**Automotive Technology 6th Edition**

**Chapter 127 –** **Manual Transmissions/Transaxles**

**Lesson Plan**

**CHAPTER SUMMARY:**

1. The need for a transmission, gear types, gear ratios, and torque, speed, and power

2. Transmission construction, toque flow through a manual transmission, and speed gears

3. Synchronizer parts and operation, five-speed transmission torque flow, and manual transaxle construction

4. Transmission/Transaxle removal and disassemble and hard-to-shift problem diagnosis

5. Manual transmission installation and gear lubrication

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**OBJECTIVES:**

1. Discuss the need for a transmission.

2. Explain the different types of gears and gear ratios.

3. Describe the relationship between torque, speed, and power.

4. Describe the construction of a transmission.

5. Describe the torque flow through a manual transmission.

6. Describe speed gears.

7. Explain the construction and operation of a synchronizer.

8. Describe the torque flow through a five-speed manual transmission.

9. Describe the procedure to diagnose, remove, disassemble, and install manual transmission/transaxle.

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**RESOURCES:** (All resources may be found at <http://www.jameshalderman.com>) Internet access required to hyperlink.

**1.** **Task Sheet ASE (A2-A-3) P-1, (A2-A-4) P-1, (A2-A-5) P-1**: Diagnose Fluid Loss

**2**. **Task Sheet ASE (A3-A-2) P-1, (A3-A-4) P-1**: Drain and Fill Manual Transmission/Transaxle

**3**. **Task Sheet ASE (A3-C-1) P-2**: Manual Transmission/Transaxle Linkage

**4**. **Task Sheet ASE (A3-C-2) P-2**: Electronically Controlled Manual Transmission

**5**. **Task Sheet ASE (A3-A-1) P-1, (A3-C-3) P-2**: Diagnose Noise Concerns

**6**. **Task Sheet ASE (A3-C-4) P-2**: Diagnosing Hard Shifting Concerns

**7**. **Task Sheet ASE (A3-C-5) P-3**: Transaxle Final Drive

**8**. **Task Sheet ASE (A3-C-6) P-2**: Disassemble and Reassemble Transmission/Transaxle

9. Chapter PowerPoint

10. Chapter Crossword Puzzle and Word Search

11. Videos: [(A3) Manual Drive Train Axles Videos](https://jameshalderman.com/a3_vid_lib_page/)

12. Animations: [(A3) Manual Drive Train Axles Animations](https://jameshalderman.com/a3_anim_lib_page/)

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**Lesson Plan**

**ACTIVITIES:**

**1. Task Sheet ASE (A2-A-3) P-1, (A2-A-4) P-1, (A2-A-5) P-1**: Have student complete Diagnose Fluid Loss Task Sheet.

**2**. **Task Sheet ASE (A3-A-2) P-1, (A3-A-4) P-1**: Have student complete Drain and Fill Manual Transmission/Transaxle Task Sheet.

**3**. **Task Sheet ASE (A3-C-1) P-2**: Have student complete Manual Transmission/Transaxle Linkage Task Sheet.

**4**. **Task Sheet ASE (A3-C-2) P-2**: Have student complete Electronically Controlled Manual Transmission Task Sheet.

**5**. **Task Sheet ASE (A3-A-1) P-1, (A3-C-3) P-2**: Have student complete Diagnose Noise Concerns Task Sheet.

**6**. **Task Sheet ASE (A3-C-4) P-2**: Have student complete Diagnosing Hard Shifting Concerns Task Sheet.

**7**. **Task Sheet ASE (A3-C-5) P-3**: Have student complete Transaxle Final Drive Task Sheet.

**8**. **Task Sheet ASE (A3-C-6) P-2**: Have student complete Disassemble and Reassemble Transmission/Transaxle 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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