

# PRACTICE EXAM 14: RED SEAL 310S SIMULATION (125 QUESTIONS)

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1. Which of the following is NOT a required pre-lift verification before raising a vehicle on a two-post hoist?

- A. Confirming the lifting arms are aligned with manufacturer-designated lift points
- B. Ensuring the hoist's rated capacity exceeds the vehicle's gross weight
- C. Verifying the area below the vehicle is clear of personnel and obstructions
- D. Calibrating the hoist's hydraulic cylinder pressure gauge before each lift

2. When donning Class 0 (1000 V) high-voltage insulating gloves for hybrid service, the correct order is:

- A. Leather protector glove first, then HV rubber glove inside the leather
- B. HV rubber glove first, then leather protector glove over it for mechanical protection
- C. Both gloves simultaneously, with neither glove inside the other
- D. HV rubber glove only — leather protectors are optional for any HV work

3. Provincial OHS regulations require a workplace eye wash station to deliver flushing for a minimum of:

- A. 30 seconds of forceful flushing for irritant exposure
- B. 5 minutes of intermittent flushing with eