts and other sharp items laying around tiedown areas and hangars can all damage tires. Pilots need to watch out for such items and report runway and taxiway damage as soon as possible so that repairs can be made.

5. It is important that tires and wheels be properly balanced. "Vibration, shimmy, or out of balance is a major complaint. However, in most cases, tire balance is not the cause. Other items affecting balance and vibration are: installation of wheel assembly before full tire growth; improperly torqued axle nut; improperly installed tube; improperly assembled tubeless tire; out of balance wheel halves; poor gear alignment; bent wheel; worn or loose gear components; or flat spotted tire. In addition, pressure differences in dual mounted tires and incorrectly matched diameters of tires mounted on the same axle may cause vibrations or shimmy."

TIRE AND WHEEL SAFETY

Inflated aircraft tires, especially high-pressure tires, are all potentially dangerous both on and off an aircraft. High-pressure tires can explode with deadly force. Everyone handling, working with or around aircraft tires need to know and follow all recommended safety advice and procedures, such as deflating the tire before proceeding with any maintenance.

BRAKING TECHNIQUES

In discussing braking and tire damage, something new pilots may not think about is how bad locking an aircraft's brakes is on stopping an aircraft. A locked, skidding wheel assembly is not efficient in stopping an aircraft. Properly applied rolling friction on a properly inflated tire is what stops a tire in the shortest distance. The importance of rolling friction and maintaining directional control is why all of the anti-lock braking systems on today's aircraft and automobiles are designed to keep tires from locking up. When the system's anti-lock sensors detect a wheel locking up, the system automatically releases brake pressure to that wheel to unlock the wheel. Once the wheel is again turning, the braking action is reapplied. Maximum braking is developed just before lockup.

When you are skidding, especially if you are hydroplaning on a water covered runway or street, you are literally out of control. If hydroplaning, you are floating on a thin layer of water with minimal braking action because you have little or no rolling friction with the hard surface. When you are skidding on a dry runway, you again are reducing your braking and control effectiveness while creating excessive tire wear. Flat spots of excessive wear on an otherwise good tire are a good indictor of a heavy foot on the brakes.

If you have anti-locking brakes you need to operate them in accordance with their operating instructions. Improper operation can result in loss of efficiency and anti-locking benefits. Anti-lock brakes normally require that full braking pressure be applied to the brake system. The system then automatically manages the braking action.

Since most small general aviation (GA) aircraft don't have anti-lock brakes with their special sensors, computers, and equipment to maximize braking, GA pilots must become their own anti-skid computer and brake operator. The pilot must recognize when he or she is starting to lock up the brakes, release brake pressure to regain rolling friction, and then carefully reapply brake pressure to maximize braking action. For GA pilots accustomed to driving their automobiles and trucks with anti-lock brakes, they may have to take special care in their aircraft to avoid using the wrong braking technique.

If you have any questions about the proper braking technique for your aircraft, check your aircraft's pilot operating handbook, check with a knowledgeable certificated flight instructor or certificated aviation maintenance technician who knows your aircraft, or contact your aircraft's manufacturer.

