

PRACTICE EXAM 3: T8 SIMULATION

(50 QUESTIONS)

1. A heavy-duty diesel engine PM inspection finds engine oil with metal particles visible in the drained oil. The next step should be:

- A. Continue service and monitor at the next PM
- B. Replace the oil and continue service
- C. Send an oil sample for analysis to identify the metal source
- D. Replace the engine as the most likely cause

2. A heavy-duty diesel engine air filter restriction gauge shows the indicator approaching the red zone. The next step should be:

- A. Replace the air filter element before the next operating period
- B. Continue service because the gauge has not reached red zone
- C. Reset the gauge and continue service
- D. Clean the existing filter and continue service

3. A heavy-duty diesel engine PM inspection finds coolant level below the minimum mark. The next step should be:

- A. Add coolant to the maximum mark and continue service
- B. Replace all coolant in the system
- C. Replace the cooling system pressure cap
- D. Pressure-test the cooling system to identify the source of loss

4. A heavy-duty diesel engine fuel filter PM inspection shows water in the water separator. The next step should be:

- A. Replace the fuel filter and ignore the water
- B. Drain the water separator and verify proper operation
- C. Continue service because some water is normal
- D. Replace the fuel tank because of contamination

5. A heavy-duty diesel engine DEF level is at the low warning level. The next step should be:

- A. Add DEF to the proper level using the correct DEF specification
- B. Continue service because some DEF remains
- C. Add water to dilute the remaining DEF
- D. Replace the DEF tank because of low level

6. A heavy-duty diesel engine PM inspection finds excessive blow-by from the crankcase. Engine oil level is verified normal. The next step should be:

- A. Replace the engine oil and continue service
- B. Replace the air filter as the most common cause
- C. Investigate engine internal condition through compression or leak-down test
- D. Replace the engine cooling system as the most common cause

7. A heavy-duty diesel engine PM inspection finds a small coolant weep from a hose connection. The next step should be:

- A. Add coolant and continue service
- B. Replace all cooling system hoses

- C. Tighten the connection and continue service
- D. Identify the specific source and determine repair requirements

8. A heavy-duty diesel engine cooling system SCA test shows depleted inhibitor levels. The next step should be:

- A. Continue service and re-test at next PM
- B. Add SCA per specification and verify proper concentration
- C. Replace all coolant in the system
- D. Replace the radiator as the most common cause

9. A heavy-duty diesel engine PM inspection finds a drive belt with visible cracks across the ribs. The next step should be:

- A. Replace the belt before returning to service
- B. Adjust belt tension and continue service
- C. Continue service because cracks are normal
- D. Document the cracks for next PM service

10. A heavy-duty diesel engine PM inspection finds the engine oil filter showing seepage at the seal area. The next step should be:

- A. Tighten the filter and continue service
- B. Replace the oil as the primary cause
- C. Replace the filter and inspect for sealing surface damage
- D. Replace the oil pump as the primary cause

11. A heavy-duty diesel engine PM inspection finds engine oil at the proper level but with high viscosity at operating temperature. The next step should be:

- A. Send an oil sample for analysis to identify the contamination
- B. Replace the oil filter as the primary cause
- C. Add new oil to dilute the existing oil
- D. Continue service because viscosity appears acceptable

12. A heavy-duty diesel engine PM inspection finds black smoke at the exhaust during a load test. The next step should be:

- A. Replace the exhaust system as the most common cause
- B. Replace the cooling system as the most common cause
- C. Investigate air intake restriction and fuel system condition
- D. Continue service because some smoke is normal

13. A heavy-duty diesel engine PM inspection finds a charge air cooler with visible damage to the fins. The next step should be:

- A. Continue service because the damage is cosmetic
- B. Determine if the damage affects system performance through pressure testing
- C. Apply paint to seal the damage
- D. Replace the charge air cooler as the primary cause

14. A heavy-duty diesel engine PM inspection finds a coolant temperature reading 20°F above normal during operation. The next step should be:

- A. Continue service and monitor

- B. Replace the engine thermostat as the most common cause
- C. Replace the engine cooling fan as the most common cause
- D. Investigate cooling system condition including coolant flow, fan, and radiator

15. A heavy-duty truck cab PM inspection finds a windshield wiper that operates only at high speed. The next step should be:

- A. Investigate wiper motor or speed control circuit before component replacement
- B. Replace the wiper motor as the primary cause
- C. Replace the wiper switch as the primary cause
- D. Continue service because high speed is acceptable

16. A heavy-duty truck cab PM inspection finds a seat belt that retracts slowly. The next step should be:

- A. Replace the seat belt assembly as the primary cause
- B. Lubricate the seat belt mechanism
- C. Inspect the seat belt for proper operation and damage
- D. Continue service because slow retraction is acceptable

17. A heavy-duty truck cab PM inspection finds a cab door that does not latch securely. The next step should be:

- A. Continue service because the door appears closed
- B. Apply lubricant to the latch mechanism
- C. Adjust the door alignment to compensate
- D. Investigate the latch mechanism and door alignment for repair

18. A heavy-duty truck cab PM inspection finds a mirror that vibrates excessively during operation. The next step should be:

- A. Continue service because mirror vibration is normal
- B. Inspect mirror mounting and adjustment for cause of excessive vibration
- C. Replace the mirror as the primary cause
- D. Replace the mounting bracket as the primary cause

19. A heavy-duty truck cab PM inspection finds a windshield with a chip in the driver's primary visual field. The next step should be:

- A. Continue service because the chip is small
- B. Apply windshield repair sealer to the chip
- C. Determine if the chip meets DOT removal-from-service criteria
- D. Replace the windshield as the primary action

20. A heavy-duty truck hood PM inspection finds a hood latch that engages with excessive force. The next step should be:

- A. Investigate latch alignment and adjustment for repair
- B. Apply lubricant to the latch and continue service
- C. Continue service because the latch engages
- D. Replace the hood latch as the primary cause

21. A heavy-duty truck PM inspection finds battery open-circuit voltage of 12.2 volts. The next step should be:

- A. Replace the battery as the primary cause

- B. Continue service because 12.2 volts is acceptable
- C. Continue service and re-test at next PM
- D. Charge the battery and re-test the open-circuit voltage

22. A heavy-duty truck PM inspection finds an alternator output of 12.8 volts at 1500 RPM. The next step should be:

- A. Continue service because the voltage is acceptable
- B. Investigate alternator output and regulator function for the low reading
- C. Replace the alternator as the primary cause
- D. Replace the batteries as the primary cause

23. A heavy-duty truck PM inspection scan tool retrieves multiple stored fault codes. The next step should be:

- A. Investigate each code to identify root cause and required service
- B. Clear all codes and continue service
- C. Replace the body controller as the primary cause
- D. Replace all components mentioned in codes

24. A heavy-duty truck PM inspection finds a headlight with reduced output compared to the other headlight. The next step should be:

- A. Continue service because the headlight is operational
- B. Replace both headlights as the primary action
- C. Investigate the dim headlight for connection, ground, or bulb issues
- D. Replace the headlight switch as the primary cause

25. A heavy-duty truck PM inspection finds wiring with minor abrasion damage at a routing point. The next step should be:

- A. Continue service because the damage is minor
- B. Apply paint to seal the damage
- C. Replace the entire wiring harness
- D. Repair the abrasion and address the routing condition

26. A heavy-duty truck frame PM inspection finds a small crack at a frame rivet hole. The next step should be:

- A. Document for OEM-specified repair determination
- B. Apply paint to seal the crack and continue service
- C. Drill a stop hole at the crack end
- D. Continue service and monitor crack progression

27. A heavy-duty truck frame PM inspection finds a loose crossmember bolt. The next step should be:

- A. Continue service because crossmember is supplemental
- B. Apply paint over the bolt to mark for next service
- C. Tighten to specification and inspect for additional damage
- D. Replace the crossmember as the primary action

28. A heavy-duty truck frame PM inspection finds excessive corrosion at a frame mounting point. The next step should be:

- A. Apply paint to seal the corrosion
- B. Determine remaining structural capacity through measurement and inspection

- C. Continue service because corrosion is normal
- D. Replace the frame as the primary action

29. A heavy-duty truck frame PM inspection finds debris accumulated on top of frame rails behind the cab. The next step should be:

- A. Continue service because debris does not affect operation
- B. Apply paint over the debris to prevent corrosion
- C. Document debris and continue service
- D. Remove debris and inspect underlying surface for damage

