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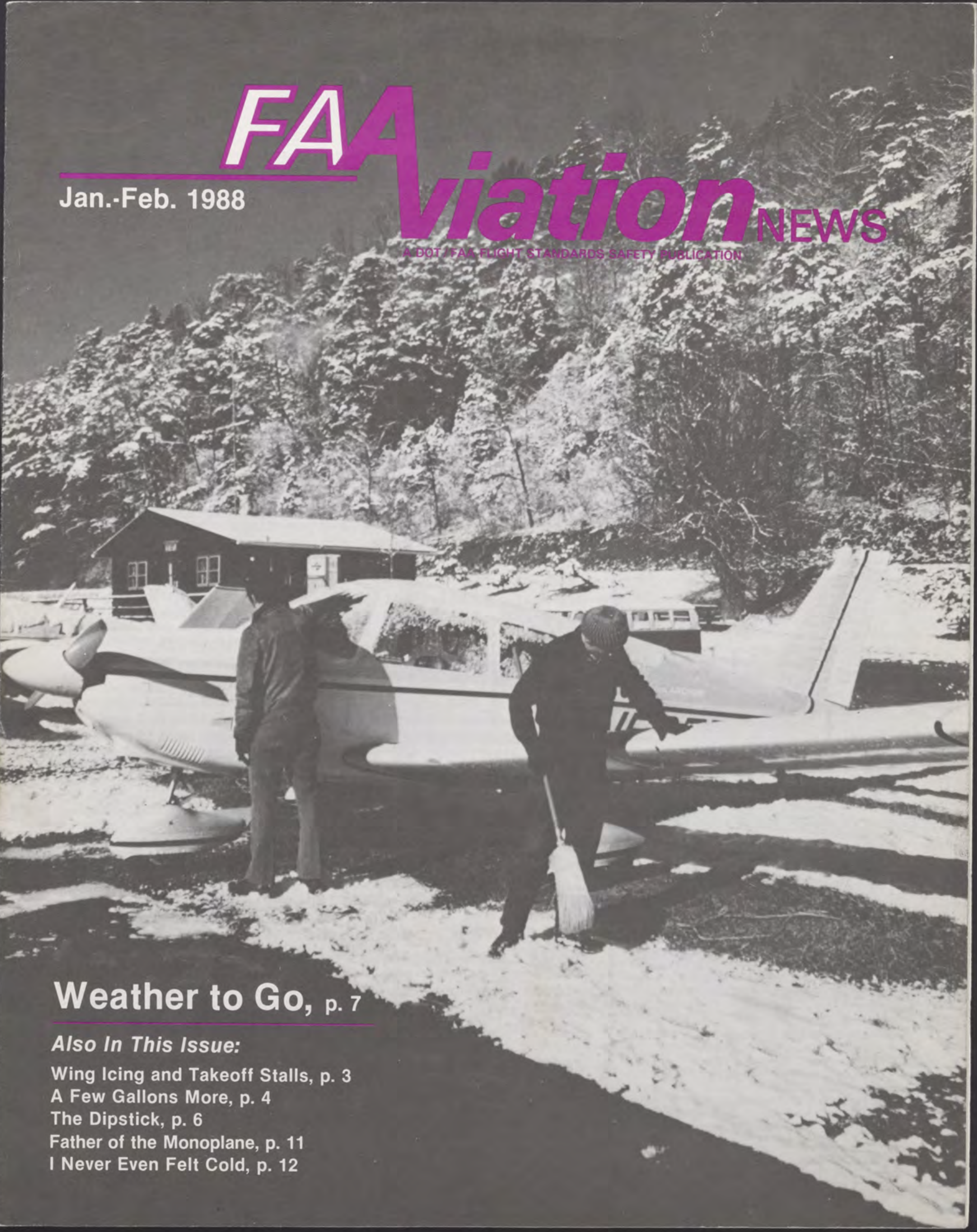

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BRIEFS

CHART ALERT! U.S Government Sectional Aeronautical Charts dated 12-17-87 or later and containing areas covered by VFR Terminal Area Charts have been revised. Airport data which is duplicated (on an expanded scale) on the Terminal Area Charts is deleted--including ATC frequencies, runway length, field elevation and lighting. This gives a clearer picture of TCA boundaries. Airport data in other areas of the sectional is unchanged. Airport information is also found in the Airport/Facility Directory.

NO SALE. National Ocean Service offices in Seattle and Norfolk, VA no longer handle orders for the aeronuatical charts published for FAA. Orders should be sent to NOS, 6501 LaFayette Ave., Riverdale, MD 20737 (1-301-435-6990). Requests sent to regional offices, except for Anchorage, will be returned. Charts are also available from authorized chart dealers located at airports all over the country. A list of such dealers, plus order forms, is included in the NOS Catalog of Charts, free from the NOS address above. Incidently, the popular "Chart User's Guide" is still priced at $3.00, not $4.00 as previously indicated.

ROUND-THE-CLOCK CONTINUOUS WEATHER information is scheduled for San Jose (CA) Airport beginning this month, following FAA certification of the Handar automated weather observing system (AWOS III). The AWOS-III provides sky condition (ceiling) and visibility, as an add-on to AWOS-I, which transmits on-site altimeter setting, wind, temperature and dew point information. At San Jose this report will be heard only during the hours of non-tower operation (8:00 p.m. to 8:00 a.m.); at other hours tower-derived weather information will be heard on ATIS.
AWOS III at San Jose can be accessed via VHF radio (128.2) or telephone 408-977-0702.

RED LIGHT MEANS STOP, as the crew of a Piper Seneca twin learned recently, after an apparently normal landing with a gear position light showing an unsafe condition. The suspect gear appeared to be in the down and locked position, after a tower fly-by and an uneventful landing. The aircraft came to a brief stop at the ramp for a superficial inspection and then was taxied to the hanger door where--yes--it collapsed, bending much metal. Maintenance technicians found that a fatigue-worn bolt had prevented the gear from locking in the down position.

Wing Icing and Takeoff Stalls

What do you suppose the following accident summaries have in common?

Beech 35: Aircraft destroyed; fatal to four. Shortly after takeoff the pilot lost control of the aircraft and came to rest in trees approximately 200 feet from the edge of the runway.

Cessna 210: Substantial damage; injury to one. Shortly after takeoff on a VFR night flight, the aircraft rolled sharply to the right then to the left and the left wing struck the ground.

Ford Tri-Model 5A: Aircraft destroyed; fatal to two, no other occupants on board. Shortly after takeoff on a clear, cold day the aircraft rolled to the left. The wing tip struck a tree.

Nord 262: Twelve of 22 passengers recalled that shortly after takeoff, the aircraft rolled to the right, to the left and back to the right. The aircraft crashed inverted with only two fatalities. When the aircraft left the ramp, there was approximately 1/4" of snow on the horizontal surfaces.

McDonald Douglas DC-9: Aircraft destroyed; minor injuries to two, no injuries to 58. On lift off the aircraft rolled violently to the right. The captain stated that with full left aileron the right wing came up, then the roll continued until the left wing contacted the runway.

You guessed it—all of the aircraft were victimized by wing icing. Each winter the Federal Aviation Administration and the National Transportation Safety Board investigate accidents in which it was determined that the probable cause of the accident was an attempt by the pilot to takeoff with snow or frost adhering to the airfoil surfaces. This snow or frost causes a degradation of aircraft performance. Loss of control following lift-off usually results in a serious or fatal accident.

Many pilots who have a healthy respect for icing in flight, and who will never fly into known icing conditions, do not fully understand the hazards of taking off with accumulations of snow, or slush, or frost, on the wings or empennage. The fact is that de-icing equipment is located primarily in the leading edges of airfoils, where ice buildup initially occurs in flight. But there are no mechanical devices for breaking up frozen moisture which may easily pile up on broad horizontal surfaces such as the wings, when the aircraft is parked on the ground—or moving relatively slowly. Furthermore, the pilot has no way of ascertaining that even a small accumulation of fresh snow will be blown free during the takeoff, unless a close-up inspection is made.

Even if the basic shape and aerodynamic contour is unchanged by snowfall, any increase in surface roughness (as from incipient snow adherence) increases skin friction and reduces the kinetic energy of the boundary air layer—i.e., reduces lift, and increases drag.

The increase in drag due to frost or ice is not readily noticeable during a takeoff roll. The aircraft could become airborne at the specified takeoff speed, but have an insufficient margin of airspeed above stall. Any turbulence, gusts, or turning in flight early in the takeoff could produce a full stall.

Additionally, an aircraft that is taking off very close to stall speed, because of ice or snow accumulation, is vulnerable to stalling even with the wings level when it climbs out of ground effect (roughly an elevation equivalent to the length of the wing). The airplane is then flying with reduced lift quality.

Ice and snow on the airfoils can also cause *flutter*. In one accident recently investigated by FAA and the NTSB, an aircraft with ice on its wing flew around the traffic pattern at an uncontrolled airport with a passenger on board and landed successfully. The pilot then departed alone. As soon as the aircraft leveled off and gained speed, intense vibration occurred—followed by the separation of an aileron from the wing. Rivets pulled out, the wing was deformed and the spar cracked at the lift strut attachment. Evidence concerning the wing icing was derived from the pilot, who fortunately survived the crash.

Another airplane, larger and with greater horsepower, departed a local airport under the same conditions of wing icing. During acceleration vibration ensued and destroyed an aileron. There was also extensive damage to the front spar and leading edge of the wing. In both of these cases the damage occurred within three to five seconds of the initial vibration onset—according to wind tunnel tests by the aircraft manufacturer.

Common to all the accidents discussed above was the determination that if the pilot had performed an adequate preflight investigation for ice or snow accumulation just before take off, there would have been no accident. We are all reluctant at times, in bitter weather, to leave the warmth of the cabin to make a last minute walk-around, but on the other hand...? ■

Adapted from a presentation by John H. Doster, GADO Manager, Allentown, PA.

A FEW GALLONS MORE

Marginal fuel estimates invite trouble

Remember the famous *China Clipper*, the ultimate in transoceanic travel in the early 1940's? You probably think the *China Clipper* was a four masted sailing vessel. Wrong! It was a four-engined seaplane with elegant appointments. But fuel was a critical element for the long flight segments, especially the initial leg to Hawaii.

The ocean was beautiful but the sharks were biting. So, when the elegant *Clipper* departed Oakland en route to Honolulu, the navigator developed a fuel consumption log, and an ETP (Estimated Turning Point) as the critical navigation point on their intended track line. The ETP was the manually computed location where they decided if they had sufficient fuel to continue, or must return to their departure point. The ETP took into account the wind, true air speed, present fuel consumption and the expected fuel consumption. The navigator was a vital crew member on any oceanic flight.

To a lesser extent a variation of this same technique has always been used to fly across the country, although the option usually was not just to turn around, but also to stop short at a pre-determined airport. The early day airline pilots disliked having to make an unscheduled stop for fuel if they encountered strong head winds because aviation fuel was not always available. So they "watched the wind" carefully and kept track of where they were. Even so, fuel outages were a continuing problem.

Here we are in the late 80's and we are still having fuel outage problems, though not because of the lack of refueling service. Perhaps now because of the vast number of refueling locations we may have become complacent, believing that fuel outages are "someone else's problem, not mine."

In any given year fuel mistakes by pilots account for roughly ten percent of the accidents by general aviation. There are usually two distinct types of errors, leading either to fuel starvation or fuel exhaustion. Starvation occurs when there is fuel aboard the aircraft, but it does not reach the engine, either because of mistakes in switching fuel flow controls, or because of contaminants in the fuel, or blockage in the supply lines. The second type is fuel exhaustion, when all usable fuel is expended.

This would seem to be the most easily preventable type of accident, in this day when fuel pumps are sprouting up everywhere and winds aloft information easily obtained, on the ground or in flight. But it is still a very common occurrence.

Sometimes the pilot simply doesn't take the time to determine the actual usable fuel capacity of his aircraft. Take the case of a light twin that was flight-planned recently for carrying 182 gallons of fuel, when the plane's capacity was really 162 gallons. Arriving at his destination the pilot found the sky obscured, visibility one-eighth mile in fog.

He shot an approach and had to make a go-around. That is when he advised the tower that he was low on fuel. Shortly thereafter he reported both engines out. He landed one mile short of the runway, surviving fortunately but demolishing the airplane.

The investigators computed that his endurance was indeed equal to 162 gallons, but not 182 gallons. Being 20 gallons short cost someone about $100,000 in repairs, and might have cost lives.

There are many similarities in the typical fuel exhaustion accident, although the idiosyncrasies of pilots and the constant change in circumstances makes each one appear unique.

Fuel exhaustion accidents have good news and bad news. The good news is that the lack of fuel on board usually rules out any post-crash fires. And, when ditched, those empty fuel tanks really increase your buoyancy. The bad news? You usually crash-land on some unprepared surface and really tear the airplane up.

One notable fact about fuel exhaustion accidents is that the pilot flight planning is usually near perfect. The pilots calculate their endurance very close to what actually occurs. As proof, approximately fifty percent of the crashes that took place during a recent calendar year occurred within one mile of the destination field.

Pilots seem to have the skill to estimate their fuel consumption with good precision, *according to expected flight conditions*. The problem is that these conditions are highly variable. Windspeed and direction can change on short notice. Engine efficiency will vary according to the conditions of your ignition system, your fuel mixture, your fuel quality, etc. A dirty "skin" on your airplane can cut as much as five percent off your airspeed at cruise.

If you think your panel fuel gauge can be relied on, observe the gas gauge on your car sometime when you are climbing a hill, or making a turn, or bumping along over a rough road. Variation, again! The only reliable tools the ordinary pilot has are still his fuel consumption log and his good old ETP. You have to calculate your expected time of arrival over various points enroute, and check it against your actual progress. If you are behind schedule, for whatever reason, you know that you may be running low on fuel, regardless of what the gauge says. Probably the most important function of the fuel gauge in light aircraft is to call attention to inflight *loss of fuel*, as from a leaking line or tank.

Accident reports show that in most instances pilots will fly right by numerous airports along their route where they could have stopped for refueling but did not. Although the FAA encourages pilots to report "fuel critical" situations, pilots seem very reluctant to admit that situation. This may be a reflection of the "Right Stuff" attitude or, as one sage so aptly put it, "Oh Lord, let me die if I must, but do not let me do anything stupid." Running out of fuel fits much more closely into the "stupid" category than admitting to a miscalculation.

Pilot experience or skill level seems not to matter in fuel outage accidents. Statistics indicate that approximately 40 percent of the pilot victims will possess a commercial certificate or higher. This apparently does not assure providing for an adequate reserve. Most of the running-out-of-fuel accidents in simple aircraft would have been avoided if ten additional gallons of gas had been held in reserve. Balance the cost of ten gallons of fuel against the repair bills, or the hospital bills. Perhaps five gallons for the spouse and five gallons for the kids is not a bad idea when doing your fuel planning.

How good are your preflight preparations? FAA FAR 91.22(a)(1) and (2) states that "No person may begin a flight in an airplane under VFR unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, during the day to fly after that for at least 30 minutes, or, at night, to fly after that for at least forty-five minutes." How do we as pilots comply with this regulation?

Let's start with basics.How much gas should you carry? Remember that the 30 minute day and 45 minute night VFR requirements are minimums. And how much do you really have on board? The only good method of being sure how much fuel is in the tank is to "top-it-off". And even that method leaves margin for error. Was the aircraft sitting level when it was refueled? Did they do some sloshing to eliminate air bubbles? A Cessna 172 can be carrying 40 gallons usable or 36 gallons usable, depending on how level the aircraft is sitting. Four gallons is a difference of about thirty minutes flying time. Is this our thirty minute reserve we planned on? If so, we've just left the reserve in the fuel truck.

And did you visually check the fuel level—or just take the line boy's word that he had topped you off?

How many pilot victims of fuel exhaustion have admitted to accident investigators that they did not visually check their fuel because there was no step ladder available for the high wing plane? Or that they had relied on the fuel gauges, which looked just fine.

There are two things a pilot cannot use—runway behind him, and fuel in the fuel truck. So how do you keep from becoming a fuel outage statistic? For starters you can know your aircraft and its fueling limitations. Always visually check your fuel levels. Calculate your fuel consumption accurately. Do not be content with using "no wind" conditions, check the forecasts. The majority of pilots do this quite well. It is knowing exactly how much fuel they have to start with that is the big problem.

When the fuel starts running low, the closest airport with sufficient runway is usually the best. You are able to determine this early because you have been keeping a fuel consumption log—have you not? That is what those progress marks along your proposed track line are, a time versus distance versus fuel consumption check—are they not?

Here is an accident scenario that illustrates what happens when you do not follow the "closest airport is the best" rule. An AT-6 pilot on a cross country flight arrived at his destination and found it was covered with a solid cloud layer. (Was he monitoring the en route Flight Watch frequency, 122.0 Mhz?). He immediately turned back and headed toward the closest airport. Calling on UNICOM he learned that there was no fuel available. (Could this have been determined during his preflight preparations?) He decided to head for another field ten miles away that had fuel. The weather at this airport was reported as 1,500 feet scattered. No problem. The AT-6 let down through a break in the clouds and the pilot found that he was in the wrong valley—no airport.

Original Pan Am ***China Clipper****, departing San Fransico. November 22, 1935. The Martin M-130 took four days to reach Manila, with stops at Honolulu, Midway, Wake, and Guam.*

Now his low fuel state was getting critical. He flew down the valley looking for any place to land. Sensing that he was about to run out of fuel he lined up with an open field and started his approach. Within moments he experienced that dreaded, silent, sinking feeling as the engine stopped. He lowered the nose to maintain airspeed. On short final he caught sight of a grass strip off to one side but was unable to stretch his glide. He substantially damaged the aircraft and received severe bruises.

The moral of the story? There were many things that could have been done to prevent this accident, including better preflight and better monitoring of the weather. But the last opportunity he had, he passed up. He overflew a suitable, prepared surface, where they probably didn't have fuel, but what was more cost effective? Bringing fuel in by truck, or taking the airplane wreckage out on a truck?

The mortality rate in fuel related accidents is quite low, but the damage to property, and ego, is enormous. What can we do to try and reduce or eliminate these accidents? Review the basics, again and again and again.

Pilots pride themselves on learning systems and techniques, however complex, on knowing the idiosyncrasies of their engines and their radios. Yet for lack of an extra ten gallons in the tank they will endure "extreme emotional stress" attempting to stretch the fuel endurance. Fuel outage accidents do nothing to enhance aviation's reputation as a body of reputable airmen. Let's not let ourselves look foolish. Let's develop fuel sense. ■

The Dipstick

PHOTO BY AL CROOK

The fuel tanks aren't full. And for this flight, with maximum passengers and baggage, they'd better not be. A look into the tanks through the filler ports shows there is indeed less than full tanks. But how much less than full are they?

Given the accuracy of most aircraft fuel gauges, a pilot would need near mystical powers to divine the fuel aboard an aircraft by a look into the tanks or a glance at the gauges.

For many, determining the amount of usable fuel on board is an approximation. At best, this will be somewhat inaccurate. At worst, the inaccuracy will be enough to put the airplane in the weeds when the gas gives out. But there is one tried and true way for any pilot of any airplane to determine precisely how much gas he's got—the old reliable dipstick.

But where to get a dipstick? A quick check through pilot shop catalogs reveal ready made dipsticks are available from $8 to $10. Owners of Cessna 172s with standard tanks, or C-182s with long-range tanks can order dipsticks calibrated for their airplanes. Pilots who don't own these models need not fear, for the ready made dipstick comes in a universal model which handles all airplanes.

The commercially made fuel dipstick is really a pipette made of clear lexan and marked in regular increments (gallons or inches). The pilot simply inserts the pipette vertically (and that's important) into the tank filler port. Placing his thumb over the hole in the top, he withdraws the dipstick and reads the level off the side scale. It is very important that the dipstick be held vertically to prevent false readings.

The universal model dipstick is calibrated in inches, while the C-172 and C-182 models are direct reading in gallons. The universal model will need to be calibrated to an individual aircraft. But the calibration process is simple, and cagey pilots can use the calibration process to (1) check and calibrate the cockpit fuel gauges, (2) carefully examine the interior of the fuel tanks, and (3) obviate the need to buy a commercially made dipstick and make their own instead with any wood stick treated with a non-reactive coating.

The process begins by levelling the aircraft and draining the tanks (being sure to run the fuel out into approved fuel containers—clean if the fuel is to go back in the tanks—and not allowing any smoking in the area). When fuel stops draining from the sumps, move the fuel cans out of the way and start the engine. Let it run off a tank until it dies from fuel starvation, then switch to the next tank, restart and repeat the procedure.

When the engine won't run off any of the tanks, the airplane has exhausted all its usable fuel. Now turn the fuel selector to the off position to prevent cross-feeding between the tanks as fuel is added.

This is the time to get a good look in the tank to check for internal damage, trash, or debris and get it cleaned out. Hopefully, your tanks will never be this empty again. Note: If articifical light is needed for this, you must use a non-explosive type, approved for use near gasoline vapor. Tether any tools that could disappear into the tanks.

Depending on the size of the tanks, the pilot's desire for accuracy, and degree of patience, start adding fuel in specific increments (e.g., one gallon at a time, three gallons at a time, five gallons at a time). Whichever you choose, be consistent so the dipstick gets calibrated in even amounts.

Add the first increment, insert the dipstick and put a small mark on the stick at the top of the fuel wet mark. Then, go to the cockpit and turn on the master switch and note what the fuel gauges indicate (betcha they don't indicate at all for the first increment).

Repeat this procedure until the tank is full, marking the stick for each increment of fuel added. After that tank is done, go through the whole thing again for the opposite tank, using the same stick. This provides a good check on the accuracy of the original calibration, as well as demonstrating any discrepancies in tank capacity and disagreement between the fuel gauges. Notably, the marks will not necessarily be spaced equally apart, due to the way various tanks are shaped.

If the airplane has auxiliary tanks, do the whole thing yet again, but use a different stick for the aux tanks. The opposite side of the original stick can be used. Just be sure to mark which side corresponds to aux and which side to main tanks.)

Sure, this may take quite a bit of time. But it will only have to be done once (unless you lose the dipstick at some later date, although saving the measurements in written form at home can be insurance against this loss).

Who needs a dipstick, though? Experience has shown that most general aviation aircraft would gain in safety from their use. There are some exceptions to this, admittedly. The Aerospatiale airplanes, such as the *Trinidad*, have calibration strips in the back of the tank to allow direct reading of fuel. Some Beech airplanes have sight gauges in the wings. And the Grumman trainers have the clear sight tube in the cabin sidewall. Yet, for me, nothing will replace the tried and true dipstick for determining fuel on board before takeoff. ■

Note: This article was written by John M. Likakis, Senior Editor of Aviation Safety magazine. It is reprinted with the permission of Aviation Safety, 1111 E. Putnam Avenue, Riverside, CT 06878.

FAA is not necessarily in agreement with all of the observations and recommendations made here.

Weather to Go

The new FAA briefing system

The importance of getting an appropriate weather briefing before flying has been known to airmen even before the Wright brothers took to the air, but neglect of this all-important responsibility continues to play a role in aircraft accidents. An evaluation of weather related fatal accidents, undertaken for FAA in 1985, determined that such accidents are *2.5 times as likely to occur* if pilots do not have a briefing than if they do. Hence flying without a briefing, regardless of the type of flight, has an added risk factor which in this day of widespread high-tech briefing services is inexcusable.

Billions of dollars have been spent in the public interest to provide the most accurate and updated aviation weather information possible, including the use of weather satellites, weather radar and a whole litany of weather sensing and reporting devices; yet some pilots often take off relying on little more than their own observations, or on a weather report they read in yesterday's newspaper.

The usual excuse for not getting a briefing is something on the order of ... "I was just thinking of doing a little local flying," or "I just got tired of waiting to get through to a briefer," or "I don't like trying to talk to a computer," etc. More often than not, the non-briefed pilot is a victim of *impatience*—or perhaps ignorance. It is a fact that "live" FSS briefers are not always immediately available by telephone or even radio, but there are other briefing sources (taped or video) which are continuously available and may suit your flight purposes just as well.

The Federal Aviation Regulations, as regards preflight actions (FAR 91.5), require that "Each pilot in command shall familiarize himself with *all possible information concerning that flight* (Italics added)." The pilot who does not fulfill this requirement is taking on added personal liability in the event of a weather related accident.

To pilots who have grown up in the habit of dropping in at the friendly airport flight service station or calling one of the specialists whenever they want to talk about weather, the current change-over from the previous FSS's to the modern automated flight service station (AFSS) may be considered a burdensome boondoggle or words to that effect. There is no question but that it was highly satisfying to be able to talk to specialists you know, and who knew all about you and your flying equipment, your ability, and your flying habits as well.

This type of relationship between pilot and briefer was possible during an earlier period, when the FAA had over 300 flight service stations and half the number of flight operations that are undertaken daily today. That time is gone—history. By the close of this decade, most of the individual stations will have been phased out in favor of 61 automated flight service stations (AFSS's), which will provide at least twice the service to pilots that has been available from all the non-automated stations.

As with all new services some annoying "bugs" will be encountered with the AFSS. However, pilots will no longer experience long delays in getting through to weather briefers by phone or radio. It also means that the currency and accuracy of weather information will be greatly improved, and the entire system modernized by means of computerized equipment for storing and transmitting information with tremendous efficiency.

As an inevitable trade-off, pilots are finding that they must shoulder a somewhat larger portion of the responsibility for obtaining weather information. In order for the system to work well, it is now necessary for pilots to learn to make judicious use of the automated segments of the system. This does not require a Master's Degree in

Computer Literacy by any means. It involves following a few very simple instructions in the use of a telephone, and exercising good judgement in extracting basic, appropriate information from transcribed or video-taped material.

Furthermore, access to live briefers is not only still possible, it is strongly encouraged. For example, live briefers are a good source of unpublished Notices to Airmen, concerning important data about airport or runway closures, military flight route training activity, obstructions to flight, outages and shutdowns, etc.) The latest pilot reports of weather conditions aloft (PIREPs) are also more likely to be available from FSS specialists than from the pre-recorded messages.

However, pilots will have ready access to live briefers only if they learn to make maximum use of transcribed information, as appropriate to their flight intentions. The pre-recorded information is not intended to provide a complete briefing under most circumstances, but it is more than adequate for preliminary planning, or for abbreviated briefings. The great majority of initial telephone calls to flight service stations regarding a proposed flight can be handled (with no delays) in this manner. After the initial planning has been accomplished, pilots are encouraged to discuss final details with a specialist and ask any questions that come to mind. Additionally, a briefing room for pilots is open and attended 24 hours a day at all automated flight service stations.

The automated system is literally simple enough for a child to deal with. In most of the adjacent 48 states there is not even a specific telephone number to remember for each locality. You have only to call 1-800-WX BRIEF (992-7433) and you will be connected to the nearest automated flight service station.

The principal exception is in FAA's Great Lakes Region (all states bordering on Lake Michigan, plus Ohio, Minnesota, and the Dakotas). All AFSS's here respond to 1-800-FAA-5552. The three AFSS's in southern California (San Diego, Hawthorne, and Riverside) have discrete 800 numbers, available from the FAA Airport/Facility Directory or from other flight service stations. Eventually, a common 800 number is visualized for all AFSS's.

For example, if you are a pilot from Baltimore, MD and you telephone 1-800 WX BRIEF, a pleasant (pre-recorded) voice will welcome you to Leesburg (VA) AFSS. If you are using a rotary or pulse tone telephone you will be asked to stay on the line and the first available specialist will help you. If you are using a touch-tone you will be invited to select from the regular "menu" of weather information items whatever serves your purpose. (This "menu" is also sent out in print to all pilots in the area regularly, and may be available on a card that fits conveniently in your wallet.) You have only to remember to depress the # ("pound") and * ("star") buttons before tapping in the three digit code for the service desired.

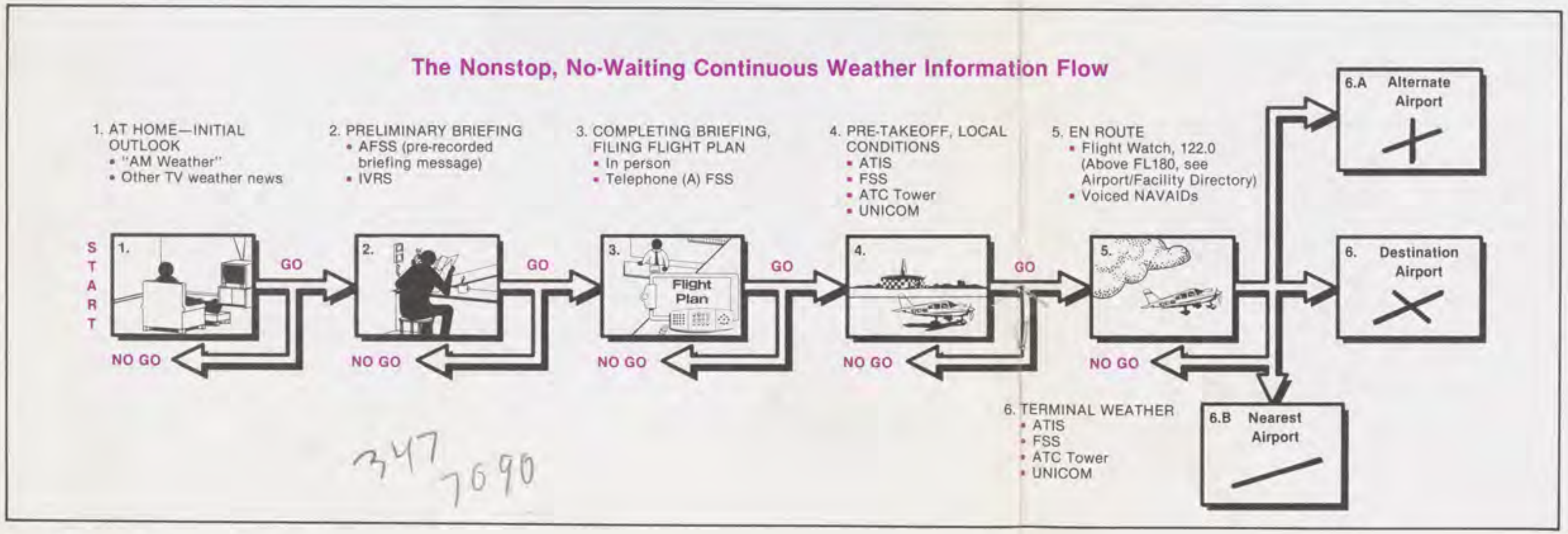
The weather items normally available on the "menu" at Leesburg are as follows:

Current weather:
301–local
302–northbound
303–southern and central Virginia
304–southwest Virginia
305–westbound
306–northwest bound

Forecast weather:
311–local
312–northbound
313–southern and central Virginia
314–southwest Virginia
315–westbound
316–northwest bound

Additional information:
318–soaring and ballooning
319–convective SIGMETs
320–special aviation events

Filing flight plan:
401–File and cancel for IFR and VFR flight plans due to depart in less than an hour
402–File and cancel IFR and VFR flights due to depart in more than an hour.



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LOST FLIGHT PLANS

Pilots who use the automated (Fast File) flight filing options sometimes complain about flight plans that "disappear" from the system. There are two basic causes of this problem:

• **Pilot error.** The pilot may have provided insufficient information, or selected inappropriate routes, altitudes, etc. Fast filers should always record a telephone number where they can be reached up till departure time. Also remember that a flight plan must be activated or cleared by the pilot *live*—not via a recording.

• **System error.** Infrequently a flight plan that has been fast-filled the night before is inadvertently lost when stored information is purged from a facility at the beginning of a new day. New equipment being installed in the FSS system will soon render these mishaps unlikely. Whenever there is a problem about a flight plan, notify the FSS as soon as possible, so that the error sequence can be identified and corrected.

The caller does not to have listen to the entire sequence of any item; the message can be interrupted by tapping the #*keys and then the next three-digit code number for a different item. If you become confused and need help, or are ready for additional, non-recorded information, you can simply tap the #* keys and a live briefer will come on the line very shortly.

An understanding of the "pound, star" (# *) code function is essential to successful use of an AFSS. Please bear in mind that:

1. The system may not recognize the # * code if there is a voice or other noise on the line.

2. Following receipt of the # * code, an audible tone must be heard before you tap in a three-digit menu code.

3. If this tone is not heard, re-enter the # * code until you hear the tone.

After completing the call you can study all the data in conjunction with appropriate charts and work out plausible routes and altitudes, arrival times, etc. Finally you call back, tap in the 401 or 402 number and file your flight plan, much as you would leave a recorded message at a friend's telephone. Pilots are advised to use a standard flight plan form when filing, since incomplete or incorrectly supplied information could result in a flight plan not being entered into the system. (Alternately you can read out your flight plan to a live briefer.)

You can help assure the prompt availability of a live briefer when you need one if you get into the habit of presenting some basic information about your intended flight to the specialist before you start asking questions. Some pilots believe that they are expediting matters if they simply shoot out a quick question such as, "What kind of weather do you expect this afternoon, Waco to Dallas?" Sometimes your needs may be served by a simple, one-sentence answer, but most of the time the weather conditions are not really simple, and the briefers feel more comfortable about doing their job in a responsible manner if you provide the following background information, in this order:

1. Aircraft identification number, or name of pilot.
2. Type of aircraft.
3. Departure airport and estimated time of departure.
4. Type of flight, VFR or IFR.
5. Altitude or altitude range.
6. Route of flight, destination, and estimated time en route.

