FAA AVIATION NEWS

FEBRUARY 1975

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COVER:

Packing in supplies with the "Aluminum Horse." See page 3.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION VOL. 13, NO. 9

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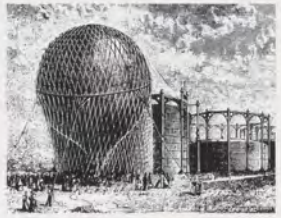

The big balloon Page 12

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Fire in the Hold

Hazardous Materials Regulations and the General Aviation Pilot.

If you are a typical general aviation pilot, you have probably violated Part 103 of the Federal Aviation Regulations, unknowingly. The penalties of such violation are not as much a matter of concern as is the safety hazard. Ignorance of the rule in this matter is not only no excuse, it may also lead to serious or fatal consequences. That is why FAA has embarked on a stepped-up program to familiarize all persons who fly with the regulation.

Part 103 covers the transportation by air of what are classified as *hazardous materials*, and it applies to *all* civilian aircraft, large and small. The restricted list does not simply pertain to such obvious hazards as explosives: it covers literally thousands of items, many of them common household goods, which may not be legally or safely carried in an aircraft unless they are packaged or prepared in a specified manner, or in a limited quantity. Other items may *never* be carried except in a genuine emergency under a special authorization from FAA.

The key point for pilots to understand is that the aircraft, as a form of transportation, is a special environment in which certain conditions prevail that heighten the potential danger of an accident. In small aircraft particularly, all goods on board are in fairly close proximity to the engine and various electrical motors, enhancing the possibility of accidental fire or explosion. Also, the possibility of severe impact, or dislodgment from turbulence is always present, which could result in the release of noxious fumes, or the leakage of corrosive liquid in vital control areas, or human contamination from radioactive or etiologic (disease causing) agents. The change in air pressure as a non-pressurized aircraft

climbs to altitude can cause materials packed under pressure to expand and possibly explode.

What differentiates the aircraft most significantly, perhaps, from similar transportation such as the family automobile, is the inability of the pilot or his passengers to leave the scene immediately in the event of an inflight incident. They have to remain in a small, confined space, exposed to whatever harmful influences may be present, until the aircraft can be safely landed—in some cases a considerable length of time. That is why the pilot who is conscientious about his responsibilities for those who fly with him, and those he flies over, must learn the potential hazards of all baggage and/or cargo when carried in an aircraft, and not equate it with surface transportation. In a word, what you can carry safely in your car may be a potential "bomb" on board the airplane.

If you use your airplane to commute back and forth between a home in the city and another at the beach or in the country, chances are you have hauled dozens of items which are on the restricted list of hazardous materials, and which might have jeopardized the safety of your flight. Too many pilots assume that the hazardous materials rules apply only to commercial flights, but that is not the intent or meaning of the regulation. In some instances the hazard may be greater with private aircraft, because commercial shippers are more conversant with the rule, and with proper packaging and stowing of cargo on aircraft.

In a recently reported incident, a business executive stowed a new automobile battery, filled with electrolyte, on board his corporation's twin-engine aircraft before the company pilot flew the plane down to the Bahamas. The battery was crated and placed in the baggage compartment, but during heavy turbulence the crate overturned, and the battery acid did considerable damage to the aircraft skin, belly structure and upholstery before the trip was over. If the spillage had gone undetected, the control cables in the area might have been affected, with possibly dire results. Fortunately for those on board, the spill was discovered during a refueling stop in Florida, and the acid was neutralized in time to prevent further damage.

FAA subsequently processed a violation against the corporation executive who, in placing the battery on board, acted as the "shipper." But the pilot was also cited for noncompliance; the pilot-in-command of any aircraft is alway accountable for conducting a flight that is not in compliance with regulations, regardless of which other persons are designated as also responsible. The battery, incidentally, could have been shipped safely and legally in a "dry" state.

The possibility of an acid spill from a wet battery may be obvious, but what about such an item as hygienic deodorant in an aerosol can? Or mosquito repellent, or insecticides packaged under pressure? How high does the aircraft have to fly before the lid literally blows off? And what happens if that explosive force is directed against a vital part of the airplane? The manufacturer of such goods is not required to warn you that it will burst at a given altitude; it is the pilot's responsibility to recognize the danger.

Incidentally, the items possibly affected by changes in cabin air pressure include some fire extinguishers, oxygen tanks, and even bicycle tires if inflated above 40 lbs. per square inch.

What are *inflammable* items? Of course you know better than to carry gasoline on board in filler cans (fatal fires after minor crashes have resulted from this practice). But what about oils, alcohols, paint, antifreeze, cologne, or ink? Do you consider them inflammable liquids? You will find them on the restricted list, in most cases requiring specified packaging.

What determines the hazard potential of an inflammable liquid is usually its *flash point*, the temperature and pressure at which the material will volatilize and burn. Since this is not the kind of information most private pilots carry around in their head, or even in the flight bag, it is safest to assume that most liquids, apart from water, may be classified as flammable for purposes of air transportation, and to check into their restrictions under Part 103 before carrying them in your airplane. If you carry a cigaret lighter that uses compressed gas or liquified petroleum, you had better check into that as well.

What about a sack of plain old fertilizer for the begonias at the cottage? No harm in that, is there? Yes there is, possibly. If not packaged properly, the sack could be pierced, develop a leak, and spill material into a hidden area dampened by moisture and—presto! You have an oxidizing agent quietly gnawing away at a control cable or structural member.

The fact is that a very large proportion of seemingly harmless items that you might buy at a drug, grocery or sporting goods store, or garden supply or camera shop, must be repacked before they can be safely and legally carried on an airplane. Part 103 lists eight specific categories of restricted items (see box), but the list of items included in each category is seemingly endless. Before he starts the engine, the pilot should be aware of all objects brought on board, and to be perfectly safe, he—or someone he designates—should personally examine what is brought into the airplane. A bag described as "just personal effects" could contain a virtual bomb, trigger sensitive to a given altitude, in the form of a can of hairspray under pressure.

How does the pilot know about the proper handling of cargo or baggage under the hazardous material regulations? A study of FAR Part 103 is a good beginning. Part 103 is relatively brief, but it refers you for specific instructions regarding shipping of material to Title 49, Code of Federal Regulations, Parts 100-199, which is a dictionary-sized volume. Title 49 contains all of the rules concerning transportation matters; Parts 100-199 of the Code deal specifically with carriage of hazardous materials.

The subject is a complex one, with many legal and historical ramifications, so that the ordinary private pilot is probably best advised to take his questions concerning hazardous material cargo restrictions to his local FAA Flight Standards or General Aviation District Office. If the FAA inspector does not know the answer to a specific question, he will check it out with the regional hazardous materials coordinator. There is at least one full-time coordinator for every FAA region, and at least one part-time coordinator in every FAA District Office. These officials, who have been specially trained in all aspects of the air transportation of hazardous materials, conduct a nation-wide educational program on this subject and, at the same time, coordinate all reported incidents or violations regarding Part 103. Information from such reports is proving helpful in identifying, and correcting, unsafe practices, many of which are the result of ignorance of the regulation—and of the dangers. All such incidents should be reported to the nearest FAA District Office as soon as possible.

(A subsequent article on this subject will describe in detail how safe procedures for shipping specific goods classified as hazardous for air transportation are determined.)

