Table of Contents

Chapter 1 Motive Power

External Combustion Engines Internal Combustion Engines Electric Vehicles

Chapter 2 Chassis Layouts and Drivelines The First Production Automobiles

Rear Wheel Drive Front Wheel drive

Chapter 3 Engine Configurations

Multi-Cylinder Inline Engines Multi-Cylinder V-Engines

Multi-Cylinder Opposed Boxer Engines

W-Engines

Rotary and Radial Engines

Engine Balancing

Chapter 4 Valve Trains, Induction, and Supercharging Valve Actuation

Valve-In-Block

Valve-In-Head

Sleeve Valves

Variable Valve Timing

Cylinder Deactivation

Fuel Control

Forced Induction

Photo Gallery of Notable Automobiles

Chapter 5 Transmissions and Differentials

Gearboxes

Friction Drive

Planetary Transmissions

Overdrive Transmissions

Semi-Automatic Gearboxes

Automatic Transmissions

Automated Manual Transmissions

Differentials

Chapter 6 Suspension and Steering

Springs

Sprung Vs Unsprung Ratio

Non-Independent Suspension

Independent Suspension

Dampers

Active Suspension

Steering Power Steering

Handling

Chapter 7 Brakes

Four-Wheel Brakes

Drum Brakes

Disk Brakes

Power Brakes

Anti-Lock Braking Systems

Air Brakes

Parking Brakes

Chapter 8 Body Design

Early Body Design

Closed Bodies

Streamlining

Unit Bodies

Aluminum Bodies

Plastic Bodies Crushable Bodies

Pedestrian-Friendly Cars

NVH

Chapter 9 Summary