30. A heavy-duty truck PM inspection finds a fifth wheel locking jaw with visible wear. The next step should be:

- A. Determine if wear exceeds OEM service limits
- B. Lubricate and continue service
- C. Continue service because some wear is normal
- D. Replace the fifth wheel as the primary action

31. A heavy-duty truck PM inspection finds a frame component with a small dent from impact. The next step should be:

- A. Apply paint to mark the dent location
- B. Determine if the dent affects structural integrity through inspection
- C. Replace the affected component as the primary action
- D. Continue service because cosmetic dents are acceptable

32. A heavy-duty truck driveshaft PM inspection finds a U-joint with slight movement. The next step should be:

- A. Continue service because slight movement is acceptable
- B. Lubricate the U-joint and continue service
- C. Continue service and monitor at next PM
- D. Replace the U-joint because any measurable play indicates wear

33. A heavy-duty truck transmission PM inspection finds the fluid level slightly below specification. The next step should be:

- A. Add fluid to specification and inspect for leak source
- B. Replace the transmission as the primary action
- C. Replace all fluid in the transmission
- D. Continue service because slight low level is acceptable

34. A heavy-duty truck drive axle PM inspection finds breather damage. The next step should be:

- A. Continue service because breather is supplemental
- B. Apply paint to seal the breather
- C. Replace the breather and verify proper venting
- D. Replace the drive axle as the primary action

35. A heavy-duty truck driveline PM inspection finds a slip yoke with binding during movement. The next step should be:

- A. Continue service because binding is normal
- B. Replace the entire driveshaft as the primary action

- C. Apply additional lubricant and continue service
- D. Investigate slip yoke condition and lubrication for required service

36. A heavy-duty truck brake PM inspection finds brake chamber pushrod travel within FMCSA limits but increased from previous PM. The next step should be:

- A. Continue service because travel is within limits
- B. Investigate the cause of travel increase before next operating period
- C. Replace the brake chamber as the primary action
- D. Adjust the brake to reduce travel

37. A heavy-duty truck air brake PM inspection finds buildup time at the maximum specification limit. The next step should be:

- A. Investigate compressor and air system condition for the long buildup time
- B. Continue service because buildup is within specification
- C. Replace the air compressor as the primary action
- D. Replace the air dryer as the primary action

38. A heavy-duty truck brake PM inspection finds brake lining at 5mm thickness. FMCSA minimum is 4mm. The next step should be:

- A. Continue service because lining exceeds minimum
- B. Replace the linings as the primary action
- C. Determine remaining service life and schedule replacement before reaching limit
- D. Adjust the brakes to compensate for wear

39. A heavy-duty truck PM inspection finds a brake hose with minor surface cracking. The next step should be:

- A. Apply tape to seal the cracks
- B. Continue service because cracks are minor
- C. Pressure-test the hose to verify integrity
- D. Determine if cracks affect hose integrity and require replacement

40. A heavy-duty truck brake PM inspection finds a parking brake that releases slowly. The next step should be:

- A. Continue service because the parking brake releases
- B. Investigate the parking brake system for cause of slow release
- C. Apply lubricant to the parking brake mechanism
- D. Replace the parking brake assembly as the primary action

41. A heavy-duty truck brake PM inspection finds an air leak at a fitting at applied position. The leak rate exceeds FMCSA out-of-service criteria. The next step should be:

- A. Repair the leak before returning to service
- B. Continue service because the leak is at a fitting
- C. Document the leak for next service
- D. Tighten the fitting and continue service

42. A heavy-duty truck PM inspection finds a brake drum with hairline heat checks. The next step should be:

- A. Continue service because heat checks are normal

- B. Replace the drum as the primary action
- C. Determine if checks meet OEM rejection criteria
- D. Apply paint to mark the checks

43. A heavy-duty truck brake PM inspection finds an air dryer with damp air at the discharge. The next step should be:

- A. Continue service because some moisture is normal
- B. Replace the air compressor as the primary action
- C. Continue service and re-test at next PM
- D. Replace the air dryer desiccant or assembly per OEM specification

44. A heavy-duty truck steering PM inspection finds steering wheel free play at 8 degrees on a heavy-duty truck. FMCSA out-of-service is greater than 10 degrees. The next step should be:

