

GRAMPAW PETTIBONE

Dive Bombing Technique

On his third dive the pilot of an SB2C-3 commenced his recovery at normal altitude, but pulled out rapidly in a steep turn. Structural failure in the right wing occurred during this maneuver, causing the plane to crash.

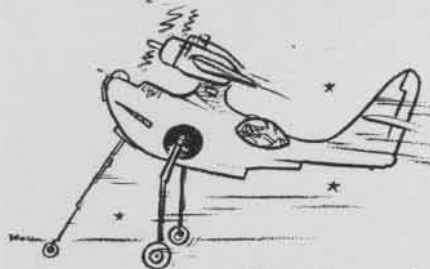
During their inquiry into the accident, the investigating board found that "the pilot had made it a habit to wrap up his plane while coming out of a dive in order to observe his own drop." It was believed that the pilot did the same thing on his last dive and that the application of rudder and aileron at high "g" caused the failure.

► **Comment**—The practice of observing your own drops in dive bombing is dangerous because of the following possibilities: a. pilot black-out, b. high speed stall due to acceleration, and c. overstressing the aircraft. With reference to c, the use of ailerons in dive pull-outs sets up heavy local stresses which may cause wing failure.

It is realized that in order to get the proper benefit from dive bombing practice, a pilot must know where his bombs land, but it is pointed out that this can be accomplished more safely by other means than having the pilot observe his own drops. In any event, remember that high "g's" and large aileron deflections together invite disaster.

Haste And Waste

After using a large portion of the runway on a night take-off, a PB4Y-1 attained the speed of 110 miles an hour.



Believing the plane safely airborne, the pilot retracted the wheels. A moment later the aircraft settled back on the runway and skidded 1,100 feet to a stop. The plane was destroyed; the engines had to be sent to major overhaul. The crew was uninjured.

The Commanding Officer said, "Orders have been issued directing that the landing gear shall not be raised on take-off until the aircraft has reached at least 100 feet altitude."



Grampaw Pettibone says:
That platform gets my vote.



Flight Safety Bulletin 3-44 also applies.

Anti-Doping-Off Lists

Upon touching down for a normal landing on a hard surface runway, the wheels of a PB4Y were found to be locked. The starboard tire blew out and the port tire was damaged beyond repair. Only by hard application of brakes was the pilot able to keep the airplane from swerving off the runway where it would have been severely damaged.

Upon thorough inspection of the airplane, no malfunctioning of the brake system could be found; the brakes operated satisfactorily during repeated tests. In the opinion of the trouble board the plane was landed with the parking brakes on.

The co said: "This accident appears to be a direct result of doping off by both pilots. Evidently, the first pilot absent-mindedly engaged the parking brake lever when testing the brakes prior to landing. This accident again demonstrates the necessity for using the same procedure in the cockpit of a multi-engined aircraft that is used on the bridge of a ship."

► **Comment** — As the size and complexity of aircraft continue to increase, take-off and landing check-off lists must, of necessity, become more complete. These are, in effect, anti-doping-off lists.

Where certain functions are performed by crew members, it is imperative when commands are given that standard signals be employed and that commands be repeated back or acknowledged, to avoid mistakes. See Flight Safety Bulletin 19-44.

A Circular Letter on standard signals and commands is in preparation.

Brakes! Brakes!

While taxiing slowly out to the take-off position, a PBJ pilot noticed his brakes were a bit weak. He then decided to taxi very slowly so he could stop quickly in case of an emergency. A few seconds later, while trying to turn onto another taxi-way, the brakes failed completely. Before the co-pilot could apply the emergency air brakes, the plane collided with two parked aircraft, doing extensive damage.

The accident investigating board said: "Accidents of this nature can be avoided by more completely indoctrinating pilots with emergency procedures and by demanding a more intensive check of the airplane by the pilot prior to his acceptance of the aircraft. In addition, line crews must be more thoroughly instructed as to what constitutes a complete pre-flight check. In this instance, lack of sufficient hydraulic fluid is believed to have been one of the major causes of the accident. This condition was not detected by either the line crew or the pilot in their respective checks of the aircraft."

Slipstream Sense

While taxiing to the take-off position, an OS2U pilot needlessly exposed his plane to the slipstream of a TBF taking off. Then, instead of allowing his plane to weathercock into the TBF's slipstream, the OS2U pilot applied throttle and opposite brake, turning his plane



so that the TBF's slipstream got under the OS2U's tail, nosing it over.

► **Lessons to learn from this accident:**

1. Heads up! Be careful to avoid slipstreams both on the ground and in the air. Before turning up your engine consider the other fellow. Look behind you to see that the way is clear.
2. If you should happen to get caught in a powerful slipstream while taxiing, cut the throttle and allow your plane to weathercock with minimum use of brakes. Don't attempt to resume taxiing until the slipstream has dissipated sufficiently so that you are certain of maintaining control of your plane.



Miraculous lift of jet propulsion is shown by this Mariner, virtually leaping into the air from a Pacific island harbor. Aviation Training Division photographer caught this action.

GRAMPAW'S SAFETY QUIZ



All aviators should know the answers to these questions. In the air, the penalty for not knowing may prove fatal. If you miss an answer on the ground, penalize yourself by looking up the reference.