In turn, you may expect to receive the following information in the given order:

1. Adverse weather conditions.
2. Synopsis of existing fronts and other weather systems pertinent to your proposed flight.
3. Current weather, from surface weather observations, PIREPs, and weather radar.
4. Forecasted en route weather, summarized from area and terminal forecasts, and weather charts.
5. Destination forecast.
6. Winds aloft forecast (for proposed routes).
7. Current unpublished NOTAMs.
8. Military route activity, published NOTAMs, customs rules, etc. (on request only).

ALTERNATE SOURCES

The automated flight service stations all have an active program for familiarizing pilots in their region with the procedures for using an AFSS effectively. Announcements of pilot instruction meetings and invitations to visit FAA facilities are sent out by mail to currently certificated pilots. Airmen who are unable to travel to these meetings may request a visit from the AFSS briefing team.

Pilots are reminded that an initial weather briefing, no matter how thorough, may not provide one with a complete margin of safety for the flight. Weather is constantly inconstant—in other words, ever changeable. Experienced pilots update themselves on weather phenomena during the course of a flight, from takeoff to touchdown. Although the flight service station and its associated outlets are the heart of the briefing system, there are other useful sources, and none of them should be disregarded. These include:

Televised Weather

Many pilots like to begin their flight planning with a televised picture of the weather. "A.M. Weather," a public television broadcast for persons with a vital interest in the weather, is now seen on over 275 public television stations in the United States. Broadcast time varies locally from 5:45 A.M. to 8:45 A.M. Regular features include:

- A satellite derived national map of current weather
- 12, 24, 48, and 72 hour forecasts
- Long range temperature and precipitation outlooks
- Snow cover information
- Icing reports and turbulence
- Winds aloft
- Severe weather advisories

For the identification of your nearest public television station carrying this program, and the air time, write to A.M. Weather, Maryland Public Television, 11767 Bonita Avenue, Owings Mill, MD 21117. Telephone (301) 356-5600.

Voiced Response

IVRS, the Interim Voiced Response System, which was placed into service nationwide in 1985 (except in Alaska and Hawaii), using computer generated voiced phrasing. This is a temporary measure for speeding up the flow of weather information from the National Weather Service without the assistance of FSS briefers, pending the revamping of all individual flight service stations into automated hubs.

IVRS is a computer network that continuously receives and stores aviation weather data from the Weather Message Switching Center in Kansas City, KS. Anyone who has a telephone with a standard 12-tone signaling device, including rotary dial phones coupled to keyed tone signalling, can access IVRS. The call is local if made to a telephone within any of the 24 major metropolitan areas; otherwise it is a toll call.

Learning to converse with the synthesized voices of the computer is far more demanding and complicated than dealing with an automated FSS. Many pilots find it stimulating and enjoyable, like a complex word game; others find it frustrating. The "rules of the game" limit you to 15 total errors per session and a total elapsed conversation time of 15 minutes—after which your call is politely but firmly terminated.

The outstanding advantage of IVRS over the AFSS recording is that it gives you access to weather information for specific points and routes in any of the 48 adjacent states, regardless of your calling locality. The service is limited to (1) Severe weather alerts, (2) All AIRMETs and SIGMETs, (3) Surface observations, (4) Terminal forecasts, (5) Winds aloft, and (6) Forecasts of transcribed weather enroute broadcasts—i.e., TWEBs.

Pilots may obtain the access telephone numbers and a training brochure on the use of IVRS from their nearest Flight Standards District Office, or write to FAA, APS–530, Washington, DC 20591.

En Route Weather

As most pilots know, weather information in the form of an En Route Flight Advisory Service (EFAS) is provided by selected flight service stations across the nation, which have access to weather radar maps. All aircraft flight at or above 5,000' AGL should be in continuous radio range of an EFAS (or Flight Watch) station. The common frequency for aircraft below FL 180 is 122.0; above FL 180 discrete frequencies will soon be available. In the event that a pilot in flight is unable to contact a briefer in this manner because of heavy demand, he can tune into a TWEB, or Transcribed Weather Broadcast.

At selected FSS's meteorological and aeronautical data are recorded on tapes and broadcast continuously over selected low-frequency (190–535 kHz) navigational aids and/or VOR's. Locations and frequencies are presented on sectional charts. Broadcasts are made from a series of individual tape recordings, and changes, as they occur are transcribed onto the tapes. Generally the broadcast contains *route oriented data* with specially prepared NWS forecasts, inflight advisories and winds aloft, plus preselected current information such as weather reports, NOTAMs and special notices. These broadcasts are primarily for preflight and inflight planning, and as such, should not be considered as a substitute for specialist provided preflight briefings except for local flights.

FAA is in the process of replacing TWEBs with HIWAS, a three minute summary of hazardous weather broadcast over VORs.

Additional "Weather Advisory Broadcasts" are made over the same frequencies. FSSs broadcast Convective SIGMETs, SIGMETs, CWAs, and AIRMETs during their valid period when they pertain to the area within 150 NM of the FSS.

The advisories are broadcast upon receipt, and at 15 or 30 minute intervals on the hour for the first hour of issuance. Thereafter a summarized alert notice will be broadcast at H + 15 and H + 45 during the valid period of the advisory. Pilots who receive an alert notice should contact the nearest FSS to learn whether their route is affected. Alternately assistance may be sought from an Air Traffic Control Center.

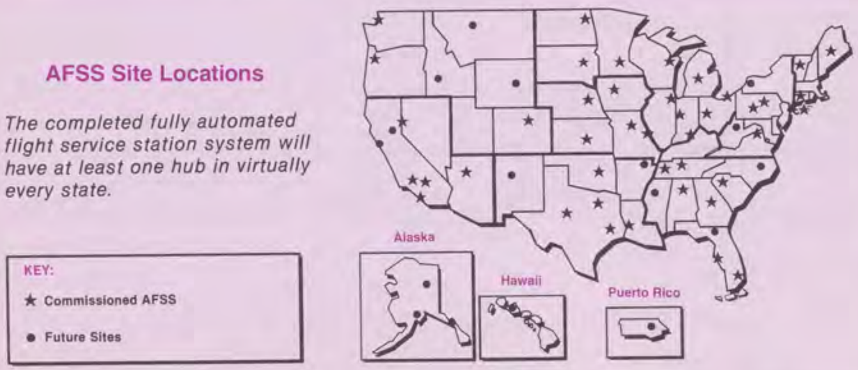
Weather conditions pertinent to taking off and landing are also available on pre-recorded tapes at major airports. The Automatic Transcribed Information Service, or ATIS, is updated throughout the day, with the successive broadcasts identified as *Alpha, Bravo, Charlie*, etc. Where available, as indicated on sectionals and in the Airport/Facility Directory, ATIS is the quickest and most convenient way to pick up airport weather observations.

At other airports this information should be sought from a FSS, if available, or an ATC control tower, or otherwise from UNICOM. If you are unable to contact any of these sources, because of heavy demand on the frequency, you may be able to learn what you need to know by simply monitoring the frequency.

The important thing to remember is that the less demand you place upon a live briefer, the more likely that type of assistance will be there when you need it. ■

AFSS Site Locations

The completed fully automated flight service station system will have at least one hub in virtually every state.



Louis Bleriot

Father of the Monoplane

"Ah, to be first. That is the supreme honor!"

Such was the motto of Louis Bleriot, the indomitable French contemporary of the Wright brothers. History honors him as the first to cross the English Channel in a heavier-than-air craft, but that was not his only accomplishment.

Louis Bleriot was born at Cambrai, France, in 1872. Described as an impulsive, reckless bear of a man, who could be cold and mean but could also exude a magnetic charm when he wanted, he decided early in his engineering career to be a financial success. The fledgling automotive industry seemed the best choice. With the introduction of the Bleriot acetylene head lamps and such motoring accessories as foot warmers and luminous license plates, Bleriot made a fortune while still in his twenties.

His first sight of a flying machine was at the Paris Exhibition of 1900 where Clement Ader's bat-winged glider with a steam engine was displayed. It could not get off the ground and Bleriot thought he knew why—the wings, which did not flap, should. To prove his point, he built an ornithopter in 1902. However, on its initial flight the wings flapped themselves to pieces without ever getting the fuselage off the ground.

Bleriot next began to experiment with gliders and engines. (He is credited with being the first inventor to document his experiments with motion pictures.) Experimenting with every known design and every new concept that emerged from his and other fertile minds, he produced an unbroken record of emphatic failures. Of course, he was known as a dreadful pilot—uncoordinated, slow to master the basics and impatient with details. The moment each machine ended its life in a crumpled heap, the determined Frenchman would go back to his shop and have another constructed with a slightly different design approach. His fortune diminished at an alarming rate, but his spirits were undaunted.

