

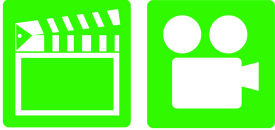
Advanced Automotive Electricity & Electronics

Chapter 24 Electric Power Steering

Opening Your Class

KEY ELEMENT	EXAMPLES
Introduce Content	This course or class covers operation and service of Advanced Automotive Electricity & Electronics . It correlates material to task lists specified by ASE and NATEF.
Motivate Learners	Explain how the knowledge of how something works translates into the ability to use that knowledge to figure why the engine does not work correctly and how this saves diagnosis time, which translates into more money.
State the learning objectives for the chapter or course you are about to cover and explain this is what they should be able to do as a result of attending this session or class.	Explain learning objectives to students as listed on SLIDE. 1. Discuss purpose and function of electric power steering systems. 2. Discuss power steering diagnosis and troubleshooting. This chapter will help prepare for ASE Suspension and Steering (A4) certification test content area "A" (Steering System Diagnosis and Repair).
Establish the Mood or Climate	Provide a WELCOME , Avoid put downs and bad jokes.
Complete Essentials	Restrooms, breaks, registration, tests, etc.
Clarify and Establish Knowledge Base	Do a round robin of the class by going around the room and having each student give their backgrounds, years of experience, family, hobbies, career goals, or anything they want to share.

ICONS



Chapter 24 Electric Power Steering

1. SLIDE 1 CH24 Electric Power Steering

Check for VIDEOS & ANIMATIONS @
<http://www.jameshalderman.com/>
WEB SITE IS CONSTANTLY UPDATED

[Steering System \(62 Links\)](#)

2. SLIDE 2 EXPLAIN Electric Power Steering Overview

3. SLIDE 3 EXPLAIN Figure 24-1 Photo of the electric power steering gear on a Lexus RX 400h taken from underneath the vehicle.

ANIMATION: EVO Operation

www.myautomotivelab.com

http://media.pearsoncmg.com/ph/chet/chet_myautomotivelab_2/animations/A4_Animation/Chapter_30_Fig_30_25/index.htm

Become familiar with servicing procedures for electric power steering units. Many vehicles now include them, & more vehicles will be including them in near future.

4. SLIDE 4 EXPLAIN FIGURE 24-2 Honda electric power steering unit cutaway, which is an example of pinion-mounted electric power steering system.

5. SLIDE 5 EXPLAIN EPS System Parts And Operation

6. SLIDE 6 EXPLAIN FIGURE 24-3 Toyota Prius EPS assembly

7. SLIDE 7 EXPLAIN FIGURE 24-4 torque sensor converts the torque the driver is applying to the steering wheel into a voltage signal.

8. SLIDE 8 EXPLAIN FIGURE 24-5 A cross-sectional view of a Honda electric power steering (EPS) gear showing coils 1 and 2 of the torque sensor.

9. SLIDE 9 EXPLAIN FIGURE 24-6 The Power Steering Control Module (PSCM) is attached to the motor of the electric power steering assembly.

ICONS

DEMO



Chapter 24 Electric Power Steering

DEMONSTRATION: Show example of a scan tool and explain how it works to diagnose electric power steering

10. SLIDE 10 **EXPLAIN** EPS System Parts & Operation
11. SLIDE 11 **EXPLAIN NOTE**
12. SLIDE 12 **EXPLAIN** Steering Shaft Torque & Wheel Position Sensor
13. SLIDE 13 **EXPLAIN** FIGURE 24.7 Schematic showing the electric power steering and the torque/position sensor.
14. SLIDE 14 **EXPLAIN** Power Steering Control Module (PSCM)
15. SLIDE 15 **EXPLAIN EPS DIAGNOSIS**
16. SLIDE 16 **EXPLAIN TECH TIP**

17. SLIDE 17 **EXPLAIN** FIGURE 24-8 blown fuse is the yellow 60-amp fuse next to the terminal at the top.
18. SLIDE 18 **EXPLAIN** CHART 24.1 Sample diagnostic trouble codes (DTCS) for the electric power steering system
19. SLIDE 19 **EXPLAIN** Self-Parking System
20. SLIDE 20 **EXPLAIN** Electrohydraulic Power Steering
21. SLIDE 21 **EXPLAIN** FIGURE 13-36 An electrohydraulic power steering assembly on a Chevrolet hybrid pickup truck.

ON-VEHICLE NATEF TASK Diagnose, test and diagnose components of electronically controlled steering systems using scan tool

ON-VEHICLE NATEF TASK Inspect and test electric power assist steering.