James E. Purcell (left) and Tony Proctor of FAA's Great Lakes Region point the finger to commonly carried sprays on the regulated list of hazardous materials. Right—most sprays, even those classed as non-flammable, will burn if accidentally ignited.

Photos by Bill Pitchford

ARE THESE ON YOUR SHOPPING LIST?

Such items may not be carried in an aircraft without special packaging or limitation of quantity in accordance with FAR 103.

charcoal lighter	liquid flavoring extract
matches	caps for Junior's capgun
hairspray	lye
deodorant (spray can)	signal flares
disinfectant (spray can)	weed killing compound
rubber cement	perfume
cigaret lighter fluid	ink

Part 103 and the Private Pilot

Part 103 of the Federal Aviation Regulation prescribes rules for shipping, packing, labeling and carrying, by aircraft, certain articles considered "dangerous." Part 103 applies to *all civil aircraft* in the United States, and to all U.S. registered aircraft operating anywhere. This includes small private aircraft as well as aircraft operated "for hire."

The rules for passenger-carrying aircraft are more stringent than those for all-cargo aircraft. A passenger-carrying aircraft is defined as any aircraft that carries one or more persons other than crewmembers or other authorized persons (such as company employees or government personnel).

Dangerous articles regulated by Part 103 fall into eight classes:

(1) Explosives.
(2) Flammable liquids and solids. (Includes such items as paint removers, liquid flavoring extracts, rubber cement, paints and varnishes, alcohol, matches and charcoal.)
(3) Oxidizing materials. (Materials like nitrates that yield oxygen readily to stimulate combustion.)
(4) Corrosive liquids. (Includes battery acid, some cleaning compounds, rust removing or prevention compounds, etc.)
(5) Compressed gases. (Includes most household sprays.)
(6) Poisons. (Includes pesticides, roach powder, motor-fuel antiknock compound, etc.)
(7) Etiologic agents. (Includes medical and diagnostic supplies such as serums, specimens, vaccines, etc.)
(8) Radioactive materials.

WHO IS RESPONSIBLE FOR WHAT?

The shipper is responsible for proper packing, wrapping, labeling and marking of hazardous materials for shipment, and with certifying that the above has been carried out.

The aircraft operator (if different from the pilot) must see that proper loading procedures are followed, and must notify the pilot (in writing) what hazardous material is on board, how much, and where it is stowed.

The pilot-in-command has final responsibility for his flight. He must make certain that no dangerous materials are carried in his aircraft unless properly packed and loaded.

Violations of FAR 103 may result in loss of certificate and/or fines up to $10,000 for each violation. In addition, criminal penalties for death or injury resulting from ignoring hazardous materials rules have been recently increased by Federal law to a maximum of $25,000 and/or five years in prison.

FOR MEN ONLY

In the interest of preventing in-flight "brush fires," United Airlines has cautioned crewmembers to abstain from using mustache wax, pending the results of tests to determine which brands are combustible. The company warns that some such waxes, in combination with the use of oxygen, could be spontaneously flammable. Until tests are completed the prohibition stands.

Windchill

How strong it blows, how low it goes

The human skin is probably one of the most ingenious devices ever invented for protection against environmental changes. It has enabled man to flourish from pole to equator. Nevertheless, the shirt-sleeve pilot who goes flying in the wintertime with little more protection than that he was born with is inviting trouble. Many a pilot who has survived a forced landing has suffered severe and even fatal effects of exposure because he underestimated the need for shelter against cold.

Even where the temperature never falls below the freezing point, prolonged exposure to cold can be very serious. The actual thermometer reading alone is not the decisive factor; loss of body heat is also affected by the passage of air around the body. Relatively mild temperatures, when coupled with high winds, can carry off warmth *faster than the human being can replace it*. There is a limit to the length of time any human being can withstand such exposure.

For example, it has been calculated that when the air temperature is 40°F. (well above the 32° freezing point), a wind velocity of 40 mph will produce a *windchill* equivalent to a temperature of 10°F. in calm air, assuming equivalency of moisture.

Similarly, a 40 mph wind, coupled with a 20°F. reading will produce the equivalent of 20° below zero in still air. The same wind velocity in conjunction with a −20°F. thermometer reading would create exposure conditions equivalent to 85° below zero—an extremely intense cold for human life. This circumstance is not at all a rare occurrence. A windchill factor of 75° below zero was reported at the site of a fatal air carrier crash in Alaska when 39 persons were lost.

Survival gear for winter flyers means weatherproof clothes, stout footgear and gloves.

Effects of Exposure

While it is true that at actual temperatures above 32°F. flesh will not freeze regardless of wind velocity, the windchill or loss of body heat may have serious consequences. Military researchers have estimated that the heat loss of exposed flesh in a 40 mph wind, with the air temperature at 40°F. is approximately 1,000 kilogram calories per square meter of skin per hour. When you consider that the daily caloric intake of persons on a reduced diet may be less than 1,000 calories per day, the severity of such exposure becomes obvious.

Few pilots may expect to expose a square meter of skin to the elements after a forced landing, but unfortunately, some pilots will fly over terrain where the ground temperature is below freezing without equipping themselves with protective clothing, such as windbreakers, boots and gloves. Ten minutes of exposure to zero degree weather under breezy conditions will cause frostbite to any exposed flesh (ears, face, fingers).

Many persons are frostbitten without immediately knowing it, but no one ever forgets the recovery experience. At the very least, the recovery is accompanied by intense pain; at the worst, it means loss of fingers, toes or other affected areas. Frostbite involves freezing or crystalization of water in the skin or of subcutaneous tissue fluids. The only cure is warmth, followed by the restoration of circulation and feeling; if the crystallization is not reversed in time, the affected skin or tissue dies.

For frostbitten limbs, the ideal restorative is immersion in warm water. Frozen boots or gloves should not be removed before this measure is taken. However, it must be remembered that time is a key factor; any suitable source of heat which will not burn the flesh should be applied immediately. Frostbitten skin is extremely sensitive and must be handled gently. The use of rubbing or abrasion for restoring warmth is definitely harmful and of little value. Rubbing the skin with snow or ice or cold cloths is a false bit of folklore which will certainly worsen the condition.

Prevention of frostbite involves sheltering the entire body from exposure. Lightweight skiing parkas, with hoods which protect most of the face, are ideal flight jackets in wintertime—and they should be worn or conveniently placed, not stowed where they cannot be retrieved when the aircraft must be abandoned quickly. Gloves or mittens should be tucked in the pockets, and wool socks and waterproof boots should enclose the feet.

These few items of clothing can make all the difference between a brief period of inconvenient delay on the one hand, and serious injury to health from exposure on the other. The primary immediate concern of the pilot down in an uninhabited area in severe weather is to protect himself against the weather normally he will be located by search and rescue teams in a matter of hours. If overtaken by nightfall, he should try to construct a shelter of brush and deadwood, and of course a fire. His aircraft, if it has not burned, may be used as a shelter in an emergency. However cramped the cabin, it may at least protect occupants from the bite of the wind. If one is so unfortunate as not to be located soon by rescuers, the ability to seek help (assuming no injuries) will depend largely on the type of outer clothing being worn. When adequately clad, persons have walked 50 miles without ill effects. If in shirt sleeves, one may be frostbitten before taking 50 steps away from the airplane.

