

Name: _____

Diesel Mechanic (47.0605)

Directions:

Evaluate the student by checking the appropriate number to indicate the degree of competency.

Rating Scale (0-6):

- 0 No Exposure** – no experience/knowledge in this area; program/course did not provide instruction in this area
- 1 Unsuccessful Attempt** – unable to meet knowledge or performance criteria and/or required significant assistance
- 2 Partially Demonstrated** – met some of the knowledge or performance criteria with or without minor assistance
- 3 Knowledge Demonstrated** – met knowledge criteria without assistance at least once
- 4 Performance Demonstrated** – met performance criteria without assistance at least once
- 5 Repetitively Demonstrated** – met performance and/or knowledge criteria without assistance on multiple occasions
- 6 Mastered** – successfully applied knowledge or skills in this area to solve related problems independently

0	1	2	3	4	5	6	A. Describe and safely interact with all basic diesel mechanic systems, including equipment, materials, tools, and applied academic skills	Notes:
							1. Demonstrate appropriate work place safety practices (e.g., fluid power, electrical, air conditioning and refrigeration, engines, power trains, steering and suspension, brakes, environmental hazards, and welding)	
							2. Adhere to state and federal environmental/regulatory requirements/codes (e.g., use, storage, and disposal of materials and chemicals)	
							3. Identify types, purposes, and the operation of fire extinguishers and suppression resources	
							4. Inspect work areas for safe work environment	
							5. Identify and use hand and power tools	
							6. Use reference books, parts books, service manuals and charts	
							7. Perform basic mathematical calculations	
							8. Identify and select common fasteners, fittings, lines, seals, and gaskets	
							9. Use precision measurement tools	
							10. Perform basic computer operation (e.g., keyboarding, software application, and equipment diagnostics)	
							11. Identify mechanical component failures	
							12. Drill, tap, and remove broken bolts and fittings	
							Other:	

0	1	2	3	4	5	6	B. Perform preventive maintenance	Notes:
							1. Evaluate cooling system (e.g., leaks, fluid level, and freeze temperature of coolant)	
							2. Check engine lubrication system pressure and level	
							3. Check air intake and exhaust system	

									4. Draw lubrication and/or oil sample	
									5. Check linkage adjustments	
									6. Perform visual inspection per pre-trip or daily list	
									7. Inspect, adjust, and maintain fifth wheel	
									8. Inspect steering linkage for wear	
									9. Inspect and adjust brakes	
									10. Perform air brake system test	
									11. Evaluate oil conditions visually	
									12. Replace and inspect filters (e.g., water, fuel, engine oil, transmission, and differential)	
									13. Change oils and fluids (e.g., engine oil, transmission oil, differential oil, and steering fluid)	
									14. Lubricate chassis components	
									15. Inspect cab components (e.g., instruments, safety equipment and systems, mirrors and mountings, and physical condition)	
									Other:	

0	1	2	3	4	5	6	C. Maintain and troubleshoot electrical systems	Notes:
							1. Solve problems with basic electricity formulas	
							2. Conduct and evaluate common diagnostic tests/results, including DVOM (digital volt ohmmeter) use	
							3. Interpret diagrams and schematics	
							4. Remove and replace components (e.g., battery, starter, and alternator)	
							5. Remove and replace associated wiring and/or switches (e.g., solenoids, relay, and contacts)	
							6. Use troubleshooting charts	
							7. Service batteries	
							Other:	

0	1	2	3	4	5	6	D. Maintain and troubleshoot electronics	Notes:
							1. Comprehend basic electronic theory and component operation (e.g., diodes, transistors, and receivers)	
							2. Identify and apply service information resources (e.g., diagnostic procedures, flow charts and wiring diagrams)	
							3. Demonstrate basic use of a diagnostic reader	

									4. Perform diagnostic tests of electronic circuit components (e.g., sensors, senders, switches, diodes, and resistors)	
									5. Identify circuit problems (e.g., shorted circuit, ground, and open circuit)	
									6. Maintain wiring connectors	
									7. Analyze electronic codes and data streams	
									8. Analyze electronically automated systems (e.g., transmissions and clutches, antilock HEUI injectors, ABS brakes, ATC traction control, and comfort and convenience)	
									9. Operate a wiring harness diagnostic break out box	
									Other:	

0	1	2	3	4	5	6	E. Perform basic welding skills (optional)	Notes:
							1. Demonstrate procedures for broken fastener removal	
							2. Use cutting torch	
							3. Weld with arc and mig welders	
							4. Braze light-gauge materials and fittings	
							5. Weld with gas welder	
							Other:	

0	1	2	3	4	5	6	F. Maintain basic fluid power systems	Notes:
							1. Identify basic hydraulic and pneumatic principals and components	
							2. Interpret fluid power diagrams, schematics, and ISO symbols	
							3. Test pressures and flow rates using appropriate tooling (e.g., flow meter)	
							4. Check and adjust nitrogen charge in accumulators	
							Other:	

0	1	2	3	4	5	6	G. Maintain heating and air conditioning systems	Notes:
							1. Explain basic heater and AC theory and operation	
							2. Remove and replace heater and air conditioning components	
							3. Acquire appropriate license for mobile refrigerant handling	
							4. Evacuate, reclaim, and charge system per specifications	
							5. Test and adjust climate control temperature sensor systems	
							6. Perform common diagnostic tests of heater and air conditioning systems	

