FAA AVIATION NEWS

JANUARY 1973

COVER:
Fresh frozen runways invite the ski-equipped airplane. For approved rigging maintenance, see p. 4.

FAA AVIATION NEWS

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John A. Volpe, *Secretary of Transportation*
John H. Shaffer, *Administrator, FAA*
James R. Greenwood, *Director of Public Affairs*

David Gelfan, *Editor*
Gernot Rasmussen, *Art Director* Ruth Taksel, *Assistant Editor*

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VOICES in the BLUE

Standard communication procedures at non-tower airports.

New recommendations for good operating practice for pilots operating in and out of airports not being served by a FAA air traffic control tower have been published by the Air Traffic Service.

There is no substitute for alertness in the vicinity of an airport, especially when aircraft without radio equipment may be present. Nevertheless a widespread knowledge of standard operating procedures may reduce accidents near general aviation airports.

All pilots are advised to determine in advance, as part of their regular flight preparation, what communications capability, if any, will be available to them on arriving at an airport. The vast majority of our airports are "uncontrolled" (less than 400 out of approximately 12,000 have FAA control towers). Some of these towers, as indicated in Part II of the Airman's Information Manual, have limited hours of operation.

FAA has 324 flight service stations which offer information concerning the airport on which they are located, if it is uncontrolled. To the extent that they can determine (remember that they may not have an elevated cab or radar) they will tell you about the runway in use, wind speed and direction, airport conditions and reported traffic.

A great many general aviation airports —about 4,000—have UNICOM service, also indicated in AIM. However, UNICOM service is entirely voluntary, and you must anticipate that the persons communicating with you may not be experienced observers of air traffic, and may indeed be preoccupied with various other duties which claim a priority on their attention. The UNICOM operator is *not* trained by FAA or any other federal agency, and his radio equipment is not required to meet any particular standard; nor is he required to man it at any particular period. With this caution in mind, the pilot may request runway, wind, traffic and airport information from UNICOM.

As standard operating practice all inbound traffic should continuously monitor the appropriate field facility frequency, as shown in the table at right, from 15 miles out to landing. To avoid radio interference at adjacent airports, delay your initial call on 122.8 or 122.9 until five miles from your airport. Departure aircraft should monitor the proper frequency when ready to taxi. To minimize congestion on the air waves, make all radio contacts and broadcasts as brief and concise as possible.

INBOUND AIRCRAFT

Facility	Frequency	*First Broadcast	Repeated Broadcasts
Part-time Tower (when closed)	Tower Local Control	5 miles	Downwind, Base, Final
Part-time Tower (closed) but Full-time FSS	Tower Local Control	15 miles	5 miles
Part-time FSS (closed)	123.6	5 miles	Downwind, Base, Final
Full-time or Part-time FSS (open)	123.6	15 miles	5 miles
UNICOM	122.8	5 miles	
UNICOM (if unable establish contact)	122.8	5 miles	Downwind, Base, Final
No Facility on Airport	122.9	5 miles	Downwind, Base, Final

OUTBOUND AIRCRAFT.

Airport	Frequency	Broadcast Position and Intentions
Part-time Tower (closed)	Tower Local Control	At all uncontrolled airports (regardless of facility) departing aircraft should broadcast position and intentions when ready to taxi and before taking runway for takeoff.
Part-time Tower (closed) but Full-time FSS	Tower Local Control	
Part-time FSS (closed)	123.6	
Full-time or Part-time FSS (open)	123.6	
UNICOM (whether or not responding)	122.8	
No Facility on Airport	122.9	

*On first broadcast announce position, altitude and intentions.

RIGGING for WHITE STUFF

Skis as landing gear add a new dimension to pilot maintenance.

Not all of the skiing done in the wintertime is downhill. In the northern and mountainous areas of the country, particularly in the more remote sections, the airplane on skis is one of the quickest and most efficient means of transportation. Most light aircraft can be adapted for skis as landing gear. Although the original installation should be done by a licensed airframe mechanic, preventive maintenance is often carried out by the pilot himself; this can be done quite safely as long as he has a proper understanding of the subject.

Just how difficult ski landing gear is to maintain depends on the type of equipment used. The three basic types in their order of increasing complexity are:

1. The ski that replaces the wheel. (This is the least expensive rig, and by far the most common in use.)
2. The combination wheel/ski, fixed in place.
3. The combination wheel/ski, which allows for selective use of wheels or skis.

There are many styles of skis available for various aircraft. They may be long or short, narrow or wide; and constructed of metal, wood, fiberglass or any combination of these materials. Choice of a ski shape and material will depend on the kind of surface you will be landing on. Operations on deep, soft snow may call for long, fairly stiff skis; landing on certain hardpack runways may work best with shorter, more supple skis. The pilot who is new to skis should seek the advice of local operators, the manufacturer of the aircraft and the skis, and the local GADO inspector. Skis are not simply "boards".

Skis that have been approved for any given aircraft will have an identification plate showing either the technical standard order (TSO) number, type certificate number, or aircraft part number. Normally this identification is made by the mechanic during the original installation, but the pilot who reinstalls his own skis should be aware of the correct numbers, in order to prevent mistaken installation of the wrong skis.

Re-installation by the pilot is permissible *only where there is no change in weight or balance* (preventive maintenance). Pilots doing this work for the first time are advised to have an experienced rigger check it before operating the aircraft. Accident reports indicate that failure of the hub axle or the ski itself is a rare occurrence (when using appropriate equipment); improper rigging is the usual culprit.

The rigging on the simple ski replacement landing gear for the main wheels consists basically of shock absorber cord and safety cable at the ski tip, and a check cable at the ski tail. The check cable should be adjusted to provide for a positive ski angle of incidence from zero to five degrees. Incidentally, cord or cable fittings should not be attached to wing brace struts, except by special approval of the manufacturer or FAA. The angle of negative incidence (when the forward safety cable is taut) should be between 20 and 35 degrees.

The nose ski is installed in the same manner, except that the forward safety cable should only allow a negative incidence of from 5° to 15°.

On a tail wheel ski, the rigging is attached only to the ski tip, and consists of a shock cord and limiting cable. It should be rigged so that the shock cord holds the ski in the straight forward position in flight,

Tricycle geared plane, above, requires three skis. Below—attach fittings should be located so that the angle of the (forward) safety cable to the plane of the ski is at least 30°, preferably 45° or more. Diagrams below show—top—main ski at maximum positive incidence (check cable tight) and bottom—at maximum negative incidence (safety cable tight).

with the limiting cable affording a positive or negative incidence of about 35°. Crust cutter cables are optional on all skis, and recommended for operations on lakes, swamps or other iceprone areas.

When correctly rigged, the landing gear skis should enable the aircraft to be turned off the runway at slow speed without skidding (no brakes). In flight the ski should ride steady with no unusual drag and produce no unsatisfactory flight characteristics. The ski gear should be checked out in normal operation before departing the airport, and a notation should be made in the log.

With fixed gear aircraft, the climb reduction with skis (normally only about 30 to 50 feet per minute) should have been noted after the first installation and placarded in the airplane or noted in the Airplane Flight Manual. After re-installation, check the new climb rate against the previous notation. If there is much of a change, you know that something is wrong with the skis, the rigging or the airplane; and you need the attention of a mechanic.

For aircraft with critical minimum climb requirements (or with retractable landing gear), the exact climb data with skis is of great importance and should be obtained as precisely as possible. If a ski safety cable breaks in flight, the ski will move into a vertical position, bringing about an emergency situation. Some aircraft can hold altitude with an uplifted ski, others cannot. Some will immediately go into an uncontrolled dive. In any case, landing is going to be a serious problem.

