PRACTICE EXAM 5: A4 SIMULATION — SUSPENSION AND STEERING

1. A vehicle's left front camber reads positive 0.8 degrees and right front camber reads positive 0.2 degrees. The manufacturer specification is 0.0 degrees ± 0.5 degree. The MOST likely effect is:

A. Both wheels within specification

B. A failed power steering pump

C. The vehicle will pull to the left

D. Air in the clutch hydraulic system

2. The proper procedure for adjusting front camber on a vehicle equipped with eccentric cam adjusters is to:

A. Loosen the cam adjusters, rotate to specification, retorque, and verify

B. Apply compressed air to the cams

C. Replace the control arms as a precaution

D. Visually estimate the adjustment

3. A vehicle's left front caster reads positive 4.5 degrees and right front caster reads positive 4.5 degrees. The manufacturer specification is positive 3.5 degrees ± 0.5 degree. The MOST likely effect is:

A. The vehicle will pull to the left

B. The vehicle will pull to the right

C. Tire wear on the inside edge

D. Heavy steering effort and slow steering wheel return

4. The proper procedure for adjusting front caster on a vehicle equipped with strut rod adjusters is to:

A. Apply compressed air to the strut rods

B. Loosen the strut rod adjusters, adjust to specification, retorque, and verify

C. Replace the strut rods as a precaution

D. Visually estimate the adjustment

5. A vehicle's front toe measurement reads negative 0.10 inch (toe-out). The manufacturer specification is positive 0.05 inch ± 0.05 inch (toe-in). The MOST likely effect on tire wear is:

A. Even tire wear across the tread

B. A failed power steering pump

C. Inside edge wear on both front tires

D. Outside edge wear on both front tires (feathering toward the inside)

6. The proper procedure for measuring toe-out on turns (Ackermann angle) is to:

A. Apply compressed air to the wheels

B. Replace the steering knuckle as a precaution

C. Turn the steering to a specified angle on one wheel, measure the corresponding angle on the opposite wheel, and compare to specification

D. Visually estimate the angle

7. A vehicle's toe-out on turns measurement is significantly out of specification. The MOST likely cause is:

A. Bent steering arms, bent steering knuckles, or frame damage affecting steering geometry

B. A worn power steering pulley

C. A failed power steering pump

D. Air in the clutch hydraulic system

8. The proper purpose of toe-out on turns (also called turning radius or Ackermann angle) is to:

A. Generate hydraulic pressure for the steering system

B. Drive the steering pump during operation

C. Filter contaminants from the steering fluid

D. Allow the inside wheel to turn at a sharper angle than the outside during cornering, preventing tire scrub

9. A vehicle's steering axis inclination (SAI) reads 8.2 degrees on the left and 9.8 degrees on the right. The manufacturer specification is 9.0 degrees ± 0.5 degree. The MOST likely cause is:

A. A failed power steering pump

B. Bent suspension or steering components on the left side

C. A worn power steering pulley

D. Air in the clutch hydraulic system

10. The proper purpose of steering axis inclination (SAI) is to:

A. Generate hydraulic pressure for the steering system

B. Drive the steering pump during operation

C. Provide directional stability and self-centering through the inward tilt of the steering axis

D. Filter contaminants from the steering fluid

11. A vehicle's included angle reads 9.5 degrees on the left and 11.0 degrees on the right. SAI is within specification on both sides. The MOST likely cause is:

A. A bent steering knuckle on the right side affecting included angle

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

12. The proper purpose of included angle is to:

A. Generate hydraulic pressure for the steering system

B. Drive the steering pump during operation

C. Filter contaminants from the steering fluid

D. Provide a calculated angle (SAI plus camber) used to identify bent steering knuckles

13. A vehicle's scrub radius is significantly different on the left side compared to the right. The MOST likely cause is:

A. A failed power steering pump

B. Differences in wheel offset, tire size, or bent suspension components affecting the scrub radius

C. A worn power steering pulley

D. Air in the clutch hydraulic system

14. The proper purpose of scrub radius is to:

A. Generate hydraulic pressure for the steering system

B. Drive the steering pump during operation

C. Affect steering feel and the response of the vehicle to road inputs

D. Filter contaminants from the steering fluid

15. A vehicle equipped with a solid front axle (4WD truck) has been brought in for a complaint of pull. The MOST likely alignment angle to address is:

A. Caster, since solid axle vehicles primarily use caster differences to correct pull

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

16. The proper procedure for adjusting caster on a solid front axle vehicle equipped with caster shims is to:

A. Apply compressed air to the axle

B. Install or remove caster shims between the axle and the leaf springs to adjust caster

C. Replace the leaf springs as a precaution

D. Visually estimate the adjustment

17. A vehicle's right front tire shows feather-edge wear with the feather pointing toward the inside of the tire. The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Air in the clutch hydraulic system

D. Excessive toe-out on that wheel

18. A vehicle's right front tire shows feather-edge wear with the feather pointing toward the outside of the tire. The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Excessive toe-in on that wheel

D. Air in the clutch hydraulic system

19. A vehicle's tire shows wear concentrated in the center of the tread, with the edges showing significantly less wear. The MOST likely cause is:

A. Tire over-inflation, causing the center of the tread to bear more load than the edges

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

20. A vehicle's tire shows wear concentrated on both edges of the tread, with the center showing significantly less wear. The MOST likely cause is:

A. A failed power steering pump

B. Tire under-inflation, causing the edges of the tread to bear more load than the center

C. A worn power steering pulley

D. Air in the clutch hydraulic system

21. A vehicle's tire shows diagonal wear (a wear pattern that crosses the tread at an angle). The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Air in the clutch hydraulic system

D. A combination of camber and toe issues, or worn suspension components allowing wheel position to vary

22. The proper procedure for diagnosing a tire wear complaint is to:

A. Apply compressed air to the tire

B. Replace the tire as a precaution

C. Identify the wear pattern, verify tire pressure, perform a four-wheel alignment, and inspect components

D. Replace the steering rack as a precaution

23. A vehicle's left rear camber reads negative 1.5 degrees and right rear camber reads negative 0.5 degrees. The manufacturer specification is negative 0.5 degrees ± 0.5 degree. The MOST likely tire wear pattern is:

A. Significant inside-edge wear on the left rear tire

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

24. The proper procedure for adjusting rear camber on a vehicle equipped with adjustable rear control arms is to:

A. Apply compressed air to the suspension

B. Replace the control arms as a precaution

C. Visually estimate the adjustment

D. Loosen the camber adjustment cam, adjust to specification, retorque, and verify the measurement

25. A vehicle's rear toe measurement reads positive 0.20 inch toe-in on each rear wheel. The manufacturer specification is positive 0.05 inch ± 0.05 inch. The MOST likely tire wear pattern is:

A. Even wear across both rear tires

B. Outside edge wear on both rear tires

C. A failed power steering pump

D. Air in the clutch hydraulic system

26. A vehicle's rear toe is properly within specification, but the rear thrust angle reads 0.4 degrees. The manufacturer specification is 0.0 degrees ± 0.1 degree. The MOST likely cause is:

A. Tire pressure differences front to rear

B. A failed power steering pump

C. The rear axle is offset, with one rear wheel toed in more than the other or with the rear axle shifted laterally

D. Air in the clutch hydraulic system

27. The proper procedure for diagnosing a thrust angle error is to:

A. Verify rear toe at each wheel individually, identify any imbalance, and inspect rear suspension components

B. Apply compressed air to the rear suspension

C. Replace the rear suspension as a precaution

D. Replace the alignment as a precaution

28. A vehicle's setback angle (the offset between the left and right front wheels along the longitudinal axis) reads 0.3 degrees. The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Air in the clutch hydraulic system

D. Frame or unibody damage, bent suspension components, or improper suspension installation

29. The proper purpose of measuring setback during alignment is to:

A. Generate hydraulic pressure for the steering system

B. Drive the steering pump during operation

C. Identify whether the front wheels are aligned with each other along the longitudinal axis, with non-zero setback indicating frame or component damage

D. Filter contaminants from the steering fluid

30. A vehicle's wheelbase difference reads 0.4 inch (left wheelbase 0.4 inch longer than right wheelbase). The MOST likely cause is:

A. A failed power steering pump

B. Frame or unibody damage, bent suspension components, or improper suspension installation

C. A worn power steering pulley

D. Air in the clutch hydraulic system

31. The proper procedure for measuring wheelbase on a four-wheel alignment is to:

A. Apply compressed air to the suspension

B. Replace the alignment as a precaution

C. Replace the steering rack as a precaution

D. Use the alignment equipment to measure the distance from the front wheel to the rear wheel on each side, comparing the left wheelbase to the right wheelbase

32. A vehicle's track width difference reads 0.5 inch (front track wider than rear track on one side). The MOST likely cause is:

A. Frame or unibody damage, bent suspension components, or improper component installation

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

33. The proper purpose of measuring track width during alignment is to:

A. Generate hydraulic pressure for the steering system

B. Identify whether the front and rear track widths match the specification, with differences indicating frame or component damage

C. Drive the steering pump during operation

D. Filter contaminants from the steering fluid

34. A vehicle has been brought in with a complaint of tire wear on the inside edge of the front tires. Camber, caster, and toe are within specification. The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Worn suspension components (ball joints, control arm bushings) allowing dynamic alignment changes during operation

D. Air in the clutch hydraulic system

35. The proper procedure for diagnosing tire wear when alignment angles are within specification is to:

A. Apply compressed air to the suspension

B. Replace the alignment as a precaution

C. Replace the steering rack as a precaution

D. Inspect for worn suspension components, verify alignment under load conditions, and consider dynamic alignment effects

36. A vehicle has been brought in for an alignment. The technician finds that adjusting front toe to specification causes the steering wheel to be off-center. The MOST likely cause is:

A. The steering wheel was not centered before the toe adjustment, requiring re-centering and equal toe distribution

B. A failed power steering pump

C. A worn power steering pulley

D. Air in the clutch hydraulic system

37. The proper procedure for centering the steering wheel before toe adjustment is to:

A. Apply compressed air to the steering

B. Lock the steering wheel in the centered position, then perform toe adjustment with equal toe at each side

C. Replace the steering wheel as a precaution

D. Replace the steering rack as a precaution

38. A vehicle equipped with run-flat tires has been brought in with a complaint of harsh ride. The MOST likely cause is:

A. A failed power steering pump

B. A worn power steering pulley

C. Run-flat tires have stiffer sidewalls than conventional tires, producing a harsher ride characteristic

D. Air in the clutch hydraulic system

39. The proper purpose of run-flat tire technology is to:

A. Generate hydraulic pressure for the steering system

B. Allow the vehicle to be driven a specified distance at reduced speed after a tire pressure loss, eliminating the need for an immediate roadside tire change

C. Drive the steering pump during operation

D. Filter contaminants from the steering fluid

40. A vehicle equipped with TPMS has been brought in after winter tires were installed. The customer reports the TPMS warning light is illuminated. The MOST appropriate action is:

A. Verify each winter tire has a TPMS sensor installed, perform the relearn procedure, and verify proper TPMS operation

B. Replace the TPMS module as a precaution

C. Replace the steering rack as a precaution

D. Replace the transmission fluid as the only step

PRACTICE EXAM 5: A4 SIMULATION — ANSWER KEY, EXPLANATIONS, AND TASK REMEDIATION

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1. C — The vehicle will pull to the left. With both wheels actually within the ±0.5 degree tolerance, the camber split of 0.6 degrees still produces a noticeable pull. The vehicle pulls toward the side with more positive camber, which is the left side at 0.8 degrees. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

2. A — Loosen the cam adjusters, rotate to specification, retorque, and verify. Eccentric cam adjusters allow camber adjustment by rotating the cam to move the control arm or strut position. Loosening, rotating, retorquing, and verifying confirms proper adjustment. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

3. D — Heavy steering effort and slow steering wheel return. Equal caster on both sides means no pull, but caster 1.0 degree above specification produces excessive directional stability. The result is heavier steering effort and increased self-centering force. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

4. B — Loosen the strut rod adjusters, adjust to specification, retorque, and verify. Strut rod caster adjusters change caster by adjusting the position of the lower control arm via the strut rod. Loosening, adjusting, retorquing, and verifying confirms proper caster setup. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

5. D — Outside edge wear on both front tires (feathering toward the inside). Toe-out drags both front tires outward against their direction of travel. The friction wears the outside edges of both tires with characteristic feathering toward the inside. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