In 1907, Bleriot built and tested three different monoplanes that actually flew for brief periods. The first, designated Bleriot V, had a swept-back, paper-covered wing and a pusher propeller driven by a 24 hp Antoinette engine. Next he constructed a tandem tractor monoplane which featured "elevons" (combined aileron and elevator controls) and a sliding seat for longitudinal control. More powerful engines were installed in the next two models. The Bleriot VII, built in the fall of 1907, was the first to feature an enclosed fuselage, a two-wheeled main undercarriage plus a tail wheel, and a tail unit of elevons and rudder.

By the summer of 1909, after dozens of crashes and countless tearful remonstrations on the part of Madame Bleriot and family, Bleriot had arrived at a successful design by adapting the wing warping technique developed by the Wright brothers to his own control system for turn and bank. The new plane, the historic Bleriot XI, resembled a dragonfly in appearance. This tractor monoplane was equipped with a 25 hp Anzani engine which drove a wood Chauviere propeller. Total weight of the plane, one of the lightest ever built, was 484 lbs. Its framework was of oak and poplar, reinforced with piano wire bracing.

On July 13, Bleriot flew the model XI nonstop from Etampes to Orleans, a distance of 25 miles, and won the $2,500 prize posted by the Aero Club of France. He also managed to land, for a change, without seriously damaging the airplane or the designer.

He was now ready for the aerial conquest of the English Channel. That summer the French coast near Calais had been heavily invaded by would-be channel flyers with their entourage and the usual press representatives. If the honor of being first across the Channel was not in itself enough of a lure, there was the recently posted offer by the London Daily Mail of 1,000 pounds sterling (at that time about $5,000) for the first flight in either direction.

Given the virtual disappearance of his capital since he had become obsessed with flying, it was an all or nothing venture for Louis Bleriot. In fact, he had to borrow the money to make the flight. His business sense told him, with unerring foresight, that the winner of the Channel crossing prize would immediately dominate the European aircraft market. And to beat out the Wrights as well ...!

The monoplane was trundled to Calais in a farmcart and an unused barn was set up as his hangar and headquarters. The distance was not great—a mere 21 miles—but the weather over the Channel was frequently bad and the seas rough. The very thought of ocean waves was enough to make Bleriot seasick, so he resolved not to look down unless it was absolutely necessary.

Although the French destroyer *Escopette* was to monitor the flight in case he had to ditch, to further reassure "Mama," Bleriot equipped No. XI with an inflated air bag attached inside the frame (between pilot and tail) to act as a float. On July 25, 1909, Bleriot took off from Les Baraques near Calais at dawn and headed towards the cliffs of Dover, England.

His landing at Northfall Meadow near the Dover Castle was his usual shattering ar-

(continued on back cover)

I Never Even Felt COLD

GERNOT RASMUSSEN

by Thomas Gross, M.D.

My friends were huddling out of the freezing rain in a temporary shelter, brewing some tea. Oblivious to the icy downpour, I sat on a snowcovered log and pulled off my boots. I set them in a snowbank at my feet, and in a rainsquall high in the mountains I methodically proceeded to wring the water from my socks for several minutes.

I had lost touch with my situation, and if I had been alone, I might never have left those mountains. I was affected by hypothermia—a little recognized, sometimes fatal consequence of prolonged exposure to winter conditions.

The weather had been clear and cold that morning when we left our base camp below the timberline in our third attempt to reach the summit. Due to the arrival of another snowstorm, we terminated the climb at 9,000 feet, put on our skis and headed back to camp. At a lower elevation, the snow turned to freezing rain.

I was not as capable a skier as my companions, and, as the packed snow turned to ice, I fell often, becoming wetter each time. I remember being angry and impatient with myself and with the others. I remember feeling clumsy. I don't remember feeling cold.

When we arrived back at our base camp, I removed all my wet clothes and donned some warm longjohns. I then sipped hot soup and sat in front of the open door of a potbelly stove. After about an hour, I began to shiver. How low had my temperature dropped? (We estimated into the eighties.) I shivered there in front of the stove for *seven more hours,* until finally I was able to get up and walk about without falling over. I was fortunate. I was a victim of hypothermia, which can be fatal.

Hypothermia is a lowering of the body's core temperature to the point at which vital organs become affected.

We doctors divide discussion of hypothermia into groups according to cause, principally immersion vs. exposure. Immersion hypothermia is an extremely rapid and precipitous drop in body core temperature subsequent, usually, to immersion in cold water. Figure 1 shows, however, that severe hypothermia can result from immersion even in relatively warm waters.

While the bone chilling consequences of immersion in cold water are obvious, the onset of exposure hypothermia, where wind chill and air temperature combine to create hazardous conditions, is harder to recognize (see Figure 1). The onset can be either rapid or very slow and insidious, depending upon the circumstances.

The prime regulator of heat loss is skin temperature, which in turn is regulated by adjusting the blood flow to the extremities. The slow onset of exposure hypothermia will first affect muscle strength and dexterity as blood flow to the extremities is lessened to conserve heat. Next, judgment becomes clouded. Shivering commences as the body attempts to generate heat.

Medical studies have shown that shivering alone can produce ten times the heat that physicians can provide in an emergency room. If, despite shivering, the body continues to lose heat, it will stop shivering. The exact body temperature below which shivering is cut off is variable among individuals, but is estimated to be in the low nineties. At this point, body temperature falls precipitously. Therefore, when shivering stops it should by no means be interpreted as a sign that temperature has risen to normal. In fact, just the opposite may be occurring.

You should suspect that the hypothermia is worsening if shivering has stopped, but the patient is becoming more lethargic or confused, or if he has not been removed from the heat-losing situation. On the other hand, if shivering stops after your companion has been in a warm and dry cabin, with dry clothes, and is alert and exhibiting appropriate behavior, you may suspect he is improving.

The two best ways to prevent exposure hypothermia are to *maximize the body's ability to produce heat,* and to minimize heat loss by effective insulation. The fuel you provide your body determines much of its ability to prevent heat loss. Even adequate rest is helpful in protecting against hypothermia's effect upon judgment.

Frequent, small, light meals in an exposure situation are more efficient than larger meals taken farther apart. The use of high energy snacks, such as GORP ("good old raisins and peanuts") that mountain climbers carry, or cookies made from honey, grains, nuts and dried fruit, are good ways to supplement a regular diet.

Insulate the body from heat loss by paying particular attention to heat loss areas, especially the head, neck, trunk and groin. For the head, a wool watch cap is excellent protection. As mentioned previously, the body can decrease heat loss from the extremities by shunting blood back to the core, but this mechanism is not available to the head. A person in a heavy arctic parka can become easily hypothermic if his head is uncovered.

The neck is another area where heat loss can rapidly occur. Thus, turtlenecks are better than open-necked garments.

Ideally, you should stay dry. The rate of heat loss can increase up to 25 times more rapidly than its basal rate (when you are dry) if you are wet, especially if there is even the slightest breeze to increase evaporation off the skin. If you are wet and unable to get dry, wool clothing is most effective. Wool will remain effective as an insulator even when soaked, but cotton and most other synthetic fabrics will not.

A major exception is found among the polypropylene "longjohns" which draw water away from the skin. This is the best choice of fabric for those who are either allergic to or intolerant of wool undergarments.

Layering clothing is another effective technique. Two thin sweaters are more effective than a single heavy one because of the air trapped between them. Long underwear, particularly wool, traps a layer of warm air next to your skin, and contributes, perhaps more than any other layer, to the maintenance of body temperature. Mittens are better than gloves, since they allow the fingers to warm each other.

I also prefer to use boots with an interchangeable inner liner, and I carry an extra pair of liners with me. Thus, as part of my survival kit, I keep several wool watch caps, wool longjohns, mittens and dry socks. They are not heavy and take up very little space.

Just this past November, a hunter fell through some ice on Admiralty Island (in Southwest Alaska), immersing himself to the waist. The outside air temperature was approximately 25 degrees, and snow was falling. Due to weather conditions, rescue would not have been imminent if he had suffered hypothermia. He immediately removed his wet clothing and donned a dry pair of wool fishnet longjohns. He then wrung out his polypropylene underwear, and wore them over the wool. He put on a spare pair of wool pants, and changed his socks and the liner in his boots.

He saved his life by preventing hypothermia; that is, he logically assumed that hypothermia would quickly ensue. Had he delayed protective action, the outcome might have been different.