That is why many experienced ski pilots pay special attention to their landing gear rigging during the preflight inspection, before every takeoff, no matter how frigid the weather or urgent the departure. *Follow their example,* patiently brush away the snow until you can visibly inspect all cables and attachments. The only way you can check on the ski mobility is to jack up the aircraft, as during installation; some pilots do this several times during the winter. Nose or tail gear skis on smaller aircraft can be examined for extent of movement by simply lifting or lowering the tail.

The best safeguard probably consists of dual check cables, one a little longer than the other. They must be attached to *separate-fittings*—if only one fitting is used, and it breaks, what has been gained? The angle of the safety cable to the plane of the ski should be greater than 30°, preferable 45° or more. Smaller angles may result either in breakage or enough cable stretch to permit the ski to rotate through the zero degree angle of cable support.

The use of skis on an airplane gives the pilot great versatility in choosing landing areas, once he learns the technique of operating with this kind of equipment. It also adds another measure of responsibility to his duties as caretaker of the airplane. Skiing on wings is great fun, but for the unwary airman a busted ski can mean a long, cold wait in the wilderness.

FAA Advisory Circular 43.13-2 gives full instructions on ski installation, is available for $2.00 from the Superintendent of Documents, GPO, Washington, D.C. 20402.

Approved equipment for ski conversion includes a variety of designs for specific aircraft and operations. On taildraggers the tail wheel may or may not be replaced by a ski. On plane at left skis replace the wheels on the main gear. Below left—combination wheel/ski is fixed, not adjustable or retractable. Below right—combination wheel/ski with hydraulic control to allow use of either wheels or skis as situation demands.

Preflight in Haste . . . Repair at Leisure

Who Put the Lead in my Tail?

You sit in the cockpit of the *Chippewa Six* on the runway at West Palm Beach, thinking of the glistening sands of the Bahamas, only sixty miles away. The whole family is on board, sportily dressed for the great holiday in the sun and sea that all of you have been talking about endlessly for the past year.

Only you are not going anywhere.

Not in that airplane, certainly, after you curled the prop and bent the gear in what had to be the worst landing you ever made in 20 years of flying. As you sit there on the runway, sweating more in embarrassment than from the heat, painfully conspicuous as traffic is diverted until the GADO inspector can hurry out and take a quick look at the accident before you are towed to the ramp, you find your lips framing the one defensive answer you can think of:

"I ran out of elevator."

That answer had not gone over well with your wife, who is now applying a bandaid to the youngest one's cheek for what you are certain was an imaginary cut. There was no crying, only a thoughtful silence in the airplane, while your image as the Intrepid Pilot suffered a total deflation.

What else could you say? You had prepared for this trip in the careful, methodical way that was your habit as a flyer, and had kept you accident-free all these years. You had logged nearly 50 hours in the leased *Chippewa* once you decided upon this elongated single-engine airplane as the ideal means of managing an island-hopping vacation with the whole family.

(It had taken you nearly as many hours to persuade your wife that a private plane was safe, as well as cheaper and more fun, than going commercial. "This is one vacation the kids will never forget!" you had assured her, and now the chances were it was also one she would never let you forget.)

You had spent so much time planning the trip down from Atlanta, establishing several alternate routes and destination airports in case the weather went sour, that you could have flown it in your sleep. You got a thorough weather briefing in person at the flight service station, and you allowed yourself a full hour for pre-flighting and last minute details, even though at this point the kids were champing at the bit and wifey was beginning to express second thoughts. Nevertheless you took time to personally weigh every piece of luggage and assign it a fore or aft stowage location. You also assigned the family to specific seats, according to weight, ignoring the muted rebellious mutterings.

After thorough run-up, with five pairs of interested eyes following your every move, you announced, "We're off!" and taxied onto the runway. You were a little surprised at the amount of runway the *Chippewa* used up before it was ready to fly, but then this was the first time you had ever flown it anywhere near max. gross. Once up to cruise altitude everything was lovely, and even wifey eventually stopped clenching the armrest.

The first real inkling of trouble appeared when you pulled back the power to begin your let-down at West Palm Beach, your fueling stop. Unaccountably the nose pitched up, the airspeed dropped dramatically and the stall-warning horn began to sound—also your eight-year-old daughter began to shriek, "We're crashing!"

You hastily added power and managed to get the nose down where it belonged, although this required maximum forward trim—a somewhat unsettling thought. You swiveled your eyes over the cabin to see if anyone was out of his seat; they all seemed riveted in place.

All right, then. You kept the nose in place by firm pressure on the wheel as you reduced power and went through your prelanding check. You lined up squarely with the runway on final, carrying 10 or 15 extra knots for the sake of better controlling the beast, which was exhibiting a tendency to buck like a rodeo bronc. Your troubles mounted as you neared the ground all your skill with the throttle could not prevent some savage porpoising in the ground effect. You considered going around, but you really were not sure what would happen at this point if you poured on all the coal, except that it would probably elicit some bloodcurdling screams from the back of the cabin.

So you went in.

The airplane finally dropped heavily on the runway, partially collapsing the nose gear and enabling the prop to carve its initials in the pavement. "I knew we were going to crash," your eight-year-old said.

After waving off the fire truck and assenting to the tower's request to stand by until an inspector arrives, you radio for a courtesy car to take the family to the terminal. You help them out of the airplane with all their vacation luggage and clothes, reassuring them that all is not lost, they will just have to go commercial and forego some of the planned island-hopping, and no, Daddy is not going to be arrested by the inspector.

But all the time your mind is reviewing every single event of the flight, wondering what you could have possibly done to mess it up. Maybe they'll find something wrong with the trim tab—it could have been bumped and bent in towing.

On this hopeful note you remove the last of the family belongings from the very back of the aft compartment, two very large, very ratty looking pair of teen tennis shoes. But the moment you try to pick them up you know you can forget all about a malfunctioning trim tab. They are as heavy as lead.

In fact, they contain lead. Each tennis shoe has a *Scuba* diver's weighted belt curled up inside it, weighing 15 lbs. at least. Some 50 to 60 lbs. of unrecorded weight in the aft compartment . . . they might as well have hung an anchor on the tail.

You are about to unleash your indignation vocally when a remembrance flashes through your mind of two smiling boys holding up the shoes for your approval before stowing them on board, and you nodding benignly, willing to overlook a few ounces of canvas and rubber. All you can do now is stand there, vowing grimly never, but never, again to let anyone load anything in your airplane before you personally heft it. . . .

"What's that you're saying, dear?"

"I'll meet you in Freeport." ■

TECHNICAL STANDARDS for AVIONICS

The coming role of TSO's in the selection of equipment for a general aviation airplane.

The general aviation airplane owner in the market for new avionics or other onboard equipment occasionally poses the question: "Why isn't there some kind of FAA standard for all this stuff?" Many aircraft owners, especially non-professionals, find it difficult to choose between the claims made by various manufacturers for their equipment.

Another problem is deciding just how much money should be spent for one component or another of a radio navigation system. Should one spend $500 for a transponder (or perhaps get two), or $5,000? The greater the dependence on avionics in the modern airplane, the greater the concern among pilots over electronic failure. How does one know what is the safest investment? Spend $2,000 for a NAV radio, and $1,000 for a DME—or vice versa? Under $25 for a microphone, or over $250? The freedom of choice is sometimes bewildering.

Up till now FAA has not required general aviation on-board equipment to conform to established minimum performance standards. Technical Standard Orders do exist for most required air carrier equipment, since the needs of air carriers are pretty well defined. But in general aviation, individual needs vary tremendously from one pilot to another. It is an accepted belief that the more heavily trafficked the normal area of use, the greater the need for avionics; but again, what constitutes heavy traffic to a new pilot may seem very light to an old hand.

