

# FLIGHT STATISTICS

Let's Get Fuel Conscious! The following cases are summaries of recent crashes due to pilot-caused fuel failures.

Case 1. The pilot of an S03C-1 landplane, while on a familiarization flight, exhausted all the gasoline from both the left and right tanks. When the engine cut out he failed to switch to the main tank which contained approximately 110 gallons of gasoline. He thereafter made a water landing, causing major damage to the airplane.

Case 2. After making several field carrier landings, the engine of an F4F-3 suddenly cut out on a take-off at an altitude of about 65 feet. The airplane was completely washed out when it crashed into trees during the subsequent forced landing. Upon investigation it was found that the pilot had not been using fuel from the main tank as per instructions, but instead had been using the emergency tank which was dry at the time of the crash.

Case 3. After flying for approximately 25 minutes on an interception mission, a fighter pilot experienced engine failure in his F4F-4. Upon checking the instruments he found oil temperature and pressure normal, but fuel pressure was down to five pounds. He switched on the electric auxiliary pump, but still the fuel pressure did not rise. He made no effort to switch fuel tanks. A water landing was then made and after the airplane had been salvaged it was found that the fuel valve selector switch was on "emergency" and the emergency tank was empty. The main tank was full.

Case 4. While making dummy torpedo runs, the pilot of a TBF-1 ran one tank dry. Due to low altitude and confusion over the engine stoppage, he was unable to determine the cause of the failure in time to shift tanks before a water landing was necessary.

Case 5. An F2A-3 made a forced landing in a swamp after it had ex-



With Comments by  
**GRAMPAW PETTIBONE**

hausted the supply of gasoline in its right tank. The pilot failed to switch to the left tank; he apparently had not the slightest conception of the state of his fuel supply.

Case 6. The pilot of a J2F-3 was on a familiarization flight. He made one circuit of the field and then came in for a touch-and-go landing. After climbing to approximately 200 feet, he switched the fuel selector to "main". In less than a minute after this the engine failed completely, necessitating an immediate forced landing. A subsequent inspection of the engine and accessories revealed no contributory cause for the failure. It was the opinion of the Trouble Board, however, that when the selector valve was switched from the auxiliary to main, the valve was not seated properly, thus shutting off the gasoline supply.

**Case 7.** Immediately after lowering his wheels in preparation for landing, the pilot of an F4F-4 noticed that his engine began to sputter and lose power. He switched the propeller control to manual, turned on the emergency fuel pump, and pushed the mixture control from automatic rich to full rich. None of these actions had any effect, however, so a wheels-up landing was made. After the airplane was recovered it was found that the main tank contained less than two quarts of gasoline; whereas, the emergency tank was full. Change #55 (siphon break) had not been made on this airplane because the parts were not available. The pilot stated later that since he had been in the air for less than an hour and a half on moderate maneuvers, he assumed that he had plenty of gas left and, being so busy trying to find the trouble elsewhere, did not even look at the fuel quantity gauge. He was apparently unaware of the possible syphoning action in the F4F main tank, although much has been said and written about this, prior to its correction by the above change.

**Case 8.** The pilot of an SBD-4 made a forced water landing after running out of fuel on his main tank. He had taken off on "main" and switched tanks three times during flight, but each time had failed to feel the customary click as he switched the selector. It was later determined that the fuel selector system had failed sometime prior to or immediately after take-off, thus allowing gasoline to be used from the main tank only, no matter which tank the selector indicated. The airplane was equipped with a small, red flag attached to the rod between the selector and the fuel valve, by means of which the fuel valve could have been shifted, if the failure had actually occurred above the flag. The pilot, however, was unaware of this safety installation and consequently made no attempt to use it.

Bureau Comment:- A review of the above accidents, all of which occurred during

a period of approximately one month, indicates they were all due to carelessness, ignorance or negligence, combined with a considerable amount of poor judgment. Because of this and because of Grampaw Pettibone's high blood pressure, it was considered inadvisable for him to attempt comment on these accidents.

This type of accident is entirely too prevalent and should be among the easiest to stop completely because the cure is as simple as the cause. Pilots must never forget the fact that it takes gasoline to keep a gasoline engine running; pilots must become *fuel conscious*. Careful indoctrination will help; whenever a pilot is checked out in a new type of aircraft it should be made certain that he understands the fuel system. He should be made aware of any peculiarities of that particular system; had the pilots in cases six, seven and eight known of the fuel system peculiarities in their particular airplanes, they probably would not have crashed.

The frequency and seriousness of these accidents should convince all aviators of the dangers involved. The only way to keep from falling a victim of this type of pilot error is to study and understand the fuel system in each type of airplane before you attempt to fly it and to remain *fuel conscious* while in the air.

Your earnest attention is invited to the following list of precautions. Most fuel failure accidents occur from failure to observe one or more of these precautions:

## WHEELS DOWN WHEN LANDING !





This picture recently was received in the Bureau showing the rescue of two occupants of an airplane which went over the side of a carrier. The plane was hanging suspended and partially submerged. Two knotted lines were lowered to the pilot and his gunner, so they could climb aboard the ship.

Life lines should be kept available for such use and the suggestion is offered that a bowline be provided in the end of the line so that if the plane's occupants are injured, or do not have the strength to climb the line, they can secure themselves to the loop and be hauled aboard.

(a) Never run a gas tank completely dry, unless absolutely necessary.

(b) Never switch tanks at low altitude, if avoidable. If suction is lost, it sometimes requires a little time to regain suction on another tank; don't short-change yourself on altitude.

(c) Do not use the emergency tank, especially in F4F's, for low altitude flying, particularly practice landings. (See cases 2 and 3).

(d) If partial failure of fuel system is noticed in flight, take the precaution of returning immediately to base and getting the system checked. Don't unnecessarily risk yourself and your airplane. (See Case 8).

(e) Get in the habit of checking your gas before descending to low altitude: this check should consist of a visual reference to the gauges and selector valve setting, and a swift mental calculation as to gas consumption and flight time.

(f) When shifting tanks, be careful to center selector so that the valve will be properly seated; this can be done by feeling the click.

(g) When an engine sputters check fuel pressure and selector valve immediately.

(h) Know how much fuel there is in each tank before commencing a flight. Make a mental calculation of how long you can fly on each tank and keep a running check on your fuel gauges and gas consumption.

GET FUEL CONSCIOUS! HIROHITO LOVES TO HAVE YOU FLY ON AN EMPTY TANK!

The Lesser of Two Evils:- Case 1: Upon coming in for a practice landing in an NP-1 a student pilot landed on the right wheel and then swerved approximately 90° to the right of his landing course. He then applied full throttle and attempted to take off but struck a fence before becoming airborne. Upon impact with the fence the aircraft nosed over on its back.

It was the opinion of the trouble board that the student could have

prevented major damage to the aircraft had he not attempted to take off after losing control of his airplane.

Case 2: The pilot of an F4F-4 allowed his airplane to swerve on take off and thereafter elected to maintain full power in an effort to get the airplane off the ground before reaching hazards at the side of the runway. The airplane crashed into a revetment and immediately burst into flames.

Grampaw Pettibone Says: I fully agree with the trouble board in Case 1 and think the opinion is equally applicable in Case 2. Had the F4F pilot chopped his throttle when he first noticed that he was losing control of his aircraft, he would be alive today. Many potential, minor-damage accidents are turned into major and fatal crashes when pilots, after getting into trouble on the ground, attempt to bull it through with full throttle. Definite rules cannot be laid down for this, except to point out that if you are in trouble on the ground, such as a groundloop, a swerve, a faulty engine, etc., it is usually better to cut the gun and accept possible minor damage, rather than to try to force a doubtful take-off which might lead to major damage or a fatal crash.

Taxi-Blindness:- The pilot of an OS2U-3, upon return from an instrument flight, taxied off the field and along the seaplane ramp, enroute to the hangar. The taxi-way was restricted by an airplane parked on the compass rose. The pilot, taxiing at a moderate speed, swung left to avoid this airplane, and in so doing collided with a small tractor parked on the left of the ramp. This accident resulted in major overhaul of both the engine and airplane.

Grampaw Pettibone says:- It would seem that the pilot should also have received an overhauling for his particular brilliance in this maneuver.



MEN VS. MACHINES--The spirited tug of war being carried on by this Navy ground crew will revive the cold engine of this "Kingfisher" scout plane in a jiffy. A canvas sleeve is slipped over the propeller tip, and the tug sends the "prop" spinning, so the plane can take off again on its mission of keeping the Atlantic sealanes free of enemy U-boats. (6)

Granted he didn't see the tractor, but that is just the point; his forward vision is so limited that he never had a chance to see it. Taxiing in restricted areas without a man on the wing is inexcusable. Even though a slight delay may be involved, someone can always be made available for this duty. In the present instance there was a full-grown safety pilot in the rear seat who would have made an excellent man on the wing.

Unbuckled Parachute Harness Results in Fatal Jump:- Recently, while engaged in camera gunnery practice, an F4F-4 entered an inverted spin at about 13,000 feet. At approximately 6,000 feet the pilot was seen to bail out and the parachute was seen to open. When the pilot in the accompanying airplane circled the descending parachute, however, the harness was empty. A few minutes after the airplane had crashed into the water, the body

surfaced near the wreckage and was picked up by a trawler. After examining the body and in consideration of other evidence, it was the opinion that this pilot had taken off with his parachute leg straps unfastened and in his excitement had failed to fasten them before making the jump.

Grampaw Pettibone says:- Unfortunately this is the type of careless pilot error which can not be learned by experience. When you have to jump and something goes wrong, you don't usually get a second chance. You can only learn this from the sad experience of others. Keep your parachute harness and safety belt buckled at all times during flight.

Premature Retraction of Wheels proves Fatal:- Just prior to becoming airborne during a normal take-off, the pilot of an SNB-1 retracted his landing gear. As the wheels began to come up the airplane dropped slightly, until the tips of both propellers struck the runway. The pilot immediately attempted to gain altitude, but was unsuccessful. The airplane hovered about three feet above the ground

until it crashed into a metal fence at the end of the field, killing all occupants.

Bureau Comment: There have been several accidents recently resulting from the premature raising of landing gear during take-off. They have all been due 100% to pilot error. In the present instance the pilot made a further error in electing to continue the take-off after his propellers had struck the ground. Had he landed immediately, this accident would probably not have been so serious.

The propeller tips in this case were undoubtedly bent upon contact with the runway. A bent propeller usually loses so much efficiency as to preclude possibility of further flight. Also a bent propeller is so much out of balance that there is serious danger of "throwing" the propeller, and also the engine, due to vibration.

Creeping Throttle:- Shortly after a normal take-off, an F4F-3 airplane was observed in a series of semi-stalls. The motor was running smoothly, but it sounded as though the throttle was being slowly retarded. The pilot

Chow!. The girls eat "twice as much" as in civilian life. But they keep too busy to take on weight.



started to retract his wheels and began a shallow left turn, as if to get back into the field, when he fell off into a left spin.

The reporting officer was of the opinion that the loss of power was due to a creeping throttle, stating that the throttle on this model airplane will creep back very rapidly if the knurled friction knob does not have sufficient tension on it.

Bureau Comment:- When loss of power occurs, pilots should make an immediate check of the following instruments and controls: (a) Throttle, (b) Fuel Pressure, (c) Propeller, (d) Mixture Control, (e) Blower, and (f) Carburetor Air. If the pilot is alert and familiar with his cockpit, this check can be made in a few seconds and will often show that only a simple correction is necessary to insure perfect operation.

Granpaw Pettibone says:- One of the main differences in driving an automobile and flying an airplane is that when you have mechanical difficulties in an airplane you don't have time to pull over to the side of the road to think it over. Hence the old proverb, "Know thine airplane."

F4U-1 Spin:- While on his first hour of familiarization in an F4U-1, a pilot entered a spin at comparatively low altitude and was seen to crash after

his aircraft had completed two revolutions. It was the opinion of the investigating board that while familiarizing himself with the handling characteristics of this airplane at reduced speeds, he inadvertently permitted his aircraft to enter a spin from which he was unable to recover.

Granpaw Pettibone says:- It is unbelievable that any Navy pilot would attempt to familiarize himself with the flight characteristics of a new plane at low altitude.

### Bright Searchlights

Much depends upon your point of view, the British Vision Committee has discovered. The committee consists of distinguished eye specialists whose chief aim is to improve the vision of the R.A.F. pilots. The committee became concerned over increasing complaints from British pilots that the German searchlights were much brighter than those employed in England. Data was obtained on the candlepower of the lights used in both countries, and no appreciable discrepancies were found. Then they questioned German pilot prisoners about the searchlight situation. Invariably, the German pilots complained that the English lights were brighter.

