

Airplanes



Airplane Timeline

- 1901 First Successful Flying model using internal combustion engine
 - Samuel Langley
- 1903 First sustained powered flight
 - Wright Brothers
- 1904 Concept of fixed boundary layer
 - Ludwig Prandtl



Airplane Timeline

- 1910 First takeoff from a ship
- 1914 Automatic gyrostabilizer leads to first automatic pilot
- 1915 National Advisory Committee for Aeronautics

Airplane Timeline

- 1917 Junkers J4, all metal airplane
- 1918 Airmail service started
- 1919 Navy aviators cross North Atlantic
- 1919 Passenger service across English Channel



Airplane Timeline

- 1927 Charles Lindbergh first solo nonstop crossing of the Atlantic (NY to Paris)
- 1928 First electromechanical flight simulator
- 1922 Douglas introduces 12 passenger DC-1



Airplane Timeline

- 1933 Boeing introduces the 247, first commercial airliner
- 1935 First radar
- 1935 Trans pacific mail service
- 1937 Jet engine designed



Airplane Timeline



RADIO SET AN/MRN-1 TOTAL WEIGHT 16,900 LBS.



- 1939-1945 WWII spurs innovation



Airplane Timeline

- 1947 Sound barrier broken
- 1949 First commercial jet aircraft, Comet
- 1952 Discovery of the area rule, Richard Whitcomb
- 1963 First small jets enter mass production, Learjet



Airplane Timeline

- 1969 Boeing 747
- 1976 Concorde SST
- 1986 Voyager, Dec 23



Airplane Timeline

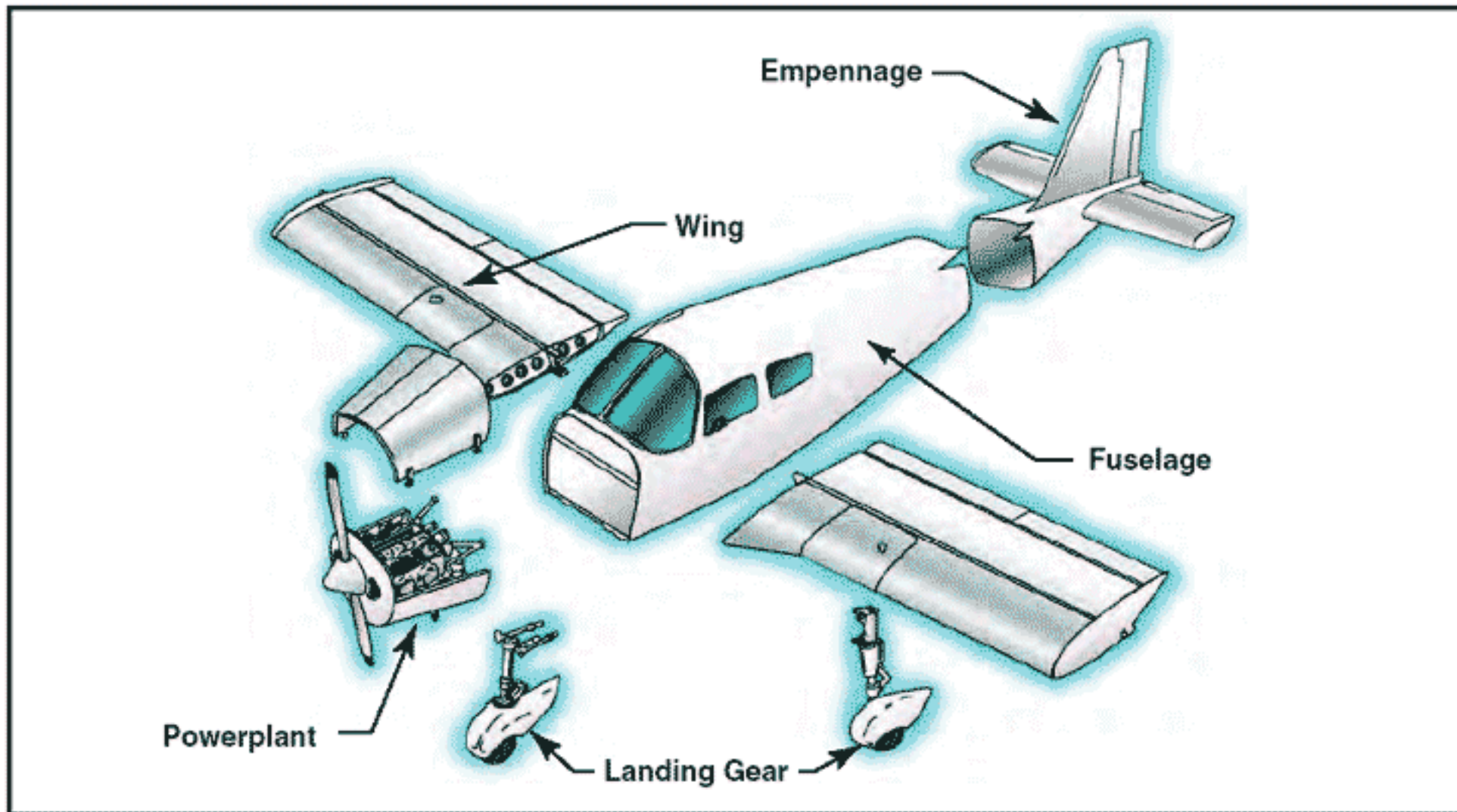
- 1990 B2 Bomber Developed
- 1995 777 Developed through computer aided design
- 2003 100 years of powered Flight







