



# Product Hilites

## Load Cells

Monitor Aircraft Pitch, Roll, and Yaw Forces



An aircraft in flight is free to rotate in three dimensions: pitch, nose up or down; yaw, nose left or right; and roll, rotation about an axis running from nose to tail. The force needed to control the attitude of an aircraft can be different depending on a number of conditions, including air speed, wind, and inclination. STI engineers accepted the challenge to design two separate force sensors to provide a full profile of overall control forces for the airplane, both on the ground and in flight.

After evaluating seven other load cell companies, Stellar Technology was chosen for our pedigree in the aerospace industry, our understanding of flight-critical systems, and because we were "...the most responsive and (presented) the best designs".

The result was a pair of modified Model CLC910 tension/compression load cells which were incorporated into the existing control assemblies. The 225lbf Pitch/Roll sensor is an all stainless-steel sensor that is spline-mounted and fits into the existing yoke assembly to measure tension and compression as the pilot pushes or pulls on the control to regulate pitch and also measures roll force when the pilot banks left or right through the yoke.

The 300lbf Rudder/Brake load sensor measures foot pressure on the pedal. While in the air, rudder pedals on an aircraft control yaw when pushed on the heel of the pedal and, when on the ground, control braking when pushed on the toe. This unit is fabricated from high strength aluminum and fits into the customer's standard rudder pedals without modification.

Both load cells deliver 0.5% accuracy, 2mV/v output, and demonstrate excellent crosstalk rejection. Each unit was shock and vibration protected and included complete material traceability certification.

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