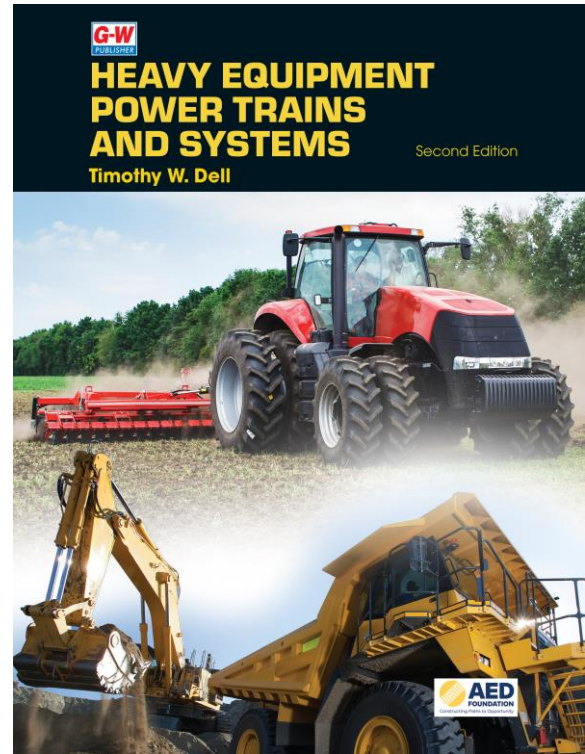




*Correlation of*  
**Heavy Equipment Power Trains and Systems, Timothy W. Dell**  
 (Goodheart-Willcox Publisher ©2024)  
 to  
**2021 AED Safety Standards**

Goodheart-Willcox is pleased to partner with the AED Foundation by correlating *Heavy Equipment Power Trains and Systems* to their Safety standards.

The correlation chart below lists the Standards, Indicators, and Indicators for the AED Safety standards in the left column. Corresponding content from *Heavy Equipment Power Trains and Systems* that can be used by a student to help achieve the standard, Indicator, or indicator is listed in the right column.



Standards / Indicators / Indicators	G-W Content
<b>Standard 1: Safety</b>	
<b>Objective 1.</b> Identification and use of basic hand tools	
<b>Indicator 1.</b> Identify and correctly name the basic hand tools.	Textbook pgs. 31–40 Lab Workbook pg. 21 (Job 2-2)
<b>Indicator 2.</b> Emphasis on safety will be demonstrated with all tool usage.	Textbook pg. 31
<b>Indicator 3.</b> Demonstrate proper use, care, and maintenance of each tool, and safe operating procedure for each.	Textbook pgs. 31–40
<b>Indicator 4.</b> Demonstrates proper use, care and maintenance, and calibration of precision hand tools.	Textbook pgs. 31–53 Lab Workbook pgs. 27–28 (Job 2-5)

**Correlation of Heavy Equipment Power Trains and Systems to AED Safety Standards—page 2**

Standards / Indicators / Indicators	G-W Content
<b>Indicator 5.</b> Review assignments evaluation of identification exercises. Written exams that will determine the competency on many items unable to check by hands-on exercises. Emphasis on safety should be demonstrated with all tool usage.	Textbook pgs. 31–40, 59–61
<b>Indicator 6.</b> Test students' use of tools/equipment to check comprehension. Demonstrate all torque and de-torque methods with hands-on exercises.	Textbook pg. 35 Lab Workbook pgs. 21–22 (Job 2-2), 23 (Job 2-3)
<b>Indicator 7.</b> The student should be able to demonstrate that they can accurately read all precision measuring tools and gauges.	Textbook pgs. 49–53 Lab Workbook pgs. 25 (Job 2-4), 186 (Job 14-3)
<b>Indicator 8.</b> Convert standard to and from metric measurements, both pressure and distance.	Textbook pgs. 49–53, 629–631, 775–776, 782–783
<b>Indicator 9.</b> Determine engine speed and pulses per revolution.	Textbook pgs. 523–527
<b>Indicator 10.</b> Perform tasks related to measuring, understanding, and recording pressure, flows, and temperature.	Textbook pgs. 41–46 Lab Workbook pgs. 19–20 (Job 2-1), 131–132 (Job 11-1), 145–147 (Job 12-1)
<b>Indicator 11.</b> Perform tasks related to measuring specific gravity of fuel, coolant, and electrolyte.	
<b>Objective 2.</b> Use of electric hand tools	
<b>Indicator 1.</b> Identify and correctly name the electrical tool.	Textbook pgs. 40 Lab Workbook pgs. 21–22 (Job 2-2)
<b>Indicator 2.</b> Demonstrate the proper use of the designed application and safe operating procedure for each.	Textbook pgs. 31, 40
<b>Indicator 3.</b> Demonstrate the proper inspection, care, and storage for electric hand tools.	Textbook pgs. 31, 40
<b>Indicator 4.</b> Understand and exhibit the safe and proper use of ground fault circuits.	Textbook pg. 25
<b>Objective 3.</b> Use of air tools	
<b>Indicator 1.</b> Identify and correctly name the basic air tool.	Textbook pg. 40 Lab Workbook pgs. 21–22 (Job 2-2)
<b>Indicator 2.</b> Demonstrate the proper use of the designed application and safe operating procedure for each.	Textbook pgs. 9–11, 31, 40
<b>Indicator 3.</b> Demonstrate the proper inspection, care, maintenance, and storage for air tools.	Textbook pgs. 9–11, 31, 40
<b>Objective 4.</b> Use of hydraulic tools	
<b>Indicator 1.</b> Identify and correctly name the basic hydraulic tools.	Textbook pg. 41
<b>Indicator 2.</b> Demonstrate the proper inspection, care, maintenance, and storage as applicable.	Textbook pgs. 31–41

