



REA RE01 – Damper Technology & Tuning

One-day Workshop: 16th of October, 2016

1/14 Stoddart Road, Prospect, NSW

Course created and presented by:

Blake Smith – 10 years as a Race Engineer in V8 Supercars and Indycar

Dejan Ninic – 15 years as a Race Engineer in WRC, AGT, WTAC and more

1 Damper Operation

- 1.1 Concepts of Damping
- 1.2 Forms of Damping

2 Damper Testing

- 2.1 Damper Dynamometer
- 2.2 PVP and CVP
- 2.3 Force verses Velocity
- 2.4 Force verses Displacement
- 2.5 Post Shaker Rigs

3 Damper Internals

- 3.1 Gas Spring Effect
- 3.2 Damper Adjustments
- 3.3 Oil Viscosity
- 3.4 Gas Pressure

4 Mechanical Specification

- 4.1 Motion Ratio
- 4.2 Travel

5 Spring Selection

- 5.1 Sprung and Unsprung Mass
- 5.2 Measuring Unsprung Mass
- 5.3 Measuring Sprung Mass
- 5.4 Natural Frequency
- 5.5 Selecting Frequency

6 Damper Selection

- 6.1 Force verses Velocity
- 6.2 Damping Coefficient verses Velocity
- 6.3 Selecting Damping

7 Damper Tuning for Vehicle Handling

- 7.1 Bump and Rebound Control
- 7.2 High verses Low Speed Tuning
- 7.3 Exercise: Damper Tuning

8 Data Analysis

- 8.1 Damper Position and Velocity
- 8.2 Damper Velocity Histogram
- 8.3 Damper Force
- 8.4 Damper FFT

9 Failure of Dampers

- 9.1 Causes of Damper Failure

Price Information

Standard **\$550**

Early bird (book and pay before 9/9/16) **\$500**

Students **\$400**

Price includes course books, snacks and lunch

** Course content may vary slightly depending on interest area and workshop progression*

For more information: www.raceengineeringacademy.com or info@raceengineeringacademy.com