PRACTICE EXAM 11: ASE T5 SIMULATION (50 QUESTIONS)

1. A heavy-truck driver complains of a low-frequency rumble from the rear of the truck that increases with vehicle speed and varies with cornering load. The most likely cause is:

A. Worn front shock absorbers

B. Mismatched dual rear tires

C. Worn rear wheel bearings on one axle

D. Excessive caster on the front wheels

2. The proper sequence for diagnosing a heavy-truck steering complaint begins with:

A. Carefully interviewing the driver to identify the exact symptom and conditions

B. Replacing the power steering pump

C. Adjusting the over-center screw on the gear cover

D. Re-torquing the front spring U-bolts

3. A heavy-truck integral hydraulic steering gear's two pressure chambers are separated by:

A. The flow control valve spool

B. The torsion bar

C. The sector shaft seal

D. The ball nut acting as a hydraulic piston

4. The proper response when a heavy-truck driver complains of accelerated front tire wear with no obvious alignment issue is to:

A. Replace the front shock absorbers immediately

B. Verify wheel bearing condition and rear axle thrust angle

C. Adjust the cab leveling valve

D. Re-torque the front spring U-bolts

5. A heavy-truck driver complains of slow steering response only at full-lock turns. The most likely cause is:

A. Excessive caster on both front wheels

B. Worn front shock absorbers

C. Insufficient power steering pump flow at full-lock conditions

D. Mismatched dual rear tires

6. The proper procedure for inspecting heavy-truck shock absorber condition requires:

A. Inspecting the body for hydraulic fluid leakage indicating internal pressure loss

B. Applying a torque wrench to the shock mounting bolts

C. Pressing on the shock with a dial indicator

D. Measuring the shock's weight on a calibrated scale

7. A heavy-truck driver complains that the front end "darts" left and right when crossing road expansion joints. The most likely cause is:

A. Excessive caster on both front wheels

B. Mismatched front tire pressures

C. Worn fifth wheel locking jaws

D. Bump steer caused by drag link not parallel to front spring at design ride height

8. The component on a heavy-truck rear suspension that allows the chassis to maintain constant ride height regardless of cargo load is the:

A. Pressure-protection valve

B. Height control valve in the air-spring system

C. Stabilizer bar

D. Pitman arm

9. The proper response when a heavy-truck driver complains of brake-related pull during deceleration is:

A. Replace the front shock absorbers

B. Adjust front-end alignment angles

C. Re-torque the front spring U-bolts

D. Verify equal brake function on both sides before checking other systems

10. A heavy-truck driver complains of a steady pull during cornering that disappears at steady tracking. The most likely cause is:

A. Excessive caster on both front wheels

B. Mismatched dual rear tires

C. A worn drag link ball stud allowing transient looseness during steering

D. Worn front shock absorbers

11. The component on a heavy-truck integral hydraulic steering gear that opens fluid passages directing pressure into the appropriate gear chamber during steering input is the:

A. Torsion bar in the rotary control valve assembly

B. Pressure relief valve

C. Flow control spool

D. Sector shaft

12. The proper procedure for engaging the trailer kingpin during fifth wheel coupling is to:

A. Drive forward at high speed for firm engagement

B. Verify the locking jaws are in the open position before backing under the trailer

C. Apply trailer brakes only and reverse the truck

D. Tilt the cab forward to provide additional clearance

13. A heavy-truck rear axle has been rotated slightly during a hard impact. The driver will perceive this as:

A. Excessive cab vibration at highway speed

B. Reduced air pressure in the rear bags

C. Loss of power steering pump engagement

D. The steering wheel sitting visibly off-center to compensate

14. A heavy-truck integral steering gear's torsion bar serves the function of:

A. Twisting slightly during steering input to direct fluid flow into the appropriate gear chamber

B. Limiting the maximum input shaft rotation angle

C. Providing the mechanical advantage of the recirculating ball gear ratio

D. Engaging the kingpin retention plug at full lock

15. The proper response when a heavy-truck wheel-end shows fluid weeping at the inboard seal but the oil bath level remains within specification is:

A. Top off the oil and continue normal service

B. Wipe away the weeping oil and continue service if no other faults are present

C. Disassemble the hub, replace the seal, and inspect the wear sleeve

D. Increase the oil capacity by adding additional fluid above the maximum mark

16. A heavy-truck driver complains of vibration that intensifies during right-hand cornering and decreases during left-hand cornering. The most likely cause is:

A. Excessive caster on the right front wheel

B. Mismatched dual rear tires

C. Excessive front tire pressure

D. A worn right front wheel bearing

17. The proper response when a heavy-truck driver reports significant steering wheel free play before any front-wheel response is to:

A. Replace the steering gear immediately

B. Inspect external linkage components for wear before performing any internal gear adjustment

C. Apply additional torque to the pitman arm nut

D. Adjust the over-center screw immediately

18. A heavy-truck driver complains that the chassis sits noticeably tilted to one side after sitting overnight, but resolves when the engine starts. The most likely cause is:

A. A leaking air bag or air supply line on the affected side

B. A bent rear axle

C. Worn fifth wheel locking jaws

D. Excessive sector shaft lash

19. The OSHA federal regulation that requires lockout/tagout procedures during heavy-truck servicing is:

A. 49 CFR 393, Subpart F

B. 49 CFR 393, Subpart G

C. 29 CFR 1910.147

D. 29 CFR 1910.177

20. The component that allows fore-and-aft repositioning of a sliding fifth wheel on the chassis is the:

A. Cab tilt mechanism

B. Pintle hook on the rear bumper

C. Pivot point at the kingpin contact surface

D. Slider lock pin engaging the slider rails

21. The proper response when a heavy-truck driver complains of slow return-to-center after a turn is:

A. Replace the front shock absorbers

B. Verify caster measurement on both front wheels

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

22. A heavy-truck driver complains of vibration that occurs at all speeds and does not change with cornering load. The most likely cause is:

A. An imbalanced wheel-and-tire assembly or out-of-round drivetrain component

B. Worn front shock absorbers

C. Mismatched front tire pressures

D. A bent pitman arm

23. The proper procedure for measuring rear axle thrust angle on a heavy-truck tractor requires:

A. Lifting the rear axle off the ground for measurement

B. Disconnecting the trailer from the fifth wheel before measurement

C. Applying parking brakes during measurement

D. Calibrated alignment equipment with the truck on a level rack at curb weight

24. The component on a heavy-truck steering linkage that synchronizes the angular position of the two front wheels during a turn is the:

A. Drag link

B. Pitman arm

C. Tie rod assembly

D. Sector shaft

25. The proper response when a heavy-truck driver complains of slow steering response that improves at higher engine RPM is:

A. Replace the front shock absorbers

B. Verify pump output, belt tension, and inspect for slip

C. Adjust the cab leveling valve

D. Re-torque the front spring U-bolts

26. A heavy-truck driver complains of significant steering effort during low-speed cornering with foamy power steering fluid. The most likely cause is:

A. Air ingestion into the suction line producing pump cavitation

B. Worn front shock absorbers

C. A bent pitman arm

D. Mismatched front tire pressures

27. The proper procedure for replacing a heavy-truck wheel seal during hub service is to:

A. Reuse the original seal if it appears undamaged

B. Apply gasket sealer to the seal lip

C. Heat the seal to soften it before installation

D. Install a new seal regardless of apparent condition of the old one

28. A heavy-truck integral hydraulic steering gear has been internally damaged from operating with low fluid level. The first observable symptom to expect is:

A. Excessive bearing endplay on the front wheels

B. Reduced maximum pressure during a full-lock dead-head test

C. Erratic ABS engagement during normal driving

D. Off-center steering wheel position

29. The proper response when a heavy-truck driver complains of significant steering wheel free play with linkage components within specification is:

A. Replace the steering gear immediately

B. Adjust the cab leveling valve

C. Inspect steering U-joints and intermediate shaft splines

D. Re-torque the front spring U-bolts

30. A heavy-truck driver complains of vibration that occurs only above a specific speed threshold (around 60 mph). The most likely cause is:

A. Worn front shock absorbers

B. A bent pitman arm

C. Mismatched front tire pressures

D. Wheel-and-tire imbalance creating speed-dependent resonance

31. The component on a heavy-truck rear suspension that allows two drive axles to share load equally as one axle articulates over a bump is the:

A. Equalizing beam

B. Drag link

C. Stabilizer bar

D. Pitman arm

32. The proper response when a heavy-truck driver complains of a clunking noise that occurs only when accelerating from a stop is:

A. Replace the front shock absorbers

B. Adjust the cab leveling valve

C. Inspect the upper torque rod bushings on the rear suspension

D. Re-torque the front spring U-bolts

33. A heavy-truck driver complains that the truck pulls toward the right shoulder. After confirming alignment angles are within specification, swapping the front tires reverses the pull direction. The most likely cause is:

A. Worn drag link ball studs

B. Tire conicity in one of the front tires

C. A bent pitman arm

D. Excessive caster on the right front wheel

34. The proper response when a heavy-truck wheel speed sensor produces erratic signals at low speeds but normal signals at highway speeds is to:

A. Replace the entire ABS controller

B. Increase tire inflation pressure

C. Adjust the cab leveling valve

D. Verify wheel bearing endplay falls within TMC RP 618 specification

35. A heavy-truck driver complains of progressively worsening front tire wear without an obvious alignment cause. The next inspection priority is:

A. Wheel bearing condition and rear axle thrust angle

B. Power steering pump output pressure

C. Cab leveling valve adjustment

D. Front shock absorber damping

36. The proper procedure for verifying that a pre-adjusted heavy-truck wheel bearing system is correctly installed is:

A. Apply a torque wrench to the wheel nuts and read residual torque

B. Spin the wheel and listen for noise

C. Verify endplay with a dial indicator falls within the 0.001 to 0.005 inch range

D. Confirm the lock washer is missing from the assembly

37. The component on a heavy-truck integral hydraulic steering gear that establishes the gear's center mesh tightness during over-center adjustment is the:

A. Pitman arm

B. Sector shaft

C. Recirculating ball

D. Torsion bar

38. The proper procedure for diagnosing a heavy-truck pull complaint is to:

A. Replace the front shock absorbers

B. Adjust toe at the tie rod adjusting sleeves

C. Disconnect the steering linkage at the pitman arm

D. Verify tire pressures and inspect tires for damage and conicity

39. A heavy-truck rear suspension uses a walking-beam design. This architecture is typically chosen for:

A. Severe off-highway service such as concrete mixers and oilfield equipment

B. Highway tractor applications with maximum fuel economy

C. Light medium-duty delivery trucks

D. Bus chassis with air-spring requirements

40. The proper response when a heavy-truck driver complains that the chassis sits significantly lower than design ride height is:

A. Replace the rear shock absorbers

B. Drain the power steering reservoir

C. Verify the height control valve linkage and inspect for a stuck-closed valve

D. Re-torque the front spring U-bolts

41. The proper response when a heavy-truck wheel has been operated with extreme overload is:

A. Continue service if no obvious damage is visible

B. Reduce inflation pressure to compensate

C. Add additional grease to the bearings

D. Inspect studs, bearings, rim, and hub for damage and replace as needed

42. The component that holds air pressure inside a tubeless heavy-truck tire is:

A. A separate inner tube installed inside the tire

B. The air-impermeable inner liner combined with a sealed bead-to-rim contact

C. The tire's outer tread surface

D. A factory-applied sealant inside the tire body

43. The proper response when a heavy-truck driver complains that the steering wheel feels gritty during rotation is to:

A. Inspect the steering column upper support bearing for damage or contamination

B. Drain the power steering reservoir

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

44. A heavy-truck oil-bath wheel-end has fluid level visible at the upper mark on the sight glass. The technician should:

A. Drain and refill with a different fluid grade

B. Replace the inboard seal as a precaution

C. Continue normal service if no other faults are present

D. Add additional oil to provide reserve capacity

45. The proper response when a heavy-truck driver complains of a thumping sound at the fifth wheel during acceleration and braking transitions is:

A. Re-torque the front spring U-bolts immediately

B. Inspect the kingpin lock-up clearance with a 2-inch kingpin gauge

C. Replace the rear shock absorbers

D. Adjust the cab air suspension valve

46. A heavy-truck driver complains of slow steering response after starting the truck on a cold morning, but the response improves after the engine warms up. The most likely cause is:

A. Cold-fluid viscosity producing reduced pump output until warmed

B. Worn front shock absorbers

C. A bent pitman arm

D. Mismatched front tire pressures

47. The proper response when a heavy-truck wheel has been operated with loose nuts before being properly retorqued is:

A. Apply additional torque beyond specification

B. Add lock washers between the nuts and the wheel face

C. Continue service if the nuts are now properly torqued

D. Inspect the studs for damage and replace any showing fatigue cracks

48. The component on a heavy-truck steer axle that combines with caster to produce wheel-return-to-center behavior is:

A. Toe

B. Camber

C. Steering axis inclination (SAI/KPI)

D. Thrust angle

49. The proper response when a heavy-truck driver complains of significant steering wheel free play that the technician cannot eliminate through linkage adjustment is:

A. Replace the front shock absorbers

B. Verify sector shaft lash adjustment on the steering gear

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

50. A heavy-truck driver complains of vibration that worsens during cornering on either side and improves at steady tracking. The most likely cause is:

A. Bearing wear in both front wheel-ends

B. Mismatched dual rear tires

C. A bent pitman arm

D. Excessive caster on both front wheels

PRACTICE EXAM 11: ANSWER KEY AND EXPLANATIONS

1. C — Worn rear wheel bearings on one axle. A low-frequency rumble that increases with vehicle speed and varies with cornering load is the classic signature of bearing wear. The cornering load shifts weight onto the affected side, intensifying the noise from the worn bearing while reducing it on the unloaded side.

2. A — Carefully interviewing the driver to identify the exact symptom and conditions. Effective steering diagnosis depends on understanding exactly what the driver is experiencing — pull, wander, hard steering, free play, vibration, or noise — and under what conditions. The interview narrows the diagnostic focus before any inspection or testing begins.

3. D — The ball nut acting as a hydraulic piston. The ball nut's outer surface and the housing's matching bore are precisely sealed, dividing the gear interior into two pressure chambers — one above the ball nut and one below. Pressurized fluid in one chamber forces the ball nut linearly to provide power assist.

4. B — Verify wheel bearing condition and rear axle thrust angle. Front tire wear without an obvious alignment cause often originates in worn wheel bearings (allowing camber-like tilt) or rear axle thrust angle (forcing the driver to compensate with steering input that scrubs the front tires). Both must be checked before condemning components or replacing tires.

5. C — Insufficient power steering pump flow at full-lock conditions. Slow steering response only at full-lock turns indicates the pump cannot deliver enough flow at peak demand. Pump wear, belt slip at low engine RPM, or fluid issues all produce this signature where the pump runs out of capacity at full-lock.

6. A — Inspecting the body for hydraulic fluid leakage indicating internal pressure loss. The most reliable visual inspection of a heavy-truck shock absorber is examining the body for hydraulic fluid leakage. A weeping shock has lost internal pressure and damping capability, even if its external mounting appears intact.

7. D — Bump steer caused by drag link not parallel to front spring at design ride height. Bump steer is the truck's tendency to steer when the front suspension hits a bump without driver input. The cause is geometric mismatch between the drag link's angle and the suspension's arc of motion, producing the characteristic darting over expansion joints.

8. B — Height control valve in the air-spring system. The height control valve continuously meters air into and out of the bags to maintain constant ride height regardless of cargo load. Without this

valve, the chassis attitude would change with every load adjustment, affecting alignment and headlight aim.

9. D — Verify equal brake function on both sides before checking other systems. Brake-related pull is a brake system fault, not an alignment or suspension fault. The diagnostic priority is to confirm equal brake performance side-to-side before considering other potential causes.

10. C — A worn drag link ball stud allowing transient looseness during steering. A pull that occurs only during cornering inputs but disappears at steady tracking is the signature of a worn linkage joint that becomes loose only under transient loads. The looseness allows the wheel to deviate briefly during steering inputs.

11. A — Torsion bar in the rotary control valve assembly. The torsion bar links the input shaft to the worm shaft and twists slightly when the driver applies steering torque, opening fluid passages that direct pump pressure into the appropriate gear chamber. When torque is released, the bar untwists and pressure equalizes.

12. B — Verify the locking jaws are in the open position before backing under the trailer. The fifth wheel locking jaws must be open before the kingpin enters the throat for proper engagement. Backing into a closed-jaw fifth wheel can damage both the jaws and the kingpin.

13. D — The steering wheel sitting visibly off-center to compensate. A rotated rear axle creates a thrust angle that the driver compensates for by holding the steering wheel off-center to maintain straight-line travel. The off-center wheel position is the visible signature of rear-axle alignment error.

14. A — Twisting slightly during steering input to direct fluid flow into the appropriate gear chamber. The torsion bar twists during the driver's steering input, opening fluid passages that route pump pressure to the correct gear chamber. When torque is released, the bar untwists and the passages close, equalizing pressure between chambers.

15. C — Disassemble the hub, replace the seal, and inspect the wear sleeve. A weeping seal indicates a failed sealing interface that requires complete service. The wear sleeve on the spindle may be damaged or worn, and reusing the existing seal would simply continue the failure pattern.

16. D — A worn right front wheel bearing. Vibration that intensifies during right-side cornering and decreases during left-side cornering indicates a bearing that loads more heavily during right-side cornering. The cornering load transfers additional weight to the right wheel, intensifying noise from the worn bearing.

17. B — Inspect external linkage components for wear before performing any internal gear adjustment. External linkage wear (drag link, tie rod ends, kingpin bushings) is far more common than internal gear wear and should be eliminated first. Adjusting the gear without addressing external wear produces a setting that drifts as soon as the truck moves.

18. A — A leaking air bag or air supply line on the affected side. Tilt that resolves at engine start indicates an air supply that holds during operation but cannot maintain pressure during shutdown. The height control valve restores pressure when the engine starts and the air system recharges, masking the underlying leak.

19. C — 29 CFR 1910.147. This OSHA regulation governs the control of hazardous energy through lockout/tagout procedures. It applies to heavy-truck servicing whenever the engine could be started or systems could be inadvertently energized during the work.

20. D — Slider lock pin engaging the slider rails. The slider lock pin is the mechanical retention component that holds the fifth wheel at a chosen position on the slider rails. When the pin is disengaged, the fifth wheel can be repositioned along the rails to optimize weight distribution.

21. B — Verify caster measurement on both front wheels. Slow return-to-center after a turn indicates inadequate self-centering force, which positive caster provides. Verifying caster is the next diagnostic step when the symptom describes weak return-to-center behavior.

22. A — An imbalanced wheel-and-tire assembly or out-of-round drivetrain component. Vibration that occurs at all speeds and does not change with cornering load is the diagnostic signature of imbalance or runout in a rotating component, rather than a load-sensitive component like a bearing.

23. D — Calibrated alignment equipment with the truck on a level rack at curb weight. Thrust angle measurement requires a calibrated alignment system with the truck at curb weight on a level rack. Other approaches do not provide the geometric reference needed for accurate measurement.

24. C — Tie rod assembly. The tie rod connects the left front steering knuckle to the right front steering knuckle through steering arms at each knuckle. When one knuckle pivots, the tie rod transmits the same motion to the other, ensuring both wheels turn together.

25. B — Verify pump output, belt tension, and inspect for slip. Slow steering response that improves as engine RPM increases indicates the pump is not delivering enough flow at low speeds. Belt slip and internal pump wear both produce this signature where higher RPM compensates for the underlying flow deficiency.

26. A — Air ingestion into the suction line producing pump cavitation. Foamy power steering fluid is the diagnostic signature of air being drawn into the pump suction. Cavitation reduces the pump's ability to deliver flow, producing the increased steering effort the driver describes.

27. D — Install a new seal regardless of apparent condition of the old one. Wheel seals must always be replaced when a hub is opened because the lip is easily disturbed during disassembly and rarely reseats properly. Even an apparently undamaged seal will frequently begin weeping within hundreds of miles after disturbance.

28. B — Reduced maximum pressure during a full-lock dead-head test. Internal damage from low-fluid operation typically produces seal degradation that allows fluid to bypass between chambers.

The first measurable indication is reduced peak pressure during the dead-head test, where the gear cannot retain fluid pressure during full-lock.

29. C — Inspect steering U-joints and intermediate shaft splines. With external linkage cleared, the next suspect is the rotational path between the column and the steering gear. Worn U-joints accumulate rotational lag that the driver perceives as steering wheel free play.

30. D — Wheel-and-tire imbalance creating speed-dependent resonance. Vibration that occurs only above a specific speed and disappears below it is the diagnostic signature of dimensional or balance variation that produces resonance at a specific rotational frequency.

31. A — Equalizing beam. The equalizing beam pivots at its center, allowing one drive axle to rise while the other drops by an equal amount. This mechanical equalization keeps both axles loaded and in contact with the road regardless of road surface irregularities.

32. C — Inspect the upper torque rod bushings on the rear suspension. Clunking that occurs only during acceleration from a stop is the diagnostic signature of axle wind-up under torque inputs. Worn upper torque rod bushings allow the axle to rotate slightly under acceleration, producing the characteristic clunk.

33. B — Tire conicity in one of the front tires. When swapping front tires reverses the pull direction, the cause is tied to the tire itself rather than alignment, brakes, or suspension. Conicity creates a constant lateral force at the contact patch that follows whichever side the affected tire is mounted on.

34. D — Verify wheel bearing endplay falls within TMC RP 618 specification. At low speeds, hub wobble produces detectable variation in the sensor-to-tone-ring air gap, generating erratic ABS readings. At highway speed, the rotational momentum stabilizes the hub motion and the ABS signal becomes consistent.

35. A — Wheel bearing condition and rear axle thrust angle. Front tire wear without an obvious alignment cause often originates in worn wheel bearings or rear axle thrust angle. Both must be checked before condemning components or replacing tires.

36. C — Verify endplay with a dial indicator falls within the 0.001 to 0.005 inch range. The TMC RP 618 endplay specification applies to both manually adjusted and pre-adjusted hub systems. Verification with a dial indicator confirms the specification has been met.

37. B — Sector shaft. The sector shaft's axial taper, combined with the over-center adjusting screw bearing against the shaft end, sets the gear's center mesh tightness. Tightening the screw advances the sector shaft into deeper mesh with the ball nut teeth, reducing lash at the gear's center position.

38. D — Verify tire pressures and inspect tires for damage and conicity. Tire-related causes are the most common, easiest to verify, and least invasive to address. Beginning with tire inspection prevents unnecessary alignment adjustments when the actual cause is a tire issue.

39. A — Severe off-highway service such as concrete mixers and oilfield equipment. Walking-beam suspensions use heavy rigid construction with rubber compliance pads designed to handle the impact loads of severe off-highway operation. They sacrifice ride quality for maximum equalization and durability.

40. C — Verify the height control valve linkage and inspect for a stuck-closed valve. Chassis ride height below specification with normal air pressure points to a control circuit fault. The height control valve linkage may be misadjusted, damaged, or stuck-closed, preventing the valve from inflating the bags to the proper level.

41. D — Inspect studs, bearings, rim, and hub for damage and replace as needed. Severe overload events stress wheel-end components beyond their design limits. Studs may have stretched, bearings may have sustained heat damage, and the rim may have deformation — all require inspection before continued service.

42. B — The air-impermeable inner liner combined with a sealed bead-to-rim contact. Tubeless tires hold air through the tire's own air-impermeable inner liner combined with the airtight seal between the tire bead and the wheel rim. No separate inner tube is required.

43. A — Inspect the steering column upper support bearing for damage or contamination. The grinding sensation felt at the steering wheel indicates rough rotation in a column-mounted component, most commonly the upper support bearing. Hydraulic system faults produce different sensations like effort changes or whining, not gritty rotation.

44. C — Continue normal service if no other faults are present. A reading at the upper mark on the sight glass indicates the oil-bath system is operating with proper fluid level. If no other faults are visible during inspection, the wheel-end is functioning as designed.

45. B — Inspect the kingpin lock-up clearance with a 2-inch kingpin gauge. A thumping sound during acceleration and braking transitions is the classic signature of excessive lock-up clearance, where the trailer kingpin has play within the locked jaws. The clearance must be checked with a kingpin gauge and adjusted or jaws replaced if it exceeds 1/8 inch.

46. A — Cold-fluid viscosity producing reduced pump output until warmed. Cold hydraulic fluid is significantly thicker than warm fluid, which reduces flow through the pump and gear. As the fluid warms, viscosity drops and steering response returns to specification.

47. D — Inspect the studs for damage and replace any showing fatigue cracks. Loose-nut operation flexes the studs under each wheel rotation, initiating fatigue cracks that may not be visible without close inspection. A wheel run on loose nuts is a candidate for stud replacement, not just retorque.

48. C — Steering axis inclination (SAI/KPI). Caster causes the wheels to climb against the self-centering force during a turn, and SAI/KPI causes the wheels to follow a slight upward arc. Together they produce the wheel-return-to-center behavior on heavy trucks.

49. B — Verify sector shaft lash adjustment on the steering gear. When linkage components have been ruled out, the gear's internal sector shaft lash becomes the next suspect. Excessive lash within the gear produces steering wheel free play that is not detectable by external linkage inspection alone.

50. A — Bearing wear in both front wheel-ends. Vibration that worsens during cornering on either side and improves at steady tracking indicates bearing wear in both front wheels. The cornering load transfers additional weight to the affected bearing on each side, intensifying noise from each.