The symptoms of hypothermia are extremely difficult to detect, especially in yourself. If you are alone in weather conditions where hypothermia is a threat, i.e., anywhere in Alaska or wherever one may be exposed to freezing temperatures or cool water immersing, remind yourself to be constantly on guard. During my incident in the mountains I was so disoriented I didn't realize I was in danger. Sitting in that snowbank in the freezing rain, I commented on the pleasant weather and insisted that I was feeling rather warm. By that point I was too hypothermic to realize I was suffering from heat loss.

In addition, my friends were oblivious to my condition, having convinced themselves that I was just a sorehead because we did not pursue our climb to the summit that day. It is important to keep an eye out for the early signs of hypothermia while you still have the capacity to do something about it.

Watch for clumsiness, weakness, decreased dexterity, agitation, impatience, apathy, lethargy, and poor judgment. Commonly, hypothermic individuals will attempt to remove clothing even outdoors. This is known as "paradoxical undressing," and indicates the state of confusion that accompanies the onset of severe hypothermia.

Even if a person is removed from a chilling environment, the body temperature can continue to fall. It is extremely important to begin rewarming even conscious and ambulatory exposure victims, using the exact techniques you would use with someone who had fallen into an icy lake.

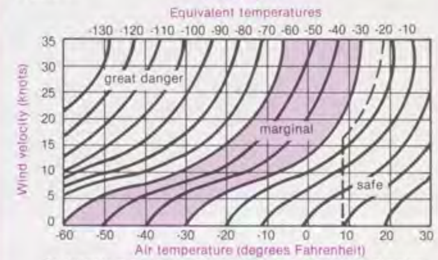
Make every effort to summon rescue, since the cold outdoors is never a place to adequately rewarm someone. Hypothermia is a medical emergency. Even when you think the victim is improving, the situation can turn sour very quickly. The onset of slurred speech, stupor that simulates drunkenness, and constant falling indicates that a life-threatening emergency is approaching. Therefore, summon help early rather than late, especially if night is approaching—which can impede rescue efforts.

Treat the hypothermic individual with great care. In severely hypothermic patients, excess activity can precipitate fatal cardiac arrest. Do not give him alcohol, caffeine, or any extremely hot liquids. Alcohol will shut off the shivering reflex, which results in a rapid fall of body temperature.

Warm, sweet liquids, such as soup, cocoa, or juices, will provide the body with sugars to generate heat, but the heat itself from hot liquids will not affect the body temperature at all. No food or liquid should be given to any person who is so groggy that he might choke, as this would precipitate dangerous lung or heart problems.

If dry clothing is available, carefully change the victim's clothes, being sure to keep the skin and hair dry. Provide insulation from the ground, with branches, cushions, or anything you have available.

Figure 1 **Wind Chill**



To estimate wind chill, enter the table from the bottom at air temperature. Go straight up to the appropriate wind velocity, then follow curved line upward. Read estimated equivalent temperature in degrees where the curved line crosses the top of the graph. Note that wind chill is even more pronounced if you are wet. (Adapted from the National SAR Manual)

I have seen trauma victims at the scene of an accident, covered with down parkas to prevent heat loss, but lying uninsulated from the cold, often wet, asphalt. As much as possible, place the victim in a warm and dry environment, such as near a fire. In heavy snow, snow caves are extremely useful, in that body heat from several persons in a closed area can significantly raise the temperature.

The ability to actively rewarm a hypothermic person depends upon your available resources. Not much more can be done in a wrecked aircraft or in a snow cave. If a sleeping bag or blankets are available, do not neglect the often scoffed at, but lifesaving, techniques of placing the victim in the sleeping bag with one or two other persons.

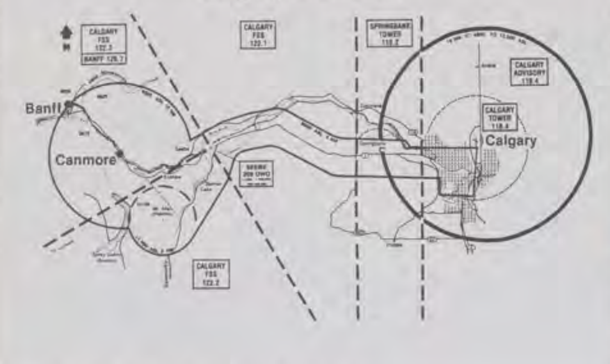
If equipment is available, place warm towels or hot water bottles against the victim's trunk, armpits, groin and neck. Concentrate on rewarming the head and trunk, and allow the extremities to slowly rewarm themselves as the core temperature improves.

Monitor the victim constantly. If he suffers a cardiac arrest, which is the common cause of death in hypothermia, begin CPR at once. There are many examples of people who have been successfully resuscitated after being hypothermic. Although our techniques for rewarming in the emergency room are different than those in a mountain cabin, one rule still applies universally—that is, you're never declared dead until your temperature has been restored to normal.

I came very close that time on the mountain. The hypothermia sneaked up on me because I never stopped to think that conditions were ripe for it. And I never even felt cold. ■

Editor's Note: This article appeared originally in Alaska Flying. All rights are reserved by the author, who practices emergency medicine at Johns Hopkins, MD. Dr. Gross is also an airman as well as a mountain climber and skier.

Restricted Airspace Between Calgary and Banff



NOTE: Not to be used for navigational purposes.

CLASS F AIRSPACE FOR WINTER OLYMPIC GAMES

Transport Canada has issued a NOTAM for all aircraft planning to operate, between January 30 and March 2, in the airspace over and around the sites of the 1988 Winter Olympic Games, near Calgary in Western Canada. For safety and security reasons this airspace has been designated "Class F restricted."

This means that authorization will be required from Canadian Air Traffic Control to enter the airspace, which will extend from the surface to 11,000' ASL over Mount Allan and from the surface to 8,000' ASL over Calgary and the Canmore/Banff area.

The following restrictions will be enforced:

1. Takeoff and landing will be restricted to aircraft accredited by the Olympic Committee in advance.
2. Aircraft only transiting this airspace need not be accredited but must be authorized by Calgary ATC or FSS prior to departure, or as soon as possible when airborne, to reduce the possibility of delays or denial.
3. Aircraft operating to or from Springbank Airport will require authorization from Springbank Tower, and may be required to hold or delay.
4. All aircraft in this airspace must file a flight plan, or a flight notification. No random flying is permitted.
5. Accredited aircraft must be in contact with the appropriate ATC facility at all times. For NAV/COM frequencies see map.

REMOTE ALTIMETER SETTINGS

FAA Advisory Circular 91–64, "Use of Remote Altimeter Settings in Instrument Approach Procedures," has been cancelled. The circular discussed the possible effects of "precipitous terrain" or "non-homogeneous weather characteristics on altimeter readings, when the altimeter was remotely located, instead of on-site.

Currently a study is being conducted to see if the differences in temperature, elevation and atmospheric pressure between the remote altimeter and the airport could cause altimeter error during approach for landing, when correct altitude information is critical.

The study is to be concluded by the end of 1988 and a decision will be made if any further action is required.

SPECIAL FAA REVIEW OF AIRCRAFT MANUFACTURING

Over the next 18 months, FAA is conducting a special review of the U.S. aircraft manufacturing industry, consisting of an in-depth random sampling of the 1,300 firms making aircraft as well as the suppliers of parts and services.

The agency is not aware of any specific problems, but intends to make sure that recent rapid changes in technology, the internationalization of the industry, and new concepts in marketing have not lessened the standards of quality.

NEW TECHNICAL REPORTS

The Federal Aviation Administration has published a new list of scientific and technical aviation reports available to the public.

The list covers the period from January 1987 through June 1987 and updates an earlier list released on March 30, 1987.

Subjects include: aircraft safety and airport technology, aviation medicine, communications and surveillance, environment, navigation and landing weather and other items.

For a list of subjects covered, contact Susanne Murphy, FAA, APA-300, Washington, DC 20591 (Telephone 202-267-8521).

NEW INSPECTION SCHEDULE REQUIRED FOR CESSNA SEATS

A final rule has been issued by FAA concerning pilot seats in approximately 145,000 single and multi-engine aircraft manufactured by Cessna Aircraft.

The Airworthiness Directive requires detailed inspections at 1,000 hours time in service. Thereafter, inspections are required annually if operating under Part 91 or every 100 hours if operating for compensation or hire. The AD has provisions to avoid absolute grounding of airplanes while waiting for parts, permitting "interim repair providing parts are on order."

An additional option for repair is the use of cargo tiedown clamps that attach to the seat rail. The AD will affect Cessna models 150, 152, 170, 172, 180, 182, 185, 206, 207, 210, T303, 336, and 337.

