

# Introduction to Automotive Service

## Chapter 13 Vehicle Identification & Emission Ratings

### Opening Your Class

KEY ELEMENT	EXAMPLES
<b>Introduce Content</b>	This course or class serves as an introduction to the world of automotive service. It correlates material to task lists specified by ASE and NATEF.
<b>Motivate Learners</b>	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.
<b>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.</b>	Explain the chapter learning objectives to the students. <ol style="list-style-type: none"><li>1. Identify a vehicle.</li><li>2. Interpret vehicle identification numbers and placard information.</li><li>3. Interpret vehicle emissions and emission control information.</li><li>4. Read and interpret casting numbers.</li><li>5. Locate calibration codes.</li></ol>
<b>Establish the Mood or Climate</b>	Provide a <b>WELCOME</b> , Avoid put downs and bad jokes.
<b>Complete Essentials</b>	Restrooms, breaks, registration, tests, etc.
<b>Clarify and Establish Knowledge Base</b>	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 13 Vehicle Identification & Emission Rating



### 1. SLIDE 1 TITLE: VEHICLE IDENTIFICATION & EMISSION RATINGS



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### 2. SLIDE 2 **READ & EXPLAIN** Parts of a Vehicle



**DISCUSSION:** HAVE STUDENTS TALK ABOUT WHY, FOR AUTOMOTIVE SERVICING & AND REPAIR PURPOSES, PARTS OF A VEHICLE ARE IDENTIFIED IN TERMS OF LEFT & RIGHT SIDE OR FRONT AND REAR RATHER THAN BY DRIVER OR PASSENGER SIDE.



**ON-VEHICLE TASK:** HAVE STUDENTS USE MASKING TAPE TO LABEL THE LEFT AND RIGHT PARTS OF A CAR OR TRUCK



### 3. SLIDE 3 **READ & EXPLAIN** Front-Wheel Drive Versus Rear-Wheel Drive



It is common to use acronyms: **FWD** for Front Wheel Drive, **RWD** for Rear Wheel Drive, **4WD** for Four-Wheel Drive, & **AWD** for All Wheel Drive.



**DISCUSSION:** ASK STUDENTS TO DISCUSS DIFFERENCES BETWEEN FRONT-WHEEL, REAR-WHEEL, ALL-WHEEL, AND FOUR WHEEL DRIVE SYSTEMS. WHAT ARE ADVANTAGES & DISADVANTAGES OF EACH? STUDENTS WILL PREPARE A CHART SHOWING THE DIFFERENCES IN THE BELOW ON-VEHICLE TASK.



**ON-VEHICLE TASK:** HAVE STUDENTS DO A CHART IN CLASS ON DIFFERENCES BETWEEN DRIVE SYSTEMS

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**TIME-CHECK: NOTE ON TIME CHECK: DEPENDING ON TIME, YOU MAY WANT TO MOVE TO NEXT HOUR'S TEXT OR CONTINUE ON WITH INSTRUCTION**

4. SLIDE 4 **READ & EXPLAIN** Vehicle Identification

5. SLIDE 5 **EXPLAIN** FIGURE 13-1 Typical vehicle identification number (VIN) as viewed through the windshield.

6. SLIDE 6 **READ & EXPLAIN** Chart 13-1

7. SLIDE 7 **READ & EXPLAIN** Chart 13-2 (The Pattern Repeats Every 30 Years)

**DEMONSTRATION: SHOW STUDENTS AN EXAMPLE OF A VEHICLE IDENTIFICATION NUMBER (VIN) AND HAVE STUDENTS DECIPHER ITS MEANING BASED ON INFORMATION PROVIDED ON PAGE 126 OF ATE4 CHAPTER 16**

**Before 1980, there was no universally accepted equivalent to a VIN, so OEMs used their own formats.**

**HAVE STUDENTS COMPLETE VIN TASK SHEET. STUDENTS DECIPHER VIN ON A LAB OR PERSONAL VEHICLE**

**HOMEWORK: HAVE STUDENTS RESEARCH THE HISTORY OF VIN. USING COMPETING STANDARDS FOR VEHICLE IDENTIFICATION BEFORE 1980 AND WHY VIN STANDARD BECAME NECESSARY.**

8. SLIDE 8 **READ & EXPLAIN** Vehicle Safety Certification Label (VSCL Label)

**DEMONSTRATE: EXAMPLE OF VEHICLE SAFETY CERTIFICATION LABEL. ASK THEM TO DECIPHER INFORMATION PROVIDED ON LABEL AND EXPLAIN WHAT IT SIGNIFIES.**

9. SLIDE 9 **READ & EXPLAIN** VECI Label

10. SLIDE 10 **EXPLAIN** Figure 13-2 VECI label on a 2008 Ford

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**DEMONSTRATE: LOCATION OF VEHICLE EMISSIONS CONTROL INFORMATION (VECI) LABEL UNDER HOOD OF VEHICLE**

**ASK STUDENTS TO DISCUSS IMPORTANCE OF INFORMATION PROVIDED ON VECI LABEL**

**HAVE STUDENTS COMPLETE VECI TASK SHEET**

11. **SLIDE 11 READ & EXPLAIN** Emission Standards in United States
12. **SLIDE 12 EXPLAIN FIGURE 13-3** The underhood decal showing that this Lexus RX-330 meets both national (Tier 2; BIN 5) and California LEV-II (ULEV) regulation standards
13. **SLIDE 13 READ & EXPLAIN** Emission Standards in United States
14. **SLIDE 14 READ & EXPLAIN CHART 13-3 LEV Standard Categories**
15. **SLIDE 15 READ & EXPLAIN CHART 13-4 California LEV II 120,000-Mile Tailpipe Emissions Limits**

**California Air Resources Board, or CARB, enforces some of world's strictest Air Pollution Standards. Indian Tribes call LA area Valley of Smoke**

**HAVE STUDENTS RESEARCH PROBLEMS OF EMISSIONS IN CALIFORNIA, USING TERMS *PHOTOCHEMICAL SMOG* AND *LOS ANGELOS VALLEY OF SMOKE EMISSIONS***

**HOST DISCUSSION ON WHY CALIFORNIA EMISSION STANDARDS & RESULTS OF INTERNET RESEARCH**

16. **SLIDE 16 READ & EXPLAIN** Emission Standards in United States
17. **SLIDE 17 READ & EXPLAIN CHART 13-5 EPA**

## ICONS



## Chapter 13 Vehicle Identification & Emission Rating

### Tier 2—120,000-Mile Tailpipe Emission Limits

18. **SLIDE 18 READ & EXPLAIN CHART 13-6 Air Pollution Score**
19. **SLIDE 19 READ & EXPLAIN Calibration Codes**
20. **SLIDE 20 EXPLAIN FIGURE 13-4** typical computer calibration sticker on case of controller. The information on sticker is often needed when ordering parts or a replacement controller.
21. **SLIDE 21 READ & EXPLAIN Casting Numbers**
22. **SLIDE 22 EXPLAIN FIGURE 16-5 Engine block identification number cast into the block is used for identification.**

**COMPLETE CHAPTER 13 CROSSWORD PUZZLE:**  
**[HTTP://WWW.JAMESHALDERMAN.COM/LINKS/BOOK\\_INTRO/CW/CROSSWORD\\_CH\\_13.PDF](http://www.jameshalderman.com/links/book_intro/cw/crossword_ch_13.pdf)**