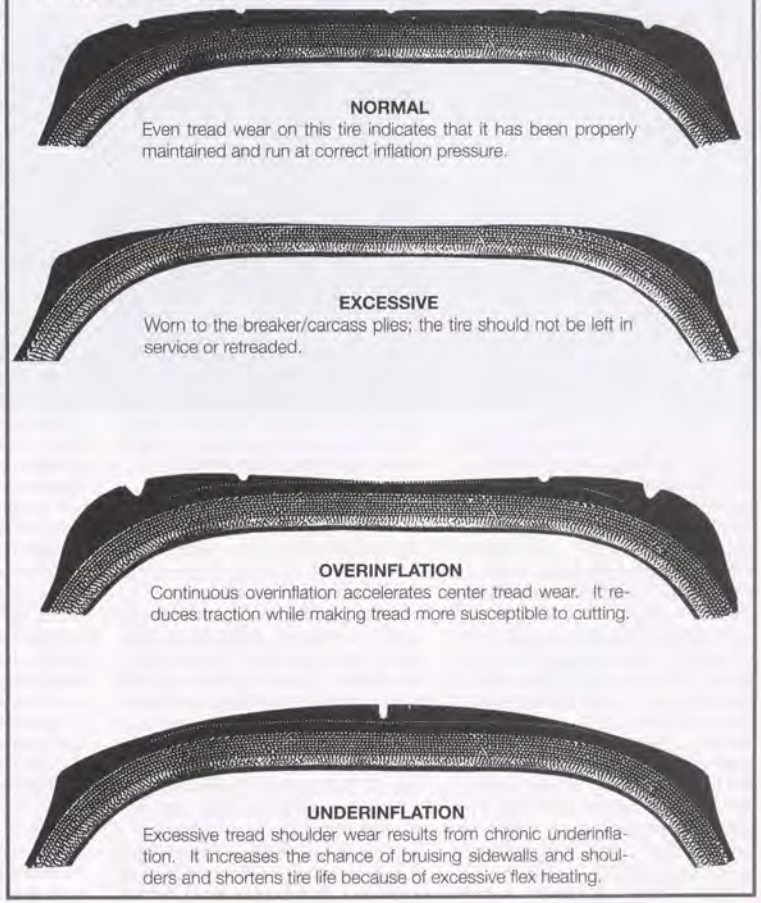
As we found in researching material for this article, your aircraft's tire and brake manufacturers are also a great source of information.

Finally, always remember to keep the blue side up and tread on the tires.

We want to thank Cleveland Wheels & Brakes of Avon, OH, and Goodyear Tire & Rubber Company of Akron, OH, for permission to use their material and illustrations in this article. Goodyear's "Comprehensive Guide to Aircraft Tire Care and Maintenance," is available by writing to the company. Contact: Jim Pickering; Marketing Mgr. - Aviation Products; 1144E. Market St.; Akron, OH 44316.

TEST YOUR TIRE READING ABILITY!

TYPICAL TREAD WEAR



NORMAL
Even tread wear on this tire indicates that it has been properly maintained and run at correct inflation pressure.

EXCESSIVE
Worn to the breaker/carcass plies; the tire should not be left in service or retreaded.

OVERINFLATION
Continuous overinflation accelerates center tread wear. It reduces traction while making tread more susceptible to cutting.

UNDERINFLATION
Excessive tread shoulder wear results from chronic underinflation. It increases the chance of bruising sidewalls and shoulders and shortens tire life because of excessive flex heating.

A Day in the Pilot and Aircraft Courtesy Evaluation Program

by Bob Martens

What a novel idea! The FAA and general aviation pilots meet on neutral turf for a "nobody loses" look at the airplanes and their operators. The whole idea behind this program is a courtesy inspection of pilot and machine, no strings attached, and it was supposed to be fun. Why then, did only three of the eight aircraft that were inspected get to fly? And why did one pilot leave with a nasty scowl on his face? Let me explain.....

First there was a Cessna 182. The aircraft had not had a transponder check or pitot/static inspection since 1993. Although the pilot was not instrument rated, he was also not aware of the overdue inspection requirements. You have to wonder how many times the aircraft might have flown IFR since it went overdue? After placarding the transponder "inoperative" the aircraft and pilot proceeded for the VFR courtesy flight, staying clear of any Class A, B, and C airspace.

The next maintenance record review didn't go very well either. It seems that a recurring Airworthiness Directive (AD) had not been complied with at the last annual inspection, nor had it been complied with during the two previous annual inspections. The pilot was not at all happy. He felt that it was a "chicken xxxx" AD, and not worthy of concern. We tried to explain, in vain, that most AD's are written in blood, but he was not to be consoled. After explaining that a ferry permit would only get him home but no further, (he had a flight planned for the next day), he opted to have the AD accomplished locally. The gracious authorized inspector (IA) on duty for this program completed the inspection and signed it off for free. The pilot was still unhappy and left without his courtesy flight "lest any other problems be uncovered." Go figure!

Aircraft #3 arrived with incomplete maintenance records, so only a partial inspection was completed. It seems that the pilot forgot the airframe maintenance records.

