

Automotive Technology 6th Edition

Chapter 134 – Hydraulic Components and Control Systems

Lesson Plan



CHAPTER SUMMARY:

1. Automatic transmission fluid, automatic transmission fluid cooler, and transmission oil pump
 2. Apply or holding devices, bands, multiple-plate clutches, accumulators, and one-way clutches
 3. Valve body and hydraulically controlled transmission valves
 4. Electronically controlled transmissions and typical torque flow
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OBJECTIVES:

1. Discuss the different types of automatic transmission fluid.
 2. Explain the function of automatic transmission fluid coolers, pumps, and apply/holding devices.
 3. Discuss bands, multi-plate clutches, accumulators, and one-way clutches.
 4. Explain the construction of a valve body and discuss the operation of hydraulically controlled transmission valves.
 5. Explain electronically controlled transmissions and discuss the typical torque flow in these transmissions.
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RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A2-A-12) P-2:** Diagnose Hydraulic Pressure Concerns
 2. **Task Sheet ASE (A2-B-2) P-2:** Inspect Seals and Gaskets
 3. Chapter PowerPoint
 4. Chapter Crossword Puzzle and Word Search
 5. Animations: See list at the end of the lesson plan.
 6. Videos: See list at the end of the lesson plan.
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ACTIVITIES:

1. **Task Sheet ASE (A2-A-12) P-2:** Have students complete Diagnose Hydraulic Pressure Concerns Task Sheet.
 2. **Task Sheet ASE (A2-B-2) P-2:** Have students complete Inspect Seals and Gaskets Task Sheet.
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ASSIGNMENTS:

1. Chapter crossword and word search puzzles.
 2. Complete end of chapter 10 question quiz.
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CLASS DISCUSSION:

1. Review and group discussion chapter [Frequently Asked Questions](#) and [Tech Tips](#) sections.
 2. Review and group discussion of the five (5) chapter [Review Questions](#).
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NOTES AND EVALUATION:

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Animations: (at <http://www.jameshalderman.com>)

Accumulator	Measure Vane-Type Pump
Auto Transmission Band & Servo Operation	Pressure Regulator Valve
Basic Hydraulic System	Start/Stop Fluid Pressure Accumulator
Governor Operation	Vacuum Modulator Valve
Hydraulic Controlled Manual Shifts	Torque Converter Fluid Flows
Hydraulic Shift Control	Torque Converter Power Flows
Manual Valve	TCC Operation

Videos: (at <http://www.jameshalderman.com>)

Selecting Transmission Fluid (time 5:37)	Torque converter (time 1:08)
Pascal's Law (time 1:48)	Converter problems (time 0:58)
Crescent pump (time 4:21)	Torque converter (time 3:37)
Torque converter (time 2:21)	Torque converter (time 8:57)
Torque converter (time 0:30)	Flex Plate diagnosis (time 0:25)
Torque converter (time 1:53)	