

Race car Suspension Testing Load Cell

Industry: Automotive and Vehicle, Test and Measurement

Summary

Customer Need / Challenge

- Race car suspensions require fine tuning for best performance on various tracks.
- Simulation of bumps, banking and other track conditions result in off-axis loading.

Interface Solution

- Interface 1200-series load cell mounted on top of each post in a 4-, 5-, or 7-post rig allows race teams to measure forces during simulated laps. Moment compensating design of 1200-series load cells provide accurate readings during off-axis loading.

Results

- Highly accurate (0.04%) measurement of loads applied to individual suspension points.

Materials

- (4) 1200 Standard Precision LowProfile™ Load Cells.

How It Works

1. A multiple-post vehicle suspension test rig is built into or under the floor of a race team facility. A 4-post rig tests forces at each wheel; 5-post rig adds a rear suspension point and a 7-post rig tests aerodynamic forces in addition to road (wheel) loading.
2. An Interface 1200-series load cell is mounted on each post.
3. Hydraulic actuators individually apply forces to each post to simulate the surface conditions of the track.
4. Load cells measure the aggregate of the forces being applied from both the post on which the load cell is mounted and forces from other posts being applied to the vehicle (such as when simulating a banked surface).
5. Load cell output is fed to the control system to determine cylinder force required to produce the correct force to simulate the track condition.