Aircraft #4 was a beautifully maintained Cessna 172, except for one small catch. It was also "UNAIRWORTHY." Why? The log books were clean, but so were the fuel placards on the wing. They were completely bleached. Without the placards, the aircraft did not meet its type design. Nit picking? Not when you consider the number of aircraft that have been misfueled over the years. A couple of new placards fixed the problem. The pilot was a conscientious 700-hour private pilot, who didn't fly poorly, but had quite a few debriefing items after our 40-minute flight, i.e., very good checklist procedures when we started out, but none when we returned to the field; his traffic pattern entry was a crosswind entry versus the 45 degree entry to downwind; he lost 20 knots of airspeed during a steep turn; he was unable to complete the emergency landing after rolling out too high on final; his traffic pattern altitude was 200 feet high on his first pattern; he forgot carb heat on power reduction for landing; he only brought the yoke back partially for his short field takeoff; and he failed to stabilize his airspeed early enough for his short field landing. Everything else was pretty good, and he never scared me!

Aircraft #5 was not a pretty sight. It was a club aircraft that needed some attention. Another case of the recurring AD that was overdue. The aircraft also had a wheel to wheel skirt rub, and some very obvious corrosion. After having the AD complied with, the aircraft left to have some maintenance performed. A point for reflection: Had a proper AD status been kept in the aircraft noting the time when the next maintenance action was required, this AD would have been complied with before becoming overdue.

Aircraft #6 went reasonably well, EXCEPT for the pitot/static check required for IFR operation that had been overlooked in excess of three years. The private pilot/owner was not instrument rated; however, his daughter, who was also a pilot, was getting ready to pursue some instrument work. This is another example of an inspection that could be included on a status sheet in the aircraft, much like the recurring AD status, perhaps as part of a preflight checklist, to help avoid such shortfalls.

Aircraft #7 was an interesting case. The aircraft had not flown in nearly three years but was within its last annual inspection. The pilot had been busy with lots of "stuff" and hadn't flown in months. Since then, the engine compartment had become a home for our feathered friends, the battery was dead, and there were several other aircraft discrepancies noted. This aircraft obviously didn't fly on this day.

The owner of aircraft #8 was not available but had his aircraft and logbooks present in case we had time to review them. This is supposed to be a *Pilot* and Aircraft Cursory Evaluation. What's missing??

It had proved to be an interesting day and I give all the participants a lot of credit. After all, who really wants to fly with the FAA voluntarily! But some thoughts came to mind: Are most aircraft legally "airworthy?" How many pilots know the true meaning of the term "airworthy?" Do pilots read and understand their maintenance records, or know what is required as part of their maintenance records? Are most pilots still able to meet the practical test standards for the certificate they hold? These are all valid questions that we have to ask ourselves each and everyday.

The results of this "snapshot" of general aviation clearly indicate we still have some work to do. We in the FAA need to provide more opportunities like PACE, and we pilots and mechanics need to take a good look at our record-keeping.

Mr. Martens is the Safety Program Manager at the Windsor Locks, CT FAA Flight Standards District Office. Inspectors Tony Janco, Arnie Paye, and Max Schmitter helped him not only with the office's PACE events but also with this article.

• Operation Lights On

I operate a helicopter in the remote areas of the mountainous west. We fly with the landing light on all the time because it is safer. Has anybody figured out how much safer? For example, it is reported to be 10 percent safer for automobile to have lights on all of the time.

We recently saw a Forest Service helicopter with two landing lights, and they alternated. The Forest Service indicated they hoped to adopt this system for all of their machines. The alternating light system seemed very effective.

H.G. McNeill
Minden, NV

The FAA Aviation News *staff has no statistics on how effective it is for pilots to fly with their landing lights on compared to flying without lights turned on. FAA has long recommended that pilots fly with their landing lights turned on when operating near an airport or any time there is a high potential risk of a mid-air collision. Anything that makes it easier for another pilot to see an approaching aircraft is a great idea.*

If anyone in the Forest Service has any information on the results of its alternating light program, please send the information to FAA Aviation News.

