

PRACTICE EXAM 12: CANADIAN 310T TRUCK AND COACH TECHNICIAN SIMULATION (135 QUESTIONS)

This practice exam contains 135 multiple-choice questions, each with four options (A, B, C, and D), matching the format of the Interprovincial Red Seal exam for this trade. Allow about four hours and work without manuals or notes. Choose the single best answer for each question. A score of 70 percent, or 95 correct answers, is the pass mark. Check your answers against the key and explanations at the end of the exam.

1. A wrecker's winch bank is two 12 V batteries in parallel rated 150 Ah each. Ignoring losses, how long can the bank supply a steady 250 A winch draw?

- A. 36 minutes
- B. 144 minutes
- C. 90 minutes
- D. 72 minutes

2. A fuel tanker tractor with 1.2 million km shows heavy vapour at the crankcase breather and a slight loss of power. Which test best supports worn rings and liners?

- A. A fuel return flow measurement taken at the injectors during idle
- B. A blow-by flow measurement that exceeds the manufacturer's limit
- C. A coolant system pressure test held steady for about fifteen minutes
- D. An exhaust backpressure reading taken at the turbocharger outlet pipe

3. With a steer axle raised, a technician rocks a tire top to bottom with a pry bar and sees movement at the kingpin. What does this indicate?

- A. Worn kingpin bushings that must be replaced
- B. Normal clearance that is built into every steering knuckle design

- C. A loose tie rod end that has lost its grease boot cover
- D. A worn wheel bearing that needs a new preload adjustment made

4. A tow operator must move a tractor whose spring brakes are applied and has no air supply. Which procedure is safe and correct?

- A. Cut the air lines at the chambers so the springs relax on their own
- B. Supply air to release them or cage them with the correct tool
- C. Strike the chamber clamp ring with a hammer to free the spring
- D. Disassemble the spring brake section to relieve the stored spring force

5. A truck with a hydraulic clutch has a spongy pedal that sinks slowly and the transmission grinds on shifts. Which service is most likely needed?

- A. Grease the pedal pivot pin and adjust the pedal return spring tension
- B. Replace the flywheel ring gear and check the starter pinion engagement
- C. Flush the transmission and fill it with a heavier gear oil
- D. Bleed the hydraulic clutch system, and check for leaks at the master and slave cylinders

6. A wrecker operator is preparing a winch pull to recover a tractor-trailer from a roadside ditch. Which action must be completed before any tension is applied to the cable?

- A. Run the winch briefly at full speed so the wraps seat tightly on the drum
- B. Stand beside the cable so any kinks can be watched as it tightens
- C. Lay a damper over the line and clear everyone from its path
- D. Hook the cable back onto itself to shorten the span and reduce stretch

7. The landing gear on a tank trailer cranks hard and binds. What is the most likely cause?

- A. A dry or damaged gear shaft or gearbox that needs lubrication or repair
- B. Low tire pressure on the trailer axles at the rear of the unit

- C. A fault in the marker lamp circuit on the side of the tank
- D. An air leak at the spring brake chamber on the front axle

8. The fluid in a wrecker's hydraulic reservoir has turned milky and the pump is noisy. What is the most likely cause?

- A. Water contamination from a leaking breather or seal, needing a drain, flush, and filter change
- B. A normal colour change that follows every winter season of use
- C. A relief valve that has been set slightly too low by a technician
- D. A cylinder rod wiper that has been installed one size too small

9. A tanker's key-off battery drain measures 0.9 A after thirty minutes of sleep time, while the allowed draw is under 0.05 A. How should the circuit be found?

- A. Install a higher-capacity battery so the larger reserve of stored energy covers the draw
- B. Connect a jump pack permanently to the circuit and carry on working
- C. Pull fuses one at a time with an ammeter in series until the draw drops
- D. Disconnect the alternator output wire and then retest the drain

10. At hot idle a tow truck shows 35 kPa oil pressure, though pressure is normal at governed rpm. Which cause is most likely?

- A. A restricted air filter limiting the volume of air entering the engine at idle
- B. Worn main or rod bearings leaking oil faster than the pump supplies it
- C. A thermostat stuck open that keeps the coolant running too cool
- D. A weak lift pump starving the fuel system at light engine load

11. A tractor has no cab heat. Heater hoses compared by touch show a hot inlet hose and a cold outlet hose. What is the likely fault?

- A. A thermostat that is stuck open in the engine cooling system

- B. A failed compressor clutch coil in the air conditioning system
- C. A weak alternator belt that is slipping at the pulley
- D. A restricted heater core limiting the flow through it

12. Steering wheel free play on a tow truck exceeds the allowable limit. What should the technician inspect?

- A. Tie rod ends, the drag link, steering gear lash, and the kingpins
- B. The coolant hoses where they connect at the thermostat housing
- C. The exhaust hanger rubber mounts along the frame of the truck
- D. The purge valve in the air dryer mounted on the frame rail

13. A governor cuts out at 690 kPa and cuts in at 550 kPa, while the specification is about 860 and 700 kPa. What is the correct repair?

- A. Install a larger compressor so that pressure builds faster
- B. Open the reservoir drain valves to reduce the air consumption by the compressor
- C. Replace the reservoir safety valve with a higher-rated unit
- D. Adjust or replace the governor so cut-in and cut-out meet specification

14. A truck is hard to shift into gear at a stop and squeaks as the clutch brake engages. Which cause is most likely?

- A. The transmission oil level is slightly above the bottom of the fill plug opening
- B. The drive axle tires are over-inflated by a small amount of pressure
- C. The clutch is not fully releasing because of excess free play or worn linkage
- D. The DEF tank level is low and the system is derating the engine

15. A technician needs to tilt the cab on a tank truck for engine access. What must be done before the cab is tilted?

- A. Leave the engine running so the tilt pump has power available to it at all times
- B. Clear the area, secure loose items, release the latches, and have the prop ready
- C. Remove the cab mount bolts first to make the tilt go faster
- D. Hang a chain from the grille to hold the raised cab in place

16. An AGM battery reads 12.4 V soon after a long drive and the technician suspects it is weak. What should be done before judging its condition?

- A. Condemn it at once because anything under 12.6 V means a failed battery
- B. Add distilled water to every cell until the level reaches the splash plate or the fill ring
- C. Charge it at the highest available rate until it gasses freely and loudly
- D. Remove the surface charge by resting or a light load, then retest state of charge

17. Oil analysis on a short-haul fuel delivery truck shows reduced viscosity and 6 percent fuel dilution. Which condition best explains this result?

- A. Coolant seeping through a cracked cylinder liner into the crankcase oil
- B. Fuel leaking past an injector seal or excess post-injection during regens
- C. Normal soot loading caused by many hours of idling at the yard
- D. An overfilled crankcase whipping air into the oil during operation

18. Before relying on a rated meter to prove a high-voltage circuit is dead, what should the technician do?

- A. Verify the meter on a known live source before and after the test
- B. Rest the meter on the chassis and wait for it to warm up
- C. Set the meter to resistance and test across the cable ends
- D. Discharge the circuit with a screwdriver to be sure it is empty

19. Steering effort is high at low speed, and a pump test shows 7 MPa against a relief specification of 11 MPa. What is the likely fault?

- A. A damaged wiper motor on the windshield of the cab body
- B. A stuck-on blend door in the heater box inside the cab
- C. A worn pump or leaking relief valve that cannot build full pressure
- D. A loose licence plate bolt on the front bumper of the unit

20. A truck drains water from its air reservoirs every morning and its air dryer desiccant cartridge is four years old. What action is appropriate?

- A. Replace the desiccant cartridge and check dryer purge and heater operation
- B. Install a larger compressor to supply a greater volume of dry air
- C. Leave the reservoir drain valves open permanently to vent the water
- D. Replace the governor with a unit that has a higher pressure range

21. A tow truck's clutch chatters on takeoff, and oil is found on the flywheel face. Which repair addresses the root cause?

- A. Add grease to the pilot bearing and keep on driving the truck
- B. Increase pedal free play to the maximum amount that is available
- C. Replace the leaking seal along with the clutch
- D. Replace only the release bearing and leave the leaking seal alone

22. A 24 V starting system cranks slowly. Both batteries test good, but the positive cable shows a 0.9 V drop while cranking. What is the correct step?

- A. Fit a higher-rated starter motor on the engine to cope with the load
- B. Use heavier engine oil so the cranking load becomes noticeably smaller
- C. Replace both batteries because their test results are probably misleading
- D. Clean or replace the cable and its connections that carry the excess resistance

23. A cooling system holds pressure on test, yet coolant is slowly lost and white smoke appears on startup. Which check best confirms a head gasket leak?

- A. A refractometer reading used to find the glycol percentage in the coolant
- B. A combustion gas test on the coolant that shows exhaust gas present
- C. A radiator cap test performed to see its pressure opening point
- D. A thermostat test in hot water to see where the valve begins to open

24. A petroleum tank trailer needs a frame crossmember welded. Before any welding or cutting begins near the tank, what must the technician confirm?

- A. The tank is at least half full so no empty space remains for vapour
- B. The weld area has been wetted down, which removes any chance of ignition
- C. The tank holds a written gas-free certificate showing it is vapour-free
- D. The tractor has idled long enough that exhaust warmth has dried the shell

25. The trailer clearance lights glow dim and flicker in dry weather, and the tractor circuit tests normal at the connector. Which fault is most likely?

- A. High resistance in the trailer ground path, such as a corroded ground at the connector or frame
- B. A fully charged tractor battery that is supplying too much voltage
- C. A dry-van door that has been left slightly open on the road
- D. A tire inflation difference between the two axles of the trailer

26. A relief valve test port gauge reads 8 MPa with the circuit dead-headed, while the specification is 14 MPa. What is the correct next step?

- A. Accept the reading, since lower pressure always means a healthier pump
- B. Adjust or repair the relief valve to the specified setting while watching the gauge
- C. Weld the adjuster so that the pressure cannot change any further
- D. Replace the gauge hose with a longer one and repeat the test

27. A tie rod end shows a torn boot and grease seeping out, though play is not yet detectable. What is the recommended action?

- A. Add more grease and leave the torn boot in its present state
- B. Wrap the boot with tape and continue to run the truck in service
- C. Ignore the boot until play appears in the joint during an inspection
- D. Replace the end, since contamination will quickly wear the joint

28. With a load applied at 1,200 rpm, alternator output falls from 14.5 V to 12.1 V when the headlamps and heater are switched on. What is the likely cause?