Injuries from Damp Cold

Other cold injuries that occur when the temperature is above freezing but below 50°F. are chilblains (inflammation of skin), immersion foot and trench foot. All three are associated with exposure to cold, damp air or cold water. Immersion foot is a condition that may affect a pilot forced down over water and partially immersed in chilly water for 12 hours or longer. Circulation of blood in his legs is reduced, and the supply of oxygen to the tissues is diminished. In time, death of the tissues may occur, with eventual loss of limb. Trench foot (also involving impaired circulation) is usually associated with slogging around in swamps or standing in cold puddles. Vigorous use of the legs helps to prevent the onset of this ailment, which can result in unpleasant ulcerations.

The U.S. Air Force recommends that airmen wear at least three layers of clothing in wintry areas. The first layer, next to the skin, should be loose-fitting wool (the best woven material for heat retention), loose twill, cotton, or quilted thermal underwear. Looseness is stressed because tight-fitting garments restrict the all-important circulation of blood.

The inner garment should be cuffed at the neck, wrists and ankles to retain warmth. The second layer should be a medium weave, medium weight one or two-piece garment—again not tight-fitting. The outer layer should be wind resistant, like nylon, and must include a hood. Clothing that will protect windchill should not be water-proofed or rubberized. Material which does not "breathe" may soak the wearer in perspiration during active periods, and the imprisoned dampness will add to his discomfort.

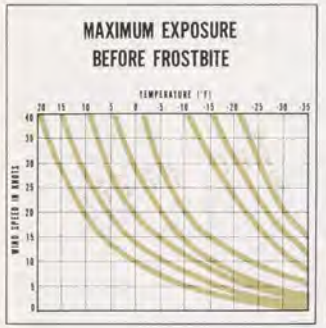
For working around an aircraft in cold weather, a light nylon glove worn under a heavy glove or mitten is recommended. This permits the nylon gloved hand to be used for careful work with frozen metals without risking skin damage.

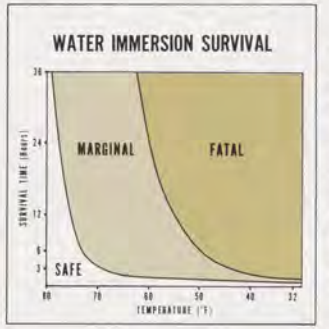
Paradoxical as it may sound, it is possible to become both frostbitten and badly sunburned at the same time. Skin creams can do double duty in protecting sensitive areas like the lips, nose, ears and cheeks from intense sun, while also reducing exposure to cold.

Winter sun can also be a hazard to the eyes, especially if there is snow on the ground. A good pair of sunglasses should be placed in the upper pocket of the parka and kept there in a case; forced landing could easily damage or destroy the glasses worn while flying, and snowblindness could hamper a downed pilot's efforts to remain alive and comfortable until rescued.

In theory, a man trained to survive under rigorous conditions could provide himself with virtually all of the shelter he needed from the materials found at hand in the area where he lands. But the fact is that the great majority of pilots are not so trained, and although one tends to learn fast under conditions of stress, there is no reason to make survival contingent on luck, labor or ingenuity. The thoughtful pilot who *wears* his basic sheltering equipment can fly with much greater ease of mind than the shirt-sleeved, carefree airman who closes his eyes and relies on good luck rather than on good sense. ■

An excellent source of survival—in the desert, in the arctic, at sea or even on ice-floes—is U.S. Air Force AFM 64-5, "Search and Rescue Survival," available for $2.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.





Cooling Power of Wind on Exposed Flesh Expressed as an Equivalent Temperature

Estimated wind speed (in mph)	Actual Thermometer reading (°F.)											
	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
	EQUIVALENT TEMPERATURE (°F.)											
calm	50	40	30	20	10	0	−10	−20	−30	−40	−50	−60
5	48	37	27	16	6	−5	−15	−26	−36	−47	−57	−68
10	40	28	16	4	−9	−24	−33	−46	−58	−70	−83	−95
15	36	22	9	−5	−18	−32	−45	−58	−72	−85	−98	−112
20	32	18	4	−10	−25	−39	−53	−67	−82	−96	−110	−124
25	30	16	0	−15	−29	−44	−59	−74	−88	−104	−118	−133
30	28	13	−2	−18	−33	−48	−63	−79	−94	−109	−125	−140
35	27	11	−4	−20	−35	−51	−67	−82	−98	−113	−129	−145
40	26	10	−6	−21	−37	−53	−69	−85	−100	−116	−132	−148
Wind speeds greater than 40 mph have little added effect.	LITTLE DANGER (for properly clothed person) Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh.			GREAT DANGER				

Source: NAVMED Bulletin 5052-29

FARs

STATUS of the FEDERAL AVIATION REGULATIONS

(As of February 1, 1975)

The Federal Aviation Regulations, formerly published only in volumes, are in the process of being re-issued as individual Parts. The conversion is scheduled for completion in early 1975. Infrequently amended Parts will be sold as single-sale items, while frequently amended Parts will be sold on subscription. Current subscribers to volumes will be notified of prices and ordering procedure for the new Parts by the Superintendent of Documents as their volume subscriptions expire.

The number in parenthesis after each Part indicates the latest transmittal or change, if any, to that Part. FAR's, and changes to single sale Parts, may be purchased only from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

FAA SEPARATE PARTS	TITLE	PRICE
Parts sold by subscription		+ foreign mailing
Part 1	Definitions and Abbreviations (1)	$3.00 + 75¢
Part 21	Certification Procedures for Products and Parts (1)	$3.75 + 95¢
Part 23	Airworthiness Standards: Normal, Utility and Acrobatic Category Airplanes (1)	$3.55 + 90¢
Part 25	Airworthiness Standards: Transport Category Airplanes (1)	$6.60 + $1.65
Part 33	Airworthiness Standards, Aircraft Engines (1)	$3.00 + 75¢
Part 36	Noise Standards Aircraft Type and Airworthiness Certification	$3.00 + 75¢
Part 37	Technical Standard Order Authorizations	$5.65 + $1.45
Part 43	Maintenance, Prevention Maintenance, Rebuilding and Alteration	$2.50 + 65¢
Part 47	Aircraft Registration	$2.50 + 65¢
Part 61	Certification: Pilots and Flight Instructors	$5.05 + $1.30
Part 63	Certification: Flight Crewmembers Other Than Pilots	$3.00 + 75¢
Part 65	Certification: Airmen Other Than Flight Crewmembers	$3.00 + 75¢
Part 91	General Operating and Flight Rules (2)	$11.30 + $2.85
Part 93	Special Air Traffic Rules and Airport Traffic Patterns (1)	$2.45 + 65¢
Part 103	Transportation of Dangerous Articles and Magnetized Materials (1)	$2.20 + 55¢
Part 105	Parachute Jumping	$2.00 + 50¢
Part 121	Certification and Operation: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft (3)	$9.20 + $2.30
Part 123	Certification and Operation: Air Travel Clubs Using Large Airplanes	$2.00 + 50¢
Part 127	Certification and Operations of Scheduled Air Carriers with Helicopters (1)	$4.25 + $1.10
Part 133	Rotorcraft External Load Operations	$3.00 + 75¢
Part 135	Air Taxi Operators and Commercial Operators of Small Aircraft	$6.20 + $1.55
Part 139	Certification and Operations: Land Airports Serving CAB Certicated Scheduled Air Carriers Operating Large Aircraft (Other Than Helicopters)	$3.00 + 75¢
Part 141	Pilot Schools	$3.00 + 75¢
Part 152	Airport Aid Program	$3.00 + 75¢
Parts sold as single copies (foreign mailing is 25% of total price)		
Part 11	General Rule-making Procedures	$0.55
Part 13	Enforcement Procedures	$0.70
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	Change 1	$0.75
Part 29	Airworthiness Standards: Transport Category Rotorcraft	$1.70
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**Part 39	Airworthiness Directives	$0.30
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Parts not yet devolumized		
Vol XI:		$5.00 + $1.25 foreign mailing
*Part 71	Designation of Federal Airways, Area Low Routes, Controlled Airspace and Reporting Points (12)	
*Part 73	Special Use Airspace (14)	
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Part 77	Objects Affecting Navigable Airspace (9)	
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* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and standard instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95, and 97. In addition, enroute IFR altitudes and instrument approach procedures are depicted on aeronautical charts.

Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination at the Rules Docket (AGC-24) and the National Flight Data Center, in FAA Headquarters, Washington, D.C. and at FAA Regional offices and Flight Inspection District Offices.

Coming in on a Road and a Prayer

"An airplane is trying to land on top of us!"

That alarming cry startled the residents of a Florida housing development a year ago last December and everyone rushed outside. It was not a joke. A small plane was circling a few hundred feet above ground in the dark and cloudy sky, and appeared to be looking for a landing area. In fact, the *Aircoupe* was running low on fuel, the pilot was lost and groping through weather beyond his capabilities to handle, and the lights of "Woodgate Estates" were the only reference to the ground he had been able to find in the past hour. In the FAA control tower at Tallahassee Municipal Airport, controller Richard Gardner was attempting to steer the pilot toward the airport, but without success.

The problems of *Aircoupe* N99166 had begun earlier in the day. The 27 year-old pilot/owner, a resident of Tallahassee, had flown the vintage 1946 airplane down-state to Tampa for the annual inspection, and then across the state to Daytona Beach for a relaxing weekend. He was due back at work on Monday morning, so he planned to fly back Sunday afternoon. The weather briefing for Tallahassee at 3:00 p.m. on Sunday, December 30, was: *Ceiling broken at 2,200, visibility seven miles, thunderstorms in the area.* The pilot, who was not instrument rated, took off without a flight plan, intending to keep a close watch on the weather ahead.

By 5:00 p.m. he had covered 200 miles and was in the vicinity of Perry, about 25 miles southeast of Tallahassee, on Florida's Gulf coast. The weather ahead looked troublesome, so he decided to land at Perry and get a briefing on the ground while the plane was being refueled.

The Tallahassee weather did not look too bad on paper: *Ceiling scattered at 2,000 feet . . . visibility seven miles or better, thunderstorms moving out of the area.* Reassured, the pilot of *Aircoupe* N99166 took off again, expecting to complete the short, 15 minute hop with the last of the fading daylight.

He did not make it. The weather along Florida's gulf coast is known for its rapid changeability, especially in winter when air warmed by the gulf passes over the land and creates instant fog and low-lying clouds. Although the ceiling was 2,000 feet scattered immediately over Tallahassee Municipal when the pilot had been given his briefing by the FSS specialist, a few moments later the briefer learned from pilots flying through the area that much denser cloud formations prevailed in the vicinity. He immediately tried to contact the *Aircoupe* pilot by radio.

The *Aircoupe*, airborne by this time, apparently received the call from Tallahassee FSS, but was unable to acknowledge. The pilot assumed that his transceiver was not functioning properly, but continued his flight. He had decided to fly due north from Perry and then make a dogleg west to Tallahassee,

Controller Richard Gardner spent two tense hours in the Tallahassee Tower talking the frightened pilot down to a safe landing.

in order to avoid the reported thunderstorms.

But as he turned west he soon found himself being pushed lower and lower to stay under the clouds. At 1,100 feet he was just under a ceiling that was closer to broken or overcast than scattered. Darkness was falling and abruptly he lost visual contact. Unable to raise the FSS on his radio he switched to 118.7, and tried to contact the Tallahassee control tower. At that moment he flew into clouds and had to descend to 900 feet to avoid them. The ceiling appeared to be dropping rapidly, and he found himself flying in circles trying to dodge the clouds. He could see no lights on the ground.

At 6:09 he finally managed, to his immense relief, to contact the Tallahassee tower. He estimated his position as ten miles east of the city and asked for landing instructions.

"*Aircoupe* N99166, you are advised that Tallahassee Airport is below VFR minimums. We have broken cloud ceiling at 800 feet, also a broken ceiling at 2,000, visibility seven miles. What are your intentions?"

"I don't know. I'm getting a little confused up here, and I can't see the ground. I think I'm over some kind of swamp."

The controller, Richard Gardner, endeavored to calm the pilot while he made other calls to insure him of separation from traffic in the area. Several aircraft were held on the ground, others approaching to land were place in a holding pattern or diverted. Since Tallahassee does not have radar, he also called the flight service station, located in the same building, and asked the specialist manning the direction finding equipment to get a bearing on the *Aircoupe*, on the tower frequency. The bearing indicated that the plane was northeast of the airport. To get a more accurate fix would require the execution of precision turns, which appeared to be beyond the pilot's capability under present circumstances. He was given a heading and told to keep a lookout for the brightly illuminated state capitol dome.

Continued monitoring of the DF scope showed that the *Aircoupe* pilot was unable to hold a heading, that he appeared to be flying around in circles. The pilot indicated on radio that "something is wrong with the instruments." He said they had been functioning all right when he started out, but he suspected something had happened to them inflight. He said he had no directional gyro or turn and bank indicator, and his magnetic compass was spinning wildly. The only instrument he felt sure about was his altimeter.

Controller Gardner, an experienced pilot and flight instructor, realized that the spinning compass was caused by erratic and circular flying, and he thought possibly that the apparent failure of the other instruments might be related to pilot panic, but he did not argue the point. He asked the pilot to keep his wings level, stay clear of clouds and try to get some ground reference.

". . . you should be able to see those dome lights pretty soon. Can you see any lights at all?"

"Negative."

"All right, N166, what is your fuel situation? How much fuel do you have remaining?"

"I topped the tanks at Perry."

So fuel was not an immediate factor in getting the *Aircoupe* down safely. But the weather was an unrelenting threat. Circling blindly in the dark, the pilot soon reported that he had been forced down to 800 feet to avoid clouds. And then 500 feet. And no lights in sight. He had a sudden thought.

"Tallahassee tower, how high are the clouds on top of me?"

"N166, cloud tops are reported at approximately 4,600 feet in this area. What are your intentions?"

"I think I had better fly up through the clouds and get on top. Then I could see where to go."

Gardner knew that such an escape effort would in all likelihood lead to the pilot's losing control of the airplane completely and spinning down, but he kept the excitement out of his voice as he asked if the pilot was instrument rated.

"I've had about five hours of instrument instruction."

"N166, are you able to read your directional gyro?"

"Negative."

"Does your turn and bank indicator appear to be working?"

"Uh, negative on that too."