**Correlation of Heavy Equipment Power Trains and Systems to AED Safety Standards—page 3**

Standards / Indicators / Indicators	G-W Content
<b>Indicator 3.</b> Demonstrates the proper use of the designed application and safe operating procedure as applicable.	Textbook pgs. 7–9, 31–41 Lab Workbook pg. 19 (Job 2-1),
<b>Objective 5.</b> Use of lifting equipment	
<b>Indicator 1.</b> Identify and correctly name the various types of lifting equipment.	Textbook pgs. 160–176, 178 Lab Workbook pgs. 57–59 (Job 5-1)
<b>Indicator 2.</b> Demonstrate the proper inspection, care, maintenance, and storage for each.	Textbook pg. 182
<b>Indicator 3.</b> Demonstrate the proper use of the designed application and safe operating procedure for each.	Textbook pgs. 160–182 Lab Workbook pgs. 57–59 (Job 5-1)
<b>Indicator 4.</b> Students show understanding of the current regulations and standards for use, inspection, and certification of lifting equipment.	Textbook pgs. 161, 168, 176–177, 182 Lab Workbook pgs. 57–59 (Job 5-1)
<b>Objective 6.</b> Use of various cleaning equipment	
<b>Indicator 1.</b> Identify and correctly name the basic cleaning equipment used in our industry.	Textbook pgs. 46–48 Lab Workbook pgs. 27–28 (Job 2-5)
<b>Indicator 2.</b> Demonstrates the proper use of the designed application and safe operating procedures for each.	Textbook pg. 46–48 Lab Workbook pgs. 27–28 (Job 2-5)
<b>Indicator 3.</b> Demonstrates the proper inspection, care, maintenance, and storage for cleaning equipment.	Textbook pgs. 46–48
<b>Indicator 4.</b> Identify the various solvents and solutions used in the cleaning process.	Textbook pgs. 46–48
<b>Indicator 5.</b> Identify the risks, hazards, and precautions for cleaning materials, both personal and environmental.	Textbook pgs. 46–48 Lab Workbook pg. 6 (Job 1-1)
<b>Indicator 6.</b> Demonstrate an understanding of Safety Data Sheets (SDS) and requirements to meet OSHA standards.	Textbook pg. 6 Lab Workbook pg. 6 (Job 1-1)
<b>Objective 7.</b> Use of fluid pressure testing equipment	
<b>Indicator 1.</b> Identify and correctly name the various types of fluid pressure test equipment and the accessories required for proper testing.	Textbook pgs. 41–46 Lab Workbook pgs. 19–20 (Job 2-1), 177–178 (Job 14-1)
<b>Indicator 2.</b> Describe the proper use of the designed application and safe operation of each type of equipment.	Textbook pgs. 41–46 Lab Workbook pgs. 19–20 (Job 2-1), 177–179 (Job 14-1)
<b>Indicator 3.</b> Demonstrates a proper source for calibration of precision test equipment and accessories.	
<b>Indicator 4.</b> Identify, correctly name, and demonstrate the use of personal protective equipment required for the various types of fluid pressure testing equipment.	Textbook pgs. 2–3, 6–9, 41–46 Lab Workbook pg. 19 (Job 2-1)
<b>Indicator 5.</b> Describe multiple dangers of working with fluids under pressure.	Textbook pgs. 6–9 Lab Workbook pgs. 19–20 (Job 2-1)

