

Low Altitude Spins--Case 1. While circling low over a forced landing accident, the pilot of an SNJ-3 lost flying speed and spun in, killing both occupants.

Case 2. While chasing test torpedoes, the pilot of an N3N-1 made a tight turn to keep the torpedo in sight. While in this turn, the airplane went into a spin and crashed.

Case 3. The pilot of an OS2U, loaded with two depth bombs, while on anti-submarine patrol, circled low to investigate a strange object on the water. While thus engaged, he lost flying speed and crashed.

Case 4. The pilot of an SB2U-1 took off in a rather steep climb. Shortly after take-off his engine started missing. The pilot immediately lowered his nose and started a sharp turn to get back into the field. While in this turn, the airplane whipped into a spin and crashed.

Case 5. The pilot of an SBD, while coming in for a landing with a bomb load aboard, allowed his airplane to lose flying speed. It fell off, into a spin and crashed.

Bureau Comment: Many similar cases might be quoted, covering all models of airplanes. Most of these accidents are due solely to pilot error and, unfortunately, a large percentage of them are fatal. These accidents fall roughly into three general classes.

The first group, covered in Cases 1 to 3, usually occur during normal flight, while in a turn. Two major errors are noted to cause most of the spins in this category: (1) Pilots are so intent on observing something outside of their airplane that they neglect to fly their own airplane, and (2) Pilots fail to take into consideration that wings have less effective lift when banked than when level; therefore an airplane will stall and spin at a higher airspeed when banked than when in level flight. Likewise, the heavier a plane is loaded, the higher will be its stalling speed. These primary truths must be pounded home to students and must be continually remembered and acted upon by experienced pilots.

The second type of spins, those occurring immediately after take-off, is covered in Case 4. Everything which was previously said about spins is equally true of this group, with one important addition. The negative acceleration which a pilot feels when going from a steep climb to level flight gives him a false impression of the attitude of his airplane. This impression is so pronounced that he has the feeling of being in level flight when actually his airplane is still nose-high. It is readily seen why a turn with the airplane in this attitude so often results in a spin. A full realization of this danger and proper corrective action, will eliminate the majority of this type accident.

The third type of spins, those occurring during landing approaches, is typified by Case 5. Spins in this

category are usually due simply to "failure to maintain flying speed during the glide." The fact that your nose is below the horizon is not insurance that you have sufficient flying speed. With your engine idling and possibly a heavy load aboard, it is often necessary that a rather steep angle of glide be used to maintain flying speed. This requires an intimate knowledge of the flight characteristics of the particular airplane you are flying. The practice of pulling your nose up to stretch your glide, without adding a little throttle to compensate for this change of attitude, is a dangerous habit.

Attention is invited to Technical Note 17-37 on stalls; to Technical Order 20-39 on spin recovery.

Grampaw Pettibone says:- I see flying machines haven't changed much; when you get below stalling speed they still spin. Once you know this, however, and realize what a large percentage of accidents result from low altitude spins, it shouldn't take an overly bright chap to figure out the advantage of maintaining a little extra speed, say 5 or 10 knots, at low altitude. Remember the three basic flying rules: (1) don't stall! (2) Don't Stall!! (3) DON'T STALL!!!

There's also an old aviation paradox that is pertinent at this point. You might tack a copy of it above your best girl's picture as a continual reminder to keep plugging and learn all the angles of this flying game:

RECOGNIZE A FLIGHT HAZARD, IT ISN'T THERE;
FAIL TO RECOGNIZE IT, THERE IT IS.

Lost and Found Column--A primary student made the following statement after being found and returned to base: "At 0915 I left the main field on my third solo flight, to practice elementary maneuvers. The weather was misty and my knowledge of the surrounding territory was very limited. I became so engrossed in my flying that I lost sight of my landmarks. At 1100 I decided to land and obtain directions. I spotted a field and glided over it at 100 feet. It looked satisfactory, so I circled back and landed. After rolling approximately 50 feet, the landing gear struck a log hidden by the tall grass, causing the airplane to nose over."

Bureau Comment: This student is not the only pilot who has been lost at some time or other during his flight career. Many experienced pilots have a vivid memory of the time they got lost during their student days-- and even later. This student's nose-over was not an uncommon sequel to getting lost. The only medicine which will correct this trouble is better indoctrination. Primary students are usually so preoccupied in flying that their navigation is neglected. Instructors might profitably

spend a little time pointing out the location of conspicuous landmarks with relation to the home field; rivers, railroads and other prominent guides will help in this orientation. A good trick when practicing acrobatics and other air work is to start upwind as far as the designated area will permit, in order not to be drifted away while concentrating on maneuvers.