We have seen at two major airshows, a manufacturer's display based upon flashing landing lights. If anyone has any such safety statistics or information, please send it to the magazine.

Helicopter pilots need to be very careful whenever they are operating their landing lights or using an attached searchlight while landing or taking off. Hot helicopter landing lights or searchlights have started grass fires when the pilot landed in tall, dry grass or weeds. Under the right conditions, the heat from such lights can ignite dry grass or weeds.

Pilots should also be aware that aircraft strobe lights, position lights, landing lights, and taxi lights lose their intensity over time for a variety of reasons. Pilots should check with their aviation maintenance technicians to make sure the aircraft's lights are putting out its manufacturer's specified amount of light.

• Crosscountry Requirements

Here is one that I am trying to have answered, but it seems no one can give me a clear answer.

I am a designated pilot examiner and have an ATP candidate interested in upgrading to the rating. This is the problem.

The applicant has approximately 1100 hours plus of glider experience. Of that time, approximately 900 hours are in cross-country flying and 400 hours of powered airplane time. The applicant has a commercial pilot certificate with airplane single and multi-engine land ratings, instrument-airplane, and private glider.

My question is the total time required by the FAR states that the applicant must have 1,500 hours and 500 hours of cross-country time. Does the cross-country time logged by the applicant in gliders count towards the ATP requirement?

During the applicant's cross-country flights in gliders, distances in excess of a 100 miles are completed using in flight navigation by pilotage and GPS. Some of these flights were used to qualify for international recognition of FAI awards and distance certification flights. These flights do not land, but turn points are utilized. Some turn points may be in excess of 75 to 100 nm from departure point.

Since the FAR do not address cross-country requirements (definitions) for the ATP level, then the flight time acquired by a glider pilot during these cross-country flights should be allowed for the ATP requirement based on the difficulty in navigation and the unique characteristics of flying great distances without power. Correct me if I am wrong, but are not military flights that make long en route reconnaissance flights around the world or inflight refueling tankers credited for their flight as cross country?

The problem area seems to be concerning a landing. But flying a glider for three to six hours, making 360 degree turns for 20 to 30 percent of the flight then navigating up to 200 to 400 miles is quite an accomplishment without an engine.

I feel that this kind of flight should be qualifying for the cross-country requirement.

Shawn Knickerbocker
Orange Park, FL

Unfortunately, in the case of your ATP applicant who flies gliders, only the glider flight time in which a landing was made at a place other than the point of departure may be credited toward meeting the cross-country flight time required for the ATP certificate.

An ATP applicant can credit glider flight time toward meeting the 1,500 hour total time requirement. The applicant may also credit all valid cross-country flight time that was used to meet any previous pilot certificate requirements.

Since the ATP certificate requirements does not specify any minimum cross-country distance requirement, current FAA policy only requires a landing at a place other than the point of departure for the flight to be loggable as valid civil cross-country time toward meeting the ATP certificate cross-country requirement for civil pilots. As you stated, certain military pilots are exempt from this requirement.

• Survival Vests

On page 3 of your April 1996 issue, the magazine listed "Some additional considerations for flying in Alaska." Regarding the key phrase "Keep the survival gear within reach," we fly mostly in the mountains and desert. We have learned the hard way (the helicopter blew up and burned to a cinder leaving us with our badly burned skins and nothing else) that you need to wear the survival gear. A fishing vest is what we use, and it is filled with all the good stuff you describe in your article. It is not that heavy.

We also wear heavy clothing in case the machine is forced down in a cold place. Even the desert is cold at night.

H.G. McNeill
Minden, NV

Good point. Here is a safety reminder for pilots and passengers operating on or over water. You must be able to exit your aircraft and remain afloat when wearing any type of survival vest or equipment. You don't want to drown in a survivable accident.

• VFR Charts on IFR Flight

What an informative July/August 1996 edition. Keep up the good work!!