Gardner then advised the pilot against any attempt at IFR flight in any direction. He cautioned him to stay below the clouds, and to keep looking for a ground reference. Again, with the aid of the direction finder scope in the flight service station, the *Aircoupe* was given a heading to the airport. And again, and again. He was still flying in circles, weaving about in the dark night, dodging clouds.

Shortly before 7:00 p.m. the tower received a telephone call from the owner of a large plantation near Bradfordville, about 15 miles northeast of the airport. The caller said he had been hearing the sound of a small aircraft overhead, apparently circling his land at a low altitude. Gardner asked the caller to turn on all of his outside lights and any available automobile headlights.

"N166, will you look down carefully and see whether there are any lights on the ground below you now? Can you see anything?"

"I think so."

"N166, can you see some automobile headlights now?"

"Maybe."

"Good. There's a lighted house, and some open fields behind it. Can you see them, N166?"

"No, just some lights."

"All right. Now we know exactly where you are. I am going to give you another heading, N166, and if you follow it you should have the airport in sight in about five minutes."

But again the pilot was unable to hold the heading, and in a few minutes, to Gardner's dismay, he reported that he had lost the lights and was circling in darkness.

For another agonizing 15 minutes the pilot was unable to report any ground reference, and he was driven down to 400 feet by the lowering ceiling of clouds. Then at 7:09 p.m. he called in excitedly.

"Hey, I see a lot of lights down there. Homes and streets, I think."

At that moment the tower was receiving a flurry of telephone calls from the residents of Woodgate Estates, a housing development about 10 miles northeast of the airport. A small airplane was reported circling low over the houses, apparently looking for a place to land.

Gardner gave the pilot his location, less than five miles from that illuminated capitol dome. If he could make his way to the dome on the given heading, he could practically see the airport runway lights. He was advised to fly a straight and level course over the lighted housing development, to establish control of the airplane and steady his compass, and then take up the heading.

But the *Aircoupe* continued to circle over Woodgate, seemingly attracted to the lights with the same fatal fascination that draws a moth to the flame. Sooner or later he would be forced down, by lack of fuel or descending clouds, and there was just no room to land between the houses.

To make matters worse, the pilot was becoming less responsive to the tower, so that it was difficult to know whether he was actually paying attention to the radio calls. He seemed to be mesmerized by the lights below. Gardner realized at this point that he would have to give up on vectoring the *Aircoupe* to the airport, and find an emergency landing site for him.

The possibility of a major tragedy was beginning to loom larger in his mind. He sent out an alert that soon had police cars, ambulances and fire engines rushing to the scene.

A check of the map showed no open space or field of any kind in the vicinity of Woodgate that could be used for an emergency landing. But finally a call from the *Aircoupe* pilot provided a possibility. He reported that he could see what appeared to be a four-lane highway below. It was Interstate I-10, a completed but not yet officially opened highspeed road about a mile north of Woodgate Estates.

At Gardner's direction, police cars lined up along the road, using their headlights to brighten the pavement for a quarter mile. When everyone was in place he contacted the pilot:

"*Aircoupe* N166, I suggest an emergency landing on Interstate I-10. Can you see that stretch of highway with the police car lights on it?"

"I think so."

"Then I suggest an emergency landing on the highway sir. There are no surface vehicles moving on it, it's quite straight and long enough for you."

"I'll take a look at it. I want to see if there are any obstructions."

"All right, N166. Proceed with caution."

The *Aircoupe* made a pass over the designated area at about 100 feet over the ground. The pilot said nothing, but circled and made a second pass. And another, and another. He was still not satisfied that the roadway was clear, and he returned to the security of Woodgate to continue circling. His ceiling was now down to 300 feet.

Gardner called him again.

"N166, we have had police cars traverse that section of the road. There are no obstacles, repeat no obstacles. Are you ready to land?"

"I think the police cars are too close to the road. Can you move them back some?"

A few minutes later Gardner was able to report that the police cars along the road had pulled back to the grass. After more discussion with the pilot he had them moved back still farther. The pilot flew back over the highway, but for the next 15 minutes he continued to make low level passes over it without attempting to land.

". . . N166, are you going to land now? Are you ready to land?"

No reply.

"N166, we have two ambulances standing by, also fire engines in case of any trouble. Do you see the police car with the blue flashing light?"

"Roger."

'All right, N166, that car is going to lead you down. Just line up with the highway behind him, and as you approach he will move out and lead you right down. He'll be moving faster than your landing speed, so you won't have any problem. Once you start the landing, you'll probably be below the range of my radio, so don't bother to call me. Just land the airplane, get it down. N166, do you understand?'

The *Aircoupe* acknowledged. The pilot circled to line himself up with the highway and began his descent, which took him over an overpass crowded with gawking spectators. As he cleared the overpass, the waiting police car accelerated furiously to 90-mph and the plane touched down a safe distance behind it. A roll-out of some 200 yards, and the episode was over; no injuries, no damage, no problem. After nearly two hours of unrelenting tension, the control tower returned to normal operation, and traffic flowed at Tallahassee Airport again.

In recognition of the remarkable job done by the controller in assisting the *Aircoupe* to a safe landing, Richard Gardner was given one of FAA's three national awards for the year's most outstanding flight assists. His experience also paved the way for the establishment by the Tallahassee flight service station, under the direction of FSS chief Robert Hayden, of an "Aircraft Emergency Network" for coordinating the efforts of all emergency units in the area. The network is activated by one call from the FSS to the police dispatcher, who then contacts all other organizations which might have to participate in the assist: highway patrol, sheriff's office, fire department, rescue squads, coast guard, etc. Network facilities are equipped with receivers which can pick up the FSS frequencies and thus follow the progress of any assist without having to interrupt the work of the FAA personnel actively in contact with the distressed aircraft.

In the first year of its existence, the Tallahassee Aircraft Emergency Network has been used on ten occasions, each culminating in a safe landing. And Interstate I-10 was used for a second emergency landing scarcely six months after the first. However, FAA does not wish pilots to expect miracles of the Air Traffic Service. No invention or organization can assure safety if the operator of an airplane chooses to take chances with bad weather. Sooner or later he will run out of luck—and help. ■

Lights in "Woodgate Estates" provided the disoriented pilot with ground reference.

With headlights illuminating the pavement against the pitch black night and the flashing blue light of a police car leading the way, the *Aircoupe* landed on this highway.

Famous
Flights

JOHN WISE...and the greatest air voyage ever made

Ill-fated transatlantic balloon, *Graphic*, had auxiliary gas-bags, a lifeboat, and gondola complete with stove, beds, storage space, survival gear—and a cage of carrier pigeons.

The Pennsylvania "Dutchman" whose record-breaking flight went unequalled for nearly half a century started his career as a lad of fourteen, when he tied a small parachute to his pet cat and confidently tossed it off the barn roof. When it landed gently, he decided then and there to devote his life to seeking means to carry terrestial creatures through the air.

John Wise was born on February 24, 1808, in Lancaster, Pa., the son of German/English settlers. His schooling consisted of an English and German education through high school, and an early exposure to theology. But young Wise became confused with the various tenets of religion and was inclined to look upwards with scientific curiosity rather than reverential wonder.