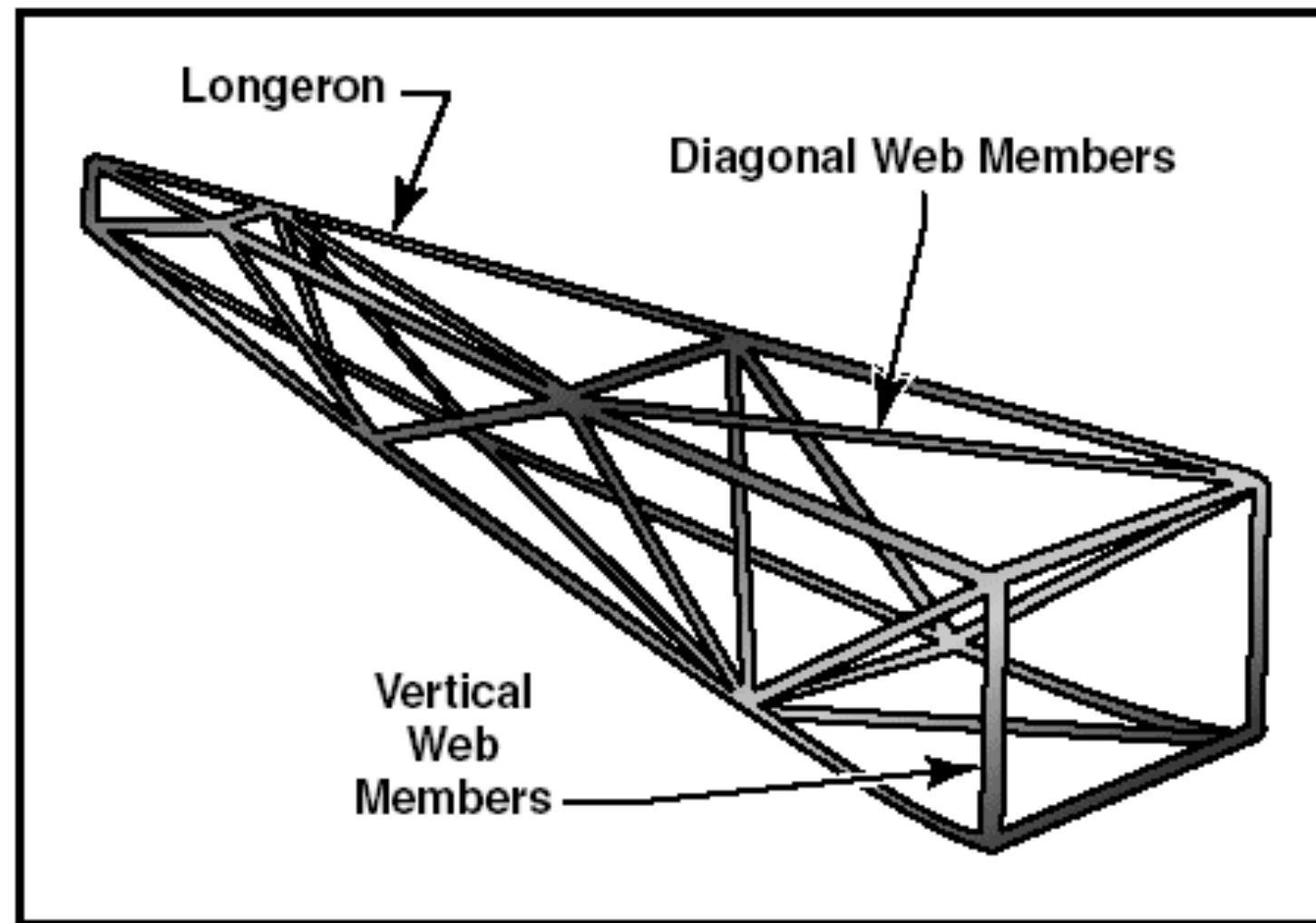
Parts of an Airplane



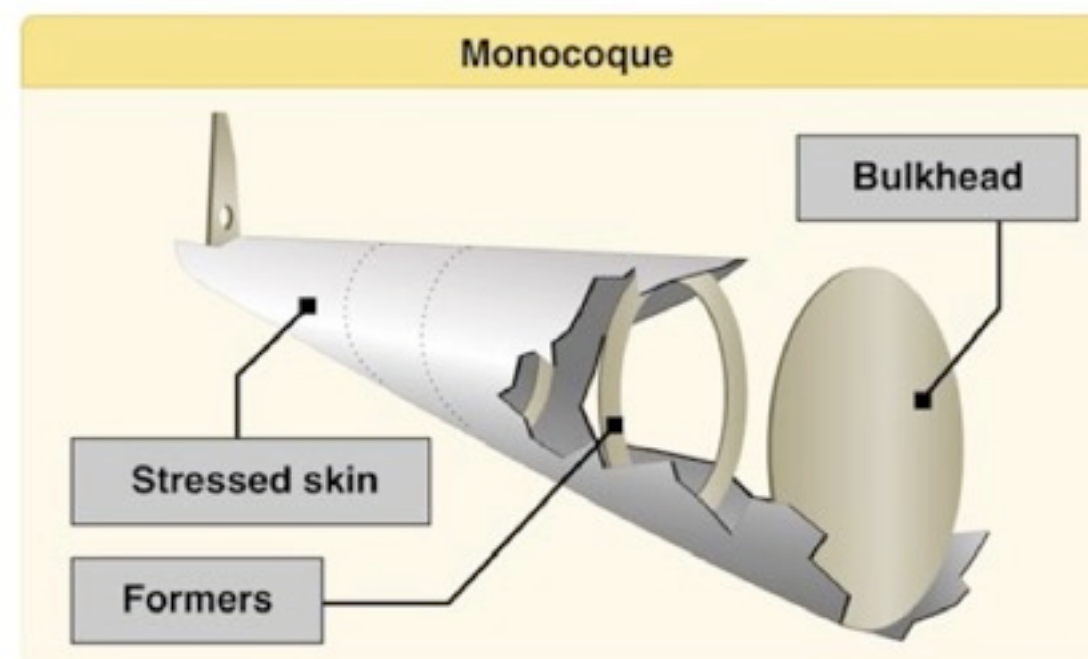
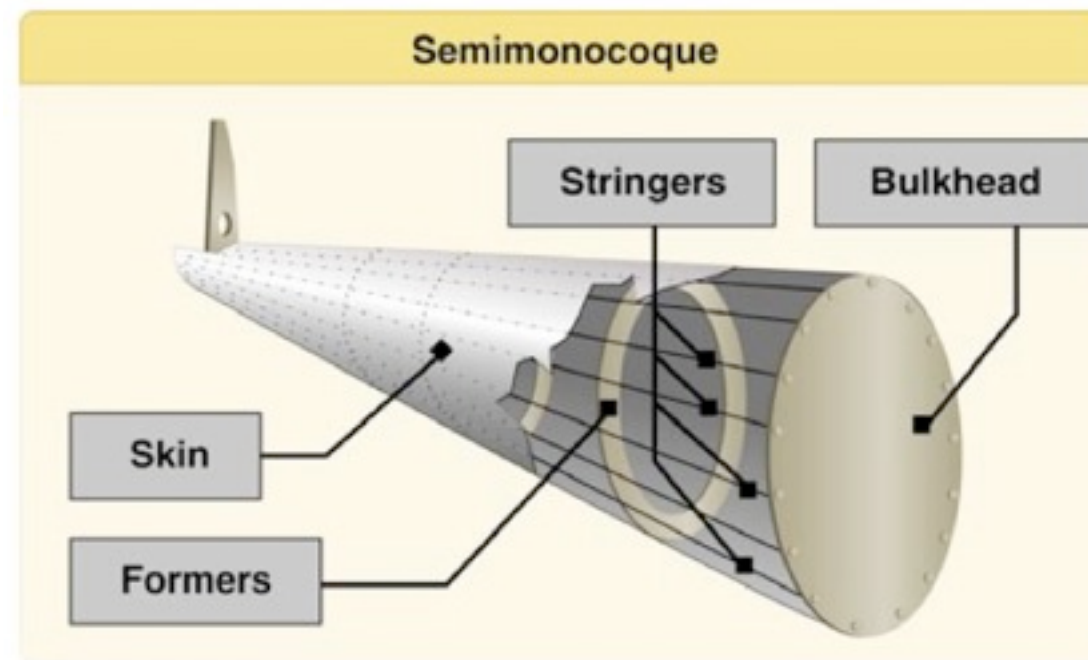
The Fuselage