My main reason for this e:mail has to do with a letter you published in that issue's Flight Forum about current charts. What I wish to know is if you are flying on an IFR flight plan in either VFR on Top, IMC or for that matter VFR at 5, 10 or 20,000 feet, is it a requirement for you to carry on board VFR charts for the areas that you'll be flying over ? I am aware of the FAR §91.103 regulations, but can't see how a VFR chart will help you in IMC conditions or for that matter in VFR on Top conditions as you won't be able to pick out the land mark features on the VFR chart in any case. I asked a CFI about this once who told me that it was a requirement to do so. If this is true I guess the airlines must carry a lot of charts that they hardly ever refer to, if at all ?

One final question I hope that you'll be able to help me with is why a passenger may not visit the flight deck during the flight. I know that the FAR state that a passenger may not sit at a pilot seat during flight operations (and rightly so), but for example on many European airlines most of the captains are more than happy to let some of the passengers see inside the cockpit when at cruising altitude. I have been told that the ruling was brought in to stop the hijackings from happening. Lets face it though if someone is intent on hijacking a plane, they are going to do it one-way or another and I doubt that a flimsy little door between the flight deck and main cabin area would stop them.

Simon Baker.
Via Internet

Thanks for the compliment.

No, FAR Part 121 air carrier aircraft are not piled high with VFR charts because they all operate under instrument flight rules. The only time they might operate under visual flight rules (VFR) is when within sight of an airport.

With the communication equipment redundancy found in FAR Part 121 air carrier aircraft, air carrier pilots normally don't have the lost communications problems that some general aviation pilots might have. As you know under FAR §91.183, pilots operating under IFR who lose communications and who are in VFR conditions or encounter VFR conditions are expected to remain VFR and continue the flight VFR. In such cases, VFR charts become very important.

Simply stated, flights conducted under IFR are not required to carry VFR charts, although the FAA's Aviation Safety Program considers it prudent to do so.

Please note no one flies under VFR at 20,000 feet. All flight in Class A airspace is under IFR.

Finally, you are half right concerning admission to the flight deck under FAR §121.547. One purpose of the rule is to foil opportune hijacking by persons such as thrill seekers or persons with mental problems, etc. The other reason is for human performance , e.g., to control the environment on the flight deck by limiting access to those persons who have some function to perform and who are knowledgeable enough to control their activities so as not to cause the flight crew to be distracted from performing their flying duties. European civil aviation authorities leave it up to the PIC to allow access.

• Aerosol Cans in the Air

I am traveling to Central America and because of the risk of malaria and other mosquito carrying diseases, I would like to take several aerosol cans of insect spray with us on the airplane. Does carrying aerosol cans pose a safety hazard on the airplane?

Cathy Costa
Via Internet

The best way to answer your question is to refer you to the toll-free telephone number for the Department of Transportation's Hazardous Materials Regulations Information Line. You can select from a menu or leave a voice mail message with your question, and someone will get back to you. The number is 1-800-467-4922.

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FORMER FEDERAL HIGHWAYS ADMINISTRATOR NAMED SECRETARY OF TRANSPORTATION

Rodney E. Slater, Administrator of the Federal Highway Administration in the Department of Transportation during President Clinton's first term, has been named Secretary of Transportation. Secretary Slater replaces former Secretary Federico Peña, who left to head the Department of Energy.

Mr. Slater is a 1977 graduate of Eastern Michigan University and a 1980 graduate of the University of Arkansas School of Law.

From 1980 to 1982 he was Executive assistant to then-Governor Clinton in Arkansas and an assistant attorney general for Arkansas from 1983 to 1987. From 1987 to 1992 he served as director of government relations at Arkansas State University and was a commissioner on the Arkansas State Highway Commission. From 1992 to 1993, Mr. Slater was chairman of the Arkansas State Highway Commission, and in 1993 he was named as Administrator of the Federal Highway Administration.

Mr. Slater has received such honors as the Arkansas Transit Association "Arkansas Public Transportation Advocate Award." The Arkansas JayCees named him one of the "Ten Outstanding Young Arkansans," and The Arkansas Times magazine named him an "Arkansas Hero" for his work to improve the Mississippi Delta region of Arkansas. He was secretary-treasurer of the Arkansas Bar Association, a member of the Arkansas Sesquicentennial Commission, and liaison to the Martin Luther King, Jr. Federal Holiday Commission.

