zSpace Automotive Bundle

Applications included:
Supported in English and Chinese.

Automotive Mechanic

Automotive Expert

Compliment Applications:

Hybrid Automotive Mechanic

Electric Automotive Mechanic

Franklin's Lab

zView

Studio A3

Application Overviews:

Automotive Mechanic by GTAFE allows students to practice the assembly and disassembly of an automobile and its various systems within a virtual mechanic environment. Safety is guaranteed while students master the sequences, and repeatable repair procedures.

Automotive Expert by GTAFE is the first of its kind, 3D interactive study guide for automotive training. Students can interact with customized courses, run simulations of various automotive systems, and access 3D resources allowing them to prepare for industry certifications in transportation.

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Automotive Expert by GTAFE

REFERENCE SHEET - Launch Code AP35

GTAFE Virtual Auto Expert

Engine

Clutch

Transmission

Powertrain System

Wheel & Axle

Suspension
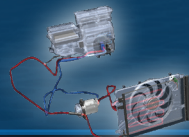
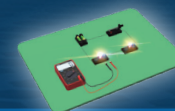**Steering System**

Braking System

Body

Electrical Apparatus & Others

Basic Circuit Element

Lighting System

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Automotive Expert by GTAFE
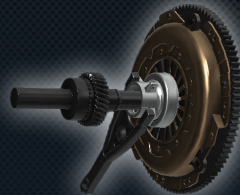
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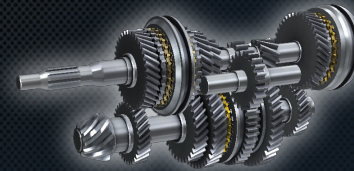
GTAFE Virtual Auto Expert

Engine

- General Introduction to Engine
- Engine Block Assembly / Crank and Connecting Rod Mechanism
- Valve Mechanisms
- Supercharging System
- Cooling System
- Lubrication System
- Ignition System
- Start System
- Fuel Supply System
- Intake/Exhaust System

Clutch

- Structure and working principle of clutch
- Dual clutch transmission
- Structure and working process of torsional vibration damper
- Service condition of mechanical clutch operating device

Transmission

- Composition of transmission
- Types of transmission structures (hydraulic, two-shaft, and countershaft)
- Structure and service condition of synchronizer, transmission control device (self-locking and interlocking), transfer case
- Structure and working principle of the hydraulic automatic transmission (structure of fluid torque converter, working principle of fluid torque converter, multidisc clutch, and planetary gear set)
- Structure and working principle of continuously variable transmission

Powertrain System

- Brief introduction to automotive drivetrain system
- Types of universal joint (non-constant-velocity joint, quasi-constant velocity joint, and constant-velocity joint), drive shaft
- Structure and principle of drive axle structure (non-disconnect drive axle and disconnect drive axle)
- Structure and working principle of final drive, gear drive
- Structure and working principle of differential
- Structure of half shaft.

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Wheel & Axle

- Driving system
- Steering axle
- Wheel alignment parameter (kingpin caster, kingpin inclination, front wheel camber and toe-in)
- Wheel structure
- Tire types (bias tire, radial Tire, tubed Tire, and vacuum Tire)
- Tire wear

Suspension System

- Suspension structure (independent suspension, non-independent suspension, semi-independent suspension structure, and semi-independent suspension display)
- Shock absorber types (mono-tube shock absorber and twin-tube shock absorber)
- Elastic element types (leaf spring, coil spring, torsion bar spring, air spring, and rubber spring)

Steering System

- Steering system and steering structure
- Steering system (manual steering gear and power steering system)
- Ideal relationship between steering wheels on both sides
- Steering gear types (rack and pinion steering, recirculating ball steering, worm gear steering, and worm and peg steering)
- Hydraulic power steering system (structure of hydraulic power steering system and principles of hydraulic power steering System)
- Steering control mechanism
- Steering linkage mechanism
- Steering knuckle

Brake System

- Introduction to brake system
- Drum brake (leading trailing shoe brake, one leading shoe brake, dual leading shoe brake, dual trailing shoe brake, single servo brake, and dual servo brake)
- Disc brake (fixed / floating caliper disc brake)
- Parking brake
- Brake master cylinder
- Hydraulic brake

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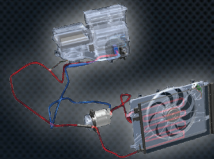
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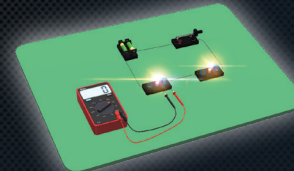
Body

- Entire vehicle
- Unitized body
- Body-on-frame
- Subframe
- Safety belt

Electrical Apparatus & Others

- Air conditioning system
- Air compressor
- Airbag
- Windscreen wiper (wiper working process, four-bar mechanism, and three-brush wiper motor)
- Start-stop system
- Coolant temperature sensor (installation location, structure display, working principles, and fault detection)
- Wheel speed sensor (wheel speed sensor and working principles of wheel speed sensor)
- Air flow sensor
- Throttle position sensor
- Hall sensor
- Electromagnetic sensor
- Oxygen sensor
- Knock sensor
- Supercharging pressure sensor
- Accelerator pedal position sensor
- Speed sensor
- Canister solenoid valve

Basic Circuit Element

- Circuit
- Working status of circuit (series circuit, parallel circuit, short circuit, and open circuit)
- Relay
- Permanent magnet motor

Lighting System

- Lighting and signal
- Common bulb
- LED lamp
- Halogen lamp
- Gas-discharge lamp
- Round headlight
- Oval headlight
- Parabolic headlight
- Functional multi-surface headlight

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