- A. An overcharging regulator that has been set far too high internally
- B. Insufficient current from worn diodes or windings, or a slipping belt
- C. A normal sag that needs no attention on any alternator in service
- D. An open battery terminal clamp at the positive post of the battery

29. A straight truck loses 55 kPa in one minute with the service brakes fully applied and the engine off. How should this be treated?

- A. As acceptable, since up to 100 kPa per minute is normally allowed
- B. As normal, since the compressor will make up the loss when running
- C. As a concern only if the low-air warning sounds before the loss ends
- D. As excessive leakage to be located with soap solution at valves and fittings

30. A 10-speed transmission shifts through the lower gears but will not change range. What should be checked first?

- A. Range shift air supply, solenoid operation, and cylinder seals
- B. The rear axle lubricant level and the condition of its breather
- C. The end play of the wheel bearings on the drive axle hubs
- D. The jaw adjustment on the fifth wheel at the tractor frame

31. A vocational tow truck's fan clutch stays fully engaged on a cold engine and the fan roars at idle. What is the most likely cause?

- A. The thermostat is stuck open and is bypassing the radiator core
- B. The water pump impeller has eroded loose from its shaft
- C. Degraded silicone fluid or a stuck thermal control has locked the drive
- D. The radiator cap is releasing at a pressure that is far too low

32. An R-134a air conditioning system shows 2,400 kPa on the high side at 2,000 rpm with a normal low side. What is the most likely cause?

- A. Reduced condenser airflow from a dirty core or weak fan, or an overcharge
- B. A low refrigerant charge from a leak in the system lines
- C. A failed blower motor inside the heater box of the cab
- D. A leaking heater core inside the cab heater assembly

33. An oscilloscope shows 0.8 V AC ripple on the charging output with the engine running. Which fault does this suggest?

- A. A shorted field winding in the rotor of the alternator body
- B. A failed rectifier diode in the alternator
- C. A worn brush set that has lost contact with the slip rings
- D. A loose battery hold-down bracket on the frame of the truck

34. A tractor shows feathered wear across its steer tires. Which alignment fault is the most likely cause?

- A. A low caster value at the front axle of the tractor body
- B. An excessive steering axis inclination at the front axle unit
- C. An overfilled axle lubricant level in the steer axle housing
- D. Incorrect toe, scrubbing the tire across the road surface

35. A conventional-coolant truck shows low supplemental coolant additive on a test strip. What should be done?

- A. Replace the thermostat with a lower temperature unit and then retest
- B. Add plain water to dilute the coolant to the correct ratio
- C. Add the specified dose of supplemental coolant additive and retest the coolant
- D. Mix in an extended-life coolant to boost the additive level

36. A standard-stroke Type 30 brake chamber measures 60 mm of applied pushrod stroke. What is the correct conclusion?

- A. It is within the 64 mm limit that applies to every Type 30 chamber
- B. It exceeds the 51 mm limit, so adjust it and find why the adjuster failed
- C. It is acceptable because stroke limits apply only to trailer brakes
- D. It is acceptable provided that the chamber is a long-stroke type

37. What is the correct oil level for a manual transmission checked on level ground?

- A. Level with the bottom edge of the fill plug opening
- B. Two centimetres below the bottom edge of the fill plug opening
- C. Overflowing continuously from the fill plug opening in the case
- D. Halfway up the transmission case, as seen through the drain hole

38. Voltage reads 14.4 V at the alternator output stud but only 13.1 V at the battery posts with the engine running at a steady speed. What is the likely cause?

- A. An alternator regulator that is set too low inside the housing
- B. A worn drive belt that is slipping at the alternator pulley
- C. Excess voltage drop in the charging cable or ground path to the battery
- D. A battery that is fully charged and so refuses to accept much current

39. A cab on an air-suspension mount bounces excessively after hitting small bumps. Which component should be checked?

- A. The marker lamp bulbs that are mounted on the roof of the cab
- B. The DEF level sensor that is located in the tank of the truck
- C. The tandem release handle that is fitted on the trailer unit
- D. The cab shock absorbers and air springs for leaks or wear

40. A tractor wanders on the highway and caster measures 0 degrees against a specification of 3 to 4 degrees. What correction applies?

- A. Increase the tire pressure at the steer axle by a large amount
- B. Replace the landing gear that is fitted on the trailer being towed
- C. Tighten the exhaust clamps that hold the muffler to the pipe
- D. Restore positive caster with the proper shims or wedges at the axle

41. A truck loses power on grades with black smoke, and boost is 90 kPa below specification with no active codes. Which test should come first?

- A. A pressure leak test of the charge air cooler and piping at about 200 kPa
- B. A fuel rail pressure bleed-down test after shutting the engine off
- C. A cylinder compression test run on every cylinder in turn
- D. An alternator output test performed with the electrical system loaded

42. A technician sets a click-type torque wrench to 600 N·m for wheel nuts on a tanker, finishes the job, and prepares to put the wrench away. How should it be stored?

- A. Left at 600 N·m so it stays calibrated for the next wheel job
- B. Set to its highest value so the beam stays perfectly straight
- C. Wound back to its lowest setting so the internal spring is unloaded
- D. Clamped at a mid-range value with the handle locked in position

43. A refrigerated trailer's diesel unit runs but fails to cool, and the sight glass shows bubbles. What does this suggest?

- A. An overfilled fuel tank on the diesel engine of the refrigeration unit mounted on the trailer
- B. A low refrigerant charge, so the system needs a leak check and recharge
- C. A worn trailer tire on the front axle group of the trailer
- D. A loose landing gear crank handle at the front of the trailer

44. A hydraulic system overheats to 95 degrees Celsius with the pump running continuously. Which fault should be suspected?

- A. A loose battery cable at the starter motor of the engine
- B. A relief valve stuck open, or a bypass dumping flow at high pressure
- C. A worn belt on the air compressor drive of the engine at the front
- D. Low tire pressure at the steer axle of the tow truck

45. An automatic slack adjuster on a trailer axle repeatedly returns out of adjustment after being reset. What should the technician check?

- A. The grease level in the gearbox of the trailer landing gear
- B. The condition of the tank vent valve on the trailer body
- C. Worn cam bushings, a bent clevis, or a failed adjuster mechanism
- D. The tread depth on the tires of the opposite axle

46. A fine grey paste coats the magnetic drain plug of a manual transmission, but no chips are present. How should this be interpreted?

- A. Normal wear material, though chips or chunks would signal damage needing inspection
- B. A failed gear set that needs the transmission rebuilt immediately
- C. A sign the oil is too thick and should be drained at once
- D. Proof that the magnet has failed and must be replaced

47. The charging lamp stays on, system voltage reads 12.0 V with the engine running, the belt is tight, and the B+ terminal also reads 12.0 V. What is the probable fault?

- A. A seized coolant pump that is driven from the same belt as the alternator
- B. An overfilled DEF tank that is sending a false voltage signal
- C. A cracked radiator hose located near the thermostat housing
- D. A failed regulator or an open excitation circuit leaving the alternator unexcited

48. An engine shows blue smoke at startup and a film of oil in the compressor-side intake pipe after a short run. Which cause fits these symptoms?

- A. An air restriction gauge that is stuck at its zero reading
- B. A leaking exhaust manifold gasket at the cylinder three port
- C. A DEF dosing valve spraying fluid into the exhaust stream
- D. A leaking turbo shaft seal or a restricted drain line

49. Both gauges read low on an air conditioning system and the sight glass shows bubbles. What does this indicate?

- A. An overcharged system that has too much liquid refrigerant inside
- B. Blocked condenser airflow caused by debris in front of the condenser core fins
- C. A low refrigerant charge from a leak, which must be found and repaired
- D. A seized compressor pulley that has stopped the compressor turning

50. On a heavy-duty frame rail, where should additional holes be drilled according to usual manufacturer practice?

- A. Anywhere along the top flange for convenient access to the area
- B. In the web, following the maker's spacing, and never in the flanges
- C. Along the bottom flange edge near the rear of the cab section
- D. At the crossmember joints through the flange for a stronger bolt hold

51. An electric truck displays an insulation fault warning after being washed. What action is correct?

- A. Isolate the high-voltage system and test insulation resistance with a rated tester
- B. Ignore the warning because it is only a result of the wash
- C. Spray a lubricant into the connectors so that they dry out
- D. Clear the code and then return the truck to normal service

52. What is the correct greasing practice for the S-cam bushings of an air brake?

- A. Pack the drum with grease so that the cam never runs dry
- B. Apply oil to the linings so that the shoes slide freely
- C. Grease until fresh grease appears at the seal, keeping grease off the linings
- D. Skip the fitting and spray penetrating oil on the cam end

53. An automatic transmission on a tow truck shifts late and slips. The fluid is dark and smells burnt. What should the technician conclude?

- A. The fluid is only slightly low and should simply be topped up
- B. Overheated clutches have worn, so check the fluid, filter, and pressures
- C. The fluid is normal, since dark colour always signals good condition
- D. The problem is in the transfer case and not in the transmission

54. With the key at start there is no click and no crank. The battery reads 12.6 V and the starter S terminal shows 0 V. Which fault fits?

- A. An open start signal circuit, such as a relay, interlock, or key switch
- B. A failed starter armature with a shorted winding inside the motor
- C. A weak battery that cannot supply the large current needed
- D. A poor ground connection at the battery negative terminal post

55. A petroleum delivery truck makes many short stops and the dash shows a DPF soot-load warning. Which action may be required to clear it?

- A. Remove the filter and clean it with a high-pressure washer
- B. Disconnect the exhaust temperature sensors so the warning stops
- C. Pour a fuel additive into the DEF tank to burn off the soot
- D. Carry out a parked or service regeneration following the manufacturer's procedure

56. When a frame crossmember bolt is replaced on a tow truck, which practice is correct?

- A. Use a softer bolt so that it will break before the frame does
- B. Use any bolt that fits and tighten it by feel with an impact gun
- C. Use a bolt one size smaller and add thread locker to fill the gap
- D. Use the same size and grade bolt with a hardened washer, torqued to specification

57. A starter draws 750 A while cranking, against a normal 450 A, and the engine turns freely by hand. What is the most likely cause?

