

# PRACTICE EXAM 6

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1. A technician is about to service a foundation brake equipped with a spring chamber. What must be done FIRST?

- A. Drain the brake fluid reservoir
- B. Retrieve the ABS trouble codes
- C. Measure the rotor runout
- D. Secure the vehicle, chock the wheels, and prepare to cage the spring

2. When performing a timed air-leakage test, the engine should be:

- A. Running at fast idle to maintain pressure
- B. Off, with the system fully charged
- C. Off, with the system completely drained
- D. Running while applying the brakes repeatedly

3. In the supply-side airflow sequence, air passes through the air dryer:

- A. After the compressor and before the reservoirs
- B. After the reservoirs and before the foot valve
- C. Before the compressor draws it in
- D. After the relay valves at the wheels

4. Before opening any air-system fitting for service, the technician must:

- A. Increase system pressure to maximum first
- B. Drain system air to zero and verify on the gauge

- C. Apply the service brakes and hold them
- D. Start the engine to keep pressure up

5. The correct order for measuring pushrod stroke is:

- A. Apply the brakes, then chock the wheels, then charge the system
- B. Measure stroke first, then charge the system
- C. Back off the slack adjuster, then measure released position
- D. Charge and chock, mark released position, apply fully, measure travel

6. When diagnosing slow air build-up, the BEST initial approach is to:

- A. Replace the compressor immediately
- B. Add oil to the compressor crankcase
- C. Check for leaks and verify governor and dryer function first
- D. Raise the governor cut-out setting

7. The correct sequence for the heavy-vehicle wheel bearing adjustment is to seat the bearing, then:

- A. Fill the hub completely with grease before any torque
- B. Back off two full turns and leave it loose
- C. Back off to set clearance, lock the adjustment, then verify end play
- D. Preload it tight with zero end play and lock it

8. Before removing a spring brake chamber, the spring must be:

- A. Caged with the proper caging bolt
- B. Heated to free the internal mechanism

- C. Exhausted by pulling the dash knob out
- D. Loaded to maximum by draining all air

9. When a parking brake will not release, the technician's FIRST diagnostic step should be to:

- A. Replace the combination chamber
- B. Disassemble the spring chamber
- C. Verify that system air pressure is adequate
- D. Replace the parking control valve

10. During electronic brake diagnosis, the technician should retrieve trouble codes:

- A. Only after replacing the suspected sensor
- B. After checking the warning lamp and self-test behavior
- C. Before connecting any diagnostic tool
- D. Only if the lamp is off

11. The correct response to an ABS wheel speed sensor code is to:

- A. Replace the sensor before any testing
- B. Clear the code and release the bus
- C. Increase the governor cut-out pressure
- D. Test the air gap, tone ring, and wiring before replacing the sensor

12. When bleeding a hydraulic brake system, the reservoir must be:

- A. Drained completely before starting
- B. Kept topped up so air is not drawn back in

- C. Filled with petroleum-based fluid
- D. Removed from the master cylinder

13. The first action upon confirming petroleum contamination of brake fluid is to:

- A. Bleed the system and return to service
- B. Add fresh fluid to dilute it
- C. Replace affected components and flush the system
- D. Continue driving to clear the contamination

14. When a compressor builds past cut-out and the relief valve vents, the technician should FIRST:

- A. Replace the relief valve
- B. Replace the compressor
- C. Drain all reservoirs
- D. Diagnose the governor and unloader

15. In a static-versus-applied leak diagnosis, the technician should perform the test:

- A. Only with the brakes applied
- B. Only with the brakes released
- C. In both the released and applied conditions
- D. While the compressor is loaded and building

16. Before condemning a wheel bearing for an overheating complaint, the technician should:

- A. Replace the wheel seal immediately
- B. Determine whether the heat is from the bearing or a dragging brake

- C. Increase the bearing preload
- D. Replace the brake drum

17. The proper order of the air-brake pre-trip pressure checks begins with:

- A. Confirming the spring brakes auto-apply
- B. Triggering the low-pressure warning
- C. Verifying pressure build-up to operating range
- D. Performing the applied-leakage test

