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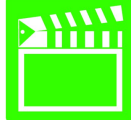











## Chapter 1 Service Information, Tools, & Safety











### Opening Your Class












KEY ELEMENT	EXAMPLES
<b>Introduce Content</b>	This course or class covers operation and service of <b>Manual Drive Trains and Axles</b> . 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. Locate and interpret vehicle and major component identification numbers.</li><li>2. Identify the strength ratings of threaded fasteners.</li><li>3. Explain the difference between the brand name (trade name) and the proper name for tools.</li><li>4. Describe what tool is the best to use for each job.</li><li>5. Explain how to maintain hand tools.</li><li>6. Identify the personal protective equipment (PPE) that all service technicians should wear.</li><li>7. Discuss how to safely use hand tools.</li><li>8. Describe how to safely hoist a vehicle.</li></ol>
<b>Establish the Mood or Climate</b>	Provide a <i>WELCOME</i> , 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	Ch01 Service Information, Tools, & Safety
	<p><b>1. SLIDE 1 CH1 SERVICE INFORMATION, TOOLS, &amp; SAFETY</b></p>
 	<p><b>2. SLIDES 2-3 EXPLAIN OBJECTIVES</b></p> <p>Check for <b>ADDITIONAL VIDEOS &amp; ANIMATIONS</b> @ <a href="http://www.jameshalderman.com/">http://www.jameshalderman.com/</a>  <b>WEB SITE IS CONSTANTLY UPDATED</b></p>
	<p><b>4. SLIDE 4 EXPLAIN VIN</b></p> <p><b>5. SLIDE 5 EXPLAIN FIGURE 1-1</b> Typical vehicle identification number (VIN) as viewed through the windshield</p>
	<p><b><u>DEMONSTRATION: SHOW STUDENTS AN EXAMPLE OF VEHICLE IDENTIFICATION NUMBER (VIN) AND HAVE STUDENTS DECIPHER ITS MEANING</u></b></p>
	<p><b>Before 1980, there was no universally accepted equivalent to a VIN, so OEMs used their own formats.</b></p>
	<p><b><u>DEMONSTRATE: EXAMPLE OF VEHICLE SAFETY CERTIFICATION LABEL. ASK THEM TO DECIPHER INFORMATION PROVIDED ON LABEL AND EXPLAIN WHAT IT SIGNIFIES.</u></b></p>
	<p><b><u>DEMONSTRATE: LOCATION OF VEHICLE EMISSIONS CONTROL INFORMATION (VECI) LABEL UNDER HOOD OF VEHICLE</u></b></p>
	<p><b><u>DISCUSSION: ASK STUDENTS TO REVIEW SAMPLES OF VEHICLE OWNER'S MANUALS. ASK STUDENTS TO SPECULATE ABOUT WHY SO FEW OWNERS READ THESE MANUALS</u></b></p>
	<p><b><u>HOST DISCUSSION: SERVICE HISTORY</u></b>  We all have our own service history, as documented in our medical records. How do physicians use medical histories to help patients? How is this similar to an automotive technician diagnosing a problem with an automobile? Use this analogy as basis for class discussion. Use one column on flip chart to show elements of medical history. Use another column for corresponding elements of an automotive service history.</p>

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	<p>6. SLIDE 6 EXPLAIN Tensile Strength Of Fasteners.</p> <p>7. SLIDE 7 EXPLAIN FIGURE 1-11 Stronger threads are created by cold-rolling a heat-treated bolt blank instead of cutting the threads, using a die.</p>
  <p>QUESTION</p>	<p><b>DISCUSSION:</b> talk about differences between unified national coarse (UNC) &amp; unified national fine (UNF) threads. Where might each be found in use on an automobile? Ask students which they think would have better holding power.</p>
	<p><b>VIDEO FROM <a href="http://www.myautomotivelab.com">WWW.MYAUTOMOTIVELAB.COM</a> ON BOLT MARKINGS</b></p> <p><small><a href="http://media.pearsoncmg.com/ph/chet/chet_myLABS/akamai/template/video640x480.php?title=bolt%20marking&amp;clip=pandc/chet/2012/automotive/auto_shop_safety/clip24boltmarkings1.mov">HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLABS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=BOLT%20MARKING&amp;CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP24BOLTMARKINGS1.MOV</a>&amp;CAPTION=CHET/CHET_MYLABS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP24BOLTMARKINGS1.XML</small></p>
	<p><b>DEMONSTRATION: SHOW EXAMPLES OF A VARIETY OF GENERAL BOLTS &amp; SCREWS. DISCUSS WHAT TYPE OF TOOL MUST BE USED WITH EACH. STUDENTS GUESS WHY EXAMPLES ARE, OR ARE NOT USED ON CARS.</b></p>
	<p><b>DEMONSTRATION: SHOW &amp; DEMONSTRATE BOTH AN ENGLISH &amp; METRIC THREAD PITCH GAUGE</b></p>
	<p>8. SLIDE 8 EXPLAIN TECH TIP</p>
	<p>9. SLIDES 9-11 EXPLAIN HAND TOOLS</p>
	<p><b>DEMONSTRATION: AN OPEN-END WRENCH IS ONE OF THE MOST BASIC TOOLS. SHOW STUDENTS WHEN AND WHERE OPEN END WRENCHES ARE USED IN AUTOMOTIVE SERVICE AND REPAIR</b></p>
	<p><b>DEMONSTRATION: SHOW STUDENTS EXAMPLES OF BOX-END, ADJUSTABLE, &amp; LINE WRENCHES, AND DISCUSS WHERE EACH IS USED IN AUTOMOTIVE APPLICATIONS. REMIND STUDENTS OF THE SAFETY PROCEDURES THEY SHOULD FOLLOW WHEN USING ALL TYPES OF WRENCHES.</b></p>
	<p><b>DEMONSTRATION: SHOW HOW TO USE RATCHET AND SOCKET SET, IDENTIFY AUTOMOTIVE APPLICATIONS WHERE SOCKET WRENCHES ARE BEST USED. EXPLAIN DRIVE SIZE</b></p>

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	<p><b>SHOW ANIMATION: ROUNDED BOLTS</b>  <a href="http://www.myautomotivelab.com">WWW.MYAUTOMOTIVELAB.COM</a>  <a href="http://media.pearsoncmg.com/ph/chet/chet_myautomotivelab_2/animations/a1_animation/chapter4_fig_4_11c/index.htm">HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYAUTOMOTIVELAB_2/ANIMATIONS/A1_ANIMATION/CHAPTER4_FIG_4_11C/INDEX.HTM</a></p>
	<p><b>SHOW ANIMATION: 6/12 POINT SOCKETS</b>  <a href="http://www.myautomotivelab.com">WWW.MYAUTOMOTIVELAB.COM</a>  <a href="http://media.pearsoncmg.com/ph/chet/chet_myautomotivelab_2/animations/a1_animation/chapter04_fig_04_11/index.htm">HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYAUTOMOTIVELAB_2/ANIMATIONS/A1_ANIMATION/CHAPTER04_FIG_04_11/INDEX.HTM</a></p>
	<p><b>DEMONSTRATION: SHOW CLICKER TYPE AND BEAM-TYPE TORQUE WRENCHES &amp; DEMONSTRATE HOW TO USE THEM PROPERLY. STRESS IMPORTANCE OF RESETTING TORQUE WRENCHES TO THE LOWEST SETTING (LOWEST SETTING IS NOT ALWAYS "0")</b></p>
 	<p><b>SAFETY</b> WARN STUDENTS TO BE CAREFUL NOT TO OVERTIGHTEN BOLTS AND NUTS BY USING A CHEATER BAR. EXPLAIN THAT THEY MIGHT BREAK THE WRENCH OR CAUSE THEMSELVES HARM.</p>
  <p>QUESTION</p>	<p><b>DEMONSTRATION: SHOW STUDENTS A VARIETY OF FLAT-TIP AND PHILLIPS SCREWDRIVERS. ASK THEM WHICH TYPE IS USED MORE ON AUTOMOBILES AND WHY. SHOW STUDENTS HOW TO USE OFFSET AND IMPACT SCREWDRIVERS. FOR WHAT TYPE OF APPLICATION IS EACH USED?</b></p>
	<p>12. SLIDE 12 EXPLAIN FIGURE 1.33 ball-peen hammer.  13. SLIDE 13 EXPLAIN FIGURE 1-34 rubber mallet used to deliver a force to an object without harming surface</p>
	<p><b>DEMONSTRATION: SHOW EXAMPLES OF HAMMERS AND MALLETS. DISCUSS THE FEATURES OF EACH HAMMER OR Mallet AND DESCRIBE WHERE IT IS USED.</b></p>
	<p>14. SLIDES 14-15 EXPLAIN HAND TOOLS  16. SLIDE 16 EXPLAIN FIGURE 1-36 Typical slip-joint pliers is a common household pliers. The slip joint allows the jaws to be opened to two different settings</p>
	<p><b>DEMONSTRATION: SHOW EXAMPLES OF SLIP-JOINT &amp; MULTIGROOVE ADJUSTABLE PLIERS AND DISCUSS HOW EACH IS USED.</b></p>
	<p>17. SLIDE 17 EXPLAIN FIGURE 1-43 Files come in many different shapes and sizes. Never use a file without a handle</p>