- A. Worn starter bushings or an armature dragging on the pole shoes
- B. An engine that has seized solid from a complete lack of oil
- C. An open battery cable between the two batteries in the bank
- D. A badly discharged battery that has a very low terminal voltage

58. A wheel-nut specification is 600 lb-ft. What is that torque in newton-metres? (1 lb-ft = 1.3558 N·m)

- A. 442.5 N·m
- B. 813.5 N·m
- C. 600.0 N·m
- D. 1,627.0 N·m

59. A tank trailer's pressure-vacuum vent seems stuck closed. Why must it be inspected and tested?

- A. It controls the brightness of the trailer marker lamps at night time driving
- B. It supplies air to the spring brakes on the trailer axles

- C. A blocked vent can cause tank collapse or over-pressure during loading and unloading
- D. It provides electrical power to the trailer ABS controller unit

60. A hydraulic winch motor slows noticeably under load, and the case drain flow is high. What does this indicate?

- A. A restricted air filter on the diesel engine intake system
- B. Internal motor wear leaking oil past the working parts
- C. A low coolant level in the radiator of the cooling system
- D. A leaking socket on a marker lamp at the back of the truck

61. A tanker's trailer air supply line is severed during a coupling accident. Which valve closes to prevent the tractor losing its air?

- A. The quick release valve mounted at the front axle brake chambers
- B. The spring brake relay valve mounted at the rear axle
- C. The tractor protection valve, closing when supply pressure drops
- D. The reservoir safety valve on the supply tank of the tractor

62. An automatic transmission fluid sample is pink and milky. What does this indicate and what is the correct action?

- A. Normal ageing of fluid, so simply top it up with the same grade
- B. Excess friction material, so add a friction modifier to the fluid
- C. Condensation from cold nights, so run the engine longer
- D. Coolant leaking from a failed cooler, so replace the cooler and flush the transmission

63. Scan data shows SCR inlet NO_x at 800 ppm and outlet NO_x at 780 ppm while the DEF pump runs. Which cause fits this reading?

- A. A crystallized or blocked doser nozzle delivering too little reductant

- B. An EGR cooler leaking coolant into the intake manifold passages
- C. A DEF tank that has been overfilled past the marked fill line
- D. A DPF holding a very low soot load after a recent regeneration

64. A tanker's rear air suspension sags overnight. Which method best locates the cause?

- A. Lubricate the steering gear for several minutes with fresh grease
- B. Replace the radiator cap with one that has a higher pressure rating
- C. Flush the coolant system with distilled water and refill it fully
- D. Soap-test the air springs, fittings, and the height control valve for leaks

65. In minus 30 degrees Celsius a tow truck's intake air heater draws no current while its relay clicks and the fuse is good. What is the most probable fault?

- A. A thermostat that is stuck open in the engine cooling circuit
- B. An open heater element or a lost ground at the heater
- C. A plugged fuel filter that is restricting the fuel supply flow
- D. A weak alternator belt that is slipping on its drive pulley

66. An engine idles roughly and produces soot at the tailpipe. The EGR valve commands 0 percent but the measured position shows 40 percent. What is the likely cause?

- A. An EGR valve stuck partly open from carbon, passing exhaust gas at idle
- B. A coolant temperature sensor that is reading higher than actual
- C. A failed DEF heater circuit inside the supply module
- D. A turbo actuator linkage that has been set slightly too short

67. After hookup the tanker trailer's wheels will not roll, and its supply and service glad hands were just coupled. What is the likely fault?

- A. The trailer ABS controller is stuck in its diagnostic fault mode after hookup

- B. The tractor slack adjusters have been over-adjusted at the drive axle
- C. The glad hands are crossed, so the park brakes never get release air
- D. The trailer tank vent valve has been left closed after loading

68. A transit coach's automatic transmission shudders around 55 km/h when the lockup clutch applies. Which cause should be checked first?

- A. A worn tire on the drive axle at the rear of the coach
- B. A thermostat stuck open in the cooling circuit of the engine
- C. Contaminated or incorrect fluid, or a worn lockup clutch
- D. A loose battery cable at the starter motor of the engine

69. Water leaks in at the top of a cab door in rain. Which action is correct?

- A. Fill the gap with silicone and keep the worn seal where it is
- B. Remove the seal entirely so that any water can drain straight out
- C. Tighten the wiper arm nuts at the base of the windshield
- D. Inspect the seal, then adjust the striker and hinges for even compression

70. The compressor clutch does not engage and static pressures read about 400 kPa on both sides. Which check is appropriate?

- A. Replace the evaporator core right away without any further testing
- B. Check the clutch coil voltage, fuses, relay, and low-pressure cutout switch
- C. Add refrigerant until the sight glass shows a clear liquid stream
- D. Flush the heater core with water and then retest the compressor

71. The left turn signal on a tractor flashes twice as fast as normal. Which cause is most likely?

- A. A burnt-out bulb on the left side lowering the circuit load
- B. Excess voltage at the flasher unit coming from the alternator output

- C. A short to ground in the circuit of the running lights
- D. A faulty brake light switch on the brake pedal linkage

72. After a repair, a trailer sits low although air pressure is normal. What adjustment is needed?

- A. Raise the tire inflation pressure at each wheel position by a few kilopascals each
- B. Set the leveling valve linkage so axle height matches the specification with air applied
- C. Swap the trailer's tires to the opposite sides of the axle group
- D. Increase the amount of grease that is applied to the fifth wheel plate

73. In cold weather a petroleum delivery truck's water-in-fuel lamp comes on. What is the first appropriate action?

- A. Replace the DEF filter and reset the fault code at the dash
- B. Add a quantity of gasoline to the tank to thin the cold fuel
- C. Drain the water separator and check the fuel supply for contamination
- D. Raise the governed speed so that the water is pushed through the lines

74. The ABS lamp stays lit after startup, with a stored code for an intermittent wheel speed signal at speed. What should be inspected first?

- A. The ECU, which should be replaced before any further testing is done
- B. The reservoir pressure, which should be raised to a level of 900 kPa
- C. The ABS fuse, which should be removed so the stored fault clears
- D. Sensor gap, clip retention, tone ring damage, and connector condition

75. A driver engages a wheel-to-wheel differential lock while travelling at highway speed. What is the likely consequence?

- A. Possible driveline damage and loss of control, so it should be engaged only at low speed
- B. A smoother ride because both wheels automatically rotate at equal speed

- C. No effect at all, since the lock cannot engage while moving
- D. Improved fuel economy because the axle ratio becomes lower

76. A driver delivers a drum of parts-washer solvent labelled with a flame and a health-hazard pictogram. Where does the technician find first-aid measures and spill-response steps for this product?

- A. On the barcode printed on the workplace label of the drum
- B. In the owner's manual supplied with the delivery truck itself
- C. In the 16-section safety data sheet for that product
- D. On the inspection tag attached to the nearest fire extinguisher

77. A tandem trailer tracks crooked and wears tires at an angle. What is the correct corrective action?

- A. Swap the marker lamp bulbs on both sides at the rear of the trailer
- B. Raise the air pressure in the brake reservoirs of the trailer unit
- C. Grease the landing gear shaft at the front of the trailer frame
- D. Align the axles square to the kingpin and to each other at the adjustment points

78. A new hydraulic hose is being installed on a wrecker's boom circuit. Which practice is correct?

- A. Twist it slightly so that it stays clear of the frame rail and the fittings
- B. Route it without twisting, with some slack and the minimum bend radius respected
- C. Pull it as tight as possible between the two end fittings
- D. Bend it sharply around the nearest bracket to keep it neat

79. A tank trailer has no clearance lights though stop lamps work, and a test light shows no power at the marker pin of the trailer connector. Where is the fault?

- A. An open in the tractor marker circuit or a blown protector feeding it
- B. A failed brake chamber diaphragm on the front axle of the trailer
- C. A seized gearbox in the landing gear assembly of the trailer

D. A cracked vent valve on the top of the tank of the trailer

80. When a torque rod end bushing is replaced, how should its fasteners be tightened?

- A. With the axle hanging free and the suspension fully extended
- B. With the vehicle at normal ride height and weight on the axle
- C. With the chassis raised as high as the lift can go
- D. With the frame twisted slightly to compress the bushing first

81. A common-rail engine shows a desired rail pressure of 180 MPa but only 120 MPa actual under load, while low-pressure supply is correct. What is most likely?

- A. A worn high-pressure pump or a leaking rail pressure limiter
- B. A cracked air filter housing that is admitting road dust
- C. A plugged crankcase breather that is raising crankcase pressure
- D. An open charge air cooler bypass that is lowering intake temperature

82. A four-pin relay coil measures infinite resistance across its coil terminals. What does this reading indicate?

- A. A shorted coil that needs only a light cleaning of the terminals
- B. A good coil that shows the normal resistance for a relay
- C. An open coil, so the relay must be replaced
- D. A welded contact set that stays closed even without power

83. A wheel speed sensor measures 4.5 kilohms, and the specification is 900 to 2,000 ohms. How should this be interpreted?

- A. Normal, since wheel speed sensors usually read in the kilohm range for these units
- B. Normal, since these sensors always read in the megohm range
- C. Acceptable because a reading above the range never matters

D. Out of range, so the sensor or its harness must be inspected

84. An automated manual transmission will not leave neutral and the air pressure reads 380 kPa. What is the correct approach?

- A. Build system air pressure above the transmission's minimum before shifting
- B. Replace the transmission control unit right away without any testing
- C. Add transmission fluid until the level overflows from the fill hole
- D. Reset the odometer so that the stored fault clears from the memory

85. On a very cold morning, an electric truck has reduced regenerative braking and the friction brakes are used more. Why?

- A. The tires are over-inflated and are slipping on the cold road
- B. The cab heater is using up all of the regenerative power
- C. The charge port door has been left open on the side of the truck
- D. A cold battery limits charge acceptance, so regeneration is reduced

86. A tandem rear suspension makes a knocking noise over bumps and shows uneven tire wear. Which component should be inspected?

- A. The condenser fins of the air conditioning system at the front of the cab
- B. The pump of the windshield washer fluid system on the cab
- C. Walking beam or torque rod bushings for wear and looseness
- D. The straps that hold the fuel tank to the frame of the truck

87. At high load a fuel supply test reads 60 kPa of vacuum at the filter inlet, above the 40 kPa maximum. What is the most probable cause?