Mr. Slater received the 1994 Black Alumni Achievement Award, and in 1996 he was awarded an honorary doctorate, both from Eastern Michigan University.

Among his accomplishments as Federal Highway Administrator are an innovative highway financing program that stimulated private investments in highway infrastructure, development of the Intelligent Transportation System, the National Highway System Designation Act (which expanded the interstate highway system into areas without access), and emergency assistance during the California earthquake and midwest flooding.

During his confirmation hearings, Secretary Slater said, "First and foremost, the safety and security of all of our nation's transportation systems will be my highest priority." Slater went on to say that he hoped "to work closely with Congress to secure enactment of FAA financial reform...to meet and master the challenge of dramatically rising air travel demand while maintaining the world's most stringent safety standards."

Mr. Slater was confirmed by the Senate on February 6 by a vote of 98 to 0.

Mr. Slater is a native of Marianna, AR and, with his wife, Cassandra Wilkins, has one daughter, Bridgette Josette.

1996 AVIATION SAFETY PROGRAM COUNSELOR OF THE YEAR NAMED

Mr. James L. Gardner, III, has been named the 1996 Aviation Safety Program Counselor of the Year. Mr. Gardner is the second winner of the new annual award presented to one member of the FAA Aviation Safety Program's 4,000-plus volunteer safety counselors.

Mr. Gardner has been highly active in the Waco Aviation Safety Committee as well as a corporate pilot for the Texas Farm Bureau, all in addition to a busy schedule as an Aviation Safety Counselor. Mr. Gardner was nominated by his fellow counselors in the jurisdiction of the Fort Worth, TX Flight Standards District Office and was the FAA Southwest Regional Counselor of the Year before being selected as the national winner.

Mr. Gardner responded to the call for a safety committee for Waco Regional Airport and immediately formed the committee and began a series of safety seminars for the Waco area. The seminars have proved so effective that they average 137 attendees, and pilots come as far as 150 miles to attend. Such numbers are quite an accomplishment for an area where population is sparse and spread over great distances.

As a nominator said of Mr. Gardner, "As a volunteer he has set and met goals for improving safety in the Central Texas area, reached hundreds of pilots with information vital to their role as safe pilots, led dozens of other volunteers to commit time and energy to the cause of safety and continues to dedicate his life to the ideal that general aviation can be rewarding, fun, and safe."

Mr. James McElvain, FAA Safety Program Manager at the Fort Worth Flight Standards District Office, said of Mr. Gardner, "He is a 'take charge' individual who needs nothing more than an idea from me to put together a great program or project....The success of the Waco Aviation Safety Committee is assured because of Jim's constant attention and care."

One nominator cited Mr. Gardner's "attention and care" toward less experienced flight instructors, giving them time in larger aircraft and instruction in sophisticated navigation equipment.

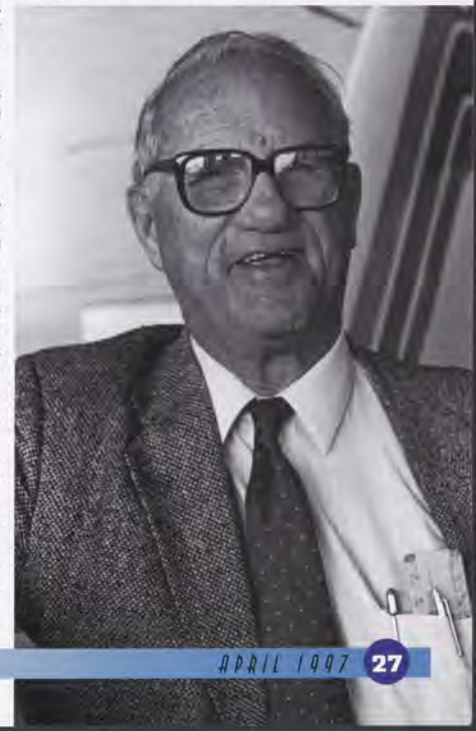
Mr. Gardner received his copy of the commemorative Counselor of the Year trophy at a ceremony February 13 in Waco.

