PRACTICE EXAM 13: ASE T5 SIMULATION (50 QUESTIONS)

1. A heavy-truck driver complains that the steering wheel feels stiff at the very beginning of a turn but becomes easier once the wheels begin to rotate. The most likely cause is:

A. Binding at a kingpin pivot or the steering column U-joints

B. Excessive caster on both front wheels

C. A worn power steering pump

D. Mismatched front tire pressures

2. The proper response when a heavy-truck driver complains of accelerated outside-shoulder wear on a single front tire is to:

A. Re-torque the front spring U-bolts

B. Replace the front shock absorbers

C. Verify camber and toe specifications on the affected wheel

D. Adjust the cab leveling valve

3. The component on a heavy-truck integral hydraulic steering gear that translates the input shaft's rotation into linear motion is the:

A. Sector shaft

B. Worm shaft and recirculating ball mechanism

C. Pitman arm

D. Torsion bar

4. A heavy-truck rear suspension uses an air-spring design with a height control valve. The component that adjusts the link rod length to set chassis ride height is:

A. The pressure-protection valve

B. The stabilizer bar end link bushing

C. The drag link adjusting sleeve

D. The threaded link rod or its attachment clamp

5. The proper procedure for diagnosing a heavy-truck pull complaint begins with:

A. Verifying tire pressures and inspecting tires for damage and conicity

B. Replacing the front shock absorbers

C. Adjusting toe at the tie rod adjusting sleeves

D. Disconnecting the steering linkage at the pitman arm

6. The component on a heavy-truck steer axle that supports the vertical load between the steering knuckle and the lower face of the axle eye is the:

A. Upper kingpin bushing

B. Lower kingpin bushing

C. Thrust bearing

D. Sealing flange

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

A. Replace the rear shock absorbers

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

C. Drain the power steering reservoir

D. Re-torque the front spring U-bolts

8. A heavy-truck driver complains of slow steering response that improves at higher engine RPM. The most likely cause is:

A. Excessive bearing endplay at the wheel-end

B. A bent pitman arm

C. Mismatched dual rear tires

D. Insufficient pump output at idle from belt slip or worn pump

9. The proper response when a heavy-truck driver complains that the steering wheel returns slowly to center after a turn is to:

A. Verify caster measurement on both front wheels

B. Replace the front shock absorbers

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

10. The component on a heavy-truck rear suspension that resists axle wind-up under braking and acceleration torque on an air-spring design is the:

A. Drag link

B. Stabilizer bar

C. Torque rod

D. Pitman arm

11. A heavy-truck driver complains of a clunking noise during cornering that is most pronounced when transitioning over rough pavement. The most likely cause is:

A. Excessive bearing preload at the wheel-end

B. Worn stabilizer bar end link bushings

C. A bent pitman arm

D. Loose front spring U-bolts

12. The proper procedure for inflating a heavy-truck multi-piece rim wheel under OSHA 29 CFR 1910.177 requires:

A. Inflating at a remote location away from any structure

B. Standing directly in line with the rim during inflation

C. Using a hand-held inflation chuck for precise control

D. A tire cage with a clip-on remote inflation chuck while standing outside the trajectory zone

13. A heavy-truck integral hydraulic steering gear has been internally damaged from operating with low fluid level. The technician should expect to find:

A. Excessive bearing endplay on the front wheels

B. Off-center steering wheel position

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

D. Erratic ABS engagement during normal driving

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

A. Inspect steering U-joints and intermediate shaft splines

B. Replace the steering pump

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

15. A heavy-truck driver complains of a 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. Worn front shock absorbers

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

16. 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. Pressure relief valve

B. Torsion bar in the rotary control valve assembly

C. Flow control spool

D. Sector shaft

17. The proper response when a heavy-truck oil-bath wheel-end has fluid level below the minimum mark on the sight glass is to:

A. Continue normal service if no other faults are present

B. Apply additional grease to compensate

C. Identify and correct the leak source before topping off

D. Drain the oil and refill with a different fluid grade

18. A heavy-truck driver complains of a sudden onset of pull after a recent tire change. The most likely cause is:

A. A new tire with internal conicity defect

B. Excessive caster on the affected wheel

C. Worn rear torque rod bushings

D. A bent pitman arm

19. The proper response when a heavy-truck driver complains of progressively worsening front tire wear without an obvious alignment cause is to:

A. Replace the front shock absorbers

B. Adjust toe at the tie rod adjusting sleeves

C. Re-torque the front spring U-bolts

D. Verify wheel bearing condition and rear axle thrust angle

20. 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. Drag link

B. Equalizing beam

C. Stabilizer bar

D. Pitman arm

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

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

B. Apply additional torque beyond specification

C. Continue service if the nuts are now properly torqued

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

22. 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

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

A. Replace the steering pump

B. Verify sector shaft lash adjustment on the steering gear

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

24. A heavy-truck driver complains of vibration that occurs only above 55 mph and disappears at lower speeds. The most likely cause is:

A. A bent pitman arm

B. Worn front shock absorbers

C. Mismatched front tire pressures

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

25. The proper response when a heavy-truck driver complains that the chassis sits noticeably tilted to one side after sitting overnight, but resolves when the engine starts is:

A. Inspect for a leaking air bag or air supply line on the lower side

B. Replace the rear shock absorbers

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

26. The proper response when a heavy-truck driver reports a steady pull during straight-line driving and swapping the front tires reverses the pull direction is to:

A. Re-torque the front spring U-bolts

B. Replace the steering gear

C. Diagnose tire conicity in one of the front tires

D. Adjust the cab leveling valve

27. The proper response when a heavy-truck driver complains of slow steering response that improves as the engine warms is to:

A. Re-torque the front spring U-bolts

B. Recognize cold-fluid viscosity reducing pump output until warmed

C. Replace the front shock absorbers

D. Adjust the cab leveling valve

28. A heavy-truck driver complains of accelerated front tire wear with feathered edges pointing toward the inside of the tread. The most likely cause is:

A. Worn front shock absorbers

B. Chronic underinflation

C. Excessive negative camber

D. Excessive toe-out

29. The proper response when a heavy-truck driver complains of a sudden onset of hard steering after driving through a deep puddle is to:

A. Verify belt tension and inspect for water-related belt slip

B. Replace the steering gear immediately

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

D. Re-torque the front spring U-bolts

30. 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

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

A. 49 CFR 393, Subpart F

B. 29 CFR 1910.147

C. 29 CFR 1910.177

D. 49 CFR 393, Subpart G

32. 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

33. The proper response when a heavy-truck driver complains that the truck "remembers" a previous steering input and continues drifting in that direction after the wheel returns to center is to:

A. Inspect kingpin pivots and steering column U-joints for binding

B. Replace the front shock absorbers

C. Re-torque the front spring U-bolts

D. Adjust the cab leveling valve

34. 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. Worn front shock absorbers

B. Mismatched front tire pressures

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

D. A bent pitman arm

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

A. Re-torque the front spring U-bolts

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

36. 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

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. Sector shaft

B. Pitman arm

C. Recirculating ball

D. Torsion bar

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

A. Worn front shock absorbers

B. Mismatched dual rear tires

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

D. Excessive caster on both front wheels

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

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

40. 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

41. 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

42. The proper response when a heavy-truck driver complains of significant steering effort during low-speed cornering with foamy power steering fluid is:

A. Replace the steering gear

B. Re-torque the front spring U-bolts

C. Adjust the over-center screw

D. Inspect the suction line for air ingestion that produces pump cavitation

43. The proper response when a heavy-truck driver complains that the truck pulls toward one side during cornering but tracks straight at all other times is:

A. Replace the front shock absorbers

B. Re-torque the front spring U-bolts

C. Inspect the drag link ball studs for transient looseness during steering

D. Adjust the cab leveling valve

44. The component on a heavy-truck integral hydraulic steering gear that maintains the maximum allowable system pressure is the:

A. Flow control valve spool

B. Pressure relief valve

C. Torsion bar

D. Sector shaft seal

45. A heavy-truck driver complains of a clunking noise that occurs only when accelerating from a stop. The most likely cause is:

A. Worn upper torque rod bushings on the rear suspension

B. Worn stabilizer bar end link bushings

C. Excessive caster on both front wheels

D. Mismatched dual rear tires

46. The component on a heavy-truck rear suspension that resists side-to-side body roll during cornering is the:

A. Drag link

B. Pitman arm

C. Torque rod

D. Stabilizer bar

47. 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. Heat the seal to soften it before installation

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

D. Apply gasket sealer to the seal lip

48. A heavy-truck driver complains of slow return-to-center after a turn. Pump pressure tests within specification, fluid level is correct, and front-end mechanical components are intact. The next inspection priority is:

A. Front shock absorber damping

B. Caster measurement on both front wheels

C. Cab leveling valve adjustment

D. Stabilizer bar end link bushing condition

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

A. Tie rod assembly

B. Drag link

C. Pitman arm

D. Sector shaft

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

D. Adjust the cab leveling valve

PRACTICE EXAM 13: ANSWER KEY AND EXPLANATIONS

1. A — Binding at a kingpin pivot or the steering column U-joints. Stiffness at the very beginning of a turn that resolves once the wheels begin rotating is the diagnostic signature of binding in a pivot or joint. Once breakaway friction is overcome, the system rotates freely, producing the characteristic initial-input resistance.

