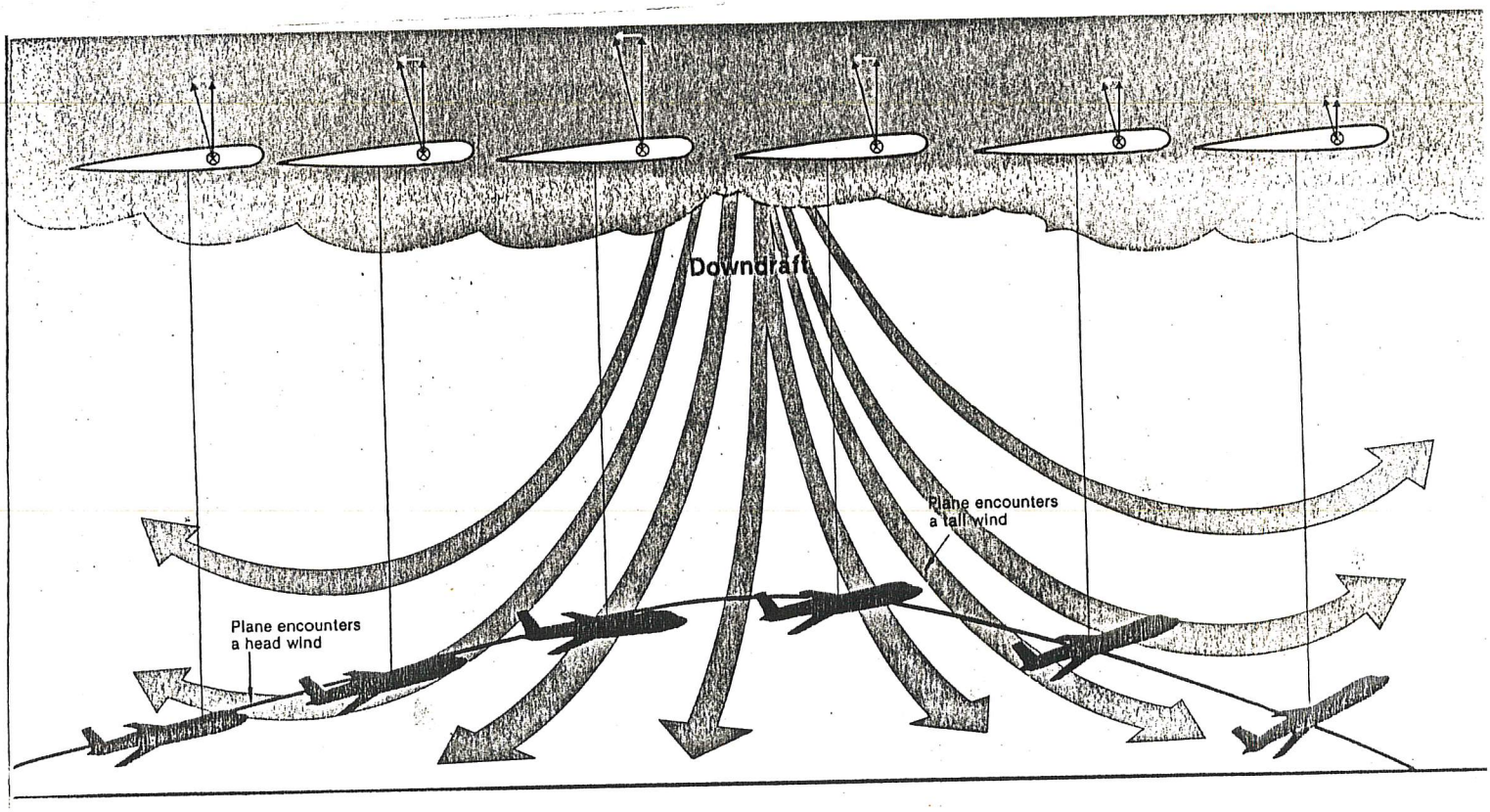
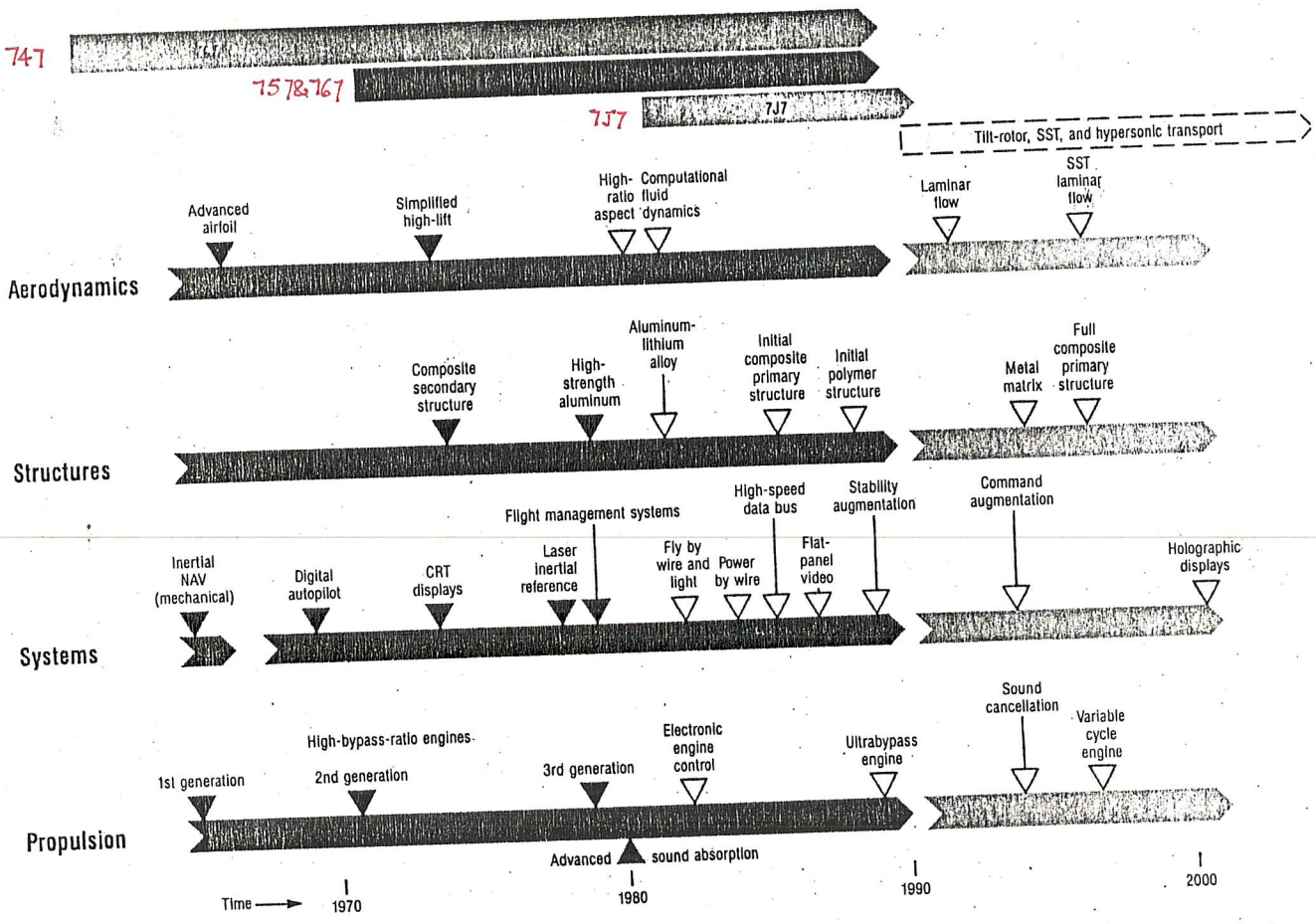
[1] The down-rushing air of a microburst fans out in all directions near the ground. An airplane flying into this outflow first encounters an increasing head wind, which boosts the speed of the air rushing over the plane's wings (the airspeed). This increases the lift force [red vectors] acting on the wings. However, as the plane continues through the microburst, it is buffeted by a strong down-draft and ultimately deprived of lift by a tail wind that reduces the airspeed and lift. The drag acting on the wings [white arrows] is also affected by the changes in airspeed, but the effect is not as severe as the loss of lift.





[1] The evolution of new technologies produces continuous advances in aerodynamics, structures, flight systems, and propulsion systems. Shown here are milestones in aircraft design—the dates when the advances became available for evaluation, and the anticipated time frames for future technological advances. The milestones were identified by Ardell J. Anderson, director of new product development at Boeing Commercial Airplane Co., of Seattle, Wash.