



# ELECTRICAL RACK AND PINION STEERING TRAINER

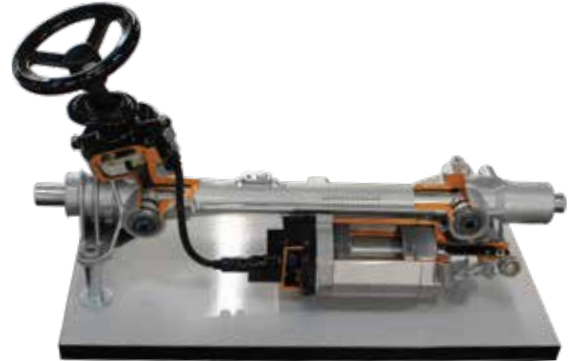
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Product number

AE410789M



Educational tool designed to demonstrate the inner workings of modern electrical steering systems. This model features a fully exposed setup, including an electric motor that drives a pinion engaging with a toothed sector, a Control ECU for managing power levels based on vehicle speed, and integrated steering sensors. With its realistic representation of speed-dependent power adjustment and fault simulation capabilities, this trainer facilitates comprehensive hands-on learning for diagnosing and understanding common issues in electrical steering systems.



## Features

- Complete electrical rack and pinion steering system includes all essential components such as the electric motor, steering column, ECU, and sensors, fully exposed for educational purposes.
- The model replicates the operation of electrical steering systems found in modern vehicles, including speed-dependent power adjustment and sensor-based steering input detection.
- Demonstrates the interplay between the Control ECU, speedometer, and steering sensors, crucial for understanding the system's operation and diagnostic processes.
- The trainer allows for the simulation of common faults, such as sensor failures or motor malfunctions, to aid in teaching diagnostic and repair techniques.
- Mounted on a sturdy, wheeled chassis, the trainer is easy to move and position, making it ideal for classroom use.





## Value for instructors

- This cutaway model allows for detailed demonstrations of the electrical steering system's components, including the ECU, sensors, and steering motor, enabling teachers to illustrate complex concepts in a tangible manner.
- By providing a hands-on learning experience, students can directly interact with the system, fostering a deeper understanding and retention of the material.
- Teachers can simulate common failures within the system, allowing students to practice diagnosing and resolving issues, thereby preparing them for real-world automotive maintenance and repair scenarios.
- The model's compact size and mobility make it easy to integrate into various classroom settings, facilitating group learning and demonstrations.



## Value for students

- Hands-on experience with a fully functional electrical rack and pinion steering system, understanding the mechanical engagement between the electric motor's pinion and the column's toothed sector.
- Learn the role of the Control ECU and how it interacts with the speedometer and steering sensors to adjust steering power based on vehicle speed, mimicking real-world driving conditions.
- Understand common system failures, such as sensor malfunctions or issues with the steering motor, and learn diagnostic techniques to identify and troubleshoot these problems efficiently.
- Study the variable power levels provided by the system, analyzing how the electric motor's power output changes at different speeds and the impact this has on steering feedback and vehicle control.
- Explore safety mechanisms within the system, such as the power transistor's role in controlling the motor's activation, and the potential risks associated with sensor or motor failures that could lead to unintended steering behavior.



## Specifications

- Dimensions: 700 x 300 x 400 mm (27.56in×11.81in×15.75in)
- Weight: approx. 15 kg (33 lb)
- Product Number: AE410782M