1. Is flying speed alone a guarantee against stalling?
2. What is the recommended method for leaving the cockpit when bailing out?
3. What is the maximum time for which an instrument card is good without further practice?
4. With the exception of authorized formation flying, what is the minimum distance aircraft must keep from each other in flight?
5. Use of a dye sea marker is most effective when searching aircraft fly above what altitude?

Answers to Quiz on Page 40

Attention Tow Pilots

An F6F-3 was making a low approach over the field to drop a target sleeve. The pilot apparently had difficulty in releasing the sleeve and pulled up into a steep climbing turn. The airplane stalled and spun to the ground from about 400 feet.

In the opinion of the commanding officer who investigated the crash:

1. The pilot unconsciously applied back pressure on the stick with his left hand while trying to release the tow with his right hand. The combination of climb and drag of sleeve caused an early loss of flying speed.
2. Also, it was found after careful observation and experiment with another F6F, that should the plane with target in tow be placed in a sudden climbing turn, the tow line will be forced against the horizontal stabilizer causing an up pressure on the elevator. This may very well accelerate a stall.

▶ **Comment**—In practically all airplanes rigged for target towing it is possible to obtain interference between the tow line and elevator under conditions of a steep climbing turn.

Stall and spin crashes while towing target sleeves are much too frequent. Most of them are caused by pulling up into too steep a climb immediately after take-off, in an effort to keep the sleeve from being damaged by dragging on the ground.

Naturally, it is necessary that targets stream properly, but it is more important that pilots and planes are not expended

in towing missions. Commanding officers should insure that all pilots detailed to this duty are thoroughly aware of the increased danger of stalling when flying with a target in tow.

Another Safety Convert

The following excerpts are taken from a fighter pilot's account of a dive bombing mission over Palau:

"I first noticed that my electrical system was out just before entering my dive at 10,000 feet. . . . I pulled out as sharply as I could, hoping the bomb would come off, but it didn't. On the way back to the ship, I tried to shake it off by every possible means, but couldn't. . . . My tail hook wouldn't drop with my electrical system out and I couldn't work it manually either. So there I was—my bomb sticking to me like a leech; no hook; no radio.

"I circled the ship while the rest of the flight landed. Finally I got a blinker signal to climb 5,000 feet ahead of the formation and bail out. I sure sweated it out for the next few minutes, making sure my chute and harness were in good order and trying to dump my hood. . . . Damn, even the hood wouldn't release! . . . I rolled the plane over at 160 knots, swallowed a half dozen times, and pulled my safety belt.

"I was held up for a second by my chute catching the edge of the greenhouse, but I gave a hell of a kick and was in the clear. I don't remember counting (al-



though I remembered that I should) before I pulled my rip-cord, heard a snap, and looked up to see the chute and shrouds spiralling up by me. I waited for the coming jerk. I got it all right, but it wasn't like the book said! I was jerked by my feet! First thing I knew, I was looking up at the water, and down at the chute. My harness had somehow slipped off my shoulders and miraculously managed to catch around my ankles and feet. (Thank God they're big!) It all happened so fast that even now I can't say for sure just what did happen.

"At any rate, I finally managed to pull myself up and grab the harness. . . . I hit the water 'stern to.' . . . A no picked me up ten minutes later, with nothing worse having happened to me than a twisted left knee and a few strap burns.



▶ "I strongly urge that all pilots check their chute harness for size, and that they get together and figure out the best way to get out of a plane—at what speed and so on. Manual tail-hook releases should be checked before every carrier take-off, and hoods carefully inspected to see that they are in working order."



Grampaw Pettibone says:

Right you are, son! That's what I've been trying to get across, lo, these many moons!

Funny how hard it is to get aviators interested in their own safety. It often takes an experience like this to do it.

Mid-air Confusion

Three two-plane sections of relatively inexperienced torpedo plane pilots were on a formation tactics flight. While flying in Vee, the leader ordered by radio, "Assume defensive formation." This maneuver had not been discussed and the order was not understood by either of the other two section leaders.

The second section leader asked for a "repeat" on the signal. He then noted that the third section *seemed* to be dropping back and therefore *assumed* that the signal meant he was to form right echelon between the first and third sections. While the second section was being maneuvered into this restricted position, the wingman had a fatal collision with the leader of the third.

▶ **Comment**—Both poor planning and a serious error of judgment were involved in this accident. The basic cause was failure of the flight leader to insure that his inexperienced personnel were familiar with all maneuvers to be attempted. Had this been done in the pre-flight briefing, the confusion which led to the accident would have been avoided.

The immediate cause of this accident was a serious error of judgment on the part of the second section leader. His initial request for a "repeat" was correct, but he should have been more persistent. He should not have executed a maneuver he did not understand.

Administrative Reports

Despite considerable literature on the subject, some units are still confused regarding the wheres and whyfors of boards of investigation and administrative reports.

An interpretation on this subject as regards aviation casualties appears in Aviation Circular Letter 11-42. Later and more complete instructions have just been issued by the Judge Advocate General which will be found on page 15 of the Navy Department (semi-monthly) Bulletin of 30 Sept., 1944.

Careful study of these instructions should answer questions on the subject.

It is pointed out that the above reports are *in addition* to and do not replace Despatches and Aircraft Accident Reports required by other directives.