6. C — Turn the steering to a specified angle on one wheel, measure the corresponding angle on the opposite wheel, and compare to specification. Toe-out on turns is measured by setting one wheel at a specified angle and reading the angle of the opposite wheel. The difference is the Ackermann angle. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

7. A — Bent steering arms, bent steering knuckles, or frame damage affecting steering geometry. Toe-out on turns out of specification cannot be adjusted; it is determined by the geometry of the steering arms. Bent components or frame damage are the only causes of incorrect Ackermann angle. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

8. D — Allow the inside wheel to turn at a sharper angle than the outside during cornering, preventing tire scrub. The Ackermann principle tilts the inside wheel at a sharper angle during turns. This matches the smaller radius the inside wheel travels, eliminating tire scrub during cornering. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

9. B — Bent suspension or steering components on the left side. SAI cannot be adjusted; it is determined by suspension component geometry. Differences between left and right SAI indicate bent components on the side with the abnormal reading. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

10. C — Provide directional stability and self-centering through the inward tilt of the steering axis. SAI tilts the steering axis inward, working with caster to provide directional stability and self-centering. The combination keeps the vehicle tracking straight and returns the wheel to center after turns. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

11. A — A bent steering knuckle on the right side affecting included angle. Included angle is SAI plus camber, calculated to identify bent steering knuckles. With SAI normal but included angle different on the right, the right steering knuckle is bent. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

12. D — Provide a calculated angle (SAI plus camber) used to identify bent steering knuckles. Included angle isolates the steering knuckle from the rest of the suspension. SAI relates to suspension geometry; camber to wheel angle; the sum (included angle) reveals knuckle condition. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

13. B — Differences in wheel offset, tire size, or bent suspension components affecting the scrub radius. Scrub radius is the distance from the center of the tire contact patch to the steering axis at the ground. Wheel offset, tire size, and bent components all affect this geometry. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

14. C — Affect steering feel and the response of the vehicle to road inputs. Scrub radius determines how road forces are transmitted through the steering system. Different scrub radii produce different steering feel and different responses to bumps and road irregularities. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

15. A — Caster, since solid axle vehicles primarily use caster differences to correct pull. Solid front axle vehicles cannot independently adjust camber on each wheel. Caster shimming between the axle and leaf springs is the primary alignment correction available for pull. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

16. B — Install or remove caster shims between the axle and the leaf springs to adjust caster. Solid axle caster adjustment uses tapered shims between the axle and leaf springs. The shims change the angle of the axle, adjusting caster on both sides simultaneously. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

17. D — Excessive toe-out on that wheel. Feather-edge wear with the feather pointing toward the inside indicates the tire is being dragged outward during operation. This is the diagnostic signature of excessive toe-out on the affected wheel. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

18. C — Excessive toe-in on that wheel. Feather-edge wear with the feather pointing toward the outside indicates the tire is being dragged inward during operation. This is the diagnostic signature of excessive toe-in on the affected wheel. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

19. A — Tire over-inflation, causing the center of the tread to bear more load than the edges. Over-inflation causes the tire to crown, with the center of the tread bearing disproportionate load. This produces center-only wear with edges showing less wear. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

20. B — Tire under-inflation, causing the edges of the tread to bear more load than the center. Under-inflation causes the tire to flatten in the middle, with both edges bearing disproportionate load. This produces edge-only wear with the center showing less wear. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

21. D — A combination of camber and toe issues, or worn suspension components allowing wheel position to vary. Diagonal wear across the tread is the diagnostic signature of multiple alignment issues or dynamic wheel position variation. Worn components allow alignment to change during operation. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

22. C — Identify the wear pattern, verify tire pressure, perform a four-wheel alignment, and inspect components. Tire wear diagnosis requires systematic approach. Pattern identification, pressure verification, alignment, and component inspection together identify the cause. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

23. A — Significant inside-edge wear on the left rear tire. The 1.5-degree negative camber on the left rear (1.0 degree out of specification) tilts the top of the wheel inward, concentrating load on the inside edge. The wear pattern develops as the tire wears unevenly. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

24. D — Loosen the camber adjustment cam, adjust to specification, retorque, and verify the measurement. Rear camber adjustment uses adjustment cams on the rear control arms. Loosening, adjusting, retorquing, and verifying confirms proper alignment. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