18. When excessive pushrod stroke is found on an automatic slack adjuster, the next step is to:

- A. Manually back-adjust the ASA to restore stroke
- B. Replace the brake drum
- C. Increase chamber air pressure
- D. Diagnose the cause of the excessive stroke

19. During an ABS event, the modulator valve performs its actions in the sequence of:

- A. Reduce, hold, and reapply pressure
- B. Build, store, and unload
- C. Cage, release, and re-cage
- D. Purge, dry, and regenerate

20. The correct first step when a bus pulls during braking is to:

- A. Compare braking force side to side for the source of imbalance
- B. Replace both brake drums

- C. Replace the air dryer cartridge
- D. Increase the governor cut-out pressure

21. When verifying governor settings, the technician connects an accurate test gauge and observes:

- A. Only the cut-in pressure
- B. The pressure at which the compressor unloads and reloads
- C. The brake fluid boiling point
- D. The wheel bearing end play

22. The correct order of safe brake service places caging the spring brake:

- A. After opening the chamber clamp band
- B. Before chocking the wheels
- C. When service requires releasing the spring, after securing the vehicle
- D. Only after the system is pressurized to maximum

23. Air must be removed of moisture before it reaches the reservoirs because:

- A. Dry air increases the compressor's discharge temperature
- B. Moisture improves valve lubrication
- C. Moisture corrodes components and can freeze, jamming valves
- D. Dry air raises the governor cut-out pressure

24. When the air dryer purges, this occurs at the moment the:

- A. Compressor unloads at governor cut-out
- B. Brakes are applied by the driver

- C. Spring brakes apply automatically
- D. Master cylinder bypasses internally

25. The relay valve receives its control signal from the:

- A. Foot valve, which provides a fast application signal
- B. Wheel speed sensor circuit
- C. Spring brake caging bolt
- D. Master cylinder reservoir

26. The treadle valve releases the brakes when the driver lifts off the pedal by:

- A. Delivering more air to the chambers
- B. Compressing additional air for the next stop
- C. Applying the spring brakes mechanically
- D. Closing the supply and opening an exhaust path

27. A combination chamber's spring section is held released during driving by:

- A. Mechanically caging the power spring
- B. Air pressure compressing and holding the spring back
- C. Exhausting all air from the chamber
- D. Pressing the foot valve continuously

28. A spring brake chamber stores enough energy to be lethal, so the technician must never:

- A. Disassemble it or apply a torch to it
- B. Cage it with the proper bolt

- C. Inspect it for external leaks
- D. Replace it as a sealed unit

29. The anti-compounding feature prevents:

- A. Spring and service forces from stacking on one foundation brake
- B. The air dryer from purging at cut-out
- C. The governor from reaching cut-in
- D. The wheel bearing from overheating

30. When an ABS lamp illuminates, the affected antilock function is:

- A. Doubled in sensitivity to compensate
- B. Transferred to the spring brakes
- C. Unaffected because braking continues
- D. Disabled while normal braking remains

31. A wheel speed sensor reads its signal from the:

- A. Brake line pressure transducer
- B. Toothed tone ring rotating with the wheel
- C. Slack adjuster strain gauge
- D. Brake pedal position switch

32. ESC adds which set of sensors beyond standard ABS?

- A. Brake fluid temperature and level sensors
- B. Compressor speed and oil-pressure sensors

- C. Steering angle, yaw rate, and lateral acceleration sensors
- D. Lining thickness and drum-diameter sensors

33. A pedal that slowly sinks to the floor under steady foot pressure with no external leak indicates:

- A. Internal master-cylinder seal bypass
- B. Air trapped in the lines
- C. An over-tight wheel bearing
- D. A saturated air dryer cartridge

34. Air-over-hydraulic systems require diagnosis in two domains because they use:

- A. Only hydraulic fluid and no air at all
- B. Compressed air to power an actuator that creates hydraulic pressure
- C. Engine vacuum to apply the wheel cylinders
- D. Spring brakes for service braking at every wheel

35. One-way check valves between reservoirs serve to:

- A. Prevent a leak in one circuit from draining another
- B. Increase the compressor's output pressure
- C. Convert air pressure to spring force
- D. Measure the air loss rate per minute

