

## Chapter 12

# FRAME YOUR DECISIONS

*In the land of the blind, the  
one-eyed man is king.*

DESIDERIUS ERASMUS

**O**N OCTOBER 30, 1935, BOEING'S NEW four-engine bomber began its demonstration flight at Wilbur Wright Field. The A299 was favored to become the Army Air Force's next generation long range bomber. The plane rolled powerfully down the runway, took off, and climbed rapidly. Then it stalled, fell to the earth, and exploded.

The cause was an error by the pilot, the chief of flight testing. While seeing to the large number of takeoff procedures required by this advanced airplane, neither he nor his copilot remembered to unlock the rudder controls. Human judgment is unreliable. It can fail at crucial times.

The A299 outstripped the ability of pilots to execute required procedures in proper order. After the crash, it was

considered too complicated to fly safely. The contract went to the Douglas DB-1, which later proved unsatisfactory for combat operations.

Boeing's airplane was so much better, however, that a loophole in contracting specifications was used to equip one squadron. The Air Force named it the B-17. A reporter called it the Flying Fortress.

B-17s eventually flew thousands of precision-bombing attacks on German military-industrial capacity during World War II. The plane achieved iconic status for allowing American crews to complete missions despite sustaining heavy damage from enemy anti-aircraft and fighters.

How did the risky A299 become the dependable B-17? Because the airplane was *not* too complicated to fly safely. It was too complicated to fly safely without help. There were too many things to remember.

B-17 pilots needed visible reference points. They needed a written checklist so they could *see* all the procedures for flying the plane. By March of 1944, the checklist looked like the one opposite this page.

Checklists are now part of standard operating procedure for flying any aircraft.



*You have a mission every day:* to do what needs to be done. You have work and family obligations. You have an obligation to yourself, to become more than you are now. There are distractions. Like B-17 pilots, your memory is unreliable. In addition, you lack an instrument panel and a copilot. Make a checklist.

**APPROVED B-17F and G CHECKLIST**

REVISED 3-1-44

PILOT'S DUTIES IN RED  
 COPILOT'S DUTIES IN BLACK

**BEFORE STARTING**

1. Pilot's Preflight—COMPLETE
2. Form 1A—CHECKED
3. Controls and Seats—CHECKED
4. Fuel Transfer Valves & Switch—OFF
5. Intercoolers—Cold
6. Gyros—UNCAGED
7. Fuel Shut-off Switches—OPEN
8. Gear Switch—NEUTRAL
9. Cowl Flaps—Open Right—  
OPEN LEFT—Locked
10. Turbos—OFF
11. Idle cut-off—CHECKED
12. Throttles—CLOSED
13. High RPM—CHECKED
14. Autopilot—OFF
15. De-icers and Anti-icers, Wing and  
Prop—OFF
16. Cabin Heat—OFF
17. Generators—OFF

**STARTING ENGINES**

1. Fire Guard and Call Clear—LEFT Right
2. Master Switch—ON
3. Battery switches and inverters—ON &  
CHECKED
4. Parking Brakes—Hydraulic Check—On-  
CHECKED
5. Booster Pumps—Pressure—ON &  
CHECKED
6. Carburetor Filters—Open
7. Fuel Quantity—Gallons per tank
8. Start Engines: both magnetos on  
after one revolution
9. Flight Indicator & Vacuum Pressures  
CHECKED
10. Radio—On
11. Check Instruments—CHECKED
12. Crew Report
13. Radio Call & Altimeter—SET

**ENGINE RUN-UP**

1. Brakes—Locked
2. Trim Tabs—SET
3. Exercise Turbos and Props
4. Check Generators—CHECKED & OFF
5. Run up Engines

**BEFORE TAKEOFF**

1. Tailwheel—Locked
2. Gyro—Set
3. Generators—ON

**AFTER TAKEOFF**

1. Wheel—PILOT'S SIGNAL
2. Power Reduction
3. Cowl Flaps
4. Wheel Check—OK right—OK LEFT

**BEFORE LANDING**

1. Radio Call, Altimeter—SET
  2. Crew Positions—OK
  3. Autopilot—OFF
  4. Booster Pumps—On
  5. Mixture Controls—AUTO-RICH
  6. Intercooler—Set
  7. Carburetor Filters—Open
  8. Wing De-icers—Off
  9. Landing Gear
    - a. Visual—Down Right—DOWN LEFT  
Tailwheel Down, Antenna in, Ball  
Turret Checked
    - b. Light—OK
    - c. Switch Off—Neutral
  10. Hydraulic Pressure—OK Valve closed
  11. RPM 2100—Set
  12. Turbos—Set
  13. Flaps  $\frac{1}{2}$ — $\frac{1}{2}$  Down
- FINAL APPROACH**
14. Flaps—PILOT'S SIGNAL
  15. RPM 2200—PILOT'S SIGNAL