- A. A worn piston ring set allowing excessive blow-by past the pistons
- B. A plugged tank pickup or primary filter restricting the supply side

- C. A DPF carrying too much accumulated ash in its channels
- D. A weak battery that is causing slow cranking at startup

88. The evaporator frosts solid and the low-side pressure reads very low. Which component is most likely at fault?

- A. A worn blower motor bearing inside the heater box of the cab
- B. A restricted or stuck expansion device or a blocked orifice
- C. A faulty door seal on the driver side of the cab body
- D. A leaking shock absorber on the cab suspension at the rear

89. A 30 A circuit breaker for trailer power trips repeatedly and the wiring is 12 gauge. What is the correct response?

- A. Find the short or overload in the circuit before resetting or changing the breaker
- B. Install a 50 A breaker so that it no longer trips on the trailer circuit
- C. Replace the breaker with a plain wire link so power stays on
- D. Switch to a smaller breaker so that nuisance trips are prevented

90. An electronic stability system activates repeatedly on a dry straight road and the lamp comes on. Which component should be checked and calibrated?

- A. The diaphragms of the spring brake chambers on the rear axle
- B. The purge valve inside the air dryer on the frame rail
- C. The gearbox of the landing gear on the trailer
- D. The steering angle sensor and the yaw rate sensor

91. A driveline on a tandem tractor has a noisy centre support bearing that growls at road speed. What is the likely cause?

- A. A loose licence plate bracket at the rear of the tractor frame

- B. A low coolant level at idle in the surge tank of the engine
- C. A deteriorated rubber cushion or a worn centre support bearing
- D. A leaking vent on the fuel tank mounted beside the frame rail

92. A tanker's repair order states 'brakes pull right.' After finding a seized slack adjuster on the left axle, which entry gives the most useful service record?

- A. A list of the replaced parts with their part numbers and nothing else
- B. A short note saying the brakes were repaired and road tested satisfactory
- C. The complaint, the confirmed cause, and the correction, with measurements noted
- D. The customer's complaint repeated word for word along with technician initials

93. A refrigerated trailer's evaporator coil keeps icing and the unit will not defrost. Which component should be tested?

- A. The air bladder in the seat of the tractor cab of the unit
- B. The defrost termination sensor and the defrost heater circuit
- C. The motor that drives the landing gear on the trailer frame
- D. The exhaust temperature sensor on the tractor exhaust system

94. A hydraulic filter bypass indicator shows red on a recovery truck. What is the correct response?

- A. Reset the indicator and keep operating the system as it is
- B. Remove the filter so that flow through the system is unrestricted
- C. Add a thicker grade of oil to make up for the lost pressure
- D. Replace the filter element and investigate the source of the contamination

95. A cylinder balance test shows cylinder 4 needing 40 percent more fuel correction than the others, and compression is normal. Which cause is most likely?

- A. A faulty injector or injector circuit on that cylinder

- B. A worn camshaft lobe on the cylinder two intake valve
- C. A leaking head gasket between cylinders five and six
- D. A weak starter solenoid contact that sticks while cranking

96. A tank trailer's slider fifth wheel has just been moved rearward to shift axle weight. What must be verified before driving?

- A. The tire pressure has been raised to the maximum rated value on the sidewall
- B. The landing gear has been lowered all the way to the ground
- C. The DEF tank has been topped off to the full level mark
- D. The slider locking pins are fully engaged and the indicators confirm the lock

97. A cab door sags and drags on its striker as it closes. Which repair is most appropriate?

- A. Replace the worn hinge pins and bushings, then adjust the door alignment
- B. Grind the striker plate down until the door clears easily
- C. Add a second latch to hold the door up at the rear
- D. Tighten the window regulator to lift the door glass higher

98. A technician must splice a damaged marker wire on a tanker frame. Which method gives a durable, weather-resistant repair?

- A. Twist the strands together and wrap the joint with electrical tape
- B. Join the wires inside a household wire nut and leave it exposed
- C. Crimp with the correct tool, then seal with adhesive-lined heat shrink
- D. Wrap the bare copper strands with copper tape and no covering

99. A tractor-trailer takes three minutes to build from 585 to 690 kPa, while the specification is about 45 seconds. Which cause is most likely?

- A. A governor that has been set slightly higher than the specification

- B. A worn compressor, leaking discharge valves, or a restricted inlet
- C. A trailer reservoir that is already fully charged with air
- D. A new air dryer cartridge that has just been installed

100. A U-joint failed from dry, burned bearing caps. Which maintenance practice prevents this?

- A. Fill each joint with oil through the cross using a pump can
- B. Never lubricate any sealed joint in any application on a truck
- C. Grease each joint until fresh grease purges from all four seals
- D. Lubricate only the slip yoke and ignore the joints at both ends

101. A scan tool shows coolant temperature at minus 40 degrees Celsius while the engine is fully warm. What fault does this suggest?

- A. A short to battery voltage that gives an extreme high reading on the scan tool
- B. An open circuit in the sensor or its wiring, reported as out-of-range low
- C. A thermostat stuck open that allows the coolant to stay cool
- D. A leaking radiator hose that is losing coolant onto the road

102. A natural gas coach engine misfires under load. Which service action is most appropriate for the spark ignition system?

- A. Install a larger fuel filter in the gas supply line to the engine
- B. Increase the DEF dosing rate at the injector to clean the cylinders
- C. Replace the coolant thermostat with a hotter unit to help ignition
- D. Replace worn plugs, set the gap, and test the coil boots

103. A fifth wheel top plate shows dry, scored surfaces and the trailer is hard to turn. What is the correct maintenance?

- A. Clean the plate and apply fresh grease or fit a lubrication plate as specified

- B. Apply engine oil to the kingpin only and leave the plate itself dry and unlubricated
- C. Remove the top plate and run the unit without any plate fitted
- D. Sand the plate until the surface is polished to a mirror finish

104. A compression brake gives weak retarding on cylinders 5 and 6 only, and is noisy. What is the most probable cause?

- A. A weak engine brake switch in the dash panel of the cab
- B. A low coolant level in the expansion tank on the cab
- C. A restricted DEF supply line at the pump in the tank
- D. Incorrect brake lash or a stuck solenoid on those two cylinders

105. A coach uses R-1234yf refrigerant. Which precaution applies when servicing its air conditioning?

- A. Use any recovery machine since all refrigerants are interchangeable
- B. Use recovery and charging equipment certified for that refrigerant and avoid cross-contamination
- C. Vent the old charge to the air so the system can be evacuated
- D. Top it up with R-134a to save the cost of the new refrigerant

106. Oil is found in the air dryer purge and in the reservoirs of a high-mileage truck. What does this indicate?

- A. The compressor is passing oil and needs repair, with the system cleaned
- B. Normal operation, since small amounts of oil are always expected in dryers
- C. A failed governor that needs to be replaced without delay
- D. Contaminated desiccant that is not related to the compressor at all

107. A drive axle makes noise on acceleration only, and not on coast. Which cause is most likely?

- A. A loose licence plate mount near the tail of the tractor
- B. An air leak at the parking brake chamber on the axle

- C. An incorrect drive-side contact pattern or worn gear teeth
- D. A faulty connector in the marker light circuit on the frame

108. The engine control module logs 'lost communication with transmission ECU' while the dash still works. Which first test is most useful?

- A. Reflash the engine control module with the latest calibration file available
- B. Measure resistance across the J1939 backbone and check pins at the transmission ECU connector
- C. Replace the dash cluster first to reset the data link for the vehicle
- D. Install a larger battery set to raise the system voltage a little

109. A recovery truck's pintle hook opening is worn beyond the manufacturer's limit. What should be done?

- A. Weld new material onto the worn surface and then reuse the hook
- B. Add a larger safety chain and keep on towing as before
- C. Lubricate the hook more often and leave the worn part in service
- D. Replace the pintle hook, since a worn throat can release the lunette under load

110. Diesel fuel spilled beneath a fuel tanker's pump compartment has ignited. Which portable extinguisher is appropriate for this fire?

- A. A dry chemical ABC or BC unit aimed at the base of the flames
- B. A water-type extinguisher sprayed broadly across the burning spill
- C. A Class D unit intended for burning magnesium and similar metals
- D. A Class K unit designed for deep-fryer cooking oil fires

111. A trailer will not raise on its air-ride suspension after hookup, although the tractor air is normal. What should be checked?

- A. The tread depth of the tires on the front axle of the trailer

- B. The condition of the marker lamp bulbs at the rear of the trailer
- C. The suspension dump valve position and the supply to the leveling valve
- D. The coolant hose clamps on the engine of the tractor unit

112. A pump delivers 45 L/min at 1,500 rpm. What is its displacement per revolution?

- A. 15 cm³ per revolution
- B. 67.5 cm³ per revolution
- C. 60 cm³ per revolution
- D. 30 cm³ per revolution

113. An engine brake will not engage at all with the switch on, and no codes are stored. Which check should be made first?

- A. Whether the DEF level is above one quarter of the tank capacity
- B. Whether enabling conditions are met, such as closed throttle and no ABS event
- C. Whether the fuel filter has been changed within the last interval
- D. Whether the exhaust pipe diameter matches the original equipment size

114. After a tire size change, a fleet needs the road speed signal corrected. What is required to reprogram the module?

- A. Use authorized software to update the tire size and axle ratio
- B. Adjust the speedometer cable with a wrench at the transmission output
- C. Fit any gauge cluster purchased from a general parts store counter
- D. Move the coolant temperature sensor by hand to the correct position

115. A service relay valve on a trailer exhausts air continuously even when the brakes are released. What is the most likely fault?

- A. A worn tire rolling radius on the rear axle of the trailer

- B. A stuck-open DEF dosing valve on the tractor exhaust system
- C. A leaking piston seal or control line leak holding the valve partly open
- D. A cracked mud flap bracket at the rear of the trailer body

116. An inter-axle differential will not stay locked, and the dash lamp is not showing lockup. What should the technician check?

- A. The ABS sensors on the steer axle at the front of the tractor
- B. Air supply to the lock control valve and cylinder, and the valve itself
- C. The alternator output voltage measured at the battery terminals
- D. The DEF dosing pump pressure at the tank of the exhaust system

117. A steer tire shows cupped wear in a repeating pattern around its circumference. What should the technician check first?

- A. The diesel exhaust fluid dosing pressure at the exhaust system pump
- B. The desiccant cartridge in the air dryer on the frame of the truck
- C. Worn shock absorbers or an out-of-balance wheel and tire assembly
- D. The latch mechanism on the cab door of the tractor body

118. An electric truck will not begin charging at a DC fast charger and the control pilot fault is shown. Which check is appropriate?