In point of fact, much avionics equipment that is available to light plane owners can be bought either in a TSO version or in a non-TSO model. But the price of the TSO version usually is higher, and the question remains for the buyer—what is he getting for the additional cost? The basic features may appear identical, and no greater claims may be made for reliability or range on the more expensive version.

Essentially the difference is that the TSO version conforms to FAA standards, which spell out minimum performance requirements acceptable to FAA, whereas the other may or may not. FAA technical standards for a variety of on-board aviation equipment, ranging from fire-detectors, oxygen masks, and panel instruments to all types of avionics, are covered in Part 37 (Vol. II) of the Federal Aviation Regulations. Before the standards are issued, Notices of Proposed Rulemaking are published, and public and industry comments are solicited and studied. In many cases the standards are based on a specific publication of a nationally recognized organization, such as the Society of Automotive Engineers, Radio Technical Commission for Aeronautics, or the National Standards Association. From time to time existing standards are modified, again following appropriate public notice.

"Statement of Conformance"

A manufacturer who wishes to market an item which meets the TSO must submit to FAA a "statement of conformance," certifying that the equipment does meet the prescribed standards. Supporting data, such as the results of performance tests, and details of what measures the manufacturer takes to assure quality control on the production line, are also required.

Generally, the paperwork is proof enough, since FAA people are familiar with the capabilities of established manufacturers. If the application is a "first" from a new manufacturer, an FAA team will visit the plant to look over the facilities, personnel and procedures. When the agency is satisfied with its findings, the successful applicant is granted a Technical Standard Order *Authorization*.

Although the TSO system is essentially voluntary, a self-policing by the manufacturer as to product quality, it does have checks and balances. The holder of a TSO authorization must permit FAA to inspect the facilities and data files concerning that particular article. In addition, the manufacturer is required to report any significant malfunctions or defects.

Reports from users also point up any failures. Such reports may inspire an investigation by the FAA and, if it seems necessary, a directive ordering modification of the equipment. Consistent failure to meet performance standards will result in withdrawal of the manufacturer's TSO Authorization.

The TSO system, widely used by air carriers, optional for general aviation, has worked well for a quarter of a century, but the increasing air traffic congestion has created problems that appear to be soluble only by requiring TSOs for certain equipment for *all* aircraft.

For example, there are an estimated 30,000 or more transponders in use in the United States, and their function is such that substandard performance could create a potential danger to air traffic. Whenever a radar signal is transmitted, a reply is returned from all active transponders within range: if any of these signals are distorted, due to malfunctioning transponders, the air traffic controllers reading the radar returns could experience problems in identifying airplanes.

Another area of concern is the occasional inflight failure of a transponder. Under most circumstances this would not be a serious matter, but if it occurred in the midst of heavy traffic, with poor visibility, in a terminal control area, for example, the task of maintaining safe separation would be made much more burdensome, for the pilot as well as the air traffic controller.

In the interests of expediting air traffic as well as safety, the agency published a Notice of Proposed Rulemaking in March, 1971, concerning Technical Standard Orders for transponders. After reviewing all comments sent in on this proposal, FAA has recently enacted a regulation which will require *all* transponders installed in aircraft to conform to one of two basic classes of performance.

The characteristics spelled out in the TSOs will include the transponder's resistance to environmental changes, including altitude, temperature, humidity, etc. Resistance to shock and vibrations are also important considerations. The duration of "dead time"—that period following an interrogation when a transponder will not reply to any other interrogations—is another important factor.

After the transponder, next to join the TSO list may be airborne Distance Measuring Equipment and VOR equipment. In coming years, it is expected that the TSO process will be gradually expanded to cover more and more aviation equipment for which minimum performance requirements have not currently been defined. ■

"SOMEONE COME IN— THE PILOT HAS HAD A HEART ATTACK!"

ARTS III communications equipment helps controllers to conduct emergency pilot training and avert tragedy.

On the morning of October 26, 1972, the weather in the area around the Shreveport Louisiana Regional Airport was mostly IFR: rain and overcast, with dense clouds.

Fred Laird, a developmental controller, was in the radar approach control position, working under the supervision of radar controller Raborn Bruce. They were carefully directing air traffic through the foul weather, monitoring a new ARTS III that had not yet been commissioned. The radar/computer system works in conjunction with airborne transponders to flash on the screen various data about the approaching and departing planes: identity, ground speed, and altitude.

A Beechcraft *Baron*, N612H, called in from 15 miles to the east, requesting landing permission. The pilot reported that he was at 5,000 feet, flying through rain and in and out of clouds. Laird in the tower proceeded to clear him for approach, making altitude adjustments until he was down to 3,000 feet. The *Baron* was transponder-equipped but without an altitude encoder, so that the computer-generated tag on the radar scope gave only the plane's identity and its ground speed. Laird cleared the *Baron* down to 1,700 feet.

Coming down to one thousand seven hundred, the pilot responded.

The controller waited a moment, and then transmitted: *Baron one two hotel, turn left heading two one zero. Your position five miles north of the outer marker.*

There was no answer from the plane.

Baron one two hotel copy.

Laird called him again, but there was no reply. Peculiar. The plane was still on the radar, still traveling at the same speed. Perhaps there was something wrong with the radio equipment. Laird and Bruce both checked their communications equipment, then they switched radio transmitters and tried to contact the *Baron* again, without success, and with growing apprehension.

Baron one two hotel . . . Baron one two hotel . . .

Then a frantic man's voice came over the radio: *Someone come in. Someone please come in! I'm in a Baron and my pilot just had a heart attack.*

Approach Control—*Roger. Is this the Baron that's coming to Regional Airport?*

Baron 12H—*Coming into Shreveport, right.*

Approach Control—*Do you know anything about flying the aircraft?*

Baron 12H—*I don't know anything.*

Laird and Bruce now knew the dimensions of the frightening problem that faced them. They had a non-pilot up in the clouds approaching the airport in a sophisticated twin, and somehow they had to bring him down to earth safely. They were later to learn that it was a corporation plane piloted by a 59-year-old businessman from Jackson, Miss., who had suddenly slumped forward in his seat and blacked out. The only other person in the airplane was a passenger, James Crosby, who had never handled the controls of an airplane. He was sitting in the right hand seat, and he was forced to reach across the unconscious pilot in order to handle the control yoke.

The controllers immediately tried to calm the passenger-turned-pilot, and gave him some quick instructions about the basic controls in the airplane. Then they attempted to get some information from the passenger/pilot. *What did his altimeter read?* 1600 feet, came the answer. *Could he see the ground?* He could. *Fuel?* About half a tank.

The computerized ARTS tag on the radar screen continued to identify the aircraft, giving updates every few seconds on its position and ground speed. Throughout the entire rescue operation the controllers used the ARTS system to keep a constant check on the plane's speed, to prevent a stall or red line situation from developing, and to estimate the attitude of the airplane, with respect to the ground.

Approach Control—*Baron one two hotel, your air speed is dissipating. Add a little more power and keep your wings level. Keep your air speed at approximately 130 knots.*

Baron 12H—*How do I keep my wings level?*

Approach Control—*Okay. If you can see the horizon, look at both wing tips and make sure you have the same distance above the horizon on both wings.*

The radar tag showed a decrease in air speed.

Approach Control—*Open the throttle up to about 130 knots. Do you know where the throttle is? That's the lever in the middle of the console. Push forward on the throttle to increase the air speed. Baron one two hotel, can you hear me?*

Baron 12H—*Yes, I can read you, but I'm just going up and down.*

Approach Control—*All right, you're doing fine. Did you increase your air speed?*

Baron 12H—*I've increased it. I've increased it, by shoving this knob in. Is that right?*

(The tag on the radar screen indicated that air speed had indeed been increased.)

Approach Control—*Yes, sir. That's fine. Now, do you know where the RPM indicator is?*

Baron 12H—*RPM indicator is on about 23 or 24 . . . over.*

Approach Control—*Okay, fine. Now do you see the manifold pressure guage?*

Baron 12H—*Manifold pressure is on about 25.*

Approach Control—*Very good, very good.*

The controllers decided to get the plane back to a higher altitude, and to move it out of the busy Shreveport traffic area for a while. They selected an open area west of the airport and began to vector the *Baron* toward it.

Approach Control—*One two hotel, maintain reference to the ground, and if you can, begin a slow turn to your left. Keep a shallow turn to your left, and I will tell you when to roll out.*

Radar indicated the plane was turning.

Approach Control—*Very good. Just remain calm, and maintain contact with the ground.*

The controllers finally had the plane cruising at 4,000 feet at a speed of 120 knots. They tried to instruct the pilot how to find the pin which would flip the yoke over to his side, but he said he was unable to locate it, and so he continued to fly reaching across his unconscious pilot.

It was now 12 minutes since the passenger had assumed control of the pilotless *Baron*, and by this time the supervisor of the controller team, Calvin Losey, had assumed responsibility for the airplane, under instructions from the facility chief, Herman Reyenga, as Laird and Bruce worked the other aircraft in the area. An ambulance and fire fighting equipment had been summoned to the airport, and efforts were being made to clear all the runways and taxiways.

Losey told the pilot he was going to try to put him in contact with a *Gulfstream* approaching Shreveport, and asked if he could see the other airplane.

Affirmative. Could he follow it?

12H—*I hope and pray I can.*

But the speed differential of the two planes was too great, and they soon lost contact in the clouds. The *Baron* was alone again, flying at 5,000 feet, some 11 miles northwest of the airport.

In the meantime the local Accident Prevention Specialist, Bennie Voss, was alerted to the drama in the sky. He took off in a Piper *Twin Comanche* from Shreveport Downtown Airport and flew in the direction of the distressed *Baron*.

Reports from other aircraft in the area indicated that visibility was better closer to the ground, and it was decided to bring the *Baron* down to 3,000 feet.

The plane descended slowly, as the controller checked the air speed. He advised the *Baron* that another aircraft was on his way to help him.

Approach Control—*One two hotel, do you know where the trim tab is located on your aircraft?*

Baron 12H—*Do I know where the what's at . . . ?*

Approach Control—*The trim tab . . . trim tab. . . .*

Baron 12H—*Ten four.*

Approach Control—*All right. If you will just slightly move the trim tab forward. . .*

Baron 12H—*The trim tab down—forward.*

Approach Control—*Yes, sir, roll your trim tab from bottom to top toward the nose of the airplane, very slightly.*

Baron 12H—*Is this trim tab a great big round wheel about six inches in diameter?*

Approach Control—*That is correct, a vertical wheel.*

Baron 12H—*Roll it in what direction?*

Approach Control—*From bottom to top, forward.*

Fifteen miles west of the airport, Losey established radio contact with Voss in the *Comanche*, and directed him toward the *Baron*. The *Baron* reported that clouds had formed under him and he was unable to see the ground. Voss, from the *Comanche*, said he could not spot the other plane.

Rescue plane pilot Ben Voss

Approach Control—*Comanche, O7Y, he's at twelve o'clock right now. Three and a half miles.*

Comanche O7Y—*We're looking.*

Approach Control—*Your twelve o'clock position, two miles.*

Comanche O7Y—*Roger. We have him in sight. One two hotel, this is Comanche zero seven Yankee, we'll be taking you down to the airport. Just maintain your present heading and keep your wings level. We'll be on your wing in about 30 seconds.*

Baron 12H—*Ten four.*

Comanche O7Y—*Good, hold it right where you have it now. Ah, one two hotel it appears that you have your gear down. Is that correct?*

Baron 12H—*The gear is down. You want the landing gear left down?*

Comanche O7Y—*Affirmative, leave it in the down position, don't cycle the gear anymore. Now increase your manifold pressure to about 22 inches. That's fine. Keep studying the gauges and stay straight and level. We're coming up on your left.*

Baron 12H—*We see you!*

Comanche O7Y—*Good, good. Now increase your manifold pressure and stay with us, match your wings to our wings and keep them level.*

Baron 12H—*Ten four.*

Comanche O7Y—*One two hotel, there is a pin in the column on that control yoke right in the top. Pull that out and swing the yoke over to your side.*

Baron 12H—*I think my pilot might be coming around. Maybe he can help me handle it.*

A new voice came over the radio, slurred and slightly indistinct. *Ah, this is the pilot. We're at three thousand feet, a heading of . . . ah . . . zero four five.*

"Is this the pilot?" Voss in the *Comanche* asked.

"Yeah, this is the pilot here, and if you'll give me a direction from now on I believe we can make it."

Voss gave him a direction, but he remained close to the *Comanche*. The inflections in the pilot's voice and his general speech pattern seemed to indicate that he was not fully alert. He stayed on the *Baron*'s tail, giving instructions about altitude, heading, and power adjustments. They were still in IFR conditions, but the Regional Airport was now reported VFR. The tower had completely cleared the airport area, and informed Voss they could choose any runway and land at his own discretion.

Voss directed the *Baron* to come down through the clouds to 2,000 feet, and headed him toward the airport. "We're going to stay at your six o'clock position, and take you straight in." He asked the *Baron* if he could see the ground yet, and was told, *"Once in a while."*

"The airport is at your twelve o'clock position," Voss reported. "Three miles." The tower broke in, "You all have the airport in sight?"

One two hotel has the airport in sight.

Voss directed him toward a runway which had an unobstructed approach. "Okay, pull your power back and you've got it made."

He followed the plane down as it descended and observed that the *Baron* was coming in short of the runway.

"One two hotel, ease the power on back."

The plane touched, bounced into the air, and came down on the runway, continuing its roll. Voss in the *Comanche* came down right behind it on the same runway, and he followed the plane until it stopped. He shut off his engine, jumped out of his plane, and ran over to the idling *Baron*. The pilot was groggy but conscious, as Voss climbed in and taxied the plane toward the terminal, where the doctor and ambulance were waiting.

One hour and three minutes had elapsed between the time when the terrified but plucky passenger, James Crosby, took over the controls and they touched down at Shreveport Regional Airport. The pilot subsequently recovered and Crosby, a construction engineer from Jackson, Miss., was presented with a Certificate of Appreciation by FAA's Southwest Regional Director for helping to land the airplane safely.

Crosby, incidentally, is continuing to fly routinely on business. That busy hour over Shreveport has convinced him that the technical wonders of the FAA Air Traffic Service, can produce miracles, although he is not selling short the efficacy of a timely prayer. ■

Famous
Flyers

The PICCARD BROTHERS

A voyage to the bottom of the sea by way of the stratosphere produced the first space capsule.

"The higher we rise in our atmosphere, the lower are the temperatures we encounter. But . . . between 3 and ¾ miles and 10 miles (up), according to the latitude and the season, we encounter a very marked limit beyond which the temperature ceases to fall, or even increases slightly with the altitude. Here . . . begins the stratosphere, the region where the vertical displacements of air, which produce condensation of water and the formation of clouds, no longer exists. Thus the stratosphere is rightly termed the region of perpetual good weather. . . ."

The author of these lines was Auguste Piccard, a Swiss physicist, the first person to voyage into that storm-free region of the sky which has become a commonplace environment for millions of air travelers in our time. Piccard (whose historic balloon flight in 1931 was soon followed by an even higher flight conducted by his brother, Jean, in the United States) also penetrated into the depths of the seas deeper than any man before him, leaving an unparalleled trail of scientific discoveries above and below the earth.

Auguste and Jean Piccard were identical twin brothers born on January 28, 1884, in Basle, Switzerland, where their father headed the department of chemistry at the University. Both boys were trained as scientists, each developed a special interest in cosmic rays and sought a means of studying this phenomenon above the earth's atmosphere. To this end, they made a number of manned balloon flights together, before Jean left Switzerland to teach chemistry at the University of Chicago in 1916. Over the years his field of interest shifted into aeronautics, and he continued to share his knowledge and theories with his twin brother.

In Switzerland, meanwhile, brother Auguste became a professor of physics and moved ahead with plans for the first high altitude manned balloon flight. Auguste Piccard's goal was to ascend 10 miles in order to get into a "pure stratospheric" atmosphere. Achieving this height with a balloon was not the problem; the difficulty was providing a gondola in which a human being could survive at that altitude.

At this period the only known means of pressurization was simply to make an airtight container strong enough to withstand a pressure differential when the outside air pressure was only about one-tenth of the air pressure inside. After many calculations a diameter of seven feet was decided upon as adequate for two observers, surrounded by instruments, with eight double-glass portholes. The layer of air between the glass panes would prevent frosting in the −76° F. (external) temperatures expected at 10 miles up. Internal temperature was to be controlled by rotating the gondola (one hemisphere was painted black, to absorb solar heat, the other hemisphere white to repel it).

In addition to the portholes the gondola had two manholes sealed by hatches on the inside. Auguste, originally trained in mechanical engineering, understood that the inside air pressure would keep the hatches firmly in place as they ascended, and he did not make the mistake of some later balloonists who were sealed fatally in their cabin by excessively complicated hatch closures.

Informed repeatedly that a gondola in accordance with his designs could not be built, Auguste Piccard finally asked a barrel manufacturer to build him "a laboratory shaped like a beer barrel," with windows and a large hatch. This sounded more like a familiar task, and work on the first physics space laboratory was begun by a brewery-oriented factory.

Top—Prof. Auguste Piccard studying the instruments in the air-tight "beer barrel" gondola of his 1931 stratosphere balloon. Above—Dr. Jean Piccard and his wife, Jeanette, with a sketch of the balloon cluster they hoped to use in a high-altitude flight in 1946 (World Wide photo). Below—Auguste in the open hatch of the gondola shortly before first journey to the stratosphere.

Auguste also understood that in addition to supplying an oxygen source for the crew of his sealed gondola, he would need to devise some means of absorbing the carbon dioxide and gaseous toxic wastes expelled in human metabolism—otherwise nausea would interfere with and perhaps invalidate their scientific observations. He succeeded in designing the first controlled-atmosphere cabin ever used in an aircraft.

The huge balloon consisted of an envelope 114 feet in diameter, inflatable to a volume of 500,000 cubic feet. Piccard calculated that if he introduced only one-fifth of this volume of hydrogen into the bag at lift-off, the bag would gradually expand as it rose into less dense air, and be fully expanded at the maximum desired altitude. By starting with a partially deflated bag, he would reduce the strain on the envelope at altitude, and consequently he could safely reduce structural weight by employing lighter materials than would be required with the conventional, fully inflated, lift-off. In this, as in many other of his innovations, the accuracy of his calculations was fully borne out by the flight experience.

The grand ascent took place shortly before sunrise on May 27, 1931, at Augsburg, Bavaria. An unexpectedly high surface wind knocked the balloon about perilously, prior to release, but after some uncomfortable moments the balloon ascended steadily and smoothly to an unheard-of altitude of 51,775 feet.

From this height Auguste Piccard and his associate, Paul Kipfer, looked out upon a fantastically dark blue expanse of sky. The outside barometer registered an almost unbelievable 2.992 inches of mercury, compared with the interior reading of 29.92. The two scientists set to work with gleeful enthusiasm, making precise physical and chemical observations of cosmic phenomena from their vantage point.

Sixteen hours later they landed safely on the Obergurgl Glacier in the Tyrolean Alps, 8,700 feet above sea level. Within a few hours they were rescued by a ski patrol from the town of Gurgl, and given a hero's welcome.

Similar and higher manned balloon flights followed, including one to a new record altitude of 57,579 feet (nearly 11 miles) by Jean Piccard over Lake Erie in 1934, *piloted by his wife, Jeanette,* who held the required license.

Exploration of the stratosphere immediately claimed the attention of scientific communities around the world, once the Piccards had demonstrated the ability of man to survive and function normally on the threshold of outer space. Within 15 years an unmanned plastic balloon, of a type designed by Jean Piccard, reached a height of 144,000 feet. And in 1957 a balloon launched from Crosby, Minn., carried a human being over 100,000 feet high. The sky no longer had any limits.

After the Piccards had satisfied their thirst for knowledge about cosmic rays, they turned their attention to the mysteries of the ocean depths, devising an underwater laboratory, or bathyscaphe in which Auguste descended farther beneath the sea than any man had done before him. Subsequently his son, Jacques, penetrated to the deepest known spot in all the oceans, 35,800 feet below sea level, off of Guam. Jean's son, Don, holds one of the few type certificates for the manufacture of free balloons for sport use.

The twin brothers Piccard died within a year of each other; Auguste on March 24, 1962, and Jean on January 28, 1963, his 79th birthday. Their flights into the stratosphere have since been overshadowed by breathtaking flights into outer space, but the audacity and imaginative compass of their accomplishments will always be appreciated by historians of flight. The Piccards left no footprints on the moon, but the Piccards are credited with having taken the first firm step upward in the direction of interplanetary travel. ■

Left—the Alpine village of Obergurgl, Austria, where the first flight into the stratosphere ended. Below—Auguste Piccard showing the effects of severe temperature fluctuations inside the gondola. He was aided by local villagers after landing on a glacier.

Ralph Dietrick, president and chief pilot for Island Airlines, and his favorite airplane. Right—Island Ford passes Perry Peace Monument at Put-in-Bay on regular island run.

Flying School Bus

Riding to class in the "Tin Goose" is an education in itself.

A few years back when Miss Amy Larson took a job as school teacher she knew she would be presiding over all six grades in the one-room schoolhouse at North Bass, Ohio, but somehow no one thought to tell her that the school was on a flea-sized island or she would be flying back and forth in a 1928 Ford *Tri-Motor*. On her first day Miss Larson, who had never before flown in any airplane, took one look at the antique aerial Ford and froze, declaring that the only way they'd get her on *that* thing was to *put* her on. Pilot Harold Hauck, accustomed to a variety of large and small obstacles in the line of duty, picked her up and carried her aboard.

Miss Larson quickly overcame her aversion to flying, and for six years she commuted daily by air to the school in the middle of Lake Erie. Now that she has retired she misses the flying more than the teaching, and returns frequently to take the familiar hop.

Flying school teachers to work is part of the operation of Island Airlines, headquartered in Port Clinton, Ohio, and probably the world's shortest airline. Island, which is certificated as an air taxi, has a 17-mile route which runs from Port Clinton, on the Marblehead peninsula, to the tiny Lake Erie islands of North, Middle and South Bass, where the chief "industries" are tourism and wine grape growing.

Ralph I. Dietrick, president, general manager and chief pilot for Island Airlines, is devoted to his Ford *Tri-Motor*. The aging but still lively "Tin Goose" is peculiarly fitted to the needs of island hopping; it lands on short, rough strips, can carry a sizable load, and converts from passenger to cargo on short notice.

Over the years Dietrick has had three *Tri-Motors*, one of which is now in the Wings and Wheels museum in South Carolina. One of his Fords was damaged recently in an emergency landing, but until that incident the airline had enjoyed a nearly blemish-free safety record for 37 years. The remaining Ford is backed up by Cessna aircraft, for which Dietrick is a dealer.

Island is an airline for all seasons, and its payload varies widely. During the school term the "Tin Goose" serves as a school bus, carrying in addition to the teacher about 30 high school students from North and Middle Bass to Put-in-Bay on South Bass, where the school schedule is tailored to fit that of the airline. Mrs. Louise Brown, the current teacher on Middle Bass, is flown in daily from her home near Port Clinton.

In winter, ice fishermen and their catch are frequently carried, and then the "Goose" may smell of fish for days afterwards. On the other hand when the Ford serves as hearse, the plane is engulfed with the scent of flowers. Island also flies pregnant women from the islands to shore-side hospitals, the local priest on his tours, utility company crews to a hurry-up job, and building materials and appliances and the workmen who install them. Dietrick used to fly the local doctor on his rounds throughout the islands, until the doctor bought a plane of his own and learned to fly it.

Island believes in accommodating its passengers in any way possible. During the summer, when tourist travel is heavy, a large picnic hamper or ice chest is carried free along with the traveler, who can also take his dog gratis if it sits on his lap (and behaves). If the dog is too big for lap-sitting, the charge is $1.

Freight rates recently doubled, from the cent a pound to two cents, but the minimum charge remains 50 cents. For emergency cargo, however, there is no charge. In winter the "Tin Goose" delivers groceries to the ice-bound residents of the three Bass Islands and sometimes to other nearby isles, like Kelleys and Rattlesnake. The housewife phones Island's office in Port Clinton, and they relay the order to the grocery store across the road from the airport. The order is delivered to the plane and flown without charge to one of the island airstrips. Meat and grocery orders can add up to 400 pounds.

There are times when, without air service, the people of the Bass Islands would be cut off from the world, because the only other public transportation, the ferryboats, close down when winter ice forms. On one recent cold winter night a rock cliff fell and cut the main Ohio Edison Company cable at Put-in-Bay, leaving all the islands without power. The food supply was in danger because the island's freezers were without electricity, and at the state fish hatchery half a million Coho salmon were in water which needed to be recycled every four hours. Dietrick loaded 12 Edison men and their paraphernalia on the plane and landed at the unlighted 3,000-foot strip at one a.m., with the the aid of flares and auto headlights. The break was repaired in four hours, saving the fish and the food.

The Bass island area is an attractive historic area—it was at Put-in-Bay on South Bass that Oliver Hazard Perry waited for the British fleet and made his famed declaration, "We have met the enemy and they are ours." Sightseers frequently utilize the Island aircraft to get better views of the islands and of the Perry Peace Monument, second tallest in the U.S., at Put-in-Bay. But the Ford *Tri-Motors* themselves offer the greatest attraction for many people. Airline pilots on layover at Toledo or Cleveland often ride the Fords, and the recently damaged *Tri-Motor* attracts so much interest as it is being repaired that Dietrick is considering putting it in a museum or amusement park, charging for admission to watch its rehabilitation.

The operating Ford, N7584, is the oldest known active *Tri-Motor*, and originally cost $54,000 in 1928. The going price dropped to a low of $2,500 as the Fords were replaced by bigger and faster planes in the Thirties, but now the value has soared, and Dietrick turned down a recent offer of $100,000 for just one. In fact, Dietrick's deep appreciation of the Fords led him to buy up all available parts from the Ford Motor Co. as well as 101 surplus engines, of which he still has 50.

For use on the Island operation Dietrick has made some changes in the *Tri-Motor*: engine speed cowlings have been removed for economy and convenience; the wheels and tires are oversize because there are no tires to fit the old wire-spoked wheels; the engines are Wright J-6 seven-cylinder radials, used on the early World War II Navy planes, and the interior is raw airplane, with no sign of the original plush wood paneling and leather bucket seats. Now there are 13 passenger seats consisting of straight metal chairs with flotation cushions. The 14th passenger sits in the co-pilot seat. It is noisier *inside* the plane than *out*, because of the flapping cables mounted along the fuselage. Although a primitive flying machine, it is ready to handle almost any job Island Airline needs to do.

The FAA personnel from the Flight Standards District Office in Cleveland, who have the responsibility of flight-checking the airline, have great respect for the old "Goose". Hurant Tavetian, District Chief, considers the plane "a flying tribute to American engineering." Whenever possible Tavetian runs the flight check himself or with the aid of inspectors Ronald Redman, Paul Vollmer, and Luther Lott. Tavetian first encountered the Island Fords as an FAA inspector, many years ago, and has never lost interest in their progress and well-being.

The *Tri-Motor* has a cruising speed of 100 mph, and can maintain level flight on only one engine. Dietrick estimates his two Fords made 500,000 landings and takeoffs in the last 25 years alone. He averages 60,000 passengers a year, about half of them tourists, 240,000 pounds of mail, and 695,000 pounds of other cargo payload.

With a 17-mile route Island Airlines' carrier is not the largest in the world, but the need it serves as a "flying school bus" and emergency vehicle ranks it number one in its locality.

Marjorie Kriz

Youngsters quickly become accustomed to flying to school. This early morning flight carries high school students (one with dog) to South Bass from North Bass Island.

Pilot BRIEFS

▪ GUIDELINES for preparing a zoning ordinance to protect the airspace around an airport from man-made hazards are contained in FAA Advisory Circular 150/5190-3A, "Model Airport Hazard Zoning Ordinance". Included are facts on how the zoning ordinance is used, information on the preparation of a zoning map, and the creation of a Board of Adjustment to hear appeals. Copies are available from FAA TAD 484.3, Washington, D.C. 20591.

▪ PILOT'S HANDBOOK OF AERONAUTICAL KNOWLEDGE has been updated and is now available. The 200-page plus book contains virtually all information needed for the private pilot certificate, and also contains much useful data for candidates for advanced certificates and for instructors. (FARs are purposely omitted because their frequent revisions would quickly make the handbook obsolete.) Included for the first time are sections on using Airman's Information Manual and airplane flight manuals. The book, AC 61-23A, is for sale for $4.00 at Government bookstores or by mail from Superintendent of Documents, GPO, Washington, D.C. 20402.

▪ WHAT GOES UP MUST COME DOWN. Two FAA air traffic specialists were honored by AOPA recently for outstanding accomplishments in bringing troubled aircraft down safely. In answer to a call for help, Glen D. Raney of the Livingston, Mont. FSS left his station and drove his car to the approach end of the runway of an airport left in darkness by power failure. His headlights, plus three flares he set up as lead-in lights, allowed the pilot to land safely. Raymond England, Nashville, Ky. control tower, vectored a pilot in a no-engine descent through clouds to a safe site for a forced landing after the plane ran out of fuel. The pilot's wife and three children were on board.