**Correlation of Heavy Equipment Power Trains and Systems to AED Safety Standards—page 4**

Standards / Indicators / Indicators	G-W Content
<b>Objective 8.</b> Environment of service facility	
<b>Indicator 1.</b> Identify the various types of exhaust systems used in a repair facility.	Textbook pg. 13
<b>Indicator 2.</b> Demonstrates the proper use of the designed application and safe operation of each type of system.	Textbook pg. 13
<b>Indicator 3.</b> Demonstrates the proper inspection, care, maintenance, and storage of the systems and the equipment required for operation.	Textbook pg. 13
<b>Indicator 4.</b> Explain why carbon monoxide and diesel smoke can be hazardous to your health and the precautions required for eliminating injury or death.	Textbook pg. 13
<b>Indicator 5.</b> Recognize symptoms of exposure to carbon monoxide, diesel smoke, and other hazardous materials.	Textbook pg. 13
<b>Objective 9.</b> Machine identification and operation	
<b>Indicator 1.</b> Identify the various types of construction equipment and forklifts, using the standard industry names accepted by equipment manufacturers.	Textbook pgs. 11–21 Lab Workbook pgs. 37–38 (Job 3-1)
<b>Indicator 2.</b> Demonstrates and can explain the proper, safe, and fundamental operation of the various types of machinery.	Textbook pgs. 11–21 Lab Workbook pgs. 12–14 (Job 1-3), 19 (Job 2-1), 177–179 (Job 14-1)
<b>Indicator 3.</b> Translate from a user’s perspective the importance of and reasons for caution/warning lights, backup alarms, seat belts, safety instructions, decals, and other customer-related safety information.	Textbook pgs. 11–21
<b>Indicator 4.</b> Recognize hybrid systems and/or machines as they relate to safety concerns.	Textbook pg. 910 Lab Workbook pgs. 249–350 (Job 26-1)
<b>Objective 10.</b> Mandated regulations	
<b>Indicator 1.</b> Identify and correctly name the various types of equipment required for these regulations.	Textbook pgs. 2–6, 12–25 Lab Workbook pg. 5 (Job 1-1),
<b>Indicator 2.</b> Demonstrate and explain the principles and procedures for each of the regulations.	Textbook pgs. 2–6, 12–25 Lab Workbook pgs. 8 (Job 1-2), 19 (Job 2-1),
<b>Indicator 3.</b> Demonstrates the operation, inspection, proper care, and maintenance of the various equipment required for conforming with federal and state OSHA and MSHA regulations.	Textbook pgs. 6–25, 278, 390–393, 605–610, 910 Lab Workbook pgs. 6 (Job 1-1), 19 (Job 2-1),
<b>Indicator 4.</b> Identify the different types of fire extinguishers and know the applications and correct use of each type.	Textbook pgs. 4-6 Lab Workbook pgs. 5–6 (Job 1-1), 19 (Job 2-1)
<b>Indicator 5.</b> Demonstrate how to find, explain, and use an SDS for a product.	Textbook pg. 6 Lab Workbook pg. 6 (Job 1-1)

**Correlation of Heavy Equipment Power Trains and Systems to AED Safety Standards—page 5**

Standards / Indicators / Indicators	G-W Content
<b>Indicator 6.</b> Recall and identify underground utility hazard markings that would commonly be encountered on a job site.	
<b>Indicator 7.</b> Explain why working safety is important and explain the procedures for reporting unsafe working conditions and practices.	Textbook pg. 11 Lab Workbook pgs. 8–9 (Job 1-2), 11 (Job 1-3)
<b>Objective 11.</b> Shop and in-field practices	
<b>Indicator 1.</b> Identify safe work practices in each situation.	Textbook pg. 11 Lab Workbook pgs. 7–8 (Job 1-2)
<b>Indicator 2.</b> Demonstrate safe work practices in the shop or in the field.	Textbook pg. 11 Lab Workbook pgs. 7–8 (Job 1-2)
<b>Indicator 3.</b> Identify proper lifting and pulling techniques to avoid personal injury.	Textbook pg. 159
<b>Indicator 4.</b> Demonstrate proper lifting and pulling techniques.	Textbook pg. 159 Lab Workbook pgs. 57–59 (Job 5-1)
<b>Indicator 5.</b> Demonstrate proper shop/facility cleanliness/appearance to dealer standards.	Textbook pgs. 429–431 Lab Workbook pgs. 57–59 (Job 5-1)
<b>Objective 12.</b> Hazard identification and prevention	
<b>Indicator 1.</b> Identify potential hazards and develop a plan to deal with them.	Textbook pg. 14 Lab Workbook pgs. 11 (Job 1-3), 19 (Job 2-1)
<b>Indicator 2.</b> Demonstrate safe mounting and dismounting practices on construction machinery.	Textbook pgs. 15–16 Lab Workbook pg. 19 (Job 2-1)
<b>Indicator 3.</b> Explain proper types of chains and binders used in securing loads.	Textbook pgs. 162–176 Lab Workbook pgs. 58–59 (Job 5-1)
<b>Indicator 4.</b> Demonstrate proper lock-out, tag-out procedures.	Textbook pg. 12 Lab Workbook pgs. 7–8 (Job 1-2)
<b>Indicator 5.</b> Demonstrate understanding of the HazCom standard and how to use Safety Data Sheets and Chemical Labels.	Textbook pg. 6 Lab Workbook pg. 6 (Job 1-1)
<b>Indicator 6.</b> Write about or discuss from personal or team experience (shop, workplaces, etc.), common safety hazards, and what you would have done to eliminate them.	Textbook pgs. 3–7, 11–25 Lab Workbook pgs. 57–60 (Job 5-1, 5-2)
<b>Indicator 7.</b> Demonstrate proper work procedures in handling wheel assemblies safely. Refer to industry standard procedures.	Textbook pgs. 15, 765-766
<b>Indicator 8.</b> Identify when tethering is necessary and proper use of the fall protection equipment.	Textbook pg. 14