- A. Replace the entire high-voltage battery pack on the electric truck
- B. Refill the DEF tank so that the system can restore itself
- C. Adjust the slack adjusters on the trailer brakes of the unit
- D. Inspect the charge port pins and the pilot and proximity signals

119. Crankshaft endplay measures 0.50 mm on a diesel whose specification is 0.10 to 0.25 mm. What does this indicate?

- A. Worn thrust bearings that need replacing, with the crankshaft inspected
- B. Normal growth, since endplay always increases as the engine warms
- C. A flywheel housing bolt that needs to be re-adjusted slightly
- D. A vibration damper that must be replaced on its own

120. A diagnostic tool displays SPN 168 FMI 4 on a coach. What does this code indicate?

- A. A high intake manifold temperature condition at the charge air cooler
- B. A leaking purge valve in the air dryer on the frame rail
- C. An open circuit in the door switch for the cab door of the coach
- D. System voltage below normal or shorted low, so batteries and charging need checking

121. A dome light stays on and the battery is flat each morning. The door ajar switch is suspected. What is the correct test?

- A. Replace the battery with a larger capacity unit and leave the circuit
- B. Check the switch for continuity in both door positions and repair the circuit
- C. Remove the dome light fuse permanently so the lamp cannot light
- D. Disconnect the alternator every night before the truck is parked

122. Air escapes steadily from the parking section vent of a spring brake chamber with the parking brake released. What does this indicate?

- A. A normal air release that occurs each time the brake applies
- B. A defective boot on the service brake pushrod of the chamber
- C. A ruptured diaphragm in the spring brake section of the chamber
- D. An overfilled reservoir that is relieving its excess pressure here

123. A drive axle weeps oil at both wheel seals and the housing breather is packed with dirt. Which action is correct?

- A. Clean or replace the breather, then replace the leaking seals
- B. Plug the breather completely to stop contamination entering the axle
- C. Add more axle lubricant above the level of the fill hole opening
- D. Replace only the tires on the drive axle and leave the seals alone

124. Oil is found inside a brake drum after a new hub seal was installed. Which cause is most likely?

- A. A loose licence plate screw on the rear of the tractor frame
- B. A worn wiper arm on the windshield of the cab body
- C. A rough or damaged wear sleeve on the axle, or a plugged axle breather
- D. A cracked mud flap hanger at the rear of the tractor body

125. After installing cylinder liners, protrusion above the block deck measures below the specification. What is the likely consequence?

- A. Poor sealing at the head gasket, allowing combustion gas or coolant leaks
- B. Excess valve lash on the intake side of the cylinder head
- C. A rise in oil pressure at normal operating speed in the engine
- D. A drop in boost pressure with no other noticeable effects

126. The windshield fogs repeatedly in cold, damp weather even with the defrost selected. What should be checked?

- A. The position of the trailer tandems on the slider rails
- B. A stuck recirculation door, and confirm the air conditioner runs in defrost mode
- C. The condition of the fuel filter on the diesel engine
- D. The level of the DEF in the tank on the tractor frame

127. A shared 5 V reference circuit reads 0 V at one sensor connector, and several sensors have set faults. What is the most efficient test method?

- A. Replace all of the sensors at the same time with new units
- B. Reflash the engine control module right away with the newest file
- C. Raise the battery voltage by adding a second alternator to the engine
- D. Unplug the sensors one at a time and watch for the voltage to return

128. A first-year apprentice keeps working under a tractor held only by a floor jack while you are tied up with a customer. What is the best response?

- A. Let the work continue and raise the issue at the end-of-shift review
- B. Tell the apprentice to hurry so the jack carries the load only briefly
- C. Stop the job, have the unit lowered onto rated stands, and explain why
- D. Place a second floor jack nearby as a backup and let the work continue

129. A dry-van trailer's rear swing door will not latch fully and rattles over bumps. Which action is appropriate?

- A. Wedge a rag into the gap and then drive on with some care
- B. Weld the door shut at the top corner so it cannot open
- C. Grease the tire sidewall so that the rattle is damped down
- D. Inspect and adjust the hinges, cam locks, and keepers, replacing worn parts

130. A wrecker's hydraulic system is sluggish on a very cold morning. Which action is most appropriate?

- A. Use a fluid grade suitable for low temperatures and warm the system before heavy use
- B. Switch to the thickest oil that is available on the shelf
- C. Run the system at full load immediately after it starts
- D. Open the relief valve so that the oil warms up more quickly

131. On a tractor the dash parking brake knob pops out soon after being pushed in, though reservoir pressure reads 520 kPa. Which cause is the most likely?

- A. A worn tie rod end on the steer axle of the tractor
- B. A leaking supply line or check valve dropping pressure below the hold-in point
- C. A thermostat that is stuck open in the engine cooling system
- D. A discharged battery in the cab electrical system of the tractor

132. A driveline retarder on a coach produces no braking when engaged. What should the technician check first?

- A. Retarder fluid level and the control air and solenoid enabling conditions
- B. The weatherseal condition on the cab door of the coach body
- C. The crank handle on the landing gear of the trailer unit
- D. The fluid level in the windshield washer reservoir of the cab

133. A technician finds that a stud-piloted dual wheel keeps loosening and the stud holes in the wheel are elongated. What is the correct repair?

- A. Tighten every nut to double the specified torque value for safety
- B. Add a flat washer under each nut and then reuse the same wheel
- C. Paint the nut seats on the wheel so they grip with more friction
- D. Replace the damaged wheel, clean the mating faces, and torque the nuts in sequence

134. During winter a tow truck's cab heat is weak and coolant temperature stays near 60 degrees Celsius on the highway. What is the likely fault?

- A. A failed water pump drive coupling that has stopped circulation
- B. A thermostat stuck open, sending coolant through the radiator continuously
- C. A restricted fuel filter that is limiting the engine output
- D. A faulty alternator regulator that is undercharging the batteries

135. Two accelerator pedal sensor signals disagree and the engine defaults to limited power. Which action is correct?

- A. Replace the engine control module immediately to restore full power
- B. Set the idle speed higher so the signal discrepancy is hidden
- C. Test the sensor supply and signal circuits, and replace the pedal only if tests fail
- D. Disconnect both pedal sensors to restore full power on the engine

Practice Exam 12: Answer Key and Explanations

1. **D** — Batteries in parallel keep the same voltage but add their capacity, so the bank holds 300 Ah. Dividing 300 Ah by the 250 A draw gives 1.2 hours, which is 72 minutes. Using only one battery's capacity gives 36 minutes, and the other values come from multiplying or dividing incorrectly, so neither matches the parallel bank.
2. **B** — Worn rings and liners let combustion gas leak past the pistons into the crankcase, so a blow-by flow test above specification confirms the diagnosis. Injector return flow checks fuel delivery, a coolant pressure test checks for leaks, and exhaust backpressure checks restriction. None of those three measures ring and liner sealing, so they would not confirm wear.
3. **A** — Vertical or radial movement between the knuckle and axle beam, shown by rocking the raised tire, points to worn kingpin bushings or bearings. They allow wander, tire wear, and shimmy, so they must be replaced. A tie rod end or wheel bearing would show movement at a different location, and some clearance is never normal.
4. **B** — Spring brakes can be released with an outside air supply or by caging with the proper tool, and the operator must confirm brake condition after the move. Cutting lines does not release the springs, and striking or disassembling the chamber is extremely dangerous because the power spring holds great stored energy.
5. **D** — Air in a hydraulic clutch line compresses instead of moving the release fork, causing a spongy pedal and incomplete release, which makes the gears grind. Bleeding the system and finding any leaking cylinder fixes it. A pedal pivot, a ring gear, or heavier gear oil do not affect release travel.
6. **C** — A taut winch line stores a great deal of energy, and a failed hook or cable can whip back with lethal force. A damper absorbs part of that snap, and clearing the line's path keeps people out of danger. Standing beside the cable, or hooking back onto it, only adds exposure or overloads the line.
7. **A** — Landing gear is a mechanical screw assembly that binds when it lacks grease or has worn or bent parts, so lubrication or repair is needed. Tire pressure, marker lamps, and air leaks have nothing to do with the crank effort, so none of them could explain a gear that cranks hard and binds.
8. **A** — Milky hydraulic oil is the classic sign of water emulsified in the fluid, usually entering through a damaged breather, seal, or condensation. Water causes pump wear and noise, so the system must be

drained, flushed, and refilled with new filters. A low relief setting or small wiper would not turn oil milky.

9. C — A parasitic draw is isolated by monitoring current while removing fuses or circuits one by one, which shows which circuit carries the excess. A larger battery, a jump pack, or disconnecting the alternator hides or ignores the cause, since the alternator is not a draw while the engine is off and the fault remains.

10. B — Excess bearing clearance lets oil escape faster than a slow-turning pump can replace it, so pressure collapses at idle yet recovers when pump speed rises. A restricted air filter, an open thermostat, and a weak lift pump do not change oil pressure in this way, so none of them fits a low reading at hot idle only.

11. D — Heat entering the core but not leaving means coolant flow is blocked inside, so the core is restricted and should be flushed or replaced. A stuck thermostat would cool both hoses, a compressor clutch is part of the air conditioner, and a belt would not block coolant flow through the heater core.

12. A — Free play in the steering wheel is the sum of looseness in the linkage and gear, so tie rod ends, the drag link, gear lash, and king pins are inspected. Coolant hoses, exhaust hangers, and the air dryer have no effect on steering play, so inspecting them would not find the looseness.

13. D — The governor controls when the compressor loads and unloads, so incorrect cut-in and cut-out points mean the governor is out of adjustment or faulty and should be set or replaced. A bigger compressor does not change those points, and draining reservoirs or changing the safety valve does not affect governor operation.

14. C — Hard shifting at a standstill means the clutch is dragging, often because excess free play or worn linkage stops it from releasing fully. Slight oil overfill, tire pressure, and DEF level do not stop the clutch from releasing, so none of them would produce the squeak and difficulty shifting for this truck.

15. B — Tilting a cab requires a clear area, secured loose items, released latches, and a safety prop that holds the cab once raised. Leaving the engine running adds hazards, and removing mount bolts or relying on a chain defeats the cab's built-in safety support, which could let it fall on the technician.