								Other:	
--	--	--	--	--	--	--	--	--------	--

0	1	2	3	4	5	6	H. Maintain steering and suspension-related components	Notes:
							1. Diagnose vehicle steering complaints and tire wear patterns	
							2. Check and adjust simple wheel alignment (e.g., caster, camber, toe, and king pin angle)	
							3. Inspect and service steering- and suspension-related components	
							4. Remove and replace king pin	
							5. Remove and replace steering and suspension components	
							6. Inspect, remove, and replace mounted tires	
							Other:	

0	1	2	3	4	5	6	I. Maintain brake systems	Notes:
							1. Repair cam, wedge, and disc brakes	
							2. Bleed brake system	
							3. Service hydraulic brake system using schematics	
							4. Inspect brake drum and/or rotors using safety specifications	
							5. Remove and replace spring brake chambers and diaphragms	
							6. Service air brake system using schematics	
							7. Diagnose, remove, and replace brake power-assist components	
							8. Inspect, test, and service anti-lock brake systems	
							9. Inspect, test, and service auxiliary brake system (e.g., electric, park, or mechanical)	
							Other:	

0	1	2	3	4	5	6	J. Maintain power train components (on-highway)	Notes:
							1. Inspect, remove, and replace clutch assembly and flywheel	
							2. Inspect and adjust clutch free play and linkage	
							3. Remove and replace manual and automatic transmission	
							4. Diagnose and repair manual and automatic transmission	
							5. Replace and adjust wheel bearings	
							6. Service hubs	
							7. Remove and replace drive line	

								8. Check alignment of drive line (e.g., slopes, angles, and phasings)	
								9. Remove and replace differential/power dividers	
								10. Diagnose and repair differential/power dividers	
								11. Inspect, test, and service electronic power train control systems	
								Other:	

0	1	2	3	4	5	6	K. Maintain power train components(heavy equipment)	Notes:
							1. Remove and install transmission	
							2. Diagnose and repair power shift transmission	
							3. Diagnose and repair steering clutches and brakes	
							4. Disassemble and assemble steering clutches and brakes	
							5. Disassemble and assemble final drive	
							6. Perform undercarriage component repair and alignment	
							7. Replace and adjust wheel bearings	
							8. Remove and install differential	
							9. Disassemble and assemble differential	
							10. Perform power train diagnostics	
							11. Describe operation of torque converters and divider components	
							12. Describe operation of hydrostatic drive systems	
							13. Diagnose and repair torque converters and dividers	
							14. Describe operation of differential steering	
							15. Troubleshoot power train electronics	
							Other:	

0	1	2	3	4	5	6	L. Maintain diesel engine components	Notes:
							1. Comprehend basic diesel engine theory and configuration	
							2. Clean and qualify components	
							3. Rebuild or replace accessories	
							4. Install exterior components	
							5. Identify and qualify reusable parts	
							6. Analyze engine performance (e.g., electronically and dyno)	
							7. Remove and install engine	

										2.	Troubleshoot heating/cooling system problems	
										3.	Replace heating/cooling system components	
										4.	Rebuild cooling system components	
										5.	Flush heating/cooling system	
										6.	Inspect fan drive assembly and related hardware	
										7.	Test and adjust coolant and additives	
											Other:	

0	1	2	3	4	5	6	R.	Troubleshoot and repair fuel system-mechanical	Notes:
								1. Test and/or replace injection nozzles and injectors	
								2. Time fuel injection pump	
								3. Identify and install fuel line hoses and connections	
								4. Remove and install injection pump	
								5. Prime and pressurize fuel system	
								6. Test fuel system pressure	
								Other:	

0	1	2	3	4	5	6	S.	Troubleshoot and repair fuel system-electronic	Notes:
								1. Check DTC (diagnostic trouble codes) from on-board computer system utilizing scan tool and technical information; determine needed repairs	
								2. Inspect, adjust and replace test sensors, controls and actuator components and circuits	
								3. Connect computer programming equipment to vehicle/engine; access and change customer parameters; determine needed repairs	
								4. Remove, inspect, test and reinstall electronic injectors; determine needed repairs	
								5. Prime and pressurize fuel system	
								Other:	

0	1	2	3	4	5	6	T.	Perform a diesel engine tuneup	Notes:
								1. Adjust intake and exhaust valves to specifications	
								2. Adjust injectors to specifications	
								3. Adjust governor (as applicable)	
								4. Set control racks	

								5. Adjust compression brake	
								6. Adjust valve bridge or crosshead	
								7. Tuneup an engine (specify type: _____)	
								Other:	

0	1	2	3	4	5	6	U. Demonstrate leadership skills in the classroom, industry, and society	Notes:
							1. Demonstrate understanding of SkillsUSA, its structure and activities	
							2. Demonstrate understanding of one's personal values	
							3. Perform tasks related to effective personal management skills	
							4. Demonstrate interpersonal skills	
							5. Demonstrate etiquette and courtesy	
							6. Demonstrate effectiveness in oral and written communication	
							7. Develop and maintain code of professional ethics	
							8. Maintain an appropriate professional appearance	
							9. Perform basic tasks related to securing and terminating employment	
							10. Perform basic parliamentary procedures in a group meeting	
							Other:	

0	1	2	3	4	5	6	V. Explain and demonstrate skills in a specialization area identified by the instructor	Notes:
							1.	
							2.	
							3.	
							Other:	