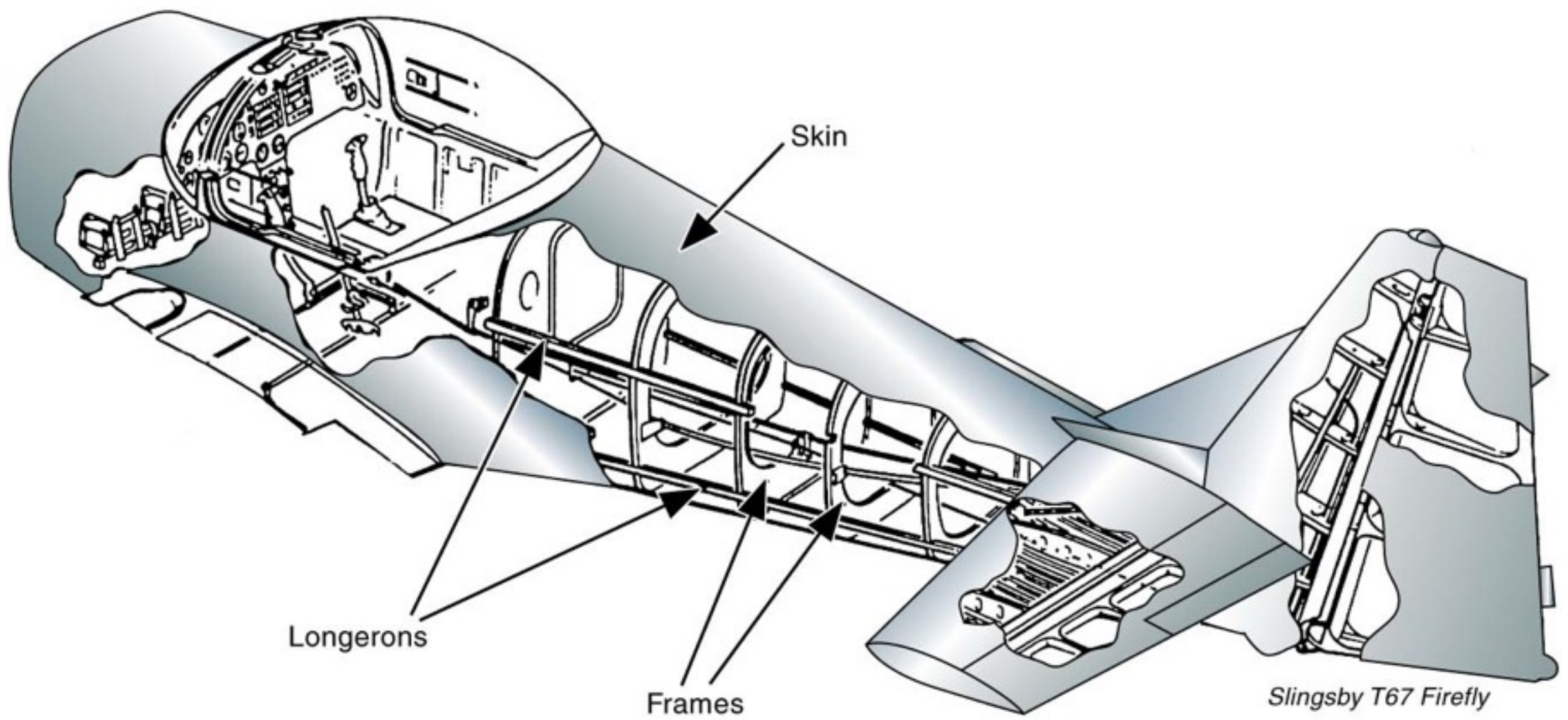


Truss Type Construction



Construction Techniques



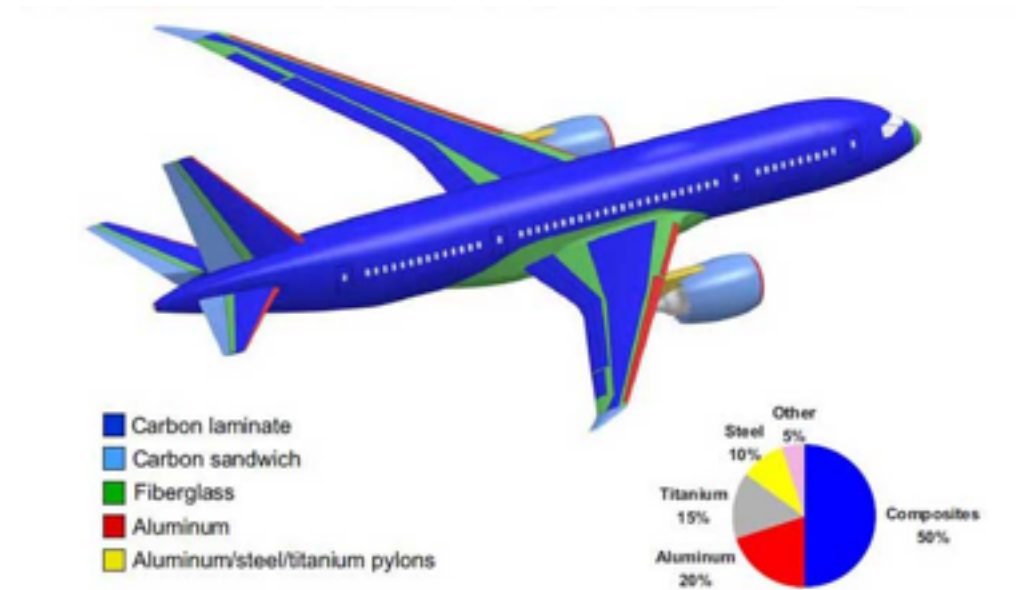


Composite

- Light Weight
- Carbon Fiber
- Aerodynamic
