ChassisSim Top Use Cases

Vehicle Dynamics Software by ChassisSim Technologies

Tire Modeling from Nothing

Challenge

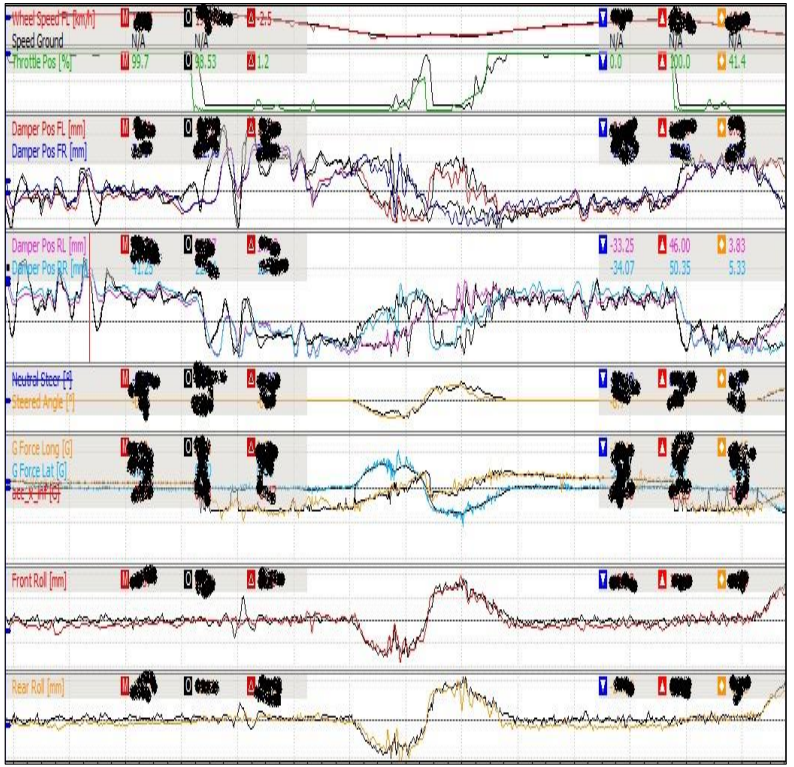
- No supplied tire information
- Only 12 test days were allowed
- The tires were not allowed to be sent to a test rig

Solution

- The ChassisSim tire force modeling toolbox
  - Uses race data and the simulation model.
  - Performs a number of track replays.
  - Tire model changed to minimize a_y delta

Results

- Lap time correlation in the model within 0.1 second of the baseline time, shown in the graph to the right



Hybrid Energy Recovery Design

Challenge

- ORECA needed to design Hybrid strategies for LeMans

Solution

- ChassisSim KERS Module which includes:
  - Calculating available energy from Brakes
  - 3D Eng torque maps
  - 3D Brake regen and paddle maps
  - Incorporating this in lap time simulation
  - Exporting data variables for review

Results

- Has been used in energy recovery strategies in LMP1 and Formula E. Energy recovery predictions have been validated on track.

Specifying Dampers for a Porsche 911

Challenge

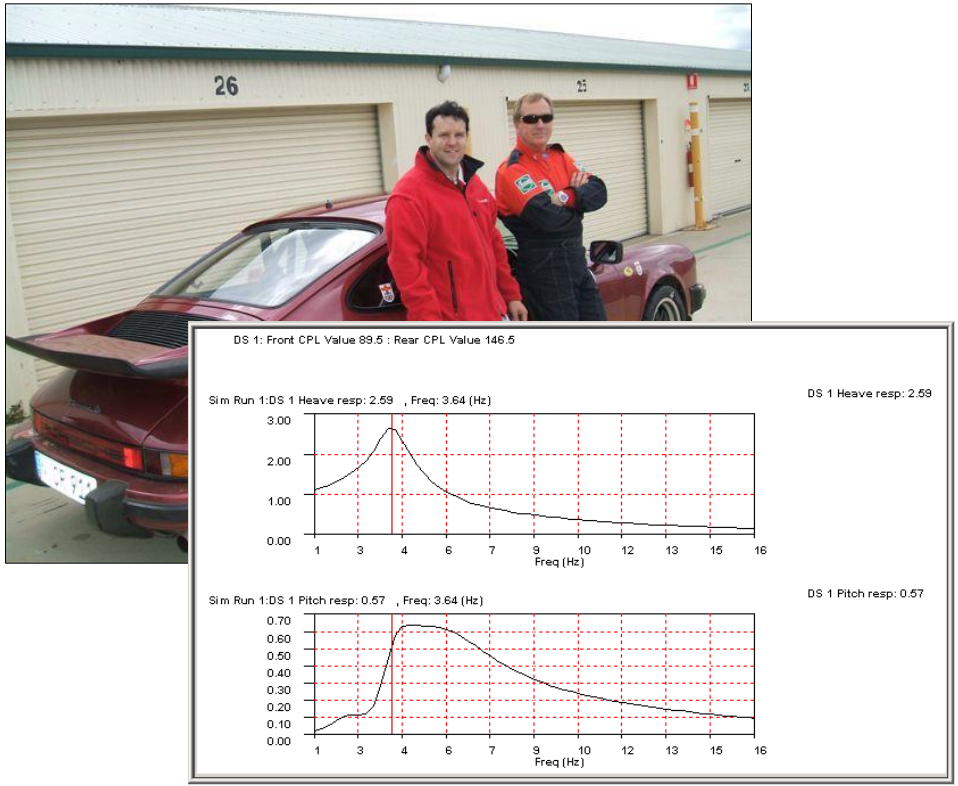
- Dampers needed to be specified for a 1971 Porsche 911 street car

Solution

- Lap time simulation toolbox
- Used to dial in histogram requirements
- Shaker rig toolbox
- Used to dial in frequency response

Results

- Lap time was 4 seconds quicker with the specified dampers.



Altair