He was fascinated by things moving in regular patterns in the sky and spent hours gazing at the stars. Air currents interested him and the kite (often with a kitten attached as a "bob-tail") was his favorite toy. While still fourteen he read of an interesting balloon voyage in Italy and immediately began experimenting with small "fire balloons." One of them accidentally landed on a neighbor's thatched roof with dire results, including the summoning of fire apparatus, a bucket brigade, and ire from the neighbor.

While his father tolerated these escapades, at the same time he wanted a trade for his son and apprenticed him to a cabinet maker. Young John earned his living making pianos until he was twenty-seven, privately nursing an unbounded interest, as he put it, "to gratify a desire to sail aloft, a prospect I had ever considered must be grand and sublime." In 1835, before he had ever seen a flight, he designed and went up in his own balloon, a twenty-eight foot sphere, made of varnished muslin and filled with hydrogen. It stayed up for over an hour and went from Philadelphia to Haddonfield, Del. This feat quickly earned him a reputation as a pioneer balloonist.

He went on to study and evaluate the effects of storms and meteorological conditions, and the nature and bouyant power of the atmosphere. He concluded that a steady wind blew from west to east across the United States at a considerable altitude, which could be used by balloonists.

This conclusion gave rise to what was in the early 19th century an astounding ambition—to fly across the Atlantic. With this ultimate goal in mind he started building and flying a variety of balloons, both large and small. During one ascent in a thunderstorm, his balloon was caught in an updraft, and the gas expanded faster than it could escape through the neck. The balloon burst, but the bag flared out and acted as a parachute, permitting a safe descent. This accident led to his invention of the rip cord which could immediately deflate a balloon, converting it to a parachute for a quick and safe descent.

During the Mexican War in 1845 John Wise volunteered to act as a balloon observer, offering his services to Secretary of War Marcy with the suggestion that he bomb Vera Cruz from a captive balloon. This was turned down as being too impractical. He later petitioned Congress for a $20,000 grant to build an ocean-crossing balloon that ". . . will travel to any part of the globe without the inconvenience of smoke, sparks and sea-sickness and at the rate of one hundred miles an hour." This petition received no Congressional interest and was also turned down.

To stimulate public interest, Wise embarked on an impressive schedule of balloon ascents all over the country, in all kinds of weather. After nearly 500 flights he planned one ". . . worthy of consideration as a scientific experiment of the first importance to the human race." It would also test his theory that at 12,000 feet there was a constant west to east air current. The balloon was launched near City Hall in St. Louis, and was to land, hopefully, in New York City. As this was considered to be a test run for a later Atlantic crossing, the "Trans-Atlantic Balloon Company" was formed with the ship naturally named the *Atlantic*. The bag was constructed of lacquered silk, 50 feet in diameter and nearly 60 high. Underneath was suspended a wicker passenger basket, and 15 feet beneath this hung a light boat capable of carrying 1,000 pounds.

The crew, in addition to Wise, consisted of John Lamountane and O. A. Gager, both experienced balloonists, and a Mr. Hyde, a reporter for the St. Louis *Republican*. An overland mail bag was entrusted to them by the American Express Company, who showed keen interest in the flight. The gondola larder was well stocked with ice, lemonade, game and a basket of wine.

With several thousand persons watching and cheering, the *Atlantic* was cut loose at 6:45 p.m. on the evening of July 1, 1859. It moved up and off into the expected easterly direction with the fields and farmhouses of Illinois soon racing by. Wise later wrote, "Nothing could exceed the solemn grandeur of the scene . . . everyone seemed to be impressed with the profound silence that hung around us."

At 12,000 feet the air was chilly and as night descended there was a constant glow to the north from the Chicago lighthouse on Lake Michigan. Following the Wabash River through the night, they sailed on to Fort Wayne, Ind., where dawn came up with spectacular brilliance. Twelve hours after take-off, they were over Lake Erie. Travelling at 60 miles an hour at 10,000 feet, they sighted Long Point jutting out from the Canadian shore, then Buffalo, and Niagara Falls.

Then heavy dark cumulous clouds appeared with gusty winds driving their craft at 90 miles an hour. As the balloon was now drifting fairly close to the ground, there was great concern for their safety, and so to lighten the craft all remaining cargo was jettisoned—even unopened Champagne. A worried John Wise confided to Gager, "If you have any preparations to make for the other world, you had better make them now, our time may be short."

Wise and his companions prepare for 1859 balloon flight from Missouri to New York.

After an hour and a half of being buffeted over water and land by a virtual hurricane, and tearing limbs from trees with a useless grappling hook, the balloonists finally crashed in a forest near Henderson, N.Y. The crew of four, shaken up but not injured, were later wined and dined by the townfolk and made guests of honor at a public meeting that night. The mail sack was retrieved and sent on. There is no exact figure for the mileage of the trip but Wise estimated the course measured at about 1,200 miles "the greatest balloon voyage that was ever made." (As the crow flies, he covered 809 miles.) It would be over 40 years until another 1,000 plus mile voyage was made in a balloon (by the Frenchman Henri de la Vaulx, in 1900, Paris to Russia).

John Wise made many more flights and was one of nine aeronauts active in the Civil War. In 1861 he completed the first military balloon built to army specifications, with a sheet iron floor to deflect enemy gunfire.

In the background of all these flights was his persisting dream of an Atlantic crossing. After much dickering the pioneer finally came to an agreement with the *New York Graphic* newspaper to finance the flight and to construct the balloon. The craft was the largest and finest ever built, 160 feet high with a gasbag of 600,000 cubic feet of hydrogen and a lifting capacity of 14,000 pounds. The gondola, shaped like a two-story divingbell, was reportedly crammed with "scientific" equipment for examining the atmosphere, but short on navigational instruments—so much so that Wise, after protesting vainly about this and other serious shortcomings, backed out of the adventure at the last minute. The remaining crew consisted of two aerial stunt men, Washington Donaldson and George A. Lunt and a newspaperman, Alfred Ford. These three men took off from Brooklyn, N.Y., on October 6, 1873, but the balloon ran into difficulties with wind and the weather and crashed four hours later in the Catskills.

After 40 years of ballooning Wise retired peacefully to a farm in Missouri. But at age 72 he began to banker for "one more flight." So in September 1879, before a cheering and enthusiastic crowd, with two companions, John Wise rose once more in a balloon above St. Louis, moved northeast across the familiar Illinois countryside and disappeared into the clouds. It was his final great adventure. He was never seen again.

Today, almost a hundred years later, the Atlantic Ocean is still unconquered by a manned balloon.

Pilot
BRIEFS

■ STEWARDESS OF SAFETY: A new position, Flight Attendant Specialist, has been established within FAA as a means of helping the agency regulate flight attendants and their duties. An experienced flight attendant will be chosen to keep FAA posted on all problems involving the welfare and safety of passengers who travel by air.

■ THE ALTITUDE ENCODER AND THE TRANSPONDER. A new FAA advisory circular provides information on the installation of altitude encoding systems and on the maintenance of transponders based on recent field experience which reveals some recurring trouble spots in the installation and checkout of such equipment. Included in the circular is guidance on which repair station ratings are necessary to cover particular installation and maintenance situations and who may install this equipment. AC 43-6 "Automatic Pressure Altitude Encoding Systems and Transponder Maintenance and Inspection Practices" is available free from DOT/FAA Distribution Unit, TAD 484.3, Washington, D.C. 20590.