▪ AVGAS, LEAD AND SPARK PLUGS. Precautions are suggested for pilots who regularly use fuels with a higher lead content in engines designed for 80/87 octane fuel. After a recent 500-hour evaluation at FAA's Aeronautical Center, none of the test plugs malfunctioned, but they did show signs of lead deposits, particularly the lower plugs. It is therefore recommended that at regular oil change periods a few lower plugs are removed and checked for lead deposits in the form of beads or globules. If any are found, exchange the bottom spark plug with the top plug of each cylinder. Normal engine run-up should subsequently remove the deposits with no ill effects to plugs or engine. (Some engines will not tolerate higher lead fuels. Check with your manufacturer to find out about your particular model.)

Thermal Role in Fog Dispersion Studied in Northwest

Jet aircraft movements on airport taxiways and in traffic patterns contribute significantly to the dissipation of fog, through the heat released from jet engine exhausts. This fact was determined from the study of numerous photographs in conjunction with comprehensive fog dispersal experiments which were conducted for three months for FAA in the Pacific Northwest.

Fog seeding operations proved helpful in dispersing cold fog (below 32 degrees) but were less successful with warm fog. Complete results are contained in FAA Report RD-72-92, "Effectiveness of Fog Dispersal Techniques at Seattle-Tacoma and Spokane International Airport" (AD 752931). Send $3.00 to National Technical Information Service, Springfield, Va. 22151.

Fewer Junk Aircraft Cluttering the Nation's Airports

FAA's campaign to rid the country of junk aircraft has resulted in the removal of approximately one-fourth of those planes identified in recent airport inspections.

Under the two-year-old FAA program, which has the support of virtually all segments of the aviation industry, aircraft owners and airport operators are being encouraged to remove from public view the numerous derelict aircraft which clutter many of our nation's airports. These derelicts create an erroneous impression to both the flying and non-flying public that aviation—particularly general aviation—is inherently unsafe.

FAA suggests that those planes which cannot be restored to flyability be turned over to shop programs at technical schools or disposed of for scrap. Since FAA accelerated the program in May, requesting the active assistance of the Civil Air Patrol, aviation trade associations and FAA field personnel, more than 2,500 airports have been inspected. Some 156 junk aircraft were discovered on 75 of the airports. To date, 40 of these planes have been removed.

Reducing Aircraft Air Pollution

The Environmental Protection Agency, in cooperation with FAA, has proposed two measures to help decrease air pollution from aircraft. One proposed regulation, which would take effect progressively between 1974 and 1979, would set exhaust emission standards for new and in-use turbine engines, prohibit fuel venting from engines, and set exhaust and crankcase emission standards for new piston engines. The emissions include carbon monoxide, hydrocarbons, oxides of nitrogen, and smoke.

The second proposal, which could result in more immediate pollution reduction, would modify aircraft operations on the ground. Both FAA and EPA will participate in hearings on the proposals. The order eventually issued by EPA must have implementing FAA regulations to become effective.

Anti-Collision Ground Stations

McDonnell-Douglas Corp. of St. Charles, Mo. has been awarded a study contract to develop siting criteria for ground stations needed in a time-frequency collision avoidance system (CAS).

Ground stations are necessary to provide the time reference which is the key to computing the position of CAS-equipped aircraft relative to each other in this type of system, one of many being evaluated by FAA. A final report will be available at the conclusion of the study, expected to take 24 months.

GOOD COUNSEL. Flight training students at Manassas, Va. Airport appreciate the pleasant smile as well as the good advice of Mary H. Hirsch. Mary is a Counselor in FAA's Accident Prevention Program and a member of the FAA Women's Advisory Committee. She holds most available ratings from ground school instructor through ATR.

FLIGHT INSTRUCTOR REFRESHER COURSES

First Quarter 1973

DATE	LOCATION	SPONSOR	TYPE
1/16-18	Farmingdale, L.I., N.Y.	Civil Air Patrol	FIA
1/16-18	Knoxville, Tenn.	University of Tenn.	FII
1/23-25	Rochester, N.Y.	AOPA & NAFI	FII
1/23-25	San Antonio, Tex.	Texas Aero Commission	FII
1/30-2/1	Spokane, Wash.	Wash. State Aero Comm.	FII
2/6-8	Ruston, La.	La. Tech. University	FIA
2/6-8	Louisville, Ky.	AOPA & Ky. Dept. of Aero.	FII
2/13-15	Hot Springs, Ark.	Ark. Div. of Aero	FIA
2/13-15	Cleveland, O.	AOPA & Cuyahoga Comm. College	FII
2/27-3/1	Las Vegas, Nev.	AOPA & Nev. Safety Council	FIA
2/27-3/1	Long Beach, Calif.	Long Beach 99's	FII
3/6-8	Windsor Locks, Conn.	Conn. Dept. of Aero	FIA
3/13-15	Amarillo, Tex.	Texas Aero Commission	FII
3/13-15	Atlantic City, N.J.	AOPA & N.J. Div. of Aero	FII
3/20-22	Gaithersburg, Md.	AOPA & Md. State Av. Adm.	FIA
3/27-29	Walnut, Cal.	AOPA & Mt. San Antonio College	FII
3/27-29	Pierre, S.D.	S. Dakota Aero Commission	FII

FIA—Flight Instructor Airplane FII—Flight Instructor Instrument
AOPA—Aircraft Owners & Pilots Assn.

Please contact sponsor for confirmation and enrollment information.

Flight FORUM

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Plane/People Ratio

A news article in your August issue states that Montgomery, Alabama has the highest per capita of aircraft ownership in the U.S. with 34.6 planes per 10,000 population. I was surprised by this, and by the fact that Anchorage, Alaska was not even mentioned. Where does Anchorage fit into this report?

Donald E. Tracy
Bismarck, N.D.

Anchorage was not included in the study "Relationships Between General Aviation Aircraft and Population," because this report deals solely with planes in metropolitan areas. In Alaska the count of aircraft in the past was made by legislative district while the population figures are by census division, making any type of reconciliation impossible. The record-keeping system has now been changed so that future studies will include Alaskans and their airplanes.

As a state, Alaska leads all the rest in airplane ownership. The FAA Census of U.S. Civil Aircraft, December 31, 1969, shows that in Alaska there were 80.6 aircraft per 10,000 population, nearly four times as many as Nevada, which was second with 21.3 and Montana, third with 21.1.

• A Timely Plug

The article on "Audible Warning", that appeared in your October 1972 issue, really caught me by surprise.

During my flight training, which began in April 1970, I heard no mention on this subject from either my flight instructor, medical examiners or any of the students and pilots whom I have come in contact with.

Personally, I'm going to invest in a pair of earplugs prior to any additional flying. I strongly believe that this information deserves your widest dissemination possible, as there are many other pilots who ignore this fact, as I did.

Manuel Perez
Puerto Rico

• Flying Plant Pathologists

With reference to the item in your September issue on the use of private aircraft as a tool in detecting Dutch elm disease in Britain, this is really not a new technique. When I was with the Wisconsin Department of Agriculture in 1958, 1959 and 1960, we surveyed for Dutch elm disease, using an Aeronca or Supercub, flying at 800-1000 ft. above the ground with my observer in the rear seat. Locations of suspect trees were noted on a county map (½ inch scale) and later checked for ground truth. We also used this technique successfully in detecting Sugar Beet Nematode (root parasite) in Eastern Wisconsin.

Light aircraft are being used to detect a number of plant diseases in the U.S. at present: Dutch elm disease (Minnesota), oak wilt (Michigan, West Virginia), late blight of potato, and orchard diseases (Maine—using infra-red photography), to name a few.

For the past three years, I have used a Cessna 172 to acquaint my students in "Clinical Plant Pathology" with the possibilities of early detection and surveying for plant disease in corn, soybeans, trees of various species, ornamental plants and even turf diseases.

Flying plant pathologists are relatively few in number; however, we compensate for this scarcity with enthusiasm.