- A. Replace the steering box as the primary action
- B. Investigate the cause of the play and determine if service is needed before progression
- C. Continue service because play is below FMCSA limit
- D. Document the play and continue service

45. A heavy-duty truck PM inspection finds a tie rod end with visible play. The next step should be:

- A. Replace the tie rod end as the primary action
- B. Lubricate the tie rod end and continue service
- C. Tighten the tie rod end connection
- D. Continue service because play is normal

46. A heavy-duty truck PM inspection finds a leaf spring with one fractured leaf. The next step should be:

- A. Continue service because remaining leaves provide capacity
- B. Add additional leaves to compensate
- C. Replace only the fractured leaf
- D. Replace the spring assembly per OEM specification

47. A heavy-duty truck PM inspection finds a shock absorber with visible oil weeping. The next step should be:

- A. Continue service because some weeping is normal
- B. Apply paint to mark the shock for next service
- C. Replace the shock absorber
- D. Document and continue service

48. A heavy-duty truck PM inspection finds a steer tire with tread depth at $\frac{5}{32}$ inch. FMCSA minimum is $\frac{4}{32}$ inch. The next step should be:

- A. Determine remaining service life and schedule replacement before reaching limit
- B. Continue service because tread exceeds minimum
- C. Replace the tire as the primary action
- D. Rotate the tire to a non-steer position

49. A heavy-duty truck PM inspection finds tire pressure 10 psi below specification. The next step should be:

- A. Continue service because the difference is small
- B. Replace the tire as the primary action
- C. Add air to maximum pressure
- D. Inflate to specification and inspect for leak source

50. A heavy-duty truck PM inspection finds a wheel lug nut with loose torque. The next step should be:

- A. Continue service because one loose nut is acceptable
- B. Re-torque and inspect for cause and damage
- C. Replace the lug nut as the primary action
- D. Apply paint to mark the nut for next service

PRACTICE EXAM 3: ANSWER KEY AND EXPLANATIONS

1. C — Send an oil sample for analysis to identify the metal source. Metal particles in drained oil indicate internal engine wear, and oil analysis identifies the specific metal source (bearings, rings, gears) to determine the affected component. Continued service without identification risks progressive damage.
2. A — Replace the air filter element before the next operating period. An air filter restriction gauge approaching the red zone indicates the filter is reaching restriction limits, with replacement before reaching the red zone preventing performance loss. Waiting until the red zone allows engine performance degradation.
3. D — Pressure-test the cooling system to identify the source of loss. Coolant level below minimum indicates loss from the system, with pressure testing identifying the leak source. Adding coolant without leak identification masks the underlying issue and risks recurrence.
4. B — Drain the water separator and verify proper operation. Water in the fuel separator indicates the separator is functioning correctly by removing water from the fuel. Drainage removes the accumulated water and prevents it from reaching the fuel system; verification confirms continued proper operation.
5. A — Add DEF to the proper level using the correct DEF specification. DEF at the low warning level requires addition to the proper level using the correct DEF specification (32.5% urea in deionized water). Other actions are inappropriate; water dilution damages the SCR system.
6. C — Investigate engine internal condition through compression or leak-down test. Excessive blow-by with normal oil level indicates internal engine wear, with compression or leak-down testing identifying the specific cause. This investigation determines the extent of internal wear and required service.
7. D — Identify the specific source and determine repair requirements. A coolant weep at a hose connection requires source identification and repair determination, with the specific source affecting the repair approach. Tightening or addition without source identification may not address the underlying issue.
8. B — Add SCA per specification and verify proper concentration. Depleted SCA inhibitor levels require SCA addition per specification, with concentration verification confirming proper levels. SCA depletion is a normal service condition that does not require coolant replacement.

