

PRACTICE EXAM 18: ASE T4 BRAKES SIMULATION

1. Two technicians are discussing brake fluid replacement. Technician A says brake fluid should be replaced according to the manufacturer's specified interval. Technician B says brake fluid should be tested for moisture content with each PM. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

2. Two technicians are discussing wheel bearing service. Technician A says the bearings must be replaced as a matched cup-and-cone set. Technician B says the wheel seal can be reused if it appears intact. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

3. Two technicians are discussing the air dryer cartridge. Technician A says the cartridge should be replaced once every 100,000 miles. Technician B says the cartridge should be replaced based on visible water accumulation in the reservoirs. Who is correct?

- A. Technician A only
- B. Technician B only

- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

4. A technician is diagnosing a brake complaint. Which is the BEST next step after the customer describes the symptom?

- A. Replace all brake hardware preventively
- B. Verify the symptom with a road test to recreate the condition
- C. Replace the master cylinder
- D. Replace all wheel speed sensors

5. Two technicians are discussing brake shoe replacement. Technician A says shoes must be replaced as a matched axle set. Technician B says shoes can be replaced individually if only one is worn. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

6. The MOST important step before opening any air brake line for service is to:

- A. Disconnect the battery
- B. Remove all wheel lug nuts
- C. Drain all reservoirs to zero pressure
- D. Apply the parking brake

7. Two technicians are discussing the trailer relay emergency valve. Technician A says it performs three functions: service relay, reservoir charging, and emergency application. Technician B says it amplifies the service signal from the tractor for fast trailer brake response. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Neither Technician A nor Technician B
- D. Both Technician A and Technician B

8. A technician is performing a static air leakage test on a combination vehicle. The leakage rate measures 5 psi per minute with brakes applied at 90 psi. The result is:

- A. Excessive — exceeds the 4 psi per minute combination released-brake limit
- B. Within the 6 psi per minute combination applied-brake limit
- C. Acceptable for bobtail operation only
- D. Grounds for compressor replacement without further diagnosis

9. Two technicians are discussing the air dryer cartridge. Technician A says it removes moisture, oil, and particulate contamination. Technician B says it is positioned downstream of the supply reservoir. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

10. The FIRST step in diagnosing an ABS warning lamp complaint is to:

- A. Replace the ABS ECU

- B. Replace all four wheel speed sensors
- C. Connect a scan tool and retrieve stored fault codes
- D. Disconnect the battery to reset the system

11. Two technicians are discussing the spring brake chamber. Technician A says the power spring stores 500 to 800 pounds of force. Technician B says the power spring stores 1,500 to 2,000 pounds of force. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

12. A heavy-truck driver complains that the brakes feel "weak" during emergency braking. After confirming brake adjustment is correct at all wheels, the BEST next step is to:

- A. Replace the master cylinder
- B. Replace all brake hoses
- C. Replace the compressor
- D. Inspect for contaminated friction material on one or more wheels

13. Two technicians are discussing the brake camshaft. Technician A says it is rotated by the slack adjuster. Technician B says it is rotated by the chamber diaphragm directly. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

14. The BEST next step after diagnosing a failed wheel speed sensor with a stored DTC is to:

- A. Replace the entire ABS system
- B. Replace the wheel hub assembly
- C. Replace the failed sensor with a new unit and verify the fault is cleared
- D. Disable ABS at the driver's request

15. Two technicians are discussing the brake fluid in a hydraulic system. Technician A says DOT 3 fluid is silicone-based. Technician B says DOT 3 fluid is glycol-based and hygroscopic. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

16. The BEST next step after a wheel bearing endplay measurement of 0.020 inches is to:

- A. Replace the wheel hub assembly
- B. Replace the wheel bearings as a matched set
- C. Disregard the measurement and continue
- D. Readjust the bearing to manufacturer's specification using the proper procedure

17. Two technicians are discussing the brake compressor. Technician A says the compressor is gear-driven from the engine timing train. Technician B says the compressor is belt-driven from the alternator. Who is correct?