36. The pressure protection valve preserves braking by:

- A. Increasing the governor cut-out setting
- B. Caging the spring brakes at low pressure

- C. Purging the air dryer more frequently
- D. Cutting off accessory air when pressure drops

37. A drum worn beyond its stamped maximum diameter must be:

- A. Machined slightly oversize and reused
- B. Replaced
- C. Reversed and reused on the other face
- D. Used until the linings wear out

38. The slack adjuster converts:

- A. Pushrod linear motion into camshaft rotation
- B. Air pressure into hydraulic pressure
- C. Spring force into brake fluid pressure
- D. Wheel speed into an electronic signal

39. An air disc brake maintains running clearance using:

- A. An internal automatic adjuster in the caliper
- B. An external manual slack adjuster
- C. The wheel speed sensor
- D. The governor unloader

40. Glazed brake linings reduce braking because glazing:

- A. Increases the lining thickness
- B. Raises the brake fluid boiling point

- C. Lowers the lining's coefficient of friction
- D. Improves heat dissipation from the drum

41. A bus's brakes apply and release too slowly at the rear axle of a long coach. The component designed to speed this is the:

- A. Safety relief valve
- B. Low-pressure warning device
- C. Relay valve sourcing and venting air locally
- D. Wheel speed sensor

42. Heavy-vehicle wheel bearings are adjusted to a small end play rather than preloaded to:

- A. Increase the brake chamber's applied force
- B. Raise the governor cut-out pressure
- C. Speed the air dryer purge cycle
- D. Allow for lubrication and thermal expansion

43. A failed wheel seal is significant because it:

- A. Only affects brake chamber pressure
- B. Starves the bearing and contaminates the brake
- C. Raises the governor cut-out pressure
- D. Speeds the air dryer purge cycle

44. The desiccant in an air dryer functions to:

- A. Raise the compressor discharge pressure
- B. Adsorb moisture from the compressed air

- C. Cage the spring brakes during low pressure
- D. Lubricate the brake chamber diaphragm

45. Excessive pushrod stroke is significant on inspection because it:

- A. Improves braking force on grades
- B. Speeds the air dryer purge
- C. Is a primary out-of-service brake defect
- D. Lowers the brake fluid boiling point

46. The treadle valve's two sections exist to:

- A. Convert air to hydraulic pressure
- B. Set the governor cut-in and cut-out
- C. Cage the spring brakes during service
- D. Independently serve the primary and secondary circuits

47. ATC intervenes against drive-wheel spin by:

- A. Caging the drive-axle spring brakes
- B. Raising the governor cut-out pressure
- C. Braking the spinning wheel and/or cutting engine torque
- D. Purging the air dryer continuously

48. When ABS faults, the brake system reverts to:

- A. Spring-brake-only application
- B. Normal (non-ABS) braking

- C. Doubled application pressure
- D. Total loss of braking

49. A spongy hydraulic brake pedal that improves after pumping indicates:

- A. An over-tight wheel bearing
- B. A drum worn past its limit
- C. A seized caliper guide pin
- D. Air trapped in the hydraulic lines

50. Brake chambers on the same axle must match in type and size to:

- A. Produce equal braking force and prevent pull
- B. Allow earlier governor cut-out
- C. Reduce the compressor's workload
- D. Synchronize the air dryer purge

51. Kinetic energy a brake must absorb rises with:

- A. The cube of the vehicle's weight
- B. The square of the vehicle's speed
- C. The square root of the speed
- D. The governor cut-out pressure

52. The dual-circuit brake system ensures that:

- A. The compressor never needs to unload
- B. The air dryer purges twice per cycle

- C. A single circuit failure leaves the other able to brake
- D. The wheel bearings require no adjustment

53. A constant air leak heard at the dryer exhaust after full charge most likely indicates a:

- A. Purge valve stuck open
- B. Worn compressor ring
- C. Saturated supply reservoir
- D. Failed wheel speed sensor

54. The low-pressure warning device alerts the driver:

- A. Only after the spring brakes apply
- B. When pressure exceeds the governor cut-out
- C. Exactly at the governor cut-in pressure
- D. Before pressure drops to a dangerous level, near 60 psi