- Proof of Damage

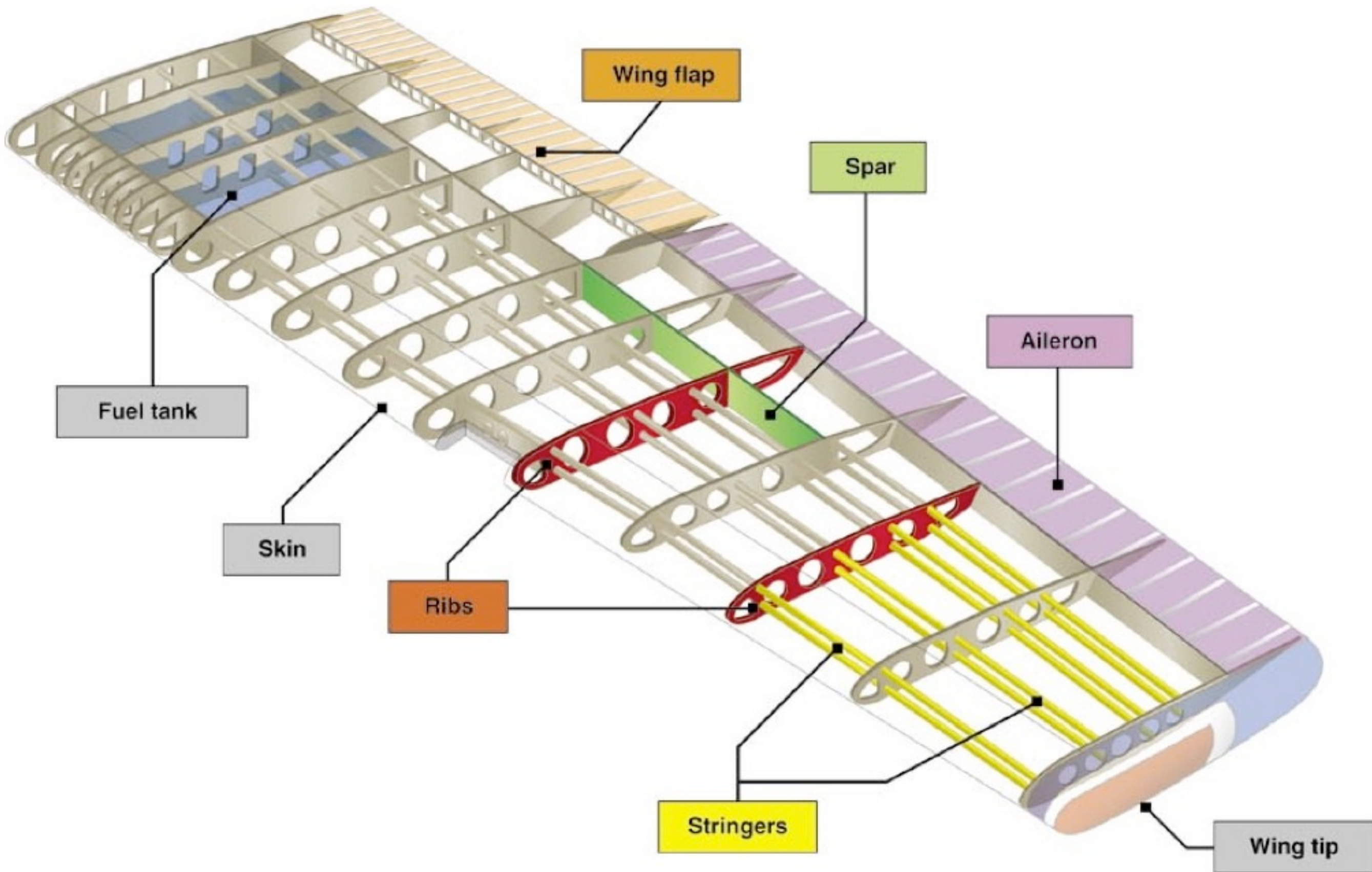


Advanced Composites



Wings

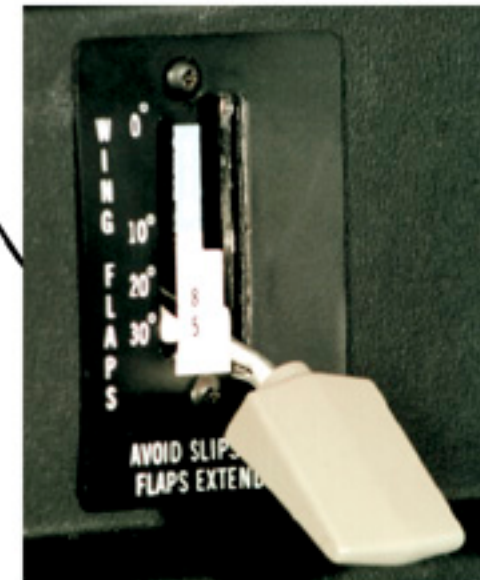




Flap



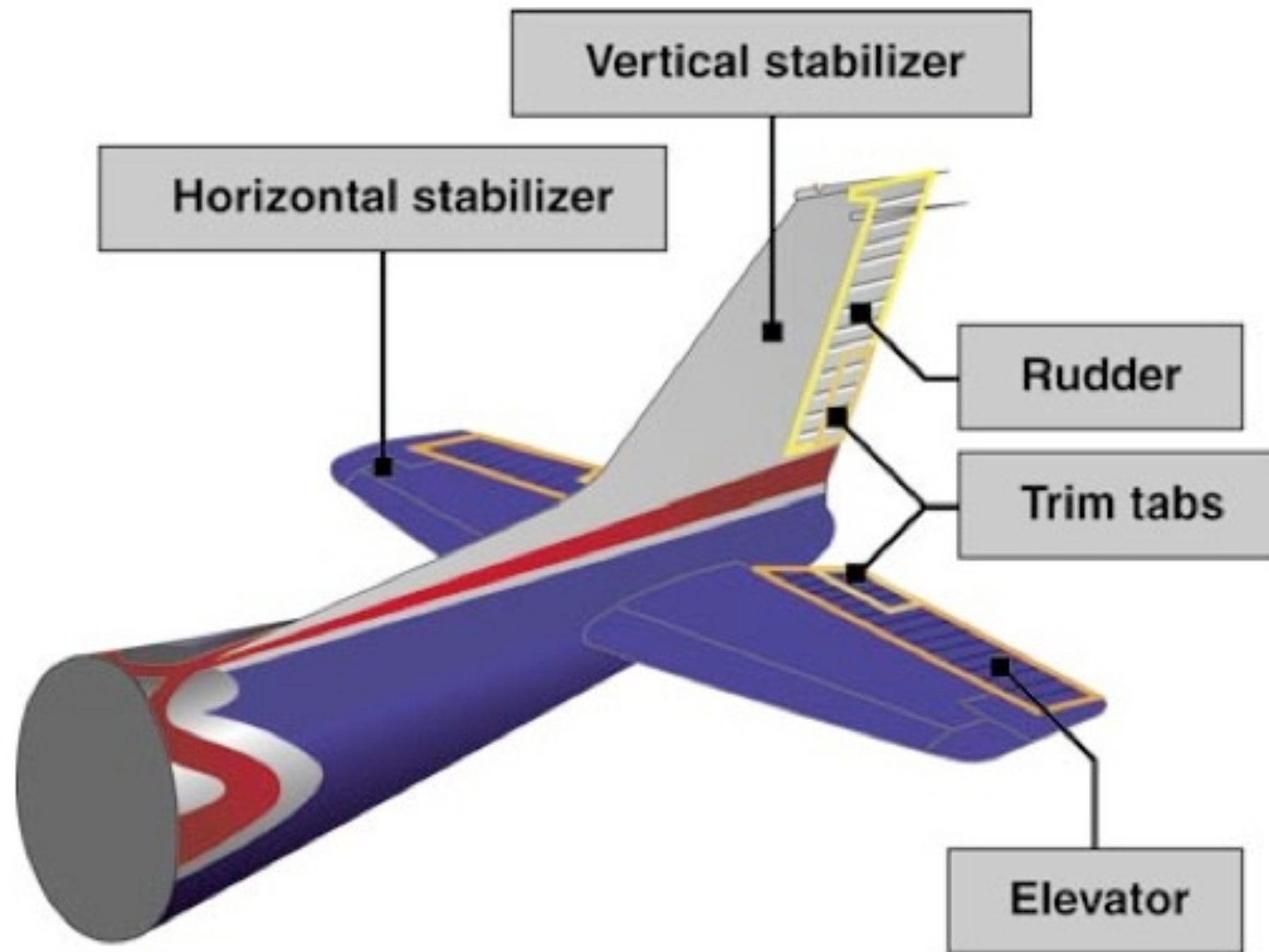