25. B — Outside edge wear on both rear tires. Excessive rear toe-in (0.20 inch when 0.05 inch is specified) drags the rear tires inward against their direction of travel. The friction wears the outside

edges with feathering toward the inside. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

26. C — The rear axle is offset, with one rear wheel toed in more than the other or with the rear axle shifted laterally. Thrust angle error with proper individual toe indicates rear axle position issues. Unequal toe distribution between rear wheels or lateral axle shift produces non-zero thrust angle. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

27. A — Verify rear toe at each wheel individually, identify any imbalance, and inspect rear suspension components. Thrust angle error diagnosis requires individual rear wheel toe verification. Imbalance between wheels and component inspection together identify the cause. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

28. D — Frame or unibody damage, bent suspension components, or improper suspension installation. Setback indicates one front wheel is offset along the longitudinal axis. The cause is typically structural damage or installation issues that prevent normal alignment correction. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

29. C — Identify whether the front wheels are aligned with each other along the longitudinal axis, with non-zero setback indicating frame or component damage. Setback measurement reveals longitudinal offset between front wheels. A non-zero value indicates structural or installation issues that affect alignment integrity. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

30. B — Frame or unibody damage, bent suspension components, or improper suspension installation. Wheelbase differences between left and right indicate one wheel is offset along the longitudinal axis. The cause is typically structural damage or installation issues. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

31. D — Use the alignment equipment to measure the distance from the front wheel to the rear wheel on each side, comparing the left wheelbase to the right wheelbase. Wheelbase measurement requires alignment equipment with the capability to measure front-to-rear wheel distance on each side. Comparison reveals any imbalance. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

32. A — Frame or unibody damage, bent suspension components, or improper component installation. Track width differences indicate one wheel is offset laterally compared to its position. The cause is typically structural damage, bent components, or improper installation. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

33. B — Identify whether the front and rear track widths match the specification, with differences indicating frame or component damage. Track width measurement during alignment reveals lateral wheel positioning issues. Differences from specification indicate structural problems requiring

further investigation. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

34. C — Worn suspension components (ball joints, control arm bushings) allowing dynamic alignment changes during operation. Tire wear with proper alignment angles indicates dynamic alignment issues. Worn components allow alignment to change under load and during operation, producing wear patterns the static alignment doesn't reveal. *ASE Task Reference: A4 Domain B — Suspension Systems Diagnosis and Repair. Review subsection 4.2.*

35. D — Inspect for worn suspension components, verify alignment under load conditions, and consider dynamic alignment effects. Tire wear with proper static alignment requires dynamic evaluation. Component inspection, under-load alignment verification, and consideration of dynamic effects together identify the cause. *ASE Task Reference: A4 Domain B — Suspension Systems Diagnosis and Repair. Review subsection 4.2.*

36. A — The steering wheel was not centered before the toe adjustment, requiring re-centering and equal toe distribution. Off-center steering wheel after toe adjustment indicates the wheel was not centered during the procedure. Re-centering with equal toe distribution at each side corrects the issue. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

37. B — Lock the steering wheel in the centered position, then perform toe adjustment with equal toe at each side. Steering wheel centering before toe adjustment requires locking the wheel at center. Equal toe at each side maintains the centered position throughout the adjustment. *ASE Task Reference: A4 Domain C — Wheel Alignment Diagnosis. Review subsection 4.3.*

38. C — Run-flat tires have stiffer sidewalls than conventional tires, producing a harsher ride characteristic. Run-flat construction requires reinforced sidewalls to support the vehicle weight after pressure loss. The stiffer construction transmits more road impact, producing a harsher ride. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

39. B — Allow the vehicle to be driven a specified distance at reduced speed after a tire pressure loss, eliminating the need for an immediate roadside tire change. Run-flat tires support the vehicle weight after pressure loss for a specified distance and speed. This allows the driver to reach a service location without an immediate roadside tire change. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*

40. A — Verify each winter tire has a TPMS sensor installed, perform the relearn procedure, and verify proper TPMS operation. Winter tire installation requires TPMS sensors on each tire and a relearn procedure. Without sensors or relearn, the TPMS warning illuminates because the system cannot communicate with the new tires. *ASE Task Reference: A4 Domain D — Wheel and Tire Diagnosis. Review subsection 4.4.*