**Manual Drivetrains and Axles 9th Edition**

**Chapter 14 –** **Drivetrain Electricity and Electronics**

**CHAPTER SUMMARY:**

1. Electricity, How Electrons Move Through a Conductor, Units of Electricity, and Electrical Circuits

2. Electrical Schematics, Types of Circuit Faults, Fused Jumper Wire, Test Light, and Digital Meters

3. Terminals and Connectors, Wire Repair, Relays, Switches, and Speed Sensors

4. Throttle Position (TP) Sensor, Network Classifications, and Control Area Network

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**OBJECTIVES:**

1. Explain the characteristics of electricity.

2. Differentiate between conductors, insulators, and semiconductors.

3. Explain the units of electrical measurement.

4. List the parts of a complete circuit.

5. Discuss the types of electrical circuit faults.

6. Explain how to detect and measure electrical voltage, current, and resistance.

7. Discuss the purpose of terminals, connectors, relays, and switches.

8. Explain the operation of speed sensors and throttle position (TP) sensors.

9 State the need for networks and discuss network classifications. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**RESOURCES:** (All resources may be found at http://www.jameshalderman.com)

1. Task Sheet: Test Light Usage

2. Task Sheet: Measure Voltage Using a Voltmeter

3. Task Sheet: Measuring Current Using an Ammeter

4. Task Sheet: Check Electrical Circuits Using an Ohmmeter

5. Task Sheet: Circuit Testing Using a Fused Jumper Wire

6. Task Sheet: Inspect Wiring and Connectors

7. Task Sheet: Wire Harness and Connector Repair

8. Task Sheet: Connectors and Terminals

9. Task Sheet: Solder Wire Repair

10. Task Sheet: Use Wiring Diagrams to Diagnose a Circuit

11. Task Sheet: Module Communication

12. Chapter PowerPoint

13. Crossword Puzzle and Word Search

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

15. Videos: [(A6) Electrical/Electronic Systems Videos](https://jameshalderman.com/a6_vid_lib_page/)

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

16. Animations: [(A6) Electrical/Electronic Systems Animations](https://jameshalderman.com/a6_anim_lib_page/)

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**Chapter 14 – Drivetrain Electricity and Electronics**

**ACTIVITIES:**

1. Task Sheet: Test Light Usage

2. Task Sheet: Measure Voltage Using a Voltmeter

3. Task Sheet: Measuring Current Using an Ammeter

4. Task Sheet: Check Electrical Circuits Using an Ohmmeter

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9. Task Sheet: Solder Wire Repair

10. Task Sheet: Use Wiring Diagrams to Diagnose a Circuit

11. Task Sheet: Module Communication

12. Crossword Puzzle and Word Search

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**ASSIGNMENTS:**

1. Chapter crossword and word search puzzles.

2. Complete end of chapter 10 question quiz.

3. Complete multiple choice and short answer quizzes downloaded from the website.

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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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