Aileron

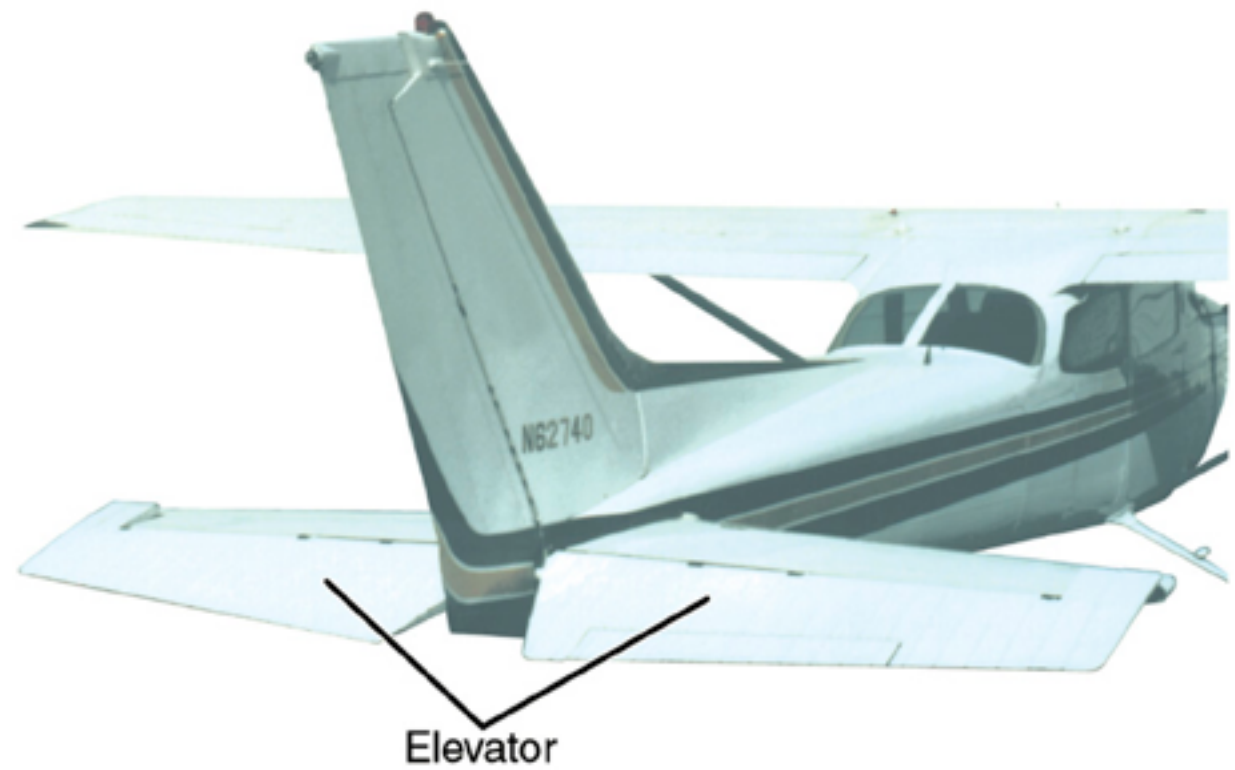




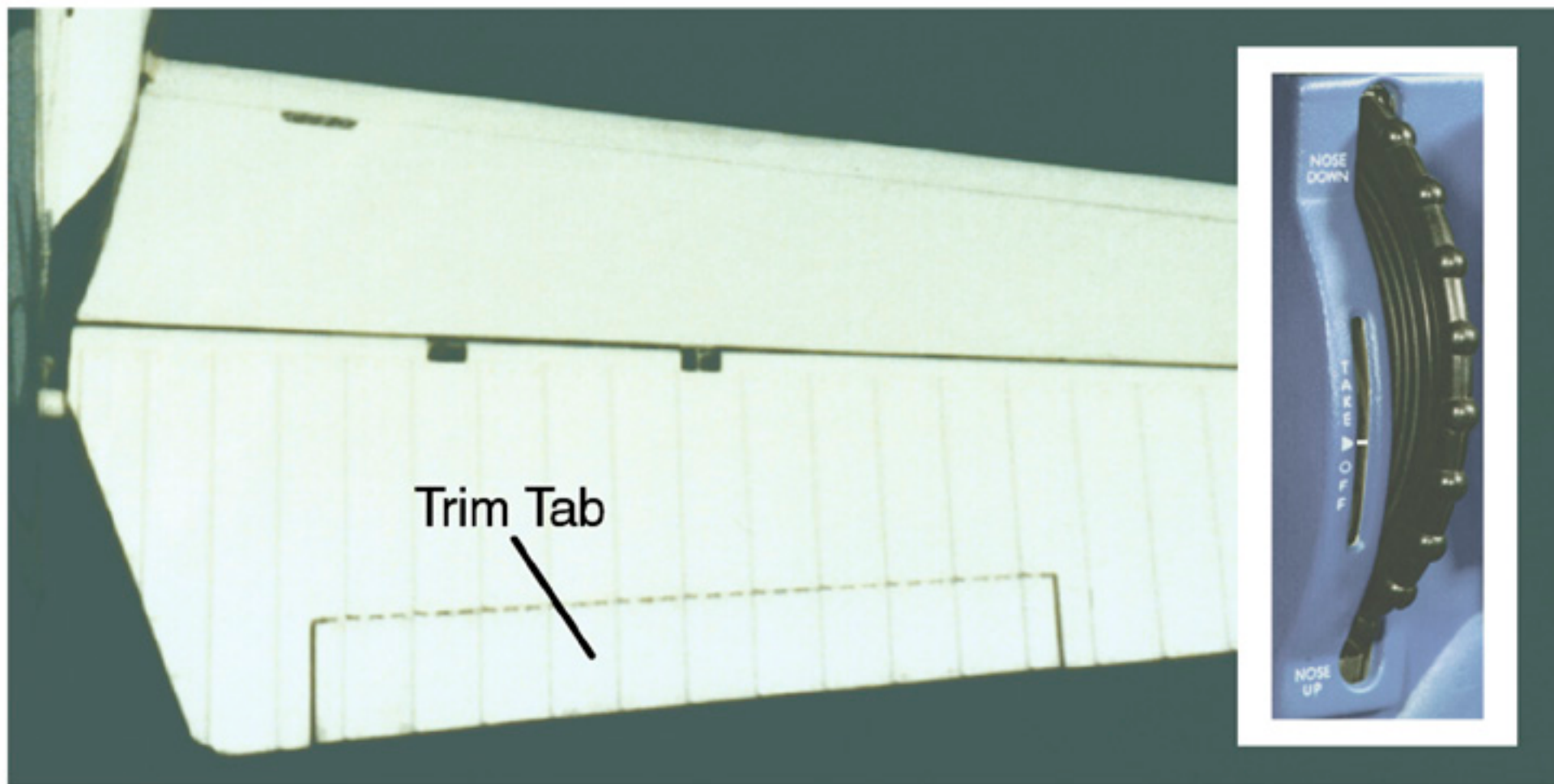
The Empennage







Trim Devices



Landing Gear



Fixed/Conventional



Retractable

Extreme Landing Gear



© Adam Kirk Photography

More Landing Gear

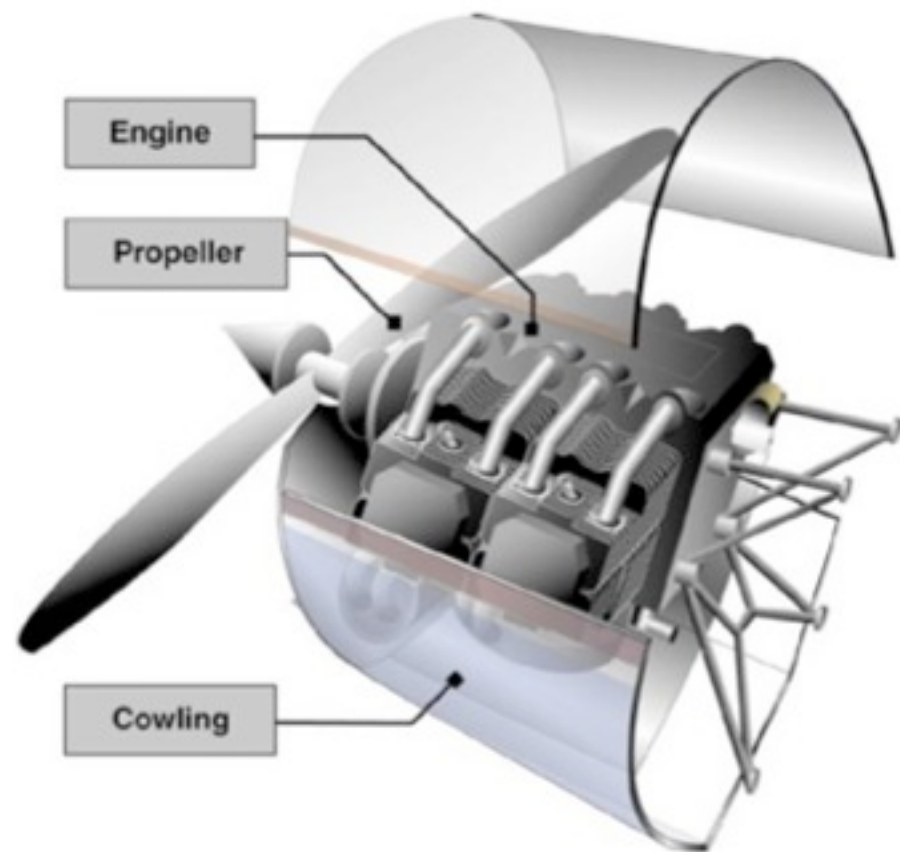


Floats



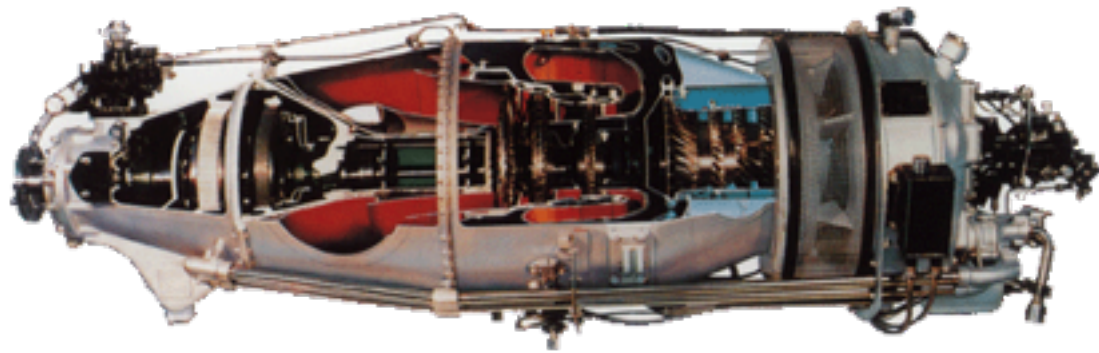
Skis

Powerplant (Engine)



Reciprocating Engine

More Powerplants



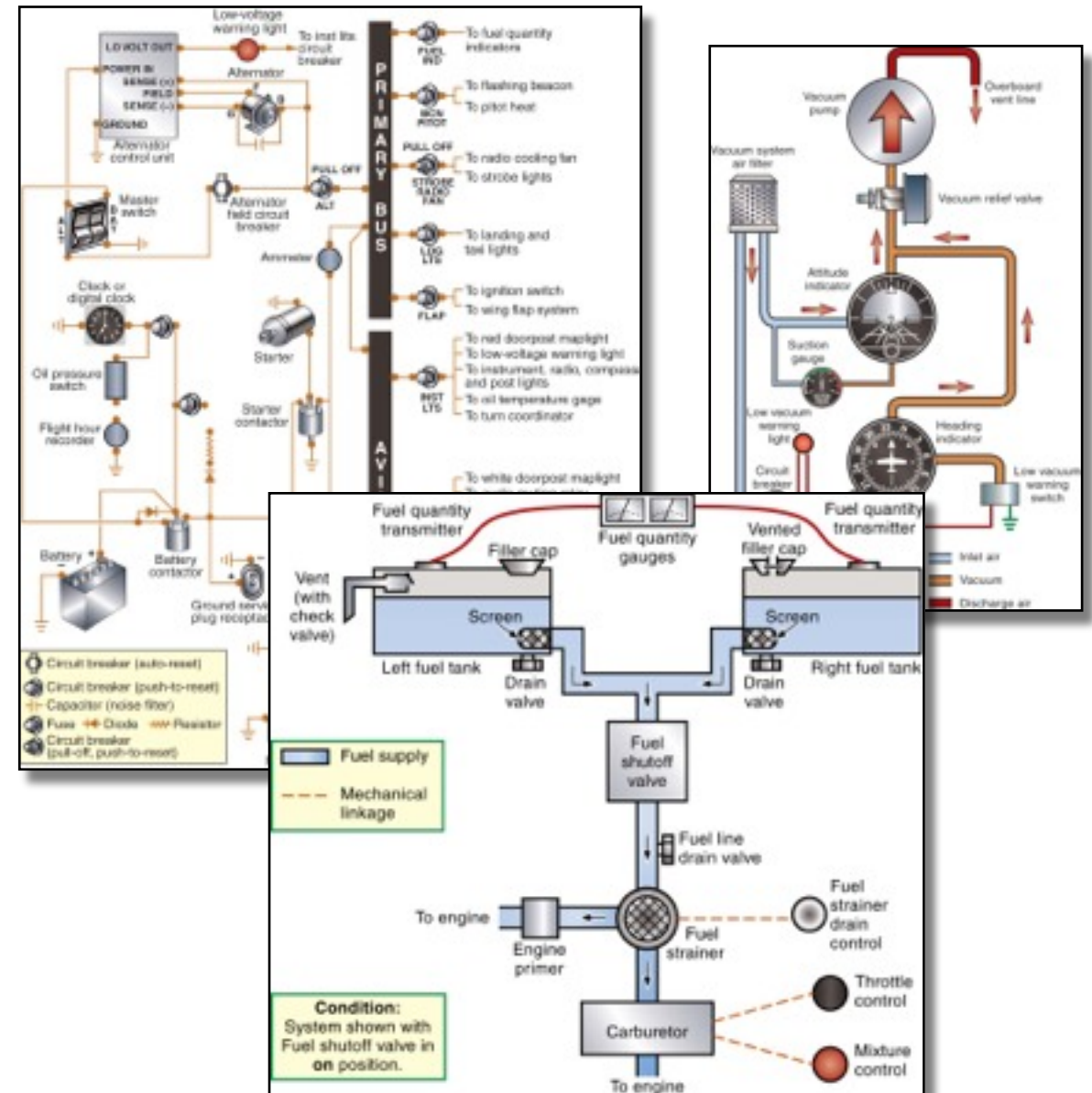
PT6



Turbine Engine

Aircraft Systems

- Flight Controls
- Electrical System
- Fuel System
- Vacuum System



Cockpit



Controls and Instruments