9. A — Replace the belt before returning to service. Visible cracks across the belt ribs indicate belt failure is imminent, with replacement before returning to service preventing belt failure during operation. Continued service risks belt failure and accessory loss.
10. C — Replace the filter and inspect for sealing surface damage. Filter seal seepage indicates a sealing issue requiring filter replacement and inspection for sealing surface damage. The damage may be caused by improper installation, contamination, or surface condition affecting future filter installations.
11. A — Send an oil sample for analysis to identify the contamination. High oil viscosity at operating temperature indicates contamination affecting oil properties, with oil analysis identifying the specific contaminant (fuel, coolant, soot). The analysis determines the cause and required service.
12. C — Investigate air intake restriction and fuel system condition. Black smoke under load indicates incomplete combustion, with air intake restriction and fuel system issues being the most common causes. Investigation isolates the specific cause before component replacement.
13. B — Determine if the damage affects system performance through pressure testing. Charge air cooler fin damage may or may not affect system performance, with pressure testing determining if the damage compromises system integrity. Cosmetic damage may be acceptable; structural damage requires replacement.
14. D — Investigate cooling system condition including coolant flow, fan, and radiator. Coolant temperature 20°F above normal indicates a developing cooling system issue requiring investigation of coolant flow, fan operation, and radiator condition. Single component replacement without investigation is premature.
15. A — Investigate wiper motor or speed control circuit before component replacement. Wiper operating only at high speed is the classic signature of speed control circuit failure (resistor pack or speed control), with investigation identifying the specific cause before motor replacement. The motor is functional in this condition.
16. C — Inspect the seat belt for proper operation and damage. A slow-retracting seat belt requires inspection to determine if the condition affects seat belt function during a crash event. Some retraction issues are acceptable; others indicate failures requiring replacement.
17. D — Investigate the latch mechanism and door alignment for repair. A door that does not latch securely is a safety issue requiring investigation of the latch mechanism and door alignment for proper repair. Lubrication or alignment changes may not address the underlying issue.
18. B — Inspect mirror mounting and adjustment for cause of excessive vibration. Excessive mirror vibration typically traces to mounting or adjustment issues, with inspection identifying the specific cause before component replacement. Mounting wear or loose adjustment commonly produces this symptom.

19. C — Determine if the chip meets DOT removal-from-service criteria. A windshield chip in the driver's primary visual field requires evaluation against DOT removal-from-service criteria (size, location, visibility impact) to determine the proper service action. Some chips are acceptable; others require replacement.
20. A — Investigate latch alignment and adjustment for repair. A hood latch engaging with excessive force indicates alignment or adjustment issues, with investigation identifying the specific cause before component replacement. Lubrication may temporarily mask the issue without addressing the cause.
21. D — Charge the battery and re-test the open-circuit voltage. Battery open-circuit voltage of 12.2 volts indicates partial state of charge (approximately 50%), with charging required before accurate testing. The 12.2-volt reading does not indicate battery failure if the battery accepts charge properly.
22. B — Investigate alternator output and regulator function for the low reading. Alternator output of 12.8 volts at 1500 RPM is below the normal regulation range (13.8 to 14.5 volts), indicating a charging system issue. Investigation identifies the specific cause (alternator, regulator, wiring) before component replacement.
23. A — Investigate each code to identify root cause and required service. Multiple stored fault codes require individual investigation to identify the root cause of each code and determine required service. Code clearing without investigation leaves underlying issues unaddressed.
24. C — Investigate the dim headlight for connection, ground, or bulb issues. A dim headlight indicates an electrical issue (connection, ground, bulb) at that specific headlight. Investigation identifies the specific cause before component replacement.
25. D — Repair the abrasion and address the routing condition. Wiring abrasion damage requires repair of the abrasion and correction of the routing condition that caused the damage. Addressing only the surface damage without correcting the cause allows recurrence.
26. A — Document for OEM-specified repair determination. A frame crack at a rivet hole requires OEM-specified repair determination, since improper repair (paint, drilling) can mask the issue and lead to catastrophic failure. OEM procedures specify acceptable repair methods.
27. C — Tighten to specification and inspect for additional damage. A loose crossmember bolt requires tightening to specification and inspection for additional damage that may have occurred from movement. Crossmember integrity is important for overall frame structure.
28. B — Determine remaining structural capacity through measurement and inspection. Excessive frame corrosion requires structural capacity determination through measurement and inspection, with the results determining required service action. Surface treatment without structural assessment risks failure.