- A. Technician A only
- B. Technician B only

- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

18. A heavy-truck driver complains that the brake pedal feels normal during light braking but pulses during firm braking. The BEST next step is to:

- A. Replace the master cylinder
- B. Replace all brake hoses
- C. Inspect the front rotors for thickness variation that becomes more pronounced under higher caliper pressure
- D. Replace the wheel speed sensors

19. Two technicians are discussing brake hose inspection. Technician A says hoses should be inspected for color matching with the chassis paint. Technician B says hoses should be inspected for cracks, abrasion, swelling, and leakage. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

20. The BEST next step after a brake drum measurement shows 0.060 inches over nominal (with maximum discard at 0.120 inches over nominal) is to:

- A. Replace the drum immediately
- B. Continue to operate the vehicle with the existing drum
- C. Machine the drum to the nominal dimension
- D. Return the drum to service after inspecting for other defects (cracks, scoring, heat damage)

21. Two technicians are discussing the brake compressor lubrication. Technician A says the compressor is lubricated by the engine's pressurized oil supply. Technician B says the compressor uses a dedicated oil reservoir. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

22. A heavy-truck driver complains of intermittent ABS warning lamp illumination that occurs only during braking. The BEST next step is to:

- A. Replace the ABS ECU
- B. Disable the ABS warning lamp
- C. Connect a scan tool and check for stored DTCs, then inspect wiring for chafing during brake-related component movement
- D. Replace all four wheel speed sensors

23. Two technicians are discussing the air dryer's purge valve. Technician A says it is signaled by the driver's brake pedal. Technician B says it is signaled by the governor's unload signal. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

24. The BEST next step after confirming a brake chamber's pushrod stroke exceeds the readjustment limit is to:

- A. Replace the chamber as the only repair option
- B. Continue to operate the vehicle with the existing condition
- C. Replace the slack adjuster as the only repair option
- D. Diagnose why the slack adjuster failed to compensate, then repair or replace the failed component

25. Two technicians are discussing the brake drum's friction surface. Technician A says machining is acceptable as long as the final dimension is within the discard limit. Technician B says machining is never acceptable on heavy-truck brake drums. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

26. A heavy-truck driver complains of a "spongy" brake pedal that has gradually worsened over months. The BEST next step is to:

- A. Replace the master cylinder
- B. Replace all wheel speed sensors
- C. Inspect the flex hoses for internal deterioration and replace as needed
- D. Replace the compressor

27. Two technicians are discussing the brake fluid reservoir cap. Technician A says it contains a heating element. Technician B says it contains a vent that allows atmospheric pressure equalization while excluding contamination. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

28. The BEST next step after a wheel bearing has been overheated and shows blue discoloration is to:

- A. Reuse the bearing after cleaning with solvent
- B. Reuse the bearing after applying fresh grease
- C. Lightly polish the discoloration to restore the bearing
- D. Replace the bearing as a matched cup-and-cone set, regardless of apparent surface condition

29. Two technicians are discussing the trailer's relay emergency valve. Technician A says it activates the emergency function automatically when supply air drops below the threshold. Technician B says it requires manual driver input to activate the emergency function. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

30. A heavy-truck driver complains that the brake pedal pulsates during braking from highway speed but not at lower speeds. The BEST next step is to:

- A. Replace the master cylinder

- B. Replace the wheel speed sensors
- C. Inspect the front rotors for thickness variation that produces pulsation amplified at higher rotational speeds
- D. Replace the compressor

31. Two technicians are discussing the brake camshaft. Technician A says it rotates approximately 30 degrees during a full brake application. Technician B says it rotates approximately 75 to 90 degrees during a full brake application. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

32. The BEST next step after a brake drum is found to have a through-wall crack is to:

- A. Machine the drum to remove the cracked area
- B. Reinforce the drum with welding
- C. Continue to operate the vehicle with the existing drum
- D. Replace the drum immediately — through-wall cracks require replacement

33. Two technicians are discussing the brake fluid's role in the hydraulic system. Technician A says brake fluid is essentially incompressible, allowing pressure to transmit equally per Pascal's Law. Technician B says brake fluid is highly compressible. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

34. A heavy-truck driver complains that the brakes feel different but cannot describe the change. All measurements are within specification. The BEST next step is to:

- A. Replace the master cylinder
- B. Replace all brake calipers
- C. Discuss observations with the driver, perform a road test to recreate the condition, and document findings
- D. Replace the vacuum booster

35. Two technicians are discussing the trailer brake hand valve (trolley). Technician A says it is used in emergency situations only. Technician B says it is used as a normal operational tool to apply only the trailer brakes during specific maneuvers. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

36. The BEST next step after diagnosing a torn brake chamber diaphragm is to:

- A. Repair the diaphragm with patch material
- B. Continue to operate the vehicle with the existing chamber
- C. Drain the air pressure and reuse the chamber
- D. Replace the entire brake chamber as the recommended repair

37. Two technicians are discussing the brake pedal's free play. Technician A says it should be approximately 1/8 to 1/4 inch. Technician B says there should be no free play allowed. Who is correct?

