WINDSHEAR DETECTION AND GUIDANCE SYSTEMS

Windshear is a potentially hazardous local meteorological phenomenon which may affect aircraft particularly in landing or take off. Aircraft are being fitted with sensor equipment, which interfaces with the display and flight control systems, to alert the pilot to the direction and magnitude of windshear.

Honeywell (left) and Sundstrand (right) windshear systems

- **Honeywell (left)**: Windshear detection and recovery guidance system
- **Sundstrand (right)**: Mark VII warning computer

- **Honeywell SPERRY**: Windshear detection and recovery guidance system
- **Sundstrand**: Mark VII warning computer

- **Rosemount**: Angle of attack systems (various models)
  - Operating as a moving vane aligning itself to the local airflow, the angular position is measured to indicate windshear.
  - A windshear guidance display computer with an optical. Forms part of Sextant’s FCC flight control computer and acts as a take-off aid by windshield projection.

- **Sextant Avionique**: Windshear guidance display
  - Offers windshear detection and warning guidance, plus ground proximity warning.

- **Fokker 100, BAE 146-300, MD-80, DC-8, DC-9, DC-10, L-1011, 727**
  - Offers “pin-programmable” options to operators. Recently certificated on MD-80, this system is fully integrated with other automatic systems (digital flight guidance, autotrottle) and fully compatible with autopilot, so that entire process of detection, alert and guidance can be automatic.

FLIGHT MANAGEMENT SYSTEMS

The flight management system is the prime interface between the crew and the aircraft and is the key to economical flying from the take-off to landing. Before beginning the flight, the pilot feeds in the flightplan—details such as fuel, distance, load and estimated time of arrival—and the system interfaces with the navigation sensors to guide the aircraft against these parameters to achieve greater economy of fuel consumption, flight-time and aircrew workload. The main functions of the system include flight planning.

Honeywell (left) and Global GNS-x (right) flight managers

- **Bendix/King**: KNS 660 flight management system
- **Global Wulfberg Systems**: GNS 500A Series 5 long-range navigation system
- **GNS-X navigation management system**: A multi-sensor system which blends VOR/DME/DME, VLF/Omega, Loran C, GPS and inertial, or best computed position. Stores 256 pilot-defined waypoints, with 52,000-waypoint database.

- **Bendix/King**: Offers multi-sensor system, using VOR, DME, GPS Loran, TACAN and Omega/VLF. Stores up to 400 flightplans and 3,000 waypoints. Worldwide database updated via diskette.

- **Global Wulfberg Systems**: Multi-sensor, long range, blending navigation systems for the best-computed position. Forms part of the GNS Series 5 control and display unit (CDU). This series is also compatible with Global Wulfberg airborne flight information system which enables ground to airborne fax communication.

- **Bae 146, DC-8 F.28, Fokker 50, 737, 727, 707**
  - Multi-sensor system, using VOR, DME, GPS Loran, TACAN and Omega/VLF. Stores up to 400 flightplans and 3,000 waypoints. Worldwide database updated via diskette.

- **Bae 146 and F.28**
  - A multi-sensor system which blends VOR/DME/DME, VLF/Omega, Loran C, GPS and inertial, or best computed position. Stores 256 pilot-defined waypoints, with 52,000-waypoint database.