55. A bus pulls toward the side with the working brake when one caliper piston is seized because:

- A. The seized side grips harder
- B. Both sides apply equally
- C. The working side produces braking force while the seized side does little
- D. The pull is unrelated to which caliper is seized

56. The spring brake serves a dual role as:

- A. A service brake and an accessory air supply
- B. A hydraulic brake and a vacuum booster

- C. A compressor unloader and a governor
- D. A parking brake and an automatic emergency brake

57. A modern air-braked transit bus is required to have ABS by:

- A. The wheel bearing manufacturer
- B. The brake fluid specification
- C. The air dryer service interval
- D. FMVSS 121

58. Documentation of a brake service should record:

- A. Actual readings against published limits and corrective actions
- B. Only the parts replaced
- C. Only the vehicle's mileage
- D. A subjective impression in place of measurements

59. A rumbling growl that rises with road speed and changes during cornering, unaffected by braking, points to:

- A. A glazed brake lining
- B. A worn wheel bearing
- C. A leaking foot valve exhaust
- D. A saturated air dryer cartridge

60. A drum brake dragging continuously poses a hazard because it:

- A. Improves braking efficiency
- B. Lowers the air dryer purge frequency

- C. Raises the governor cut-out pressure
- D. Generates extreme heat causing fade, glazing, and possible fire

## Answer Key & Full Answer Explanations

1. D — Safety comes before service, so the first step is to secure the vehicle, chock the wheels, and prepare to cage the spring before any brake work. Draining fluid, pulling codes, or measuring runout are unrelated to neutralizing the stored energy that can injure the technician.
2. B — A timed air-leakage test is performed with the engine off and the system fully charged, so any pressure drop reflects a true leak rather than compressor make-up. Running the engine or draining the system would invalidate the measurement.
3. A — Air passes through the air dryer after the compressor and before the reservoirs, removing moisture and oil before storage. It does not sit between the reservoirs and foot valve, before the compressor intake, or after the relay valves.
4. B — Before opening any fitting, system air must be drained to zero and verified on the gauge so stored pressure cannot launch a component or injure the technician. Raising pressure, holding the brakes, or running the engine all leave dangerous stored energy.
5. D — The correct order is to charge and chock, mark the released pushrod position, apply fully, then measure travel against the chamber-type limit. The other sequences scramble the safety and measurement steps.
6. C — Slow build is a broad symptom, so the best initial approach is systematic isolation: check for leaks and verify governor and dryer function before condemning the compressor. Replacing the compressor or adding oil first is parts-swapping, not diagnosis.
7. C — After seating the bearing by torquing while rotating, the sequence is to back off to set clearance, lock the adjustment, then verify end play with a dial indicator. Filling with grease first, leaving it loose, or preloading tight are all incorrect.

8. A — Before removing a spring chamber, the power spring must be caged with the proper caging bolt to neutralize its lethal stored energy. Heating, exhausting by pulling the knob, or loading the spring are dangerous and incorrect.

9. C — The first diagnostic step for a parking brake that won't release is to verify system pressure is adequate, since low pressure is the most common cause. Replacing the chamber or valve, or disassembling the chamber, skips the likeliest and safest check.

10. B — Codes are retrieved after checking the warning lamp and self-test behavior, which frame what the system is reporting. Replacing a sensor first or refusing to connect a tool are both incorrect approaches.

11. D — A wheel speed sensor code indicates a circuit problem, so the air gap, tone ring, and wiring must be tested before replacing the sensor. Replacing the sensor first or clearing the code without correction leaves the real fault in place.

12. B — During bleeding, the reservoir must be kept topped up so air is not drawn back into the system. Draining it, using petroleum fluid, or removing it would introduce air or destroy seals.

13. C — The first action on confirmed petroleum contamination is to replace affected components and flush the system, because petroleum swells and ruins rubber seals. Bleeding, diluting, or driving cannot reverse the damage.

14. D — When the relief valve vents from over-pressure, the technician first diagnoses the governor and unloader, which control compressor loading. The relief valve is protecting the system, so replacing it or the compressor first ignores the real cause.

15. C — Static-versus-applied leak diagnosis requires testing in both the released and applied conditions, since each isolates a different half of the system. Testing only one condition misses leaks in the other half.

16. B — Before condemning a bearing for overheating, the technician must determine whether the heat comes from the bearing or a dragging brake, since the symptoms overlap. Replacing the seal, preloading, or replacing the drum prematurely wastes effort.

17. C — The pre-trip pressure checks begin with verifying pressure build-up to operating range, the foundation for all subsequent checks. Triggering the warning, confirming auto-apply, and the leakage test come after build-up is confirmed.

18. D — On an automatic slack adjuster, the next step after finding excessive stroke is to diagnose the cause, since long stroke is a symptom. Manually back-adjusting an ASA masks the fault; replacing the drum or raising pressure does not address it.

19. A — During an ABS event the modulator reduces, holds, and reapplies pressure to keep the wheel just short of lockup. The other sequences describe compressor or dryer functions, not the modulator.

20. A — The first step for a pull complaint is to compare braking force side to side to find the source of imbalance. Replacing drums, the dryer, or raising cut-out are premature without identifying the unequal force.

21. B — Verifying governor settings means observing the pressures at which the compressor unloads (cut-out) and reloads (cut-in) on an accurate test gauge. Watching only cut-in, fluid boiling point, or end play does not verify the governor.

22. C — Caging the spring brake is done when service requires releasing the spring, after the vehicle is secured. Caging after opening the clamp band, before chocking, or only at maximum pressure are all unsafe sequences.

23. C — Moisture must be removed before the reservoirs because it corrodes components and can freeze to jam valves and block lines. Dry air does not raise discharge temperature, improve lubrication by being wet, or change cut-out.

24. A — The air dryer purges at the moment the compressor unloads at governor cut-out, venting and regenerating the desiccant. It is not tied to brake application, spring-brake apply, or master-cylinder bypass.

25. A — The relay valve receives its control signal from the foot valve, a fast application signal, while drawing its main air directly from the reservoir. It is not signaled by a sensor, caging bolt, or master cylinder.

26. D — Releasing the pedal makes the treadle valve close the supply and open an exhaust path, venting application air so the brakes release. It does not deliver more air, compress new air, or apply the spring brakes.

27. B — The spring section is held released during driving by air pressure compressing and holding the power spring back. Caging is a service procedure, exhausting air applies the brake, and the foot valve operates the service section.

28. A — Because the power spring stores lethal energy, the technician must never disassemble a spring chamber or apply a torch to it. Caging, inspecting for leaks, and replacing it as a sealed unit are all acceptable.

29. A — Anti-compounding prevents the spring and service forces from stacking on the same foundation brake, protecting the slack adjuster, cam, and hardware. It has nothing to do with purging, cut-in, or bearing temperature.

30. D — When the ABS lamp illuminates, the antilock function is disabled while normal braking remains fully available. It is not doubled, transferred to the spring brakes, or unaffected internally.

31. B — The wheel speed sensor reads its signal from a toothed tone ring rotating with the wheel. A pressure transducer, strain gauge, or pedal switch is not the source.

32. C — ESC adds steering angle, yaw rate, and lateral acceleration sensors to the ABS platform to compare intended path with actual motion. The other listed sensors are not part of ESC.

33. A — A pedal that slowly sinks under steady pressure with no external leak indicates internal master-cylinder seal bypass, requiring replacement. Trapped air gives a spongy feel, and a bearing or dryer fault would not cause a steady sink.

34. B — Air-over-hydraulic systems use compressed air to power an actuator that creates hydraulic pressure, so faults can live in either domain. They do contain air components, do not use vacuum at the wheel cylinders, and do not use spring brakes for service.

35. A — One-way check valves between reservoirs prevent a leak in one circuit from draining another, preserving stored braking air. They do not raise compressor output, convert to spring force, or measure leak rate.

36. D — The pressure protection valve preserves braking by cutting off accessory air when supply pressure drops, reserving remaining air for the brakes. It does not raise cut-out, cage springs, or change purge frequency.

37. B — A drum worn beyond its stamped maximum diameter must be replaced because it is too thin to handle braking heat. Machining oversize, reversing, or using it until linings wear are unsafe.

38. A — The slack adjuster converts the pushrod's linear motion into camshaft rotation, turning the S-cam to spread the shoes. It does not make hydraulic pressure, convert spring force to fluid, or produce an electronic signal.

39. A — An air disc brake maintains running clearance with an internal automatic adjuster in the caliper; there is no external slack adjuster. The sensor and governor unloader are unrelated to pad clearance.

40. C — Glazing lowers the lining's coefficient of friction, weakening braking even with thickness remaining. It does not increase thickness, raise fluid boiling point, or improve heat dissipation.

41. C — The relay valve sources and vents reservoir air locally at the rear axle so the far brakes apply and release fast enough to meet timing requirements. The relief valve, warning device, and sensor do not affect application timing.

42. D — Heavy-vehicle bearings are set to a small end play rather than preloaded to allow clearance for lubrication and thermal expansion. Preloading tight causes overheating and rapid failure.

43. B — A failed wheel seal both starves the bearing of lubricant and lets lubricant contaminate the brake, causing weak braking and pull. It does not merely affect chamber pressure, raise cut-out, or speed purging.

44. B — The desiccant adsorbs moisture from the compressed air, delivering dry air to the reservoirs and regenerating during purge. It does not raise pressure, cage springs, or lubricate the diaphragm.

45. C — Excessive pushrod stroke is a primary out-of-service brake defect because it means late, weak braking and reduced reserve travel. It does not improve braking, speed purging, or affect fluid boiling point.

46. D — The treadle valve's two sections independently serve the primary and secondary circuits for dual-circuit safety. They do not convert to hydraulic pressure, set the governor, or cage springs.

47. C — ATC intervenes against drive-wheel spin by braking the spinning wheel to transfer torque to the gripping wheel and/or signaling the engine to cut torque. Caging, raising cut-out, or purging do nothing for traction.

48. B — When ABS faults it reverts to normal (non-ABS) braking, retaining full standard brakes. It does not revert to spring-brake-only, double pressure, or lose all braking.

49. D — A spongy pedal that improves after pumping indicates compressible air trapped in the hydraulic lines, corrected by bleeding. A bearing, worn drum, or seized guide pin would not firm up with pumping.

50. A — Chambers on the same axle must match in type and size to produce equal braking force and prevent pull. Matching does not allow earlier cut-out, reduce compressor workload, or synchronize purging.

51. B — Kinetic energy a brake must absorb rises with the square of the vehicle's speed, so doubling speed quadruples the energy. It is not tied to the cube of weight, the square root of speed, or governor pressure.

52. C — The dual-circuit system ensures a single circuit failure leaves the other circuit able to brake the bus. It does not affect compressor unloading, dryer purging, or bearing adjustment.

53. A — A constant leak at the dryer exhaust after full charge indicates a purge valve stuck open, venting continuously. A worn ring, saturated tank, or failed sensor would not produce a steady exhaust-port leak.

54. D — The low-pressure warning alerts the driver before pressure drops to a dangerous level, commonly near 60 psi, well above the spring-brake auto-apply point. It is not tied to cut-out or cut-in.

55. C — A seized caliper piston means that side does little braking, so the working side's force pulls the bus toward it. Pull always reflects unequal force, never increased braking on the seized side.

56. D — The spring brake serves a dual role as the parking brake and the automatic emergency brake, applying on air loss. It is not a service brake, hydraulic brake, compressor unloader, or governor.

57. D — Modern air-braked transit buses are required to have ABS by FMVSS 121. The bearing manufacturer, fluid spec, and dryer service interval do not mandate ABS.

58. A — Good documentation records actual readings against published limits and the corrective actions taken, creating a usable maintenance history. Recording only parts, only mileage, or a subjective impression is inadequate.

59. B — A rumbling growl that rises with road speed and changes during cornering, unaffected by braking, is the signature of a worn wheel bearing. Brake noise changes with application; a dryer or relay valve would not produce this.

60. D — A continuously dragging drum brake generates extreme heat that causes fade, glazing, and possible fire, and can damage seals and bearings. It does not improve efficiency, lower purge frequency, or raise cut-out.