■ AN UPDATED DIRECTORY of FAA certificated aviation maintenance technician schools has been published. Certification of a school by FAA indicates that it meets the requirements of FAR Part 147 for the rating issued, but does not necessarily indicate that the school has been approved for educational purposes by the Federal or State Agencies. This and other information about a specific school can be obtained by contacting the school directly at the address listed in the directory. Copies of the Directory (AC 147-2N) are available free from DOT/FAA Distribution Unit, TAD 484.3, Washington, D.C. 20590.

■ ALTITUDE REPORTING FOR TCAs. All aircraft flying in the nine Group I terminal control areas (TCAs) must be equipped with 4096-code transponder and automatic altitude reporting encoder, effective January 1, 1975. Existing rules also require pilots to have two-way radio and VOR or TACAN receiver, and to receive a clearance before operating in TCAs. To land or take off at an airport within the TCA, pilots must have at least a private certificate. Group I TCAs are at Atlanta, Chicago O'Hare, Washington National, New York, Los Angeles, San Francisco, Boston, Miami, Dallas.

■ BEWARE OF UNCLEAN AIR. If your aircraft has been corosion-proofed with zinc chromate primer inside the air induction box, check occasionally to see whether any peeling or flaking of the paint has occurred. Engine failure can result from flakes of primer entering the air intake and restricting the carburetor venturi or fuel injection system.

NON-DESTRUCTIVE BOMBING. A C-119 converted military cargo plane dropping a load of fire retardent near a home in Enterprise, Calif., after a fire started by children playing with matches burned 30 acres of grass and threatened dwellings. A converted bomber fleet, which also included a B-17 and an S-2, was credited with having saved the homes from destruction after 12 fire trucks and dozens of firemen on the ground were unable to contain the blaze. Redding *Record Searchlight* photo by Charles Miller.

FAA Adopts Noise Standards For Small Planes

General aviation airplanes will be quieter in the future as the result of newly adopted FAA rules which set maximum noise levels for small propeller-driven aircraft. Affected are all propeller airplanes under 12,500 pounds in normal, utility, acrobatic, transport and restricted category, except those in agricultural and fire-fighting operations.

The FAA rule is aimed primarily at stopping the escalation of noise in new models of small airplanes. Applications for type certificates must show compliance with the noise standards, effective immediately. New production units of aircraft already type-certificated would be required to meet the noise standards after January 1, 1980. FAA estimates that up to half of current small airplane types cannot meet the noise standards. The manufacturers will have to incorporate noise abatement features to continue production after the deadline.

In a separate action, amendments to the new FAA rules have been proposed by the Environmental Protection Agency and have been published for comment. Under the Noise Control Act of 1972, EPA is responsible for recommending aircraft noise standards to FAA and these must be published as a Notice of Proposed Rule Making. However, FAA has final authority for accepting or rejecting these recommendations, based on such factors as safety, feasibility and economic reasonableness, and on comments received on the notice.

The EPA proposed amendments call for more stringent noise levels and the use of more sophisticated noise-measuring equipment. EPA would also require new production units of aircraft already type certificated to comply at an earlier date, by January 1, 1977, instead of 1980.

Comments on the Notice of Proposed Rule Making (Notice #74-39) submitted by EPA should be sent to FAA, AGC-24, Washington, D.C. 20591. Deadline for comments is March 7, 1975.

Proposal Would Reduce Hazards Of Toxic Gases

To reduce the possibility of survivors of air crashes succumbing to toxic gases from burning cabin materials, FAA plans to establish toxic gas emission standards for aircraft cabin materials.

To assist in drafting appropriate standards, FAA has issued an Advanced Notice of Proposed Rule Making soliciting written comments from industry, government and other interested persons. FAA seeks comments on the general format of the toxicity standard, the specific gases to be restricted and their sources, accurate test methods, effects of a standard on currently used materials, and interim measures to increase passenger protection.

Comments on the advance notice (#74-38) should be submitted to FAA, AGC-24, Washington, D.C. 20591 by March 31, 1975.

New General Aviation Division Established in Flight Standards

The several branches and staffs in Flight Standards Washington headquarters which are concerned with general aviation have recently been consolidated into a new General Aviation Division. The new division's functions include general aviation operations, maintenance, avionics, and accident prevention and includes the publication of FAA AVIATION NEWS magazine. A separate Flight Standards division will be concerned with air carrier operations and maintenance.

Acting Chief of the new division is James E. Dougherty, an aeronautical engineer, who previously headed up the Maintenance Division of Flight Standards.

Named as Acting Assistant Chief is Bernard A. Geier, a former military fighter pilot and civilian flight instructor.

Rule Broadens Fuel Venting Ban

FAA has broadened its rule prohibiting fuel venting from large turbojets to include business jets and turboprop airplanes, effective January 1, 1975. Both future and existing aircraft are affected.

Fuel venting refers to the discharge of residual fuel from engine manifolds into the atmosphere shortly after takeoff. The original rule went into effect on Febuary 1, 1974, but was limited to fuel venting from turbojets with engines generating more than 8,000 pounds of thrust. The new rule applies to less powerful turbojets and to all turboprop airplanes.

The action is part of a broad attack on aircraft pollution problems being carried out by FAA in cooperation with the Environmental Protection Agency. Other actions include reduction of aircraft engine emissions and noise.

IFR-Instructor Test Guide Issued

A new guidebook to assist candidates taking the written test for the flight instructor, instrument—airplane certificate has been published by FAA, detailing the requirements now in effect under revised Part 61 of the Federal Aviation Regulations. The examination now contains up to 100 separate test items, and up to five hours are allowed for completion.

The 95 page booklet provides all necessary reference sources as well as sample test items, pertinent review material, and a thorough outline of the subject. AC 61-70, "Flight Instructor, Instrument—Airplane Written Test Guide," may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Price $1.65.

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.

• Return of the Eagle

The October article on the "Ill-Fated Eagle" briefly mentions that the story was based on a log which was found 30 years after the attempt to reach the North Pole by balloon. Not mentioned was the fact that exposed film was also recovered which, although seriously deteriorated after 30 years, yielded photographs which depicted the Andree party's landing on the ice and their unsuccessful attempt to survive. "Andree's Story," Viking Press, 1938, includes a dozen of these interesting photographs.

Only after collecting books associated with the early arctic explorations did I appreciate that popular interest, enthusiasm and support for scientific exploration of the Arctic around the turn of the century far exceeded that aroused by the NASA moon landing. Modern programs requiring thousands of people and billions of dollars just can't produce heroes!

Bob Bergmann
Silver Spring, Md.

• Aircraft/Engine Logs

Please clarify the procedures for signing off "annual" inspections on aircraft and engines operated under Part 91. Some mechanics say that only the aircraft—not the engine—must have the logbook entry for an "annual"; others say the aircraft and each logbook for an engine must have the "annual" entry.

Lamar Miller
Jakin, Ga.

Annual inspections should be recorded in both aircraft and engine logs. Requirement for such entries are found in FAR 91.173 (a) (1) and in FAR 43.11.

• More on Instrument Instruction

How can I determine in Part 61 which instrument instruction *must* be given by an "Instrument Instructor" and which may be given by a flight instructor without instrument rating? The term "authorized flight instructor" is also confusing to me.

Jerry J. Johnston
Roscommon, Mich.