16. D — A battery recently charged by the alternator carries a surface charge that gives a misleading voltage, so it needs to rest or be lightly loaded before testing. AGM batteries are sealed and cannot be topped up, and heavy fast charging damages them. Condemning it on a reading taken right after driving would be a mistake.

17. B — Fuel dilution thins the oil and appears as fuel in the analysis. It comes from leaking injector seals or from post-injection fuel washing past the rings during frequent regenerations. Coolant would show glycol and sodium, soot raises viscosity rather than lowering it, and overfilling causes aeration rather than fuel in the oil sample.

18. A — A reading of zero volts is only trustworthy if the meter itself works, so the technician checks it on a known live source, tests the circuit, then checks the meter again. Using resistance mode, shorting a circuit with a screwdriver, or letting it warm up does not prove the meter works and is unsafe.

19. C — Hard steering with a pump that cannot reach its relief pressure points to internal wear or a relief valve that is leaking. The pump should be tested with a flow restrictor and repaired. Wipers, a blend door, and a plate are not involved, so none of them explains a pump test of 7 MPa.

20. A — Water collecting in the reservoirs means the dryer is no longer removing moisture, and a cartridge that is four years old is typically saturated. Replacing it and verifying purge and heater function restores drying. A bigger compressor, open drains, or a different governor do not remove moisture from the air.

21. C — Oil on the friction surfaces causes chatter and slip, so the leaking rear main or input shaft seal must be fixed or the new clutch will be contaminated again. Greasing, a free play change, or a release bearing alone leaves the contamination source in place and the chatter would soon return.

22. D — A voltage drop that large on a starter cable shows high resistance in the cable or its connections, and the voltage lost there never reaches the starter. Cleaning or replacing it restores cranking speed. A new starter, thicker oil, or fresh batteries would not cure resistance in the cable, and thicker oil would actually add load.

23. B — A chemical combustion-leak test detects exhaust gases dissolved in the coolant, which confirms combustion pressure is entering the cooling system through a gasket or crack. A refractometer, a cap test, and a thermostat test check other coolant-system functions and cannot identify a combustion leak into the coolant, which is why the other tests are unsuitable here.

24. C — Residual fuel vapour inside a tank can explode when heat or sparks reach it, so the tank must be tested and certified gas-free before any hot work. A half-full tank still holds an explosive mixture above the liquid, and wetting the shell does not remove vapour. Idling the tractor has no bearing on the tank atmosphere.

25. A — Dim and flickering lamps with good power at the tractor connector point to resistance in the return path, usually a corroded or loose trailer ground at the connector or frame. The lamps cannot draw full current. High battery voltage would make lamps brighter, and doors or tire pressures have no effect on lamp brightness.

26. B — A relief valve controls maximum system pressure, so a reading well below specification means the valve is set too low or leaking and must be adjusted or repaired to the specified value, staying within the rating of the components. Lower pressure reduces working force, welding the adjuster is unsafe, and a longer hose does not change pressure.

27. D — A torn boot lets dirt and water into the joint, which wears it quickly even if there is no play yet. Replacing the end is the correct repair. Extra grease or tape cannot keep contamination out, and waiting for play risks losing steering control while the truck is travelling on the highway.

28. B — Voltage holds near the regulator setting only while the alternator can supply the load. A collapse under moderate load indicates it cannot produce enough current, from worn windings or diodes or a slipping belt. An overcharging regulator would raise voltage, and an open battery clamp would not drop the alternator's own output like this.

- 29. D** — Leakage with the brakes applied is normally limited to roughly 20 to 30 kPa per minute for a single vehicle, so 55 kPa is excessive and must be traced and repaired. Relying on the compressor or the warning light ignores the problem and can leave the vehicle with fewer brake reserves in service.
- 30. A** — The range shift is air operated, so no range change points to a lack of air pressure to the cylinder, a solenoid that is not operating, or a leaking cylinder. Axle lube, wheel bearings, and fifth wheel settings have no effect on the range shift, so checking them would waste time on this fault.
- 31. C** — A viscous fan clutch should slip when cold and lock only when hot. If the silicone has broken down or the thermal element sticks, it stays engaged and the fan runs at full speed constantly. A stuck thermostat, a loose impeller, or a weak cap would affect coolant flow or pressure, not fan engagement.
- 32. A** — High head pressure with a normal low side means heat is not leaving the condenser, which a dirty core, weak fan, or an overcharge produces. Low refrigerant would drop both pressures, and a blower or heater core fault would not raise head pressure on the high side of the system.
- 33. B** — AC ripple on the DC output means the rectifier is not converting all phases properly, most often from an open or failed diode, and the acceptable limit is well under 0.5 V. A field winding or brush fault reduces output instead of adding ripple, and a hold-down bracket has no electrical effect at all.
- 34. D** — Feathering, a saw-tooth pattern across the tread, is a classic sign of incorrect toe, because the tire is dragged sideways as it rolls. Caster and inclination affect steering return and stability, and axle lubricant has no tire wear effect, so none of those would produce this wear pattern at all on this axle.
- 35. C** — Conventional coolant depends on supplemental additives to protect against corrosion and cavitation, so a low test strip reading is corrected by adding the specified dose and retesting. A thermostat change does nothing for additive level, plain water dilutes the protection, and mixing coolant types risks chemical incompatibility and deposits, so none of those steps would restore protection.
- 36. B** — The adjustment limit for a standard Type 30 chamber is 51 mm, so 60 mm means the brake is out of adjustment. The technician should adjust it and diagnose why the automatic adjuster failed. The 64 mm figure applies only to long-stroke chambers, and the limit applies to every vehicle with air brakes.
- 37. A** — Manual transmission oil is filled until it reaches the bottom of the fill hole on level ground, which gives the proper lubrication depth for the gears and bearings. Running low risks wear, and filling beyond the hole creates churning, heat, and leaks, so the other levels would harm the transmission over time.
- 38. C** — A voltage difference between the alternator stud and the battery with current flowing shows resistance in the charge path, such as a corroded connection or a damaged cable. A low regulator or slipping belt would drop the voltage at the stud itself, and a fully charged battery would not cause a drop across the cable.

- 39. D** — A cab that keeps bouncing is lacking damping, so the cab shocks and air springs are inspected for leaks, worn bushings, or low pressure. Marker bulbs, DEF sensors, and tandem releases do not control cab motion, so none of them can explain the repeated bouncing after small bumps in this cab.
- 40. D** — Positive caster provides directional stability and steering return, so a value of zero causes wandering. Restoring it with the correct shims or axle wedges fixes it. Tire pressure, landing gear, and exhaust clamps do not change caster, so none of them would correct the wandering on the highway for this tractor.
- 41. A** — Low boost with black smoke often points to a leak in the charge air cooler or piping, which lets compressed air escape so the engine runs rich. A pressure leak test locates it quickly. A rail bleed-down, a compression test, or an alternator test would take longer and do not address low boost directly.
- 42. C** — A click-type wrench relies on a calibrated spring, and leaving it compressed at a high setting lets the spring relax unevenly and drift out of accuracy. Winding it down to its lowest marked setting unloads the spring without going below the scale. The other choices keep the spring loaded and make later torque readings less reliable.
- 43. B** — Bubbles in the sight glass indicate vapour in the liquid line, which commonly means refrigerant is low and a leak must be found and repaired. A fuel tank level, a tire, and a crank handle do not alter cooling performance, so none of them explains a unit that runs but fails to cool.
- 44. B** — Heat in a hydraulic system is generated when oil is forced across a restriction, such as a relief valve that is stuck or set too low, so flow is wasted as heat. Battery cables, compressor belts, and tire pressure do not generate heat in the hydraulic fluid, and none of them explains oil reaching 95 degrees.
- 45. C** — An automatic adjuster keeps correcting wear, so repeated drift points to a mechanical fault such as worn cam bushings, a bent clevis, or an internal adjuster failure. Manual resetting only masks the cause. Landing gear grease, a tank vent, and tread depth do not affect slack adjuster operation in any way on this axle.
- 46. A** — Gears and bearings shed a small amount of very fine wear material during normal service, which the magnet collects as a paste. Chips or chunks mean parts are breaking up and require inspection. A paste alone does not prove gear failure, thick oil, or a bad magnet, which is why none of those conclusions is justified.
- 47. D** — An alternator needs excitation current to start generating, so an open excite circuit or a failed regulator leaves it producing nothing, which matches battery voltage at B+ and a lit lamp. A seized pump, a full DEF tank, or a cracked hose would not produce this combination of symptoms on this unit.
- 48. D** — Oil in the compressor-side pipe means oil is escaping past the turbo seal, often because a plugged drain line lets pressure force it across. That explains the blue smoke as well. A stuck gauge, a manifold leak, or a DEF doser do not put engine oil into the intake path.
- 49. C** — Low readings on both sides and bubbles in the sight glass mean there is not enough refrigerant in the circuit, usually from a leak. An overcharge and a blocked condenser would raise pressures, and a seized pulley would mean no compressor action at all, with equalized pressures instead in this system.

50. B — Frame flanges carry the highest bending stress, so holes in them can start cracks. Manufacturers allow drilling in the web within specified spacing and edge distances. Top or bottom flange drilling, or holes at crossmember flange joints, creates stress risers that can lead to cracking under repeated loading in service on the road.

51. A — An insulation fault means current may be leaking from the high-voltage system to the chassis, which is a shock risk. The system is isolated and insulation resistance measured with a rated tester. Ignoring or clearing the code or spraying connectors is unsafe, since moisture in a connector may still be present.

52. C — S-cam bushings need grease until new grease purges at the seal, which pushes out old grease and contaminants, but too much grease can migrate to the linings and reduce braking. Packing the drum, oiling the linings, or spraying penetrant on the cam end ruins the friction surface or fails to lubricate the bushing.

53. B — Burnt-smelling dark fluid together with slipping and late shifts shows friction material has overheated and worn. The technician should check the fluid, filter, and pressures and find the cause. Topping up hides the problem, burnt fluid is not normal, and the symptoms come from inside the transmission itself and not from outside it.

54. A — Zero volts at the solenoid S terminal during crank means the start command never reaches the starter, so the fault lies upstream in the relay, switches, or wiring. A starter with a bad armature would still click, and a battery that tests at 12.6 V with a decent ground rules out those other causes.

55. D — Short stops keep exhaust temperatures too low for passive regeneration, so soot accumulates. A commanded parked or service regeneration burns it off safely under controlled conditions. Pressure washing can damage the substrate, unplugging sensors hides the problem, and nothing belongs in the DEF tank except diesel exhaust fluid in this truck.

56. D — Frame fasteners carry large loads, so the replacement must match the original size and grade, with a hardened washer, and be torqued to specification. A softer, smaller, or random bolt may stretch or fail, and tightening by feel risks incorrect clamp load. Thread locker cannot make up for the wrong fastener.

57. A — Excess current with a slow crank and a free-turning engine means the starter itself is overloaded, usually from worn bushings that let the armature drag. A seized engine would not turn by hand, an open cable would reduce current, and a discharged battery would limit current rather than increase it.

58. B — To convert, multiply the foot-pound value by 1.3558, so 600 lb-ft times 1.3558 gives 813.5 N·m. Dividing instead gives 442.5, which reverses the conversion, 600 ignores the conversion, and 1,627 uses an incorrect factor. A torque wrench set in metric units must be set to about 813.5 for this wheel nut specification.

59. C — The vent lets the tank breathe as product moves in and out, so a stuck vent can cause vacuum collapse or excess pressure. It has no role in lamps, brake air, or the ABS controller, so it must be tested per the tank inspection requirements to keep the tank safe during loading and unloading.

60. B — Case drain flow measures leakage inside the motor, so high flow shows wear that lets oil bypass the working elements, reducing speed under load. An air filter, coolant, and a lamp socket do not affect it, which means none of them can account for a winch motor that slows and shows high case drain flow.

61. C — The tractor protection valve is designed to shut automatically when supply pressure falls below its set point, sealing the tractor circuit so the tractor keeps its air. A quick release valve speeds exhaust, a relay valve speeds application, and a safety valve vents overpressure, so none of them isolate the tractor.

62. D — Pink, milky transmission fluid is the classic sign of engine coolant entering through a leaking cooler core, which ruins friction materials and bearings. The cooler must be replaced, and the transmission flushed and inspected. Topping up, adding a modifier, or longer running does not remove coolant contamination from the fluid.

63. A — An SCR catalyst should cut NOx sharply, so almost no drop across it means too little reductant is reaching the exhaust. A crystallized doser nozzle is a common cause. A coolant leak, an overfull tank, or a clean DPF would not stop the catalyst from reducing NOx in this way.

64. D — A suspension that loses height overnight is losing air, and a soap solution makes leaks at the bellows, fittings, or height control valve visible. Steering gear lubrication, a different radiator cap, and a coolant flush have nothing to do with an air leak, so none of them would locate the sag.

65. B — If the relay clicks and the fuse is intact, power should reach the heater, so no current means the element is open or its ground is lost. A thermostat, a fuel filter, and an alternator belt do not control the current through the heater circuit, which is why they cannot explain a heater drawing nothing.

66. A — When the valve is stuck partly open, exhaust gas dilutes the intake charge at idle, causing rough running and soot. The commanded and measured positions disagreeing confirms mechanical sticking. A bad temperature sensor, a DEF heater fault, or a turbo linkage issue would not create that mismatch in valve position.

67. C — The trailer parking brakes release only when supply air pressurizes the trailer's park circuit. If the lines are crossed, the supply side is never charged properly and the springs stay applied. ABS faults, slack adjuster settings, and vent valves would not hold all of the trailer wheels locked together at hookup.

68. C — A shudder when the torque converter lockup engages usually means the friction material is worn or the fluid is the wrong type or contaminated, so the fluid specification and condition are verified first. Tires, the thermostat, and the battery cable are unrelated to a lockup shudder at 55 km/h in this coach.

69. D — A door leaks when the weatherseal is damaged or the door does not compress it evenly, so the seal is inspected and the striker and hinges adjusted. Caulking over a worn seal is only temporary, removing it makes things worse, and wiper arm nuts are irrelevant to a leak at the top of the door.

70. B — A clutch that does not engage with adequate static pressure points to an electrical issue, so the coil, fuse, relay, and pressure switch are checked. Replacing the evaporator, adding refrigerant, or flushing the heater core does not address the electrical path that controls the compressor clutch, so the electrical path comes first.

71. A — A conventional flasher depends on load current, and a burnt-out bulb reduces it, which makes the unit cycle faster and warns the driver something is wrong. High voltage, a running light short, or a brake switch would not cause a fast flash on just one side, so the bulb is the most likely cause.

72. B — Ride height is controlled by the leveling valve, and its linkage length decides how much air is held in the springs. Adjusting it to the specified height with air applied corrects the trailer. Tire pressure, tire swaps, and grease do not change ride height, so none of them fixes a trailer sitting low.

73. C — Water in fuel can cause injector damage and freeze in cold weather, so the water separator must be drained and the contamination source checked. A DEF filter has nothing to do with fuel, gasoline in diesel creates a serious hazard, and revving the engine only forces water toward the injectors.

74. D — An intermittent speed signal usually comes from a sensor sitting too far from a damaged tone ring, a loose clip, or a corroded connector, so those are checked first. Replacing the ECU before testing wastes money, air pressure does not affect sensors, and pulling a fuse only disables the ABS.

75. A — A differential lock forces both wheels to turn together, which is useful in low-traction conditions at low speed. Engaging it at highway speed or around corners can overload the axle shafts and cause instability and damage. The lock does not improve ride or fuel economy, and it can engage while moving unless interlocked.

76. C — Under WHMIS, the safety data sheet is the detailed source for first aid, spill response, handling, and protective equipment for a hazardous product. The pictograms only signal the hazard class, and a barcode carries no such instructions. A truck manual or extinguisher tag covers entirely different equipment and would not guide a solvent spill.

77. D — Dog-tracking and angled wear mean the axles are not square to the trailer centreline, so alignment is checked against the kingpin and corrected. Lamp bulbs, brake reservoir pressure, and landing gear grease cannot straighten the axles, so none of them would stop the trailer tracking crooked and wearing tires for this trailer.

78. B — A twisted hose weakens under pressure, and a tight or sharply bent hose will kink or fatigue. Installing it untwisted with slack for movement and observing the bend radius gives the longest service life, while the other methods all shorten it and risk a burst on the boom circuit under pressure.

79. A — No power at the marker pin of the connector places the fault on the tractor side, in the wiring or protection device feeding that circuit. Because the stop lamps work, the connector and trailer chassis are not the issue. A brake chamber, landing gear, and tank vent have no electrical link to the marker circuit.

80. B — Rubber bushings should be tightened with the suspension at its normal ride position, so the rubber is not pre-twisted and wound up in service, which would shorten its life and cause stress. Tightening with the axle hanging free, the chassis high, or the frame twisted would lock the bushing in a stressed position.

81. A — With correct supply pressure, a rail that cannot reach its target means the high-pressure side is losing pressure, either from a worn pump that cannot generate it or from a limiter or injector that leaks it away. An air housing crack, a plugged breather, or an intake bypass does not influence rail pressure.

82. C — A coil should show a measurable resistance, commonly tens to hundreds of ohms. An infinite reading means the winding is open, and the relay cannot energize. A shorted coil would read very low, and contact sticking is tested across the switched terminals rather than across the coil, so the other readings do not fit.

83. D — Magnetic wheel speed sensors have a defined coil resistance, and 4.5 kilohms is far above the specified band, suggesting a damaged coil or high resistance in the wiring. The sensor and harness should be tested and repaired. Claiming a kilohm or megohm normal range ignores the actual specification given for this sensor.

84. A — Many automated transmissions use air to shift and need minimum pressure before they will engage, so 380 kPa is too low. Building pressure first is the correct approach, whereas a control unit replacement or fluid addition would be premature and the odometer has nothing to do with shifting with this transmission.

85. D — Lithium batteries cannot accept high charge current when cold, so the system limits regeneration and the friction brakes pick up the difference. Tire pressure, heater use, and the charge port door do not account for reduced regeneration, so none of them explains why friction brakes work harder on a cold morning.

86. C — Worn walking beam or torque rod bushings let the axle move out of position, creating knocking and uneven tire wear. A condenser, a washer pump, and tank straps do not affect axle location, so inspecting them would not find the cause of a knock that happens when the axles move over bumps.

87. B — Vacuum on the suction side rises when something upstream of the lift pump restricts flow, such as a plugged pickup screen, a collapsed hose, or a restricted primary filter. Piston rings, a DPF, and a weak battery have no effect on fuel supply vacuum, so none of them fits this reading.

88. B — A restriction at the expansion device starves the evaporator of refrigerant, so pressure falls very low and the coil freezes. A blower bearing, a door seal, and a shock absorber do not control refrigerant metering, so none of them explains the frosted coil and the very low pressure on the low side.

89. A — A breaker that trips repeatedly is protecting the wiring against an overload or short, so the cause must be found and corrected. Fitting a larger breaker or a wire link allows the wiring to overheat, and a smaller breaker would trip even sooner without solving the underlying problem in the trailer circuit.

90. D — Stability control compares the driver's steering input with the vehicle's actual yaw, so a miscalibrated steering angle or yaw sensor can trigger interventions on a straight, dry road. Spring brake diaphragms, the dryer purge, and the landing gear have no connection to the stability inputs, so none of those can explain the repeated activation of stability control.

91. C — The centre support bearing holds the shaft and sits in a rubber cushion, and a deteriorated cushion or worn bearing creates a growl that rises with road speed. The licence plate bracket, coolant level, and tank vent are not connected to driveline noise, so they cannot be the source of the growl.

92. C — A complete record states the complaint, the confirmed cause, and the correction, along with measurements such as pushrod stroke, so the next technician can see what was done and why. Part numbers alone omit the diagnosis, and a vague 'tested satisfactory' note proves nothing. Repeating the complaint adds no verified information to the file.

93. B — A coil that ices without clearing points to a failed defrost cycle, so the termination sensor and the defrost heater circuit are tested. Seat bladders, landing gear, and tractor sensors do not control reefer defrost, which means testing them would not find why the evaporator coil keeps icing up in this trailer.

94. D — A red bypass indicator means the element is clogged and unfiltered oil may be passing, so the filter is replaced and the contamination source is investigated. Resetting the indicator or removing the filter lets contaminants reach the components, and thicker oil does not solve a blocked element at all for the system.

95. A — The control module is compensating for a cylinder that is not contributing normally, and with compression good the injector or its wiring is the best suspect. A lobe on another cylinder, a gasket on a different cylinder, or a starter solenoid would not single out cylinder 4 in this way.

96. D — A slider that is not locked can shift unexpectedly on the road, so the locking pins must be fully engaged and verified before the truck moves. Tire pressure, landing gear, and DEF level do not secure the slider, which means none of them addresses the hazard created by moving the fifth wheel.

97. A — A sagging door usually has worn hinge pins and bushings, which let it drop out of alignment. Replacing them and then adjusting the hinges and striker restores correct closing. Grinding the striker, adding a latch, or tightening the window regulator hides the symptom and does not fix the worn hinge.

98. C — A crimped connection made with the right tool is mechanically sound, and adhesive-lined heat shrink seals out moisture, which suits road spray and vibration on a tanker frame. Tape comes loose, wire nuts are not designed for vehicles, and exposed copper corrodes and fails, so those methods would not last.

99. B — Slow build-up means the compressor is not pumping adequately, which can come from worn rings, leaking valves, or a restricted inlet. A higher governor setting or a charged reservoir would not slow the build, and a new dryer cartridge would not restrict flow either, so none of those causes fit the very long build time measured here.

100. C — U-joints with grease fittings need to be greased until new grease appears at all four cup seals, which confirms every bearing is filled and flushes contaminants. Oil does not stay in the cross, and ignoring joints leads to dry, burned bearings like the failed one described here every time it is serviced.

101. B — A negative temperature coefficient sensor with an open circuit presents very high resistance, which the module interprets as extreme cold, typically minus 40 degrees. A short would drive the reading the other way, and a stuck thermostat or a leaking hose would show an actual temperature, not a limit value.

102. D — Misfire on a spark-ignited engine usually traces to worn plugs, incorrect gap, or leaking coil boots, so the plugs and boots are checked and replaced as needed. A different filter, a DEF change, or a hotter thermostat have nothing to do with ignition quality, and none would stop a misfire under load.

103. A — A dry top plate creates friction as the trailer pivots, so cleaning and applying the proper grease or a lubrication plate reduces wear. Oil on the kingpin alone leaves the plate dry, and the plate must stay in place for the connection to work, while polishing it removes metal and does not lubricate it.

104. D — A compression brake works cylinder by cylinder, so a fault limited to two cylinders points to their brake components, such as lash adjustment, a slave piston, or a solenoid. A dash switch would disable all cylinders, and coolant level or DEF supply have nothing to do with retarding in this case.

105. B — Refrigerants are not interchangeable: R-1234yf requires dedicated, certified equipment because mixing refrigerants contaminates the system and the recovery machine, and the refrigerant is mildly flammable. Venting is illegal and harms the environment, and topping up with R-134a creates an unapproved mixture that harms performance and safety, so neither of those practices is acceptable on any air conditioning job.

106. A — Oil in the dryer and reservoirs means the compressor is passing oil, usually from worn rings or a restricted inlet that draws oil past its seals. The compressor must be repaired and the system cleaned. A governor does not supply oil to the air, and oil is never normal in an air brake system.

107. C — Noise that appears only under power points to the drive side of the ring and pinion, where a wrong contact pattern or worn teeth create the sound. A plate mount, a parking brake chamber, and a marker connector would not make the noise load dependent, so they do not fit the symptom.

108. B — A lost-communication code points to a break or poor connection on the data link, so checking backbone resistance and connector pins is the logical first step. Reflashing, replacing the cluster, or adding a battery are guesses made before the basic circuit has been tested, and they would not find a wiring fault.

109. D — Excessive wear in the hook throat reduces the retaining area and can let the lunette escape under load, so a worn pintle must be replaced. Welding changes the metal's strength, and chains or extra grease do not restore the hook's capacity, which is why the worn hook cannot stay in service.

110. A — Burning diesel is a Class B flammable-liquid fire, which dry chemical ABC or BC extinguishers handle when aimed at the base of the flames. Water can spread burning fuel, a Class D

unit is formulated for combustible metals, and a Class K agent is made for kitchen cooking oils, so none of those suit this situation.

111. C — A trailer air suspension can be dumped by a control valve, and if the dump is open or the leveling valve gets no supply, the springs will not fill. Tread depth, marker lamps, and coolant hoses do not affect suspension inflation, so none of them explains a trailer that will not raise.

112. D — Displacement per revolution is flow divided by speed. A flow of 45 L/min is 45,000 cm³ per minute, and dividing by 1,500 rpm gives 30 cm³ per revolution. The other figures come from dividing by the wrong speed or multiplying instead, and none of them keeps the units consistent between litres per minute and cubic centimetres.

113. B — Engine brakes activate only when conditions such as closed throttle, a connected clutch switch, and no active ABS or cruise inhibit are satisfied, so confirming those inputs comes first. DEF level, fuel filter history, and pipe diameter have no role in enabling the brake circuit, so those items are not the first thing to inspect.

114. A — Road speed and odometer are calculated by the control module from tire revolutions per kilometre and axle ratio, so these parameters must be updated with authorized software that has the proper access. Modern trucks have no speedometer cable, a random cluster would not change calculated speed, and a coolant sensor is unrelated.

115. C — A relay valve should seal and stop exhausting once the control pressure is released. A damaged piston seal or leakage on the control side keeps it partly open, bleeding air constantly. Tire radius, a DEF doser, and a mudflap bracket have nothing to do with relay valve operation at the valve.

116. B — The inter-axle lock is air operated, so loss of lockup indicates a fault in air supply, the control valve, or the lockout cylinder. ABS sensors, alternator output, and a DEF pump do not control this lock, which means checking them would not locate the cause of the missing lockup on the axle.

117. C — Cupping appears when the tire bounces as it rolls, usually from worn shock absorbers, imbalance, or looseness in the suspension. DEF dosing, a dryer cartridge, and a door latch cannot cause a tire to bounce, so none of them would produce a repeating wear pattern around the circumference on the steer tires.

118. D — Charging only starts after the charger and vehicle exchange pilot and proximity signals, so a pilot fault points to the port pins, wiring, or the signals. Replacing a battery pack is premature, and DEF and slack adjusters have no part in charging, so neither would clear the control pilot fault.

119. A — Endplay beyond the specified range means the thrust bearing surfaces have worn, allowing the crankshaft to move axially. The bearings must be replaced and the crank thrust faces checked. Heat does not account for the excess, and housing bolts or the damper do not control crankshaft axial position in the engine.

120. D — SPN 168 identifies battery potential, and FMI 4 means voltage below normal or shorted to a low source. The technician should test the batteries, connections, and charging output. Intake

temperature, an air dryer valve, and a door switch would each carry a different parameter number, so they do not match this code.

121. B — A stuck switch tells the system a door is open, keeping lamps on and draining the battery. Testing continuity in both positions confirms the fault. A bigger battery or removing a fuse hides the problem, and the alternator does not drain the battery overnight, so disconnecting it accomplishes nothing every night.

122. C — With the parking brake released, the spring section holds air, so a steady leak from its vent means the parking diaphragm is ruptured. The chamber should be replaced as an assembly. Air coming out is not normal, and a pushrod boot or reservoir fill level would not leak from that vent.

123. A — A plugged breather lets heat build pressure inside the housing and forces oil past the seals. The breather must be cleared and the seals replaced. Plugging it makes the pressure worse, overfilling adds to it, and tires have no bearing on leakage, so the other choices would not stop the weeping at the wheel ends.

124. C — A new seal cannot seal against a rough or damaged sleeve, and a plugged breather builds pressure that pushes oil past the lip. Either can put oil into the drum. A licence plate screw, wiper arm, and mud flap hanger cannot cause that leak, so none of them explains oil inside the brake drum.

125. A — Liner protrusion sets the clamping load on the head gasket around each cylinder, so a liner sitting too low reduces gasket crush and risks leaks of combustion gas or coolant. Valve lash, oil pressure, and boost are not directly altered by liner height, so none of those is the likely result.

126. B — Defrost works best with fresh, dry air and the air conditioner removing humidity, so a stuck recirculation door that keeps moist cab air circulating is a common cause. Tandem position, fuel filters, and DEF level do not affect window fogging, so none of them could explain a windshield that fogs in damp weather.

127. D — A shorted or open shared reference circuit pulls down every sensor on it, and unplugging them one at a time shows which sensor or wire section is responsible when voltage returns. Replacing every sensor or reflashing the module is costly and may leave the wiring fault in place, still pulling the reference voltage down.

128. C — A hydraulic jack can fail or slip without warning, so a vehicle must rest on rated stands before anyone goes underneath. A mentor stops the unsafe act immediately, corrects it, and explains the reason, which builds lasting habits. Delaying the talk, rushing, or adding another jack leaves the apprentice exposed to the same hazard.

129. D — Doors that do not latch usually have worn or misaligned hinges, cam locks, or keepers, and the repair is to adjust or replace them. A rag or a weld defeats the door's function, and tire grease does nothing for the latch, so those choices leave the rear door rattling and unsecured.

130. A — Cold oil is thick and slow, so a low-temperature grade and a gradual warm-up protect the pump and give proper response. The thickest oil worsens the problem, and loading the system

immediately or opening the relief valve risks damage to the pump and other components on the wrecker in cold weather.

131. B — The control valve stays in only while supply pressure above its hold-in threshold reaches it, so a leak or failed check valve on that circuit drops pressure and releases the knob. Tie rod wear, a thermostat, and a weak battery have no effect on the parking control valve at the dash.

132. A — A hydraulic retarder needs fluid and a working control signal, such as air or solenoid inputs and enabling conditions, so these are checked first. Door seals, landing gear, and washer fluid are unrelated, and checking them would not explain why the retarder produces no braking when engaged for this unit.

133. D — Elongated stud holes mean the wheel no longer centres or clamps properly and cannot be trusted, so it must be replaced. Surfaces are cleaned and nuts torqued in sequence, then rechecked after a short distance. Over-torquing, washers, or paint do not restore a damaged wheel and can break studs on the hub.

134. B — A thermostat that remains open lets coolant circulate through the radiator all the time, so the engine runs cold and heater output is poor in cold weather. A failed pump would cause overheating, while a fuel restriction or a regulator fault would not hold coolant temperature low in this tow truck.

135. C — Pedal sensors use two signals as a safety cross-check, so a disagreement means one circuit is out of range. The correct step is to test supply, signal, and connector condition before replacing the pedal assembly. Replacing the module early, raising idle, or disconnecting the pedal does not repair the fault and can create hazards.