A. H. Epstein
Extension Plant Pathologist
Ames, Iowa

• Fatal Race

It is stated in the "Speed Holman" article in the June 1972 issue that "Arthur Page crash landed, escaping serious injury."

I believe he was killed as the result of the crash.

Col. Paul Youngs
Nassau, Bahamas

The records show that Col. Youngs is correct. A contemporary newspaper article states that Page "was overcome by exhaust fumes, causing his plane to crash."

• Passing the Word Along

On a recent IFR flight plan to Teterboro, N.J. (TEB) I placed a "U" behind my aircraft type to indicate that my plane was equipped with a 4096-code transponder, but not with DME, as per Airman's Information Manual. As I neared TEB, Newark approach control brought me in for a VOR-DME approach. When I said I had no DME, they replied that I should have informed them earlier. I feel the code letter "U" should have informed them—had my plane been equipped with DME as well as transponder I would have used an "A" on the flight plan. Is this equipment information normally passed on to approach control, or is it the responsibility of the pilot to tell them?

Samuel C. Leland
Cambridge, Mass.

Normally the code letter indicating such aircraft equipment as DME, transponder, TACAN, etc. is passed along by air traffic control automatically and need not be mentioned by the pilot after he files his flight plan.

• Eliminate Low-Time Pilots?

I look forward to receiving my FAA AVIATION NEWS each month. It is informative and interesting to read. However, I have become concerned about future rule-making and regulations that may possibly eliminate pilots who are able to afford only a couple of hours of flying each month, and that is done within 50 miles or less of the airport.

D. D. Settlemyer
Waxahachie, Texas

The revisions which FAA is preparing for Part 61 of the Federal Aviation Regulations will certainly not *eliminate the kind of flying you describe. However, as the regulations stand now, it is legally permissible for a pilot who has not flown for many years to take up an airplane on his own. The agency considers it desirable, in the interests of safety for all who use the airspace, to establish some convenient means of ascertaining proficiency.*

We appreciate your comments on the magazine.

• Booby-trap in DC-2

In your article "Donald Douglas and the Indestructible DC-3" in the August 1972 issue of FAA AVIATION NEWS, you mention the problem of fuel starvation that was encountered in early DC-1 flights, and you go on to state that the problem was "cured by reversing the carburetor mount and rigging the feed lines from the opposite side."

This action "cured" the fuel starvation problem, but it created another one which was carried over onto the DC-2 airplanes and remains a "booby-trap" on DC-2's still flying today.

When the carburetors were reversed 180° to correct the fuel starvation problem, that also reversed the direction of action of the throttles and the mixture controls. A new throttle linkage was designed and installed prior to flight so that forward motion of the throttle lever opened the throttle and rearward motion closed it. However, due to time and money constraints at the time, the mixture control linkage was left alone. As a consequence, in the DC-2 airplanes, pushing the mixture control forward moved it to idle cut-off; pulling it all the way back moved it to full rich.

Anybody who has occasion to fly one of the DC-2's still in service would be well-advised to keep this built-in booby-trap in mind. Out of force-of-habit, it would be very easy to "push everything all the way forward" in executing an emergency go-around. The results of doing this on a DC-2 would be tragic!

D. K. Warner
Los Angeles, Calif.

• Cayley's "Boy Carrier"

In connection with your article on Sir George Cayley (October, 1972) your readers may be interested to know that a model of Sir George's 1849 "Boy Carrier", the first manned glider, is one of the historic aircraft on view in the Qantas Museum in Sydney, Australia. Seventeen models, representing significant breakthroughs in design from Leonardo Da Vince to Sputnik I, may be seen by visitors to this museum.

Maxine Cole
Qantas, Washington, D.C.

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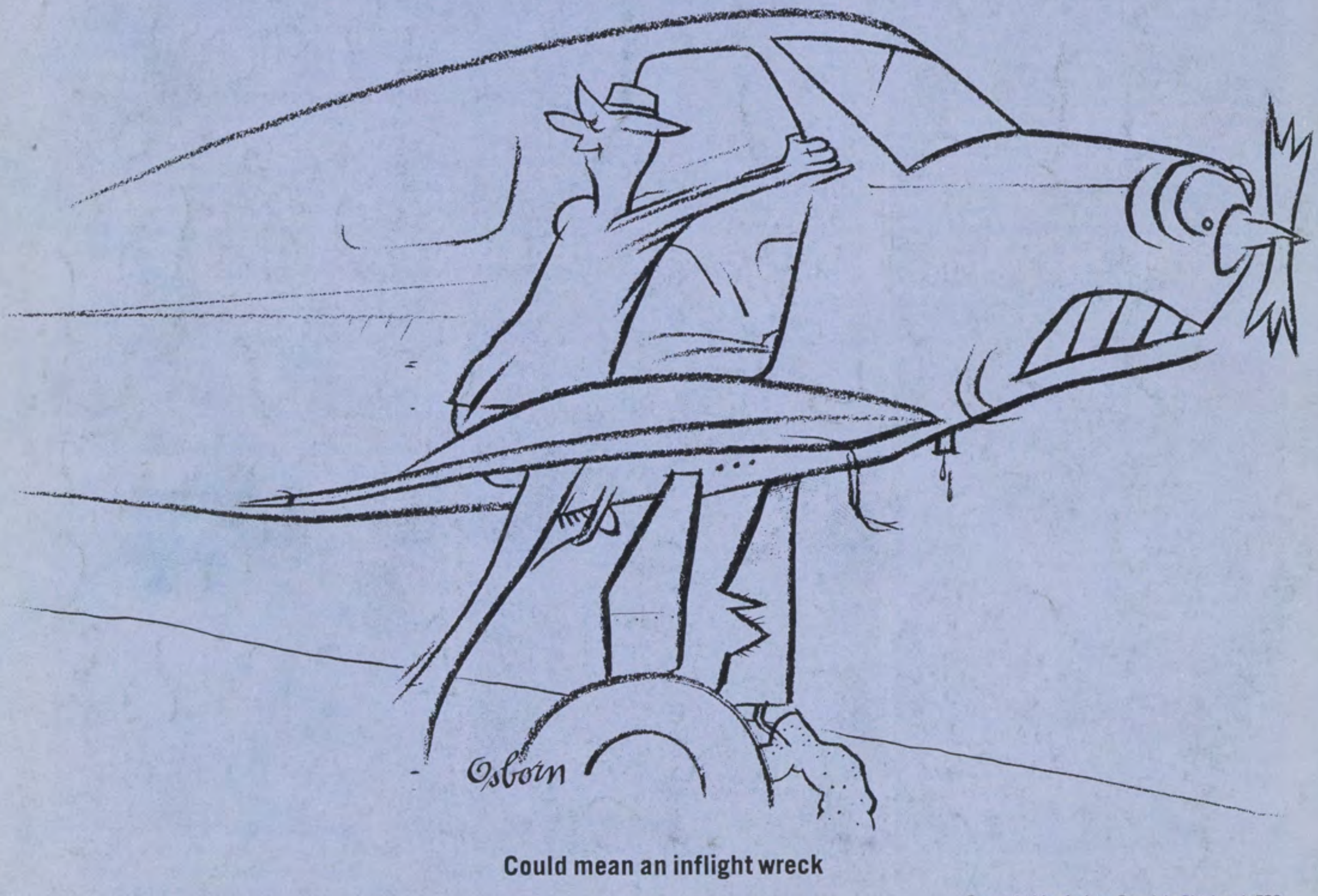

Could mean an inflight wreck

Suggested by Andrew Rupnick, Pittsburgh FSS