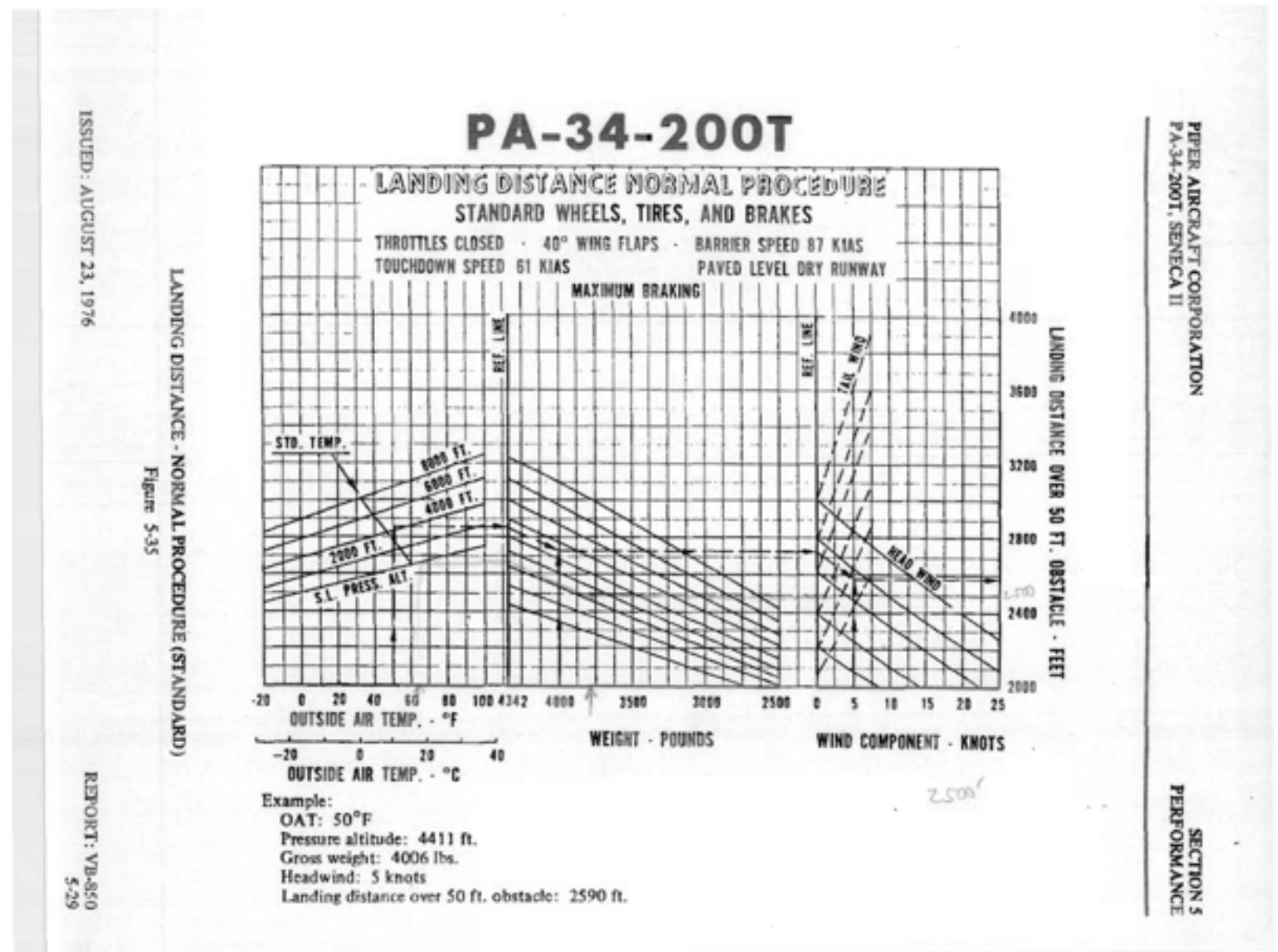
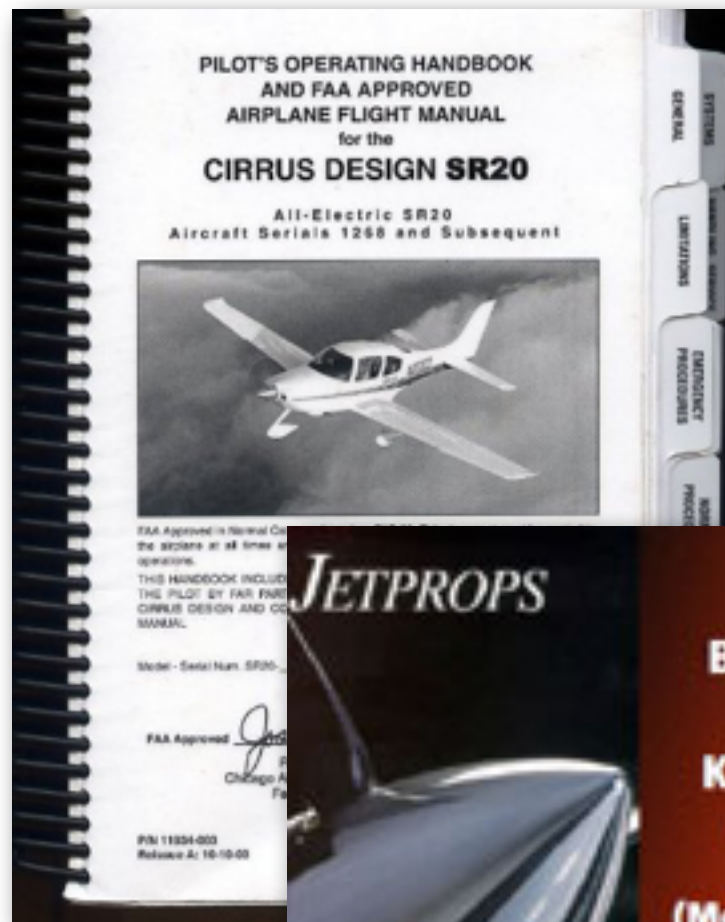


Instruments



Advanced Instruments

Pilot Operating Handbook (POH)



Review

- Fuselage
- Wings
- Empennage
- Landing Gear
- Cockpit
- Instruments