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	<p>18. SLIDES 18-22 EXPLAIN HAND TOOLS</p>
	<p><b>DEMONSTRATION: SHOW EXAMPLES OF PUNCHES &amp; CHISELS. DESCRIBE INTENDED PURPOSE OF EACH.</b></p>
	<p><b>SHOP AIR</b>  <a href="http://media.pearsoncmg.com/ph/chet/chet_mylibs/akamai/template/video640x480.php?title=COMPRESSED%20AIR&amp;clip=pandc/chet/2012/automotive/auto_shop_safety/clip25compair1.mov&amp;caption=chet/chet_mylibs/akamai/2012/automotive/auto_shop_safety/xml/clip25compair1.xml">HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLIBS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=COMPRESSED%20AIR&amp;CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP25COMPAIR1.MOV&amp;CAPTION=CHET/CHET_MYLIBS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP25COMPAIR1.XML</a></p>
	<p><b>DEMONSTRATION: SHOW SHOP'S AIR COMPRESSOR &amp; DISCUSS HOW IT WORKS. WHAT TYPES OF POWER TOOLS CAN BE USED WITH THE AIR COMPRESSOR? WHAT ARE SOME OTHER APPLICATIONS?</b></p>
	<p><b><u>SAFETY</u> REVIEW SAFETY PROCEDURES FOR USING AN AIR COMPRESSOR &amp; POWER TOOLS ASSOCIATED WITH IT. AIR TOOLS ARE POWERFUL &amp; CAN CAUSE INJURY IF NOT USED PROPERLY</b></p>
	<p><b><u>SAFETY</u> NEVER POINT AN AIR BLOW GUN AT YOURSELF OR ANYONE ELSE.</b></p>
	<p><b>NEVER USE COMPRESSED AIR TO SPIN A BEARING OR A GEAR TO MAKE A WHISTLING SOUND</b></p>
	<p><b><u>SAFETY</u> REMIND STUDENTS THEY SHOULD ALWAYS WEAR EYE PROTECTION WHEN USING POWER TOOLS AND OTHER SHOP EQUIPMENT.</b></p>
	<p>23. SLIDES 23-24 EXPLAIN HAND TOOL MAINTENANCE</p> <p>25. SLIDE 25 EXPLAIN Personal Protective Equipment</p>
	<p>26. SLIDE 26 EXPLAIN FIGURE 1-61 <b>Safety glasses</b> should be worn at all times when working on or around any vehicle or servicing any components</p>

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	<p><b>"PERSONAL SAFETY" VIDEOS. VIDEO FOUND ON <a href="http://www.myautomotivelab.com">WWW.MYAUTOMOTIVELAB.COM</a></b>  <small>HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYLABS/AKAMAI/TEMPLATE/VIDEO640X480.PHP?TITLE=PERSONAL%20SAFETY&amp;CLIP=PANDC/CHET/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/CLIP4PERSSAFE1.MOV&amp;CAPTION=CHET/CHET_MYLABS/AKAMAI/2012/AUTOMOTIVE/AUTO_SHOP_SAFETY/XML/CLIP4PERSSAFE1.XML</small></p>
	<p><b>HOLD <u>DISCUSSION</u> ON PPE ASK STUDENTS TO TALK ABOUT THE MAJOR TYPES OF PPE THEY SHOULD WEAR IN SHOP</b></p>
	<p><b>RESEARCH INTERNET FOR OSHA: HAVE STUDENTS RESEARCH &amp; REPORT ON HISTORY OF OSHA &amp; WHAT THEY DO TODAY.</b></p>
	<p><b>DISCUSSION ON LONG HAIR IN SHOP: ASK STUDENTS ABOUT SAFETY HAZARD OF HAVING LONG HAIR AND HOW TO DEAL WITH IT</b></p>
	<p><b>DEMONSTRATE: <u>HOOING UP EXHAUST HOSE:</u> DEMONSTRATE HOW TO CONNECT AN EXHAUST HOSE TO A VEHICLE. THEN HAVE YOUR STUDENTS PERFORM THIS TASK</b></p>
	<p><b>STUDENTS COMPLETE SHOP SAFETY CHECKLIST</b></p>
	<p><b>27. SLIDE 27 EXPLAIN HOISTING A VEHICLE</b></p>
	<p><b>28. SLIDE 28 EXPLAIN FIGURE 1-72 This training vehicle fell from the hoist because the pads were not set correctly. No one was hurt but the vehicle was damaged.</b></p>
	<p><b>29. SLIDE 29 EXPLAIN HOISTING A VEHICLE</b></p>
	<p><b><u>HOLD DISCUSSION ON SETTING UP LIFT</u></b></p> <p><b>DEMONSTRATE HOW TO SET LIFT PADS</b></p>
	<p><b>HAVE STUDENTS COMPLETE LIFTING VEHICLE TASK SHEET</b></p>

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	<p><b>DEMONSTRATE FIRE EXTINGUISHER ALONG WITH LOCATION OF FIRE BLANKET</b></p>
	<p><b>HAVE STUDENTS COMPLETE <u>FIRE EXTINGUISHER TASK SHEET</u></b></p>
	<p><b>SHOW <u>ANIMATION ON EYE WASH STATION</u></b>  <a href="http://media.pearsoncmg.com/ph/chet/chet_myautomotivelab_2/animations/A1_animation/chapter01_fig_01_15/index.htm">HTTP://MEDIA.PEARSONCMG.COM/PH/CHET/CHET_MYAUTOMOTIVELAB_2/ANIMATIONS/A1_ANIMATION/CHAPTER01 FIG 01 15/INDEX.HTM</a></p>
	<p><b>DEMONSTRATE USE OF EYE WASH STATION SHOW LOCATION OF FIRST AID &amp; EYE WASH STATIONS. DEMO EYE WASH STATION</b></p>
	<p><b>30. SLIDE 30 EXPLAIN SUMMARY</b></p>