- A. Technician A only

- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

38. A heavy-truck driver complains of a "metallic squeal" from the front brakes during light braking. The BEST next step is to:

- A. Replace the wheel bearings
- B. Replace the master cylinder
- C. Inspect the brake pads for the wear indicator approaching minimum thickness
- D. Replace the compressor

39. Two technicians are discussing the brake compressor's drive method. Technician A says belt drive is preferred over gear drive. Technician B says gear drive is preferred over belt drive because it eliminates slippage under high torque loads. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

40. The BEST next step after confirming a brake fluid reservoir level is consistently dropping with no visible external leak is to:

- A. Continue to top off the reservoir
- B. Replace all wheel speed sensors
- C. Replace the compressor
- D. Inspect the master cylinder for internal leak past the piston seals

41. Two technicians are discussing the brake fluid color. Technician A says yellow-amber color with cloudiness indicates moisture absorption. Technician B says any change from the bottled fluid color is grounds for immediate replacement. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

42. A heavy-truck driver complains that the brakes feel "weak" but the pedal feels normal. The BEST next step is to:

- A. Replace the master cylinder
- B. Replace the compressor
- C. Check brake adjustment at each wheel — out-of-adjustment brakes produce weak braking despite normal air pressure
- D. Replace all wheel speed sensors

43. Two technicians are discussing the wheel bearing service interval. Technician A says wheel bearings should be serviced every 5,000 miles. Technician B says wheel bearings should be serviced according to the manufacturer's specified interval. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

44. The BEST next step after a brake compressor is found to be operating with worn piston rings (oil blowby into the air system) is to:

- A. Continue to operate the vehicle with the existing compressor
- B. Replace only the compressor
- C. Replace the air dryer cartridge only
- D. Replace the compressor and inspect/clean the entire supply-side air system for oil contamination

45. Two technicians are discussing the brake compressor's safety relief valve. Technician A says it is set to open at approximately 150 to 175 psi. Technician B says it is set to open at approximately 60 to 80 psi. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

46. A heavy-truck driver complains that the trailer brakes are weak during firm braking. The BEST next step is to:

- A. Replace the trailer brake chambers
- B. Replace the tractor's master cylinder
- C. Inspect the trailer relay valve for reduced effectiveness under high signal pressure
- D. Replace the trailer reservoir

47. Two technicians are discussing the brake fluid bleeding procedure. Technician A says the master cylinder reservoir should be allowed to run dry between each wheel for best results. Technician B says the reservoir must be kept topped up throughout the procedure. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

48. The BEST next step after a static air leakage test indicates excessive loss is to:

- A. Replace the compressor as the source of leakage
- B. Drain the system and rebuild from scratch
- C. Pressurize to 120 psi and retest
- D. Apply soap solution at suspect joints with the system pressurized to locate the specific leak

49. Two technicians are discussing the brake camshaft bushings. Technician A says wear in the bushings allows camshaft deflection during application, producing uneven shoe spread. Technician B says the bushings never wear and require no inspection. Who is correct?

- A. Technician A only
- B. Technician B only
- C. Both Technician A and Technician B
- D. Neither Technician A nor Technician B

50. The BEST next step after a wheel bearing inspection reveals brinelling marks on the inner race is to:

A. Reuse the bearing after cleaning

B. Reuse the bearing after applying fresh grease

C. Polish the brinelling marks

D. Replace the bearing as a matched cup-and-cone set, since brinelling indicates impact damage that compromises bearing life

