

Automatic Transmissions and Transaxles, 7e











Chapter 14 In-Vehicle Transmission/Transaxle Service













Opening Your Class









KEY ELEMENT	EXAMPLES
Introduce Content	This course or class covers Automatic Transmissions and Transaxles 7th Edition. It correlates material to task lists specified by ASE and ASE Education (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.	<p>Explain the chapter learning objectives to the students.</p> <ol style="list-style-type: none"> 1. Prepare for ASE Automatic Transmissions (A2) certification test content area "A" (General Transmission and Transaxle Diagnosis). 2. Discuss fluid replacement. 3. Describe the procedure to follow when replacing seals. 4. Perform linkage adjustments in automatic transmissions. 5. Describe the correct procedure for replacing powertrain mounts and performing band adjustments.
Establish the Mood or Climate	Provide a <i>WELCOME</i> , 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.












NOTE: This lesson plan is based on automatic Transmissions & Transaxle 7th Edition Chapter Images found on Jim's web site @ www.jameshalderman.com

DOWNLOAD CHP 14: Chapter Images

ICONS	Ch14 In-Vehicle Trans/Transaxle Service
         	<p>1. SLIDE 1 In-Vehicle Transmission/Transaxle Service</p> <p>Check for ADDITIONAL VIDEOS & ANIMATIONS @ http://www.jameshalderman.com/ WEB SITE IS CONSTANTLY UPDATED</p> <p><u>Videos</u></p> <p>At the beginning of this class, you can download the crossword puzzle & Word Search from http://www.jameshalderman.com/books_a2.html to familiarize your class with the terms in this chapter & then discuss them</p> <p>DOWNLOAD Crossword Puzzle DOWNLOAD Word Search Puzzle</p> <p>EXPLAIN TECH TIP: Test Drive Before and After Every Service</p> <p>EXPLAIN CHART 14-1</p> <ol style="list-style-type: none"> SLIDE 2 EXPLAIN FIGURE 14-1 Draining the fluid from an automatic transaxle by allowing the fluid to flow into a container after most of the retaining bolts have been removed. SLIDE 3 EXPLAIN FIGURE 14-2 Always check that the filter is secured by a clip or other fastener to keep it from dropping out of its position. SLIDE 4 EXPLAIN FIGURE 14-3 In this case, the cork-rubber gasket is glued to the pan and is ready to be installed. The retaining bolts need to be tightened in sequence, but be aware that over-tightening will cause a leak. Also, some manufacturers recommend using only an RTV sealer, but never use an RTV sealer and a gasket together. SLIDE 5 EXPLAIN FIGURE 14-4 lines from fluid

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      <p>QUESTION</p>   <p>QUESTION</p>     	<p>exchange machine can often be connected to the cooling lines from underneath the vehicle as on this front-wheel-drive General Motors vehicle.</p> <p><u>TRANSMISSION FLUID EXCHANGE (VIEW) (DOWNLOAD)</u></p> <p><u>HANDS-ON TASK:</u> IDENTIFY TRANSMISSION OR TRANSAXLE IN A SPECIFIC VEHICLE. USING SERVICE INFORMATION OR AN OIL-PAN SHAPE CHART MAY BE HELPFUL FOR THEIR ID PROCESS.</p> <p><u>ASEEducation TASK:</u> CHECK FLUID LEVEL IN A IN TRANSMISSION OR A TRANSAXLE EQUIPPED WITH DIP-STICK. CHECK FLUID LEVEL IN A TRANSMISSION OR A TRANSAXLE NOT EQUIPPED WITH A DIP-STICK. CHECK TRANSMISSION FLUID CONDITION; CHECK FOR LEAKS.</p> <p><u>DISCUSSION:</u> DISCUSS NEED TO WATCH FOR FALLING PARTS WHEN REPLACING A TRANSMISSION FILTER. SOME MODELS USE CHECK VALVE THAT WILL FALL WHEN THE FILTER IS REMOVED. WHAT COULD HAPPEN IF THIS CHECK VALVE IS NOT INSTALLED CORRECTLY?</p> <p><u>DISCUSSION:</u> HAVE THE STUDENTS TALK ABOUT THE IMPORTANCE OF CORRECTLY INSTALLING FILTER IN AN AUTOMATIC TRANSMISSION. WHAT WILL HAPPEN IF FILTER SUCKS AIR?</p> <p><u>DEMONSTRATION:</u> SUPERVISE A FLUID & FILTER CHANGE</p> <p><u>ASEEducation TASK:</u> DRAIN AND REPLACE FLUID AND FILTER(S).</p> <p><u>EXPLAIN CASE STUDY: TSB to the Rescue</u></p> <p>6. SLIDE 6 <u>EXPLAIN</u> FIGURE 14–5 This seal is being removed using a seal puller.</p> <p>7. SLIDE 7 <u>EXPLAIN</u> FIGURE 14–6 The lip of the seal</p>