MAX KARANT
1913 - 1997

The Aviation News Staff would like to extend its condolences to the family and innumerable friends of aviation journalist Max Karant, who died February 1 at the age of 83.

Karant was the founder of AOPA *Pilot*, the official magazine of the Aircraft Owners and Pilots Association, and its editor for 18 years. Before AOPA *Pilot*, Karant had also been managing editor of *Popular Aviation*, predecessor to today's *FLYING*.

Karant battled a congenital defect in his depth perception to become a pilot and went on to log more than 11,000 hours that included five Atlantic crossings and a circumnavigation of South America. His aviation journalism career began with an article in the *Chicago Herald Examiner*, "They Said I Couldn't Fly," where he recounted his flight demonstration to the Civil Aeronautic Administration (FAA predecessor) that eventually precipitated a change in medical requirements. As a result of the change, Karant was able to be certificated as a pilot. The popularity and acclaim of this article led to a job as the aviation reporter for his hometown *Evanston News-Index*.



Eventually, Karant was certificated to fly single- and multi-engine airplanes, seaplanes, gliders, helicopters, and hot air balloons.

Karant retired from AOPA in 1978 but continued his advocacy of general aviation and contributed to aviation journalism until his death. In 1990, AOPA inaugurated its Max Karant Journalism Awards, which recognizes fair editorial treatment of general aviation in the non-aviation print media, radio, and television.

Karant's ashes were scattered over the Atlantic from his Piper Twin *Commanche*, N13K, after a fly-by of National Airport, Capitol Hill, and a visit to airway intersection "KRANT," so named by the FAA in his honor.

AVNEWS

"FIRST NEW 172" DELIVERED TO AOPA CONTEST WINNER

The first new Cessna light aircraft in more than a decade was presented to Aircraft Owners and Pilots Association (AOPA) President Phil Boyer in ceremonies in Independence, KS. Cessna Chairman Russ Meyer called January 18, the date of delivery, "The day we've been waiting for at Cessna for almost 11 years."

"This is the beginning of 'the new good old days,'" Boyer said.

The "First New" Skyhawk—bearing the distinctive tail number N172FN (FN is for "First New")—was accepted by Boyer on behalf of the AOPA member who was the winner of the "First New 172" contest. Sharon Hauser (above) of San Jose, CA was the Grand Prize winner of AOPA's 1995 sweepstakes and received her new Skyhawk on February 1. The distinctive Skyhawk is already considered a collector's item with an instrument panel plaque and tail logo identifying it. Inside the fuselage is another commemorative touch—the signatures of the dozens of Cessna employees involved in N172FN's construction.

ATTENTION KATANA OPERATORS

According to the Air Traffic Bulletin, Number 96-5, the International Civil Aviation Organization (ICAO) has changed the official flight planning designator for the Diamond Aircraft Company's Diamond Katana. For flight planning purposes, the aircraft is now the DV-20 as of November 1996.

The reason for the change is that the Katana's aircraft model number, DA-20, is the ICAO approved designator for the Falcon FanJet.

The problem was many Katana owners filed flight plans using the DA-20 model designator number. Quoting the Bulletin, "As we controllers/Flight Services specialists know, this is incorrect. The DA-20 is the designator for the Falcon FanJet. Operational parameters, performance parameters, etc., are considerably different. Seeing DA-20 as part of the radar tag operating at 3,500 feet at only 90 kts can sure cause a radar controller to pause and ponder what is going on—a distraction we definitely do not need."

Katana owners and pilots should now be using the DV-20 designator when filing flight plans. So much for being a "jet" pilot.

GORE COMMISSION OUTLINES 57 RECOMMENDATIONS

The White House Commission on Aviation Safety and Security, chaired by Vice President Al Gore, completed its work and issued 57 recommendations in February, it believes will enhance aviation safety, air traffic control, security, and response to accidents.

In response to the Commission's interim report several months ago, the FAA is already deploying high-tech explosive detection systems in the nation's airports, training teams of bomb-sniffing dogs, hiring of new security and hazardous materials agents, and preparing new rules to verify the backgrounds of airport employees and certify the people at our airport checkpoints.

