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WEIGHING & MEASUREMENTS

Emery
Winslow
SCALE CO.

Aircraft Weighing System Provide Accurate Weight Data for Boeing



This aircraft weigh system was engineered and manufactured by Emery Winslow Scale Company for Boeing and installed in their new Aircraft Painting Facility in Everett, Wash.

Randy Sauvageau, a decorative painter at Boeing Commercial Airplane Group's Everett site, applies enamel to All Nippon Airweigh's 747-400 Domestic jetliner with the whale paint scheme. Designed by a 12-year old schoolgirl in Japan, ANA's Marine Jumbo, commemorates its 500 millionth passenger. Altogether, the whale sports 500 gallons of paint on 25,000 square feet of airplane surface. Note the nose wheel setting on the Emery Winslow scale platform. -- Photo courtesy of Boeing Commercial Airplane Group.

The Emery Winslow electronic weigh system was designed to weigh all versions of Boeing 747s, 767s and the new 777s. It consists of nine massive weigh bridges (platforms) pit mounted on the floor of a new Boeing paint hanger and so positioned that any of the above Boeing aircraft when rolled into the hanger, will be positioned on three or more of the nine weigh platforms. The purpose of the weigh system is to obtain weight information for the total aircraft plus main gear and nose wheel gear weights. Also, the control system performs aircraft center-of-gravity



A look inside the weigh system's electronic console. All electronics are isolated from the hazardous hanger floor area.

calculations, processes and stores the data for future use and calibrates the on-board weighing systems.

The weigh system capacity is 800,000 pounds and records the weight in 1-pound increments. Each main



Installing one of the nine Emery Winslow weigh platforms in Boeing's painting facility hanger.

gear weigh bridge is designed to handle 300,000 or 200,000 pounds and on the nose wheel scales are designed to handle up to 100,000 pounds each. Because the weigh system was located in the hanger floor of an aircraft painting facility, numerous difficult engineering problems needed to be considered, particularly the fact that paint solvents are extremely explosion hazardous and highly corrosive. The weigh system thus needed to be made explosion-proof and rated for Class 1, Division 1 environment. The critical elements were designed to deal with highly corrosive solvents, a flood of water during the aircraft washdown

cycle and a hanger temperature variance of 70 degrees C.

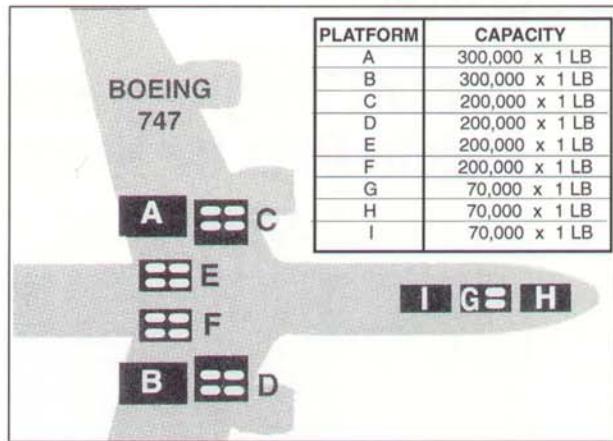


Diagram of the nine scales

The system control panel, computer and printer are located in a separate control room overlooking the hanger floor.

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The same principal that was used to weigh aircraft at Boeing was also used in a cooperative effort between Emery Winslow Scale Co. and International Civil Aviation Organization to develop the Automatic Aircraft Weight And Balance Verification System now in use at El Dorado International Airport in Bogota, Colombia. The purpose of the AAWBVS is to ensure that aircraft meet weight and balance requirements before take-off.

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