Grampaw Pettibone says:- Reminds me of the time I got lost. Landed, out of gas, in a cow pasture about sundown. When the farmer came out, he said, "Well son, we only got two beds. . .," but maybe I better not tell that story--might only lead to more young flyers getting lost. Better tell the one about Lindbergh. Seems like Lindy got lost the time he flew non-stop from Washington to Mexico City. Ran into considerable weather and was blown way off his course; off his map, in fact. He knew he must be somewhere near Mexico City, but he had no idea even in which direction it was. He finally spotted a small, stone church and immediately knew where he was. The reason was (and here's the nub) that he had studied his route so thoroughly that he knew all the landmarks within 50 miles of his course. Mark my word, it's hard to lose a chap like that, or, like Edison says, "Genius is 99.44 percent perspiration."

Luggage Fouled Rear Cockpit Controls--Upon coming in for a landing the pilot of an SNC-1 was unable to lower his flaps. After making three attempts to get into the field he landed far down the runway on his fourth try, necessitating an abrupt application of brakes to avoid running into obstacles at the end of the field. Excessive braking caused the airplane to nose over, resulting in major damage to both engine and aircraft.

An investigation of the rear cockpit disclosed that luggage which had been strapped in the rear seat had come loose and had jammed the flap control handle.

Bureau Comment: This pilot was fortunate that only the flap control was jammed. In small planes, when cross-country and ferry pilots are forced to use the rear cockpit as an auxiliary baggage compartment, great care must be taken before each flight to see that all gear is secure and that there is no likelihood of its jarring loose during flight. Remember this accident and don't let the same thing happen to you.

The following report of an aircraft accident, reported by the Army Air Forces, is reprinted herewith as of equal importance to Navy pilots:

"An accident in which an airplane was destroyed and the entire crew of three men was killed, occurred recently

under the following circumstances:

"A ferry crew was ordered to an air depot to obtain a B-24-D airplane and fly it to home station. Before turning the airplane over, the depot personnel serviced it with 1100 gallons of gasoline and flew it on a test flight for 80 minutes. The ferry pilot, prior to take-off for home at dusk, obtained an instrument clearance for an estimated flight of 2½ hours and made entry on the clearance form that he had sufficient fuel for 10 hours flying. He neglected, however, to check to insure that the airplane had been refueled, and departed from the depot before the operations ground crew could perform that service. He arrived over his home station at about 800 feet altitude and as he came in, the field boundary lights were lighted and the control tower cleared him as No. 1 to land. Instead of landing, however, he continued his flight over the field and immediately thereafter ran out of gasoline, crashing about six miles beyond. Before it crashed, the airplane had been flown the approximate length of time allowed by fuel consumption data.

"During the course of the investigation, evidence was introduced to show that the pilot was in an undue hurry to return home to attend a dance. This undoubtedly contributed to his neglect to make a check of his fuel, both at the time of his departure, and upon approaching his home station. This carelessness cost the pilot his life and caused the death of his two crew members."

Heat of Friction During Wheels-Up Landing Causes Bomb to Explode--Immediately after take-off, an SBD-3 experienced partial engine failure and was forced to land in an adjoining field. The wheels were not lowered and the airplane made a belly landing, skidding along the hard-surfaced runway on its bomb load for approximately 500 feet before coming to a stop. Just as the pilot and passenger were preparing to step out of the cockpit, the bomb exploded, disintegrating the center section and breaking the airplane in two at the pilot's cockpit.

The cause of the engine failure is undetermined; however, the high-low blower selector was found to be in the mid-position. If this were the case, it would have resulted in loss of power. The bomb explosion is believed to have been caused by the heat of friction while the plane was skidding along the runway. The bomb load consisted of a single 500-pound bomb with the nose and tail fuses both designed to produce upon impact a .01 delayed action detonation. The bomb nose fuse was found unexploded but the tail fuse was not found.

Bureau Comment: It is considered advisable to jettison bombs prior to any emergency landing, provided, of course, the bombs are released with the fuzes unarmed.

TRAINING

Flight Standardization Board--To maintain the high efficiency of the Navy's flight training stations under war pressure is the mission of the Flight Standardization Board. Although comparatively new, the trouble-shooting Board is credited with having solved numerous problems of the flying schools.

The Board was created in May 1942, but did not get into action until two months later. At its inception it was staffed by six officers, headed by Lieut. Comdr. F. M. Reeder, USN, as officer-in-charge. The group now is being enlarged to handle a multiplicity of duties.

One of its first acts was to visit each of the primary flight stations. Personnel, equipment and training procedures were surveyed with the aim of standardizing procedures in the flight instructors schools at Corpus Christi and Pensacola and at primary flight training stations. Members of the Board flew and talked with instructors to determine and check their teaching capabilities. Periodically, Board members will repeat these inspection trips.

Typical of the Board's activities is a recommendation revealed in its most recent report, centering mainly on the problem of ground loops. The Board said: "Our most recent observation on this problem has led us to believe that the principal difficulty lies in improper or insufficient instruction in off-wind landings. More time should be spent on this particular technique during the 'A' stage, possibly through the assignment at each base of an outlying field devoted exclusively to cross-wind landing practice." Such recommendations are designed to save men and equipment.