This AD was first proposed in January 1986, but was withdrawn based on public comment. Soon afterwards FAA decided to reissue the AD on the basis of new technical data.

LATEST FAA PUBLICATIONS

Index of TSO's

Advisory circular 20–110D has been issued updating an index of current and proposed technical standard orders (TSO's). TSO's contain the minimum performance standards for specified materials, parts, processes, and appliances used on civil aircraft. The "Index of Aviation Technical Standard Orders is free from DOT, Utilization and Storage Section, M–443.2, Washington, DC 20590.

Noise Abatement

"Noise Abatement for Helicopters" is the subject of new AC 91–66. The advisory provides guidelines for the establishment of effective noise reduction procedures when operating helicopters. The advisory circular is free from DOT at the above address.

• Radar Reflectivity

It is a well-known fact that gliders and other light fabric aircraft seldom show up as a target on primary radar scopes. In this day where radar conspicuity is essential for traffic separation in busy terminal areas this would seem to be a serious hazard. Is there anything that can be done to enhance radar painting of such aircraft, other than equipping them with transponders, which may be too heavy and/or too costly and require generator power?

Name withheld

There have been a number of alleged near misses and traffic conflicts involving gliders not painting on radar and other aircraft. Part of the problem is the tendency of radar to cancel out a stationary or slow moving target (i.e., anything moving at a rate of less than 40 mph). When a glider is circling in a thermal, its movement through the air is interpreted by primary radar as below 40 mph and is therefore cancelled.

At Tulsa, OK, there has been some experimentation with aluminum radar reflector strips mounted inside the fuselage in such a manner as to create a phase difference, so that the target is identified by radar as moving and is seen on the scope as a positive blip. For more details on this subject contact Glenn J. Nelson, FAA, FSDO-67, Wiley Post Airport, Room 111, FAA Bldg., Bethany, OK 73008.

Additionally, some lightweight battery-powered transponders are now available, at considerably less cost than conventional equipment.

• Advisory Area

I would like to suggest that an article be written on "Airport Advisory Areas." Our company is based at the AAA in Harrison, AR and operated at others regularly. Apparently a lot of pilots have forgotten the proper procedures for departing and approaching airport advisory areas or never learned them.

We find pilots trying the 123.6 frequency to obtain weather briefings, not realizing this frequency is for airport advisories. We see pilots, including ATP commuters, ignoring the left hand pattern for landing or takeoff. We hear pilots just saying they are going to take off, not saying anything about runways or other intentions. We hear pilots approaching without giving their altitude or location, etc. We would all like to get the "big picture, not just scattered bits of information.

John R. Bell
Harrison, AR

An Airport Advisory Area is the area within a ten mile radius of an airport without a functioning control tower, but with an active flight service station. The FSS offers various services under the following categories:

1. Essential for landing or take off
2. Concerning local traffic activity
3. NOTAMs or NAVAIDs on field conditions
4. Additional information as requested by pilots

The Airport Advisory Service is advisory in nature only, and pilots are not obliged to participate. However it is strongly recommended in the interests of common safety, that pilots contact the FSS when entering the area, and provide appropriate information concerning their intentions.

• Mis-directed Energy

As a professional specialist in seats, restraints and crash injury protection for over 30 years, I would like to comment on your article "The Right Seat" in the July/August 1987 issue. While I agree with your main thrust—that thick, soft cushions can contribute to crash injury—I found several statements in the article that could be misleading. I suggest that interested readers obtain FAA Advisory Circular 21–22, "Injury Criteria for Human Exposure to Impact," for the latest evaluation on this subject. It is free from DOT M–433.2, Washington, DC 20590.

I am particularly concerned with your statement about "energy absorbing cushions." In our laboratory tests we have not found a single case in which an energy absorbing cushion alone would provide a significant improvement in crash injury protection in a serious crash. Such cushions provide relatively little benefit unless linked with an improved seat design with proper cushion support and structural energy absorbing characteristic.

Considering also the problems of material degradation and temperature sensitivity associated with this particular cushion material, it would seem that an aircraft owner might be misled into a major effort that would achieve only a minor improvement in crash injury protection.

A more practical move would be replacement of deteriorated rubber or fabric straps or the membrane, sometimes used to support seat cushions, with a sheet aluminum seat pan capable of carrying the crash loads from the seat cushion to the seat frame. Then a real improvement might be achieved, and the use of energy absorbing foam warranted.

Richard F. Chandler
Oklahoma City, OK

In any event, the FARs require design and installation approval by a certificated repair station for modification of an aircraft seat.

FAA AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA AVIATION NEWS, AFS-810, Washington, D.C. 20591.

• Blood Pressure Maximums

I would appreciate if you could advise me what guidelines exist concerning maximum allowable blood pressure in connection with private pilot licenses, and which FAA publication covering this issue would be available.

Nick J. Biwer
Doha, Qatar

The maximum blood pressures permitted for airmen medical certification are contained in Part 67 of the Federal Aviation Regulations and in the Guide for Aviation Medical Examiners. After a normal cardiovascular examination, the maximum readings for first-class certificate applicants range from 140/88 to 170/100 (mm of mercury) depending on age. For second-class and third-class certificates, the applicant's blood pressure cannot exceed 170/100 mm mercury.

If any antihypertensive medication is used, however, these values do not apply; eligibility for medical certification must be determined on an individual basis. We advise you to ask the U.S. Consular Office in Qatar to help you contact an FAA field representative, who could provide you with names of local physicians designated by FAA as Aviation Medical Examiners. An administrative determination would have to be made as to whether you are eligible to apply for FAA medical certification by such an A.M.E.

INSTRUMENT CORNER

• No Pilot "Ceilings"

I don't see any basis for your reply, in the July/August issue, regarding a VFR seaplane operation within the Ketchikan control zone, whenever the primary airport is reporting less than a 1,000 foot ceiling. I don't believe it is the intention of the rule to restrict VFR operations at a satellite airport within a zone when the ceiling at the airport of intended use may be well above 1,000 feet, or even non-existent.

In this connection the ATC Handbook instructs controllers to authorize Special VFR on the basis of weather reports at the airport of intended landing/departure; and/or when weather conditions are not reported at the airport of intended landing/departure and the pilot advises he is unable to maintain VFR and requests special VFR.

Therefore, I believe the FSS at Ketchikan should not require a seaplane pilot to get a SVFR clearance when he is able to maintain VFR and does not intend to land at Ketchikan (the location of the weather observation).

John Glosserman
Colchester, VT

The appropriate regulation here is 91.105(c), which states that no aircraft may operate VFR within a control zone beneath the ceiling when the ceiling is less than 1,000 feet unless granted a special VFR clearance.

Note that a "ceiling" is weather that exists in a control zone and may only be determined by an official weather observer. Furthermore, it is agency policy that the officially reported ceiling for a control zone applies to the entire airspace of the zone, regardless of local conditions.

If there is no officially reported ceiling for the control zone, pilots may operate VFR within the zone on the basis of their own determination that the appropriate flight visibility and distance from clouds can be maintained.

U.S. Department
of Transportation

**Federal Aviation
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Famous Flyers

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rival. Although he walked (limping) away from it, the airplane was badly smashed and never flew again. However, he had completed the 21-mile flight in 38 minutes and achieved the "supreme honor" he had sought, plus the bonus for being the first to make an international flight.

Bleriot's fame as an aeronaut spread rapidly after his epochal flight. So also did his reputation as a designer and builder of planes. Within two days, he received orders for more than 100 Model XI's and immediately set about trying to fill them. He made two more XI's for himself and then reverted to planes with ailerons for the Model XII. Powered by a 35 hp engine and built to carry a passenger, it flew with another person aboard for ten flights. Fitted with a 60 hp engine, it became the first plane in the world to fly with two passengers.

More significant firsts were an enclosed monoplane design and the use of what is now a universal system of cockpit control (hand throttle, foot-operated rudder bar, etc.).

Bleriot's success with the monoplane established this design as the forerunner of the modern aircraft. However, others who tried to copy his single-wing design ran into difficulty and there were many monoplane accidents, some fatal. Consequently, Bleriot's wing bracing theory was not universally accepted, and WW I was fought mostly in bi- and tri-planes.

His dogged faith in the superiority of the monoplane, eventually justified by history and the science of aerodynamics, was founded more on artistic vision than on principles of physics. However, like so many of the early pioneers, Bleriot never again achieved the fame occasioned by the first Channel flight. His fame was attached to a single, long forgotten event, while the accomplishments of a lifetime slipped into oblivion. ■