PRACTICE EXAM 18 — ANSWER KEY AND EXPLANATIONS

1. C — Both Technician A and Technician B. Both statements are correct. Brake fluid replacement should follow the manufacturer's specified interval, which establishes a baseline maintenance schedule. Additionally, moisture testing at each PM provides actionable data — fluid above the 3% moisture threshold should be replaced even if the calendar interval has not been reached.
2. A — Technician A only. Technician A is correct — wheel bearings must be replaced as cup-and-cone matched sets to ensure proper service life. Technician B is wrong because wheel seals must always be replaced when the hub is removed, regardless of apparent condition. Reusing seals leads to immediate leakage and bearing contamination.
3. D — Neither Technician A nor Technician B. Both statements are wrong. Air dryer cartridge service intervals are typically much longer than 100,000 miles (often 3 years or 300,000 miles for typical applications). And cartridge replacement should follow manufacturer-specified intervals, not be reactive to visible water — by the time water is visible, the cartridge has long since failed.
4. B — Verify the symptom with a road test to recreate the condition. The first step in any brake diagnosis is to verify the customer's complaint by recreating the symptom under driving conditions. This ensures the technician understands what is actually happening before any parts are replaced or further investigation occurs.
5. A — Technician A only. Technician A is correct — brake shoes must always be replaced as a matched axle set to prevent uneven braking torque between wheels. Technician B is wrong because individual shoe replacement creates side-to-side imbalance that causes brake pull and fails DOT inspection.
6. C — Drain all reservoirs to zero pressure. Before opening any air brake line for service, all reservoirs must be drained to zero pressure to prevent injury from pressurized air release. Pressurized air can launch components forcefully, making zero-pressure draining the only safe condition for line service.
7. D — Both Technician A and Technician B. Both statements are correct. The trailer relay emergency valve performs three simultaneous functions (service relay, reservoir charging, emergency application), and one of those functions — service relay — does indeed amplify the small-volume signal from the tractor for fast trailer brake response.
8. B — Within the 6 psi per minute combination applied-brake limit. CVSA allows up to 6 psi per minute leakage on a combination vehicle with service brakes applied. A measured 5 psi loss is

within this allowance and is acceptable. The released-brake limit for a combination is 4 psi per minute, but this is the applied-brake test.

9. A — Technician A only. Technician A is correct — the air dryer's coalescing filter and desiccant remove moisture, oil, and particulate contamination from the discharge air. Technician B is wrong because the air dryer is positioned upstream of the supply reservoir (between the compressor and supply reservoir), not downstream.
10. C — Connect a scan tool and retrieve stored fault codes. ABS diagnosis always begins with scan tool fault code retrieval because the ECU has already identified the specific circuit or component that triggered the warning. Starting with fault codes eliminates the majority of possible causes before any physical testing or component replacement is performed.
11. B — Technician B only. Technician B is correct — the power spring inside a spring brake chamber stores 1,500 to 2,000 pounds of force. Technician A is wrong because 500 to 800 pounds is significantly less than the actual stored force. The high stored force is why caging procedures are non-negotiable for chamber service.
12. D — Inspect for contaminated friction material on one or more wheels. After confirming brake adjustment is correct, the next step in diagnosing weak braking is to inspect for contaminated friction material. Contamination reduces the coefficient of friction at the affected wheel, producing weak braking even with proper adjustment.
13. A — Technician A only. Technician A is correct — the brake camshaft is rotated by the slack adjuster, which converts pushrod force into rotational force at the camshaft. Technician B is wrong because the chamber diaphragm produces linear pushrod motion, not rotation; the slack adjuster is the necessary intermediate component.
14. C — Replace the failed sensor with a new unit and verify the fault is cleared. The proper repair for a failed wheel speed sensor is to replace the sensor, then verify the fault is cleared by clearing the DTC and confirming no new fault appears. Verifying the repair is essential — replacing the part without verification could miss an underlying wiring or connector issue.
15. B — Technician B only. Technician B is correct — DOT 3 fluid is glycol-based and hygroscopic, meaning it absorbs moisture from the atmosphere. Technician A is wrong because DOT 3 is glycol-based, not silicone-based; DOT 5 is the silicone-based fluid (and incompatible with DOT 3 systems).
16. D — Readjust the bearing to manufacturer's specification using the proper procedure. Excessive endplay (0.020 inches versus the 0.001 to 0.005 inch specification) requires readjustment using the proper procedure. Continued operation with excessive endplay produces hub wobble, accelerated wear, and potential safety issues.
17. A — Technician A only. Technician A is correct — heavy-truck air compressors are gear-driven from the engine timing train. Technician B is wrong because compressors are not belt-driven from

the alternator; gear drive eliminates slippage and provides reliable torque transmission for compressor operation.