This was only one phase of the Board's suggestions to improve the flight training procedure. Others dealt with the "urgent need" of additional basic-type airplanes for instructors' practice and cross-country work and the installation of more effective and improved wind tees at most of the bases.

Headquarters of the board will be moved from Pensacola to Kansas City, Kansas, about January 28.

Naval Aviation Of The Press--A special Naval Aviation Issue of the magazine Flying is just off the press. Devoted to the work of Navy airmen in wartime, the issue has 34 articles, each of which deals with a phase of naval aviation. It has, perhaps, the most remarkable series of aviation photographs ever reproduced in any one publication.

This year's issue is similar to the Naval Aviation Issue prepared by the Bureau for the same magazine last year. As there was more time available for its preparation, the current edition is considerably larger--it contains 308 pages

compared to 258 last year. The Navy has ordered copies for special distribution to Naval Air Stations for study and training purposes. The Rockefeller Committee on Inter-American affairs is planning a special condensation of the issue for circulation in the Latin American countries.

The articles cover the aircraft carrier, all of the Navy's plane types, and also such subjects as "The Battles," "The Enemy," aerology, aviation medicine, photography, radio, the Marines, and the Coast Guard. Introductory statements have been written by Secretary Knox, Assistant Secretary Gates, Admiral King, Rear Admiral McCain, and Major General Mitchell. Other contributors include Rear Admiral Frederick C. Sherman (The Carrier); Commander James S. Thach (The Fighter Plane); Col. Ira Kimes (The Scout Bomber); Commander Clarence Schildhauer (The Transport Plane); Lieut. Joy B. Hancock (The WAVES).

The Missing Link--It's better to be a live pigeon than a statistic! Every pilot should know how to fly on instruments. At comparatively negligible cost in money and no cost in lives, instruction in instrument flying can be accomplished via the Link at any time. Whether primary instruction or merely a refresher, the Link is the answer. Recent crashes demonstrate the importance and tragic need for flying on instruments. Witness these cases:

Case 1. Not long ago two pilots flying F2A's were cleared on an instrument flight from Midland to Corpus Christi. Instrument conditions included a ceiling of 50 feet. Shortly after taking off, the senior pilot crashed in a ravine. Obviously he had attempted to maintain ground contact in hilly country. He had had 400 hours time and knew the danger of such an operation. Gambling, by contact flying, cost him his life and the Navy a plane.

In addition, he caused the death of the other pilot. Following the leader, the junior pilot also crashed, losing his life. Both fatalities were clearly preventable.

Case 2. On another occasion the junior member of a two-plane section, flying an OS2N, followed his leader into clouds at 1700 feet. Obviously, instrument flight conditions prevailed. On entering the cloud formation the leader noticed the other pilot make a shallow turn to the right and lost sight of him. A search by surface crews recovered only the aft part of the main float and life raft still in its container. An investigating board concluded that the pilot was a victim of vertigo and that his crash was the result of a spin. Spins occur when a pilot relies on his senses rather than the instrument panel.

Case 3. The leader of a two-plane section, flying an SBD-1, ran into a bank of clouds while descending. He lost control of the plane and, although having 800-1000 feet on emerging from the cloud bank, could not regain control,

and crashed. The pilot was killed, the plane demolished.

These cases emphasize the imperative need for instrument flying experience. It isn't enough to be able to fly on instruments. A pilot must have absolute faith in his instruments and must RELY on them even when his senses say they are wrong.

Day-Nite Flying Equipment--Long a problem in the training of naval aviators, the difficult question of night flying practice has been partially solved. By means of special filter goggles and a windshield cover which cuts off visibility of the student pilot, instrument flying and practice in night flying can be given during daylight hours with a decrease in the danger element.

Developed by the Bureau of Aeronautics, the equipment consists of red-filter goggles for the student pilot and a green-tinted film to cover the windshield. Through the red-filter goggles the student pilot can see the instrument board in the cockpit of the plane but the combination red-filter in his goggles and the green filter on the windshield greatly decreases or cuts off completely his visibility outside of the plane.

On the other hand, the instructor pilot, who wears no tinted goggles, can see clearly through the green film on the windshield. Therefore he is able to check practice landings made by the student pilot who is flying in simulated darkness.

The student's visibility outside of the plane can be increased or reduced simply by changing the light filters in the goggles. Two types of red goggles will be used with the same green filters. With the dark red or "blackout" goggles the student can see only the instruments--nothing outside the cockpit. The light red or "dark landing" goggles will reduce visibility to a point where depth perception is seriously impaired.

In connection with depth perception there is still some development work to be done. The equipment works very well in the case of water landings. However, landings on runways are not recommended until some additional aid (simulating a flare path) can be developed.

And Wouldn't Anybody--A fresh-water lieutenant in the Bureau of Aeronautics was detailed to Hollywood to write a script for some training films. He was entranced with the land of make-believe and the make-believers were entranced by his uniform. Shortly after his arrival he wandered through a set where there was being made a blood-and-thunder screamer about action in the North Atlantic.