



GRAMPAW PETTIBONE

The Fundamentals

An F2H-4 pilot entered the pattern for FCLP at approximately 300 feet and 200 knots. He was indicating 3,100 pounds of fuel. After breaking at the upwind end of the runway, he lowered the landing gear. On the downwind leg he lowered the flaps, retracted the speed brakes and reached the 180° position at 250 feet and 125 knots. From here on, we'll let the pilot tell it.

"I continued about 300 feet past the 180 before commencing my turn with 25° bank. Upon approaching the 90° position, I had 120 knots. I noticed the plane beginning to settle, so I immediately jammed full throttle and leveled my wings, but the plane continued to settle so just prior to hitting the trees, I pulled my nose way up and then went through the trees for what I thought about 200 yards in what seemed like a straight glide.

"Upon impact with the ground, the aircraft broke into pieces. I believe I blacked out for a second. When I came to, I saw the plane was on fire so I knew I had to get out even though my back hurt. I climbed out the port side without bothering to unfasten anything other than my seat belt. I walked, chute and all, about 50 feet from the plane where I lay down in the dry river bed. I was picked up by helicopter a few minutes later."

The aircraft was completely demolished by impact and fire, except for the cockpit, and the pilot sustained a fracture in the lumbar vertebrae.



Grampaw Pettibone Says:

Jumpin' Jupiter! This lad must have been thinking pure thoughts all week to get out of that one alive! According to the LSO, the aircraft appeared to be settling at the 90° position in a cocked up attitude. Since this is expert testimony, it doesn't take much to figure out what happened.

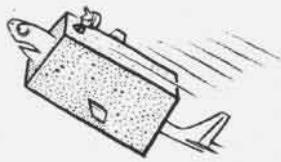
With 3,100 pounds of fuel and 125 knots airspeed at the start of the turn, the pilot simply didn't have enough power on to maintain altitude. Instead, he pulled the nose up, which only caused the plane to decelerate more rapidly. When he realized he was settling, he two-blocked



the throttle and levelled the wings. But he failed to lower the nose to or slightly below the horizon. In this condition he might as well have been flying a nine-ton block of cement, and the plane did just what a block of cement would do. It kept right on going down.

What really gets me about this accident is that the pilot seemed so sure of his altitudes, airspeeds, power settings, and even the angle of bank in each turn. The only thing he didn't seem to know was what the airplane was doing. Possibly he was feeling things out on his first pass by flying with his head in the cockpit with a quick glance outside now and then to maintain his pattern. This system, known as mechanical flying, is an unsafe practice during FCLP and carrier landings.

My advice to this lad the next time he flies is to take his flying machine up to a safe altitude, get it into a landing configuration, and practice square turns at slow speeds for about an hour. With a little concentration he'll learn three things which may or may not come as a surprise: (1) He'll start concentrating on ATTITUDE, which is one of the most important factors in a successful approach. (2) He'll find he can regulate altitude with the throttle. (3) He'll discover he must add throttle going into a turn to



The wing loading of a Brick

maintain lift and reduce throttle coming out of a turn to prevent acceleration.

The biggest mistake anyone can make on a carrier approach, especially when first learning the business, is to turn into the 90° position with excessive altitude and reduced power, then decelerate to the desired altitude and airspeed. Attitude, altitude, and airspeed MUST be stabilized by the time the plane reaches the 180° position and from there on in to the "cut," it is only a matter of slight corrections. In a jet, the time it takes to wind up to 100% power may spell the difference between making the field and making the woods. If you start your turn with above 80% power, you are in good shape. If you start from below 80%, you sit there and hope.

These are only fundamentals, but too many pilots are neglecting the fundamentals and dropping high priced airplanes into the trees at the 90° position. Some of the more fortunate ones are still with us and are now firm believers in the gospel. You lads who figure the only way to learn is by experience are absolutely right. But this includes the experience of instructors, senior pilots, and the less fortunate pilots who believed in learning the hard way.

This flying game was pioneered many years ago, and one of the first discoveries was that if you need airspeed to get her off the deck, you need airspeed to get her back on. If you don't think that still holds for modern airplanes, take one up to 20,000 feet and simulate a landing. At least, you won't have to pick yourselves out of the woods or a hole in the ground to learn that the fundamentals are just as sound today as they were 50 years ago.

Dear Grampaw Pettibone:

One might think arthritis or hardening of the arteries would have caught up with you by now. But here's the old Doc who can look back on three solo hops in the N2S and three more in the N3N on floats, still feeling fit and I hope this finds you the same. Regardless of the scores you're pulling on the Schneider now, your columns are as saucy and savvy as they were that day in flight deck control when I laid your latest diatribe aside to watch the Kamikazes.

There's one idea I'd like to have you pass along to the team if you will. The airport atmosphere today reminds me



glad to
hear
that we're
still
cutting
the
MUSTARD!



Gramphaw Pettibone Says:

You said a mouthful, Doc! If there's one thing we need more of in this flying business, it's an appreciation of the Flight Surgeon. He's the lad we all like to call upon to pick the pieces out of a ten foot hole and tell us why it happened.

But how many realize that a lot of those ten foot holes wouldn't exist if the "Doc" could get to the pilots *before* they goofed? He is just as much a part of the accident prevention team as the Safety Officer is: Like the man said, "A team without its star players is strictly second rate."

By the way, Doc, what are they doing for ulcers these days?

MEMO FROM GRAMP:

Going into a spin is like stepping out on your wife. You might get away with it, but if you don't, bub, you're in hot water!

Cause or Effect?

A pilot of an FJ-2 noted a fuel gauge malfunction while on a GCI flight. He was advised by his section leader that they would return to base. A normal pattern entry was made and the flight broke for an approach. The section leader landed on the right side of the runway.

As the wingman approached the 90° position at about 500 feet, his sink rate became excessive. He attempted to check this by elevator control and an increase in power from 75 to 80%. At the 45, the sink rate had not decreased so he added full power. The aircraft continued to settle and munched into the ground about 1800 feet short of the runway on the main landing gear. The right gear collapsed and the aircraft continued on the right wingtip and left gear for about 2000 feet where it stopped near a taxiway. The pilot was uninjured.

He stated, "It is my opinion that this accident could have been avoided by my applying full power more quickly after I noticed the rapid settling of the aircraft in the approach and also through my having a more thorough understanding of the thrust-drag characteristics of this type of swept wing aircraft at slow airspeeds relative to changes in attitude alone."



Gramphaw Pettibone Says:

Thunderin' Thundermugs! Here's another line of thinking that could stand a slight readjustment. More accidents are



prevented or avoided by the pilots' knowing enough not to get into a situation than by taking reflex action *after* a situation develops. In cases where they have the knowledge and still get into trouble, it becomes a matter of lack of application (sloppy flying in some circles). Like the fella said who landed wheels up, "This wouldn't have happened if I had lowered my landing gear."

The question is, why didn't he lower his landing gear? Could it be he didn't know the airplane wasn't going to lower it for him? Or did he just fail to give it any thought at all?

Most accidents are effects of some action taken or not taken. Such things as under-shoots, wheels-up landings, etc., are not actually causes of accidents but *types* of accidents. The type is derived by going from cause to effect. The basic causes go back to the measure of familiarity with equipment, training, and supervision. If we know that accidents occur because of a lack of any or all of the three above, that's where we must concentrate our efforts in preventive action.

Now this lad admitted he was a mite short on understanding of the thrust-drag characteristics of the FJ-2. To me, that is the cause of the accident. He failed to use enough power soon enough to prevent settling into the ground, which is simply the effect of not knowing the thrust-drag characteristics. But having the fact brought home forcibly that he was short on knowledge, not to mention the runway, is a rather expensive way of learning something, and it can be downright fatal.

The most valuable investment in the world is the investment of time. Invest a little in learning all about your airplane and you'll have the causes of accidents whipped. The effects will take care of themselves because you'll know what to do when you have to do it, not after it's too late to be done. The old saying, "better late than never" can fit a lot of situations, but it doesn't stop many landing accidents.

of the stories they used to tell about why they pinned wings on the flight surgeon. Seems as how the early cloud busters considered themselves a new branch on Darwin's tree, and no earth-bound sawbone could tell *them* when they shouldn't fly or things they couldn't get away with while defying gravity. So the doctor got checked out in the flying business and the awesome aviator began to learn some *physiology* ("the organic processes and phenomena, collectively, of an organism or any of its parts; as, the *physiology* of the jellyfish or of the thyroid gland"—Webster).

Now the talk's of tail pipes, swept wings, boundary layer control, and such. Once again, old sawbones "jest don't understand." Well, I wish you would let the boys know that the doc has some answers. In jenny or jet, they're the same old arteries, glands and brain cells. Any really hot naval aviator will agree that it takes brains to saddle up the new stove pipes. And bringing 'em back alive requires that the pilot know as much about himself and his physiological gear as he does about all those buttons on the dashboard and aerodynamics. Send 'em around to see me!

Your faithful servant,
Surg