2. C — Verify camber and toe specifications on the affected wheel. Outside-shoulder wear on a single front tire indicates an alignment angle issue specific to that wheel. Excessive positive camber or excessive toe-in on the affected side both produce outside-edge wear, requiring measurement and adjustment.

3. B — Worm shaft and recirculating ball mechanism. The worm shaft on the input side rotates as the steering wheel turns, and steel ball bearings circulating between the worm threads and ball nut threads translate the ball nut linearly. This linear motion drives the sector gear that produces pitman arm rotation.

4. D — The threaded link rod or its attachment clamp. The link rod between the height control valve lever and the axle is typically threaded, allowing length adjustment by rotating the rod or by moving its attachment clamp. Lengthening raises ride height; shortening lowers it.

5. A — Verifying tire pressures and inspecting 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.

6. C — Thrust bearing. The thrust bearing sits between the lower face of the axle eye and the lower face of the steering knuckle, supporting the vertical load of the front wheel. Without an intact thrust bearing, the knuckle settles directly onto the axle eye, causing severe friction.

7. B — Verify the height control valve linkage and inspect for a stuck-closed valve. Chassis ride height below specification 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.

8. D — Insufficient pump output at idle from belt slip or worn pump. 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.

9. A — 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.

10. C — Torque rod. Air bags themselves cannot transmit longitudinal forces, so air-spring suspensions rely on torque rods to fix the axle's longitudinal position and resist axle wind-up under braking and acceleration. Without torque rods, the axle would simply rotate about its own axis.

11. B — Worn stabilizer bar end link bushings. A clunking noise during cornering and uneven pavement transitions is the diagnostic signature of worn stabilizer bar end link bushings. The bushings allow the bar to disengage partially, producing the cornering-specific noise.

12. D — A tire cage with a clip-on remote inflation chuck while standing outside the trajectory zone. OSHA 29 CFR 1910.177 requires multi-piece rim inflation inside a restraining device with a clip-on remote inflation chuck specifically to position the technician outside the trajectory zone. Multi-piece rim component failures during inflation can be fatal without these protections.

13. C — 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.

14. A — 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.

15. D — 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.

16. B — 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.

17. C — Identify and correct the leak source before topping off. A wheel-end with low oil indicates an active leak that will continue to drain fluid in service. Topping off without addressing the leak source defers but does not prevent eventual lubrication failure and bearing damage.

18. A — A new tire with internal conicity defect. Pull that begins suddenly after a tire change points strongly to the new tire as the cause. Internal conicity creates a constant lateral force at the contact patch that pulls the truck regardless of pressure or alignment.

19. D — 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).

20. B — 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.

21. A — 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 extremely loose nuts is a candidate for stud replacement, not just retorque.

22. 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.

23. 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.

24. 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.

25. A — Inspect for a leaking air bag or air supply line on the lower 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.

26. C — Diagnose 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.

27. B — Recognize cold-fluid viscosity reducing 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.

28. D — Excessive toe-out. Feathered wear with sharp edges pointing inward is the diagnostic signature of toe-out, where the tire is dragged sideways with each tread block scrubbing toward the inside.

29. A — Verify belt tension and inspect for water-related belt slip. Sudden onset of hard steering after driving through water typically traces to a wet drive belt slipping under load. The slip reduces

pump output during turning maneuvers, producing the rapid onset of hard steering until the belt dries.

30. 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.

31. B — 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.

32. 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.

33. A — Inspect kingpin pivots and steering column U-joints for binding. Memory steer is caused by binding components that prevent the steering system from naturally returning to its centered position. The binding holds the system in the last steering direction even after the driver releases input.

34. C — 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.

35. 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 2-inch kingpin gauge and adjusted or jaws replaced if it exceeds 1/8 inch.

36. 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.

37. A — 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. 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.

39. 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.

40. 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.

41. 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.

42. D — Inspect the suction line for air ingestion that produces 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.

43. C — Inspect the drag link ball studs for 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.

44. B — Pressure relief valve. The pressure relief valve opens when system pressure exceeds the maximum design value, typically 1,500 to 2,200 psi, protecting pump seals, hose assemblies, and gear seals from rupture during full-lock turns.

45. A — Worn 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.

46. D — Stabilizer bar. The stabilizer bar is a torsion bar that connects the left and right sides of the suspension. When body roll occurs, the bar twists and resists differential motion between the two sides, transferring load to reduce roll angle.

47. C — 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.

48. B — Caster measurement on both front wheels. Slow return-to-center after a turn indicates inadequate self-centering force, which positive caster provides. With normal hydraulic pressure and intact mechanical components, low caster is the most likely cause.

49. A — 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.

50. C — 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.