18. C — Inspect the front rotors for thickness variation that becomes more pronounced under higher caliper pressure. Pulsation under firm braking but not light braking points to rotor thickness variation. The variation creates an alternating clamping force that becomes more pronounced as caliper pressure increases — exactly the described pattern.
19. B — Technician B only. Technician B is correct — brake hose inspection focuses on physical condition (cracks, abrasion, swelling, leakage). Technician A is wrong because color matching with chassis paint is irrelevant to hose function and inspection criteria.
20. D — Return the drum to service after inspecting for other defects (cracks, scoring, heat damage). At 0.060 inches over nominal with a maximum discard of 0.120 inches over nominal, the drum is well within service limits. It can be returned to service provided other inspection criteria (cracks, scoring, heat damage) are also met.
21. A — Technician A only. Technician A is correct — the compressor is lubricated by the engine's pressurized oil supply through an external line. Technician B is wrong because heavy-truck compressors do not use a dedicated oil reservoir; they share the engine's lubrication system.
22. C — Connect a scan tool and check for stored DTCs, then inspect wiring for chafing during brake-related component movement. Intermittent ABS warning that correlates specifically with brake pedal application suggests wiring being flexed by brake-related component movement. The scan tool retrieves DTCs that point to the specific circuit, and wiring inspection identifies the chafing or marginal connection.
23. B — Technician B only. Technician B is correct — the air dryer's purge valve is signaled by the governor's unload signal. Technician A is wrong because the driver's brake pedal does not signal the purge valve; the governor's unload signal is the actuating source.
24. D — Diagnose why the slack adjuster failed to compensate, then repair or replace the failed component. An out-of-adjustment brake indicates a failure in the adjustment system. The proper response is to diagnose the root cause (failed automatic slack adjuster, worn manual slack adjuster, or worn brake hardware) and repair or replace the failed component — not just replace the slack adjuster without diagnosis.
25. A — Technician A only. Technician A is correct — brake drums can be machined provided the final dimension is within the maximum discard limit. Technician B is wrong because machining is acceptable for heavy-truck brake drums when dimensions allow; this is standard practice during brake service.
26. C — Inspect the flex hoses for internal deterioration and replace as needed. Gradual sponginess on a hydraulic-braked vehicle that has not had recent service typically points to flex hose internal deterioration. The hoses lose their internal reinforcement progressively, producing increasing

compliance under pressure. Hose inspection and replacement is the recommended diagnostic and repair path.

27. B — Technician B only. Technician B is correct — the brake fluid reservoir cap contains a vent that allows atmospheric pressure equalization while excluding contamination. Technician A is wrong because the reservoir cap does not contain a heating element; it relies on the brake system's design to handle temperature variations.
28. D — Replace the bearing as a matched cup-and-cone set, regardless of apparent surface condition. An overheated bearing with blue discoloration has lost its temper permanently. The bearing is structurally weakened regardless of apparent surface condition and must be replaced as a complete cup-and-cone matched set.
29. A — Technician A only. Technician A is correct — the trailer's relay emergency valve activates the emergency function automatically when supply air drops below the threshold. Technician B is wrong because the emergency function is automatic, not driver-initiated; this fail-safe design is the foundation of trailer brake safety.
30. C — Inspect the front rotors for thickness variation that produces pulsation amplified at higher rotational speeds. Pulsation that occurs only at highway speed but not at lower speeds points to rotor thickness variation. The variation amplifies the pulsation at higher rotational speeds as the alternating clamping force occurs at higher frequency.
31. B — Technician B only. Technician B is correct — the brake camshaft typically rotates approximately 75 to 90 degrees during a full brake application, depending on chamber type and slack adjuster geometry. Technician A is wrong because 30 degrees is far too little rotation to produce the required brake shoe spread and braking torque.
32. D — Replace the drum immediately — through-wall cracks require replacement. Any through-wall crack in a brake drum compromises its structural integrity and represents a safety hazard under operational load and heat. CVSA out-of-service criteria require immediate drum replacement — machining, welding, or continued use is not permitted with through-wall cracks.
33. A — Technician A only. Technician A is correct — brake fluid is essentially incompressible, allowing pressure to transmit equally per Pascal's Law. Technician B is wrong because brake fluid's near-incompressibility is exactly why hydraulic brakes function; if it were compressible, pedal effort would be absorbed rather than transmitted.
34. C — Discuss observations with the driver, perform a road test to recreate the condition, and document findings. Vague complaints with no measurable findings should not result in unnecessary parts replacement. The technician should discuss observations with the driver, perform a road test to recreate the condition, and document findings clearly. Monitoring at the next interval allows early detection if the symptom develops further.