29. D — Remove debris and inspect underlying surface for damage. Debris on frame rails should be removed and the underlying surface inspected for damage or corrosion that the debris may have hidden. Continued debris accumulation accelerates corrosion.
30. A — Determine if wear exceeds OEM service limits. Fifth wheel locking jaw wear requires evaluation against OEM service limits to determine if continued service is acceptable. Wear within limits may continue in service; wear beyond limits requires service.
31. B — Determine if the dent affects structural integrity through inspection. A frame dent requires inspection to determine if the impact damage affects structural integrity. Cosmetic dents may be acceptable; structural dents require service.
32. D — Replace the U-joint because any measurable play indicates wear. U-joints are designed to operate without measurable play, so any movement indicates internal wear that progresses to complete failure. Continued service risks U-joint failure with potential vehicle damage.
33. A — Add fluid to specification and inspect for leak source. Low transmission fluid indicates loss from the system, with fluid addition to specification and leak source inspection being the proper action. Adding fluid without leak identification masks the underlying issue.
34. C — Replace the breather and verify proper venting. A damaged drive axle breather requires replacement and venting verification, since improper venting can cause pressure buildup and seal failures. The breather is a critical component for proper axle operation.
35. D — Investigate slip yoke condition and lubrication for required service. Slip yoke binding indicates a condition requiring investigation, with lubrication or component issues being possible causes. The investigation determines the specific cause before service action.
36. B — Investigate the cause of travel increase before next operating period. Increased pushrod travel within FMCSA limits indicates developing wear or adjustment issues, with investigation identifying the cause before progression to out-of-service condition. Proactive service prevents future out-of-service status.
37. A — Investigate compressor and air system condition for the long buildup time. Buildup time at the maximum specification limit indicates compressor or system issues developing toward out-of-service condition, with investigation identifying the specific cause. Proactive service prevents future out-of-service status.
38. C — Determine remaining service life and schedule replacement before reaching limit. Brake lining at 5mm with 4mm minimum requires service life determination and replacement scheduling before reaching the FMCSA out-of-service limit. Proactive replacement prevents unexpected out-of-service condition.
39. D — Determine if cracks affect hose integrity and require replacement. Brake hose surface cracking requires evaluation to determine if the cracks affect hose integrity, with replacement

required if integrity is compromised. Surface cracks may or may not indicate failure depending on severity.

40. B — Investigate the parking brake system for cause of slow release. A parking brake that releases slowly indicates a developing system issue requiring investigation of the parking brake system. Slow release can progress to release failures or hold issues.
41. A — Repair the leak before returning to service. An air leak exceeding FMCSA out-of-service criteria requires repair before returning to service per FMCSA requirements. Continued operation with out-of-service conditions violates FMCSA regulations.
42. C — Determine if checks meet OEM rejection criteria. Brake drum heat checks require evaluation against OEM rejection criteria, since some heat checking is acceptable while other patterns indicate drum replacement. The OEM criteria specify acceptable conditions.
43. D — Replace the air dryer desiccant or assembly per OEM specification. An air dryer with damp air at the discharge indicates desiccant saturation or failure, with replacement per OEM specification being the proper action. The air dryer is critical for moisture removal from the air system.
44. B — Investigate the cause of the play and determine if service is needed before progression. Steering free play at 8 degrees (FMCSA limit 10 degrees) indicates developing wear, with investigation identifying the cause and determining service needs before reaching out-of-service condition. Proactive service prevents future out-of-service status.
45. A — Replace the tie rod end as the primary action. Visible play at a tie rod end indicates internal wear requiring replacement, since wear cannot be corrected through lubrication or tightening. Tie rod end wear is a safety issue requiring proper repair.
46. D — Replace the spring assembly per OEM specification. A leaf spring with a fractured leaf requires assembly replacement per OEM specification, since the spring assembly is engineered as a complete unit. Partial repair (single leaf replacement) is not typically acceptable per OEM specifications.
47. C — Replace the shock absorber. Visible oil weeping from a shock absorber indicates internal failure with oil loss compromising damping function. Replacement is required to restore proper suspension damping.
48. A — Determine remaining service life and schedule replacement before reaching limit. Steer tire tread at 5/32 inch (FMCSA minimum 4/32 inch) requires service life determination and replacement scheduling before reaching the limit. Proactive replacement prevents unexpected out-of-service condition.

49. D — Inflate to specification and inspect for leak source. Tire pressure 10 psi below specification indicates pressure loss requiring inflation and leak source inspection. Adding air without leak identification masks the underlying issue.
50. B — Re-torque and inspect for cause and damage. A loose lug nut requires re-torque to specification and inspection for cause (improper installation, damaged threads, wheel damage) and damage assessment. The cause must be addressed to prevent recurrence.