Without comment, the recommendations follow. To download a complete copy of the report, contact:
www.aviationcomission.dot.gov

Editor's Runway

from the pen of Phyllis-Anne Duncan

Improving Aviation Safety

1. Reduction of fatal accidents by 80%.
2. Develop (FAA) standards for continuous safety improvement; target resources based on how the standards are met.
3. More vigorous application of high standards for aviation businesses.
4. Simplify the FAR into plain Engligh.
5. Cost alone should not be the issue when deciding safety and security issues.
6. Emphasize human factors and training.
7. Install enhanced ground proximity warning systems (GPWS) in all commercial and military passenger aircraft.
8. Develop and protect a shared database of safety information.
9. Expand FAA's Aging Aircraft Program to cover non-structural systems; i.e., wiring and pumps.
10. Develop better and more modern management styles in the FAA.
11. Ensure that airline crewmembers are protected from passengers.
12. Enact legislation to protect the jobs of aviation industry employees reporting violations.
13. Require passengers under age two to be in an approved child restraint system.
14. Quick action on rules to require smoke detection and suppression in all cargo holds.

Air Traffic Control

1. Revise the National Airspace System modernization plan within six months with a goal of being fully operational by 2005.
2. Integrate operational and airport capacity needs into NAS modernization.
3. Speed up the installation of advanced electronic equipment in general aviation aircraft.
4. Ensure the accuracy, availability, and reliability of the GPS system; accelerate its use in NAS modernization; encourage it as an international standard.
5. NAS users should fund its development and operation.
6. By July, identify radio frequencies needed in a modernized air traffic system.

Travelers' Safety

1. Consider aviation security as a national security issue and fund improvements.
2. Establish federal standards for security enhancement.
3. Advise customers (US Postal Service) that all packages over 16 ounces moved by air will be examined.
4. Amend the law to allow the U.S. Customs Services to seach outbound mail.
5. A comprehensive plan to address the threat of explosives and other objects in cargo holds.
6. A security system that provides a high level of protection for all aviation information systems.
7. Ensure that all passengers are positively identified and subjected to security procedures before boarding.
8. Begin a program to improve compliance with international security standards.
9. Assess the possibility of chemical and biological weapons as tools of terrorism.
10. Increase the professionalism of the aviation security workforce.
11. Ensure secured access to airport-controlled areas.
12. Establish a consortium at all commercial airports to implement aviation safety and security enhancements.
13. Assess the vulnerability of airports and develop action plans.
14. Criminal background and FBI fingerprint checks for bag screeners and airport and airline employees with access to secure areas.
15. Deploy existing safety technology, i.e., advanced devices that detect explosives.
16. Establish a joint government/industry security research and development program.
17. Assess the potential of surface-to-air missiles used against commercial aircraft.
18. Significantly expand the use of bomb-sniffing dogs.
19. Complement security with automated passenger profiling.
20. Certify security screening companies and improve performance.
21. Aggressively test existing security systems.
22. Use the Customs Services to enhance security.
23. Give properly cleared airline and airport security personnel access to classified information.
24. Begin implementation of full bag/passenger matching.
25. More compassionate and effective assistance to families of victims.
26. Improve passenger manifests.
27. Assign more FBI agents to counter-terrorism investigations.
28. Provide airport security training to countries where airlines fly to the U.S.
29. Reqire the use of explosive taggants.
30. Explosives detection training programs for foreign, federal, state, and local law enforcement and FAA and airline personnel.
31. Central source of information on crimes involving explosives.

Responding to Accidents

1. Finalize by April 1997 a federal response plan to aviation accidents (NTSB).
2. Develop a plan to respond to aviation accidents involving civilians on government aircraft (DOT).
3. Implement key provisions of the Aviation Disaster Family Assistance Act of 1996.
4. Ensure that family members of victims of international aviation accidents receive just compensation and treatment.
5. Fund extra costs associated with accident response
6. Establish peer support programs rescue, investigative, law enforcement, counselling, and other personnel involved in accident response.

U.S. Department
of Transportation

Federal Aviation
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