The key to determining if an instrument rating is required on a flight instructor certificate is in the way the FAR requirements are worded. For instance, FAR 61.65 requires an applicant for an instrument rating to have 40 hours of instrument time, of which at least 15 hours must be instrument flight instruction *given by the holder of an instrument instructor rating. FAR 61.129 requires an applicant for commercial pilot certificate to have ten hours of* instrument instruction. *This must be given by the holder of an instrument instructor rating. However, 61.107 requires a private pilot applicant to have instruction from an authorized flight instructor in, among other things, the* control and maneuvering of an airplane solely by reference to instruments. *The term "instrument instruction" is specifically omitted from this latter section to allow a flight instructor without an instrument rating on his flight instructor certificate to conduct all instruction for private certificate.*

The Part 61 rules requires that instructors have ratings appropriate to the instruction they give; the term "authorized flight instructor" refers to one who is thus qualified.

• AD Static

I'd much like to see this letter in print, as there must be other pilots who share my experience. As an example of overcontrol I cite your airworthiness directive (AD) concerning rotating magnets and coils in magnetos of older aircraft. Because of complying with this AD my annual charge included 34 hours for labor. This on a 90 h.p. *TriChamp!* My magnetos now have a much greater drop than before and the mechanic says it's the best he can do. Also since the mag work I have much more static in radio reception, which I attribute to the increased output of the mags. Considering the likelihood of magnetos failing altogether I feel the AD was uncalled for. If you can tell me how I was helped by this AD I'd appreciate it.

Louis Festenstein
Trevose, Pa.

AD 73-7-4 requiring replacement of ignition coils and rotating magnets in Bendix magnetos, was issued because high time magnetos had exhibited an unacceptable failure pattern. The annoyances you attribute to the magneto changes (increased static and higher mag drop) can usually be controlled by proper installation and adjustment. In view of the reduction in magneto failures, following the AD, you may reasonably assume that your flying is safer as the result of your investment.

• An FSS Specialist Comments

I appreciate your efforts in trying to explain the "control zone" and the "airport traffic area" significance in your November article, "A Different Kettle of Fish." As an FSS Specialist I see a lot of confusion on this type of thing. Occasionally I am contacted by pilots on a CAVU day "requesting permission to transit the control zone." I appreciate their wish to make their position and intentions known, but it is obvious they do not understand the concept and purpose of the control zone.

Many pilots also have the impression that there is always a tower when there is a control zone, which is not true. There are many control zones at non-tower airports which have Flight Service Stations or other communications facilities. Still many pilots, seeing the dashed blue line on the chart, as at Victoria, Texas, will call and request the tower frequency.

I am curious as to why your article overlooked the possibilities of special VFR clearance in the control zone. After all, it is a rather common occurrence, when the field is "IFR." Good flying!

Ashley Waters
Palacios, Tex.

Special VFR is a fairly big subject by itself, and will be dealt with a separate article.

• Coffee, Tea or ?

In a corporation airplane, is the serving of meals to passengers by the co-pilot a violation of FAR 91.7, "Flight Crewmembers at Stations?" As far as company definition of duties is concerned, the serving of meals is considered to be a part of the operation of the airplane.

J. A. Helle
Danbury, Conn.

If the type certification of the aircraft requires a co-pilot, he must be at his station during takeoff, landing and enroute, unless his absence is necessary in the performance of his duties in connection with the operation of the aircraft or in connection with his physiological needs. Serving meals to passengers is not recognized as being in connection with the operation of the aircraft as far as application of the regulation is concerned.

• Bright Lights and Birds

Your October 1974 issue, in a caption under the picture "Fowl Traffic," says "Aircraft landing lights seem to help birds see and avoid aircraft." Has any research been conducted to determine if landing lights help prevent bird strikes, or was this a result of experience gained from the field? We thought lights attracted birds.

Major Richard W. Wade
Fort Rucker, Ala.

Data gathered by students of bird behavior in the United States and Canada indicate that birds are better able to see and avoid aircraft in the daytime when bright lights, such as landing lights, are on. There are documented instances when flying birds were seen to turn back from crossing in front of lighted aircraft; pilots involved were convinced that the landing lights were responsible for the evasive action.

FAA suggests that, when practical, landing lights be used near airports and wherever flocks of birds may be expected in order to help minimize danger of inflight collision with birds or other aircraft. (See "Operation Lights On," FAA AVIATION NEWS, October 1973, and in Airman's Information Manual, Part 1, Good Operating Practices.)

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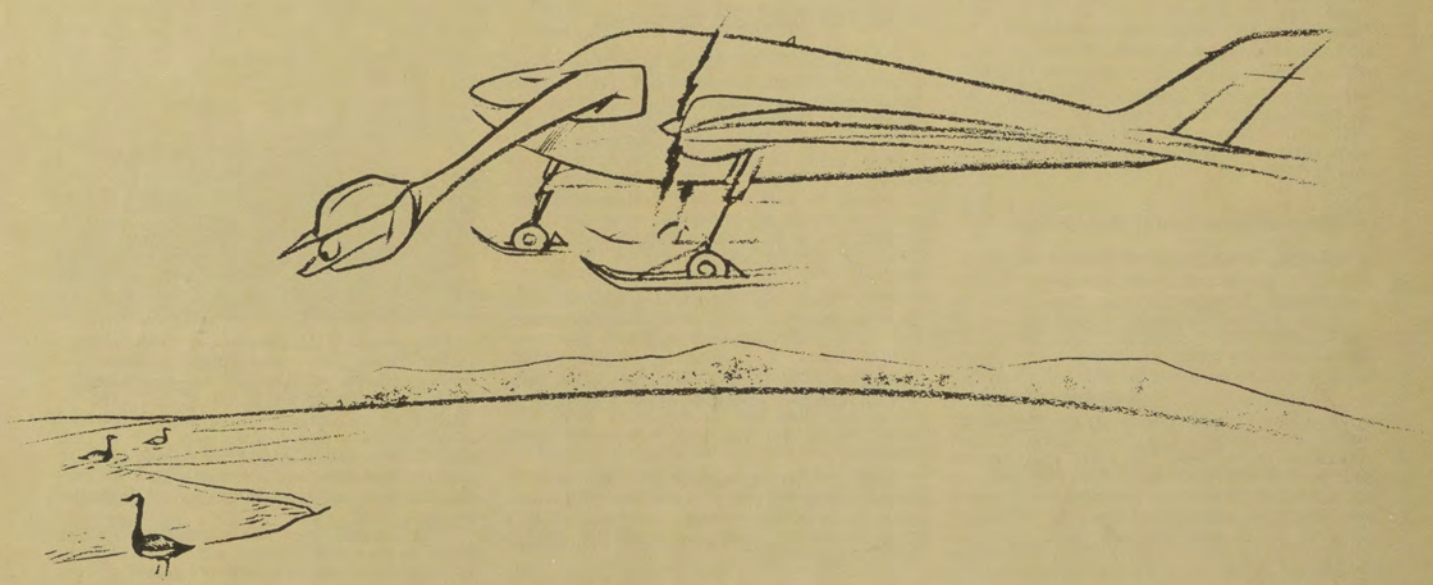

Osborn

Before landing on ice.

Suggested by Peter K. Jackson,
ATC, Anchorage, Alaska