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       	<p>around the garter spring is packed with assembly lube to help keep the spring from falling out when it is driven into the transmission housing.</p> <ol style="list-style-type: none"> 8. SLIDE 8 EXPLAIN FIGURE 14-7 Using a plug helps prevent fluid loss when the driveshaft is removed. 9. SLIDE 9 EXPLAIN FIGURE 14-8 The position for the pointer (“PRNDL” display) on this Dodge truck is adjustable. 10. SLIDE 10 EXPLAIN FIGURE 14-9 The manual shift lever is in park. The linkage is being tightened to lock the adjustment in after making sure that the transmission is in park. 11. SLIDE 11 EXPLAIN FIGURE 14-10 This shift lock mechanism includes a solenoid that can mechanically hold the shift lock plate. Note the shift lock override button that can be used to release the shift lock. <p>DISCUSSION: DISCUSS WITH STUDENTS WHAT PROBLEMS COULD ARISE IF THE LINKAGE ADJUSTMENT IS NOT CORRECT. WHAT WOULD HAPPEN IF TRANSMISSION DID NOT GO ALL THE WAY INTO PARK?</p> <p>DEMONSTRATION: DEMO HOW TO INSPECT, ADJUST, AND REPLACE EXTERNAL MANUAL VALVE SHIFT LINKAGE, TRANSMISSION RANGE SENSOR/SWITCH, AND PARK/NEUTRAL POSITION SWITCH</p> <p>ASE Education TASK: INSPECT, ADJUST, AND REPLACE EXTERNAL MANUAL VALVE SHIFT LINKAGE, TRANSMISSION RANGE SENSOR/SWITCH, AND PARK/NEUTRAL POSITION SWITCH.</p> <ol style="list-style-type: none"> 12. SLIDE 12 EXPLAIN FIGURE 14-11 enlarged views of the inner CV joints show that the engine and transaxle are misaligned; they should be moved toward the right <p>EXPLAIN CASE STUDY: The Case of the Bent Pan</p> <ol style="list-style-type: none"> 13. SLIDE 13 EXPLAIN FIGURE 14-12a The old front engine mount contained hydraulic fluid. The oil was leaking from the split in the mount. b The new original equipment (OE) mount ready to be installed

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          	<p>EXPLAIN CASE STUDY: The Case of the Chrysler Pacifica</p> <p><u>DEMONSTRATION:</u> DEMO HOW TO INSPECT TRANSMISSION AND ENGINE MOUNTS</p> <p><u>ASE Education TASK:</u> INSPECT REPLACE AND ALIGN POWER TRAIN MOUNTS USING A DOWNLOADED OEM PROCEDURE.</p> <p>14. SLIDE 14 EXPLAIN FIGURE 14-13 Adjusting the intermediate band on a Ford A4LD transmission.</p> <p><u>DEMONSTRATION:</u> DEMO HOW TO ADJUST A BAND</p> <p><u>HANDS-ON TASK:</u> HAVE THE STUDENTS RAISE VEHICLE ON A LIFT USING ALL SAFETY PROCEDURES. HAVE THE STUDENTS INSPECT THE AUTOMATIC TRANSMISSION OR TRANSAXLE FOR ANY FLUID LEAKS. HAVE THEM REPORT THEIR FINDINGS, ALONG WITH RECOMMENDED SERVICE</p> <p><u>DEMONSTRATION:</u> SHOW HOW TO ADD DYE TO TRANSMISSION & USE A BLACK LIGHT TO DIAGNOSE A FLUID LEAK. WARN STUDENTS THAT ENGINE COOLANT WILL OFTEN GLOW LIKE DYE, WHICH COULD RESULT IN MISDIAGNOSIS.</p> <p><u>ASE Education TASK:</u> INSPECT FOR LEAKAGE AT EXTERNAL SEALS, GASKETS, AND BUSHINGS.</p> <p><u>HANDS-ON TASK:</u> HAVE THE STUDENTS RAISE VEHICLE ON A LIFT USING PROPER SAFETY PROCEDURES. ASK THEM TO DETERMINE WHETHER THE BANDS CAN BE ADJUSTED WITH THE TRANSMISSION IN VEHICLE.</p>

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	<p>15. SLIDES 15-26 EXPLAIN Transmission Pan Replacement SLIDE SHOW.</p>