35. B — Technician B only. Technician B is correct — the trailer brake hand valve is a normal operational tool used to apply only the trailer brakes during specific maneuvers (backing, slack adjustment, controlled descent). Technician A is wrong because the hand valve is not limited to emergency situations; it is standard operational equipment used by drivers regularly.
36. D — Replace the entire brake chamber as the recommended repair. A torn chamber diaphragm cannot be patched or repaired in field service. The chamber must be replaced as a complete assembly. This is standard practice and is required to restore the chamber's pressure containment integrity.
37. A — Technician A only. Technician A is correct — brake pedal free play of approximately 1/8 to 1/4 inch is required to ensure the master cylinder pushrod can fully retract and clear the compensation port between applications. Technician B is wrong because zero free play would prevent compensation port clearance, leading to residual pressure and brake drag.
38. C — Inspect the brake pads for the wear indicator approaching minimum thickness. The metallic squeal during light braking that disappears under firm pressure is the distinctive signature of a brake pad wear indicator contacting the rotor. The indicator alerts the driver that pad replacement is needed before metal-to-rotor contact occurs.
39. B — Technician B only. Technician B is correct — gear drive is preferred over belt drive because it eliminates slippage under high torque loads. Technician A is wrong because belt drive can slip under heavy compressor torque, leading to inconsistent compressor output and shortened belt service life.
40. D — Inspect the master cylinder for internal leak past the piston seals. Gradual reservoir depletion without visible external leakage points to internal master cylinder leakage past worn piston seals. The fluid moves past the worn seals internally — eventually the reservoir fills the void created by this internal leak, producing the gradual depletion symptom.
41. A — Technician A only. Technician A is correct — yellow-amber color with cloudiness in brake fluid is a visual indicator of moisture absorption. Technician B is wrong because some color change from bottled fluid is normal as the system absorbs heat and is exposed to operating conditions; it is not automatically grounds for replacement without testing.
42. C — Check brake adjustment at each wheel — out-of-adjustment brakes produce weak braking despite normal air pressure. Out-of-adjustment brakes produce weak braking even with normal air pressure delivered to the chambers. The reduced mechanical advantage at the slack adjuster means the chamber force is not converted efficiently to braking torque.
43. B — Technician B only. Technician B is correct — wheel bearing service intervals are determined by the manufacturer based on hub design and operating conditions. Technician A is wrong because 5,000 miles is far too short an interval; modern sealed designs often go 100,000 to 250,000 miles between services.

44. D — Replace the compressor and inspect/clean the entire supply-side air system for oil contamination. When a compressor fails with oil blowby, contamination carries downstream into the dryer, reservoirs, and beyond. Simply replacing the compressor without addressing this contamination leads to repeat failure of the new compressor and continued system contamination.
45. A — Technician A only. Technician A is correct — the brake compressor's safety relief valve is set to open at approximately 150 to 175 psi. Technician B is wrong because 60 to 80 psi is far too low; the relief valve must operate well above normal cut-out pressure (120-135 psi) to provide proper safety protection.
46. C — Inspect the trailer relay valve for reduced effectiveness under high signal pressure. Trailer brakes that work normally on light pedal pressure but become weak during firm pedal application typically indicates a trailer relay valve with internal wear. The valve cannot maintain proper amplification across the full pressure range, producing weak braking specifically during firm applications.
47. B — Technician B only. Technician B is correct — the master cylinder reservoir must be kept topped up throughout the bleeding procedure. Technician A is wrong because allowing the reservoir to run dry between wheels reintroduces air into the system, requiring the entire bleeding procedure to be restarted.
48. D — Apply soap solution at suspect joints with the system pressurized to locate the specific leak. After a static leakage test indicates excessive loss, the next step is to identify the specific leak source. Soap solution applied to suspect joints produces visible bubbles at any leak location — a low-cost, reliable method for pinpointing the leak before any repair is attempted.
49. A — Technician A only. Technician A is correct — wear in the camshaft bushings allows camshaft deflection during brake application, producing uneven shoe spread and accelerated lining wear. Technician B is wrong because camshaft bushings do wear over time and require inspection during brake service.
50. D — Replace the bearing as a matched cup-and-cone set, since brinelling indicates impact damage that compromises bearing life. Brinelling marks (small indentations in the race) indicate impact damage that occurred while the bearing was stationary. The damage compromises bearing life and continued use will result in early failure. The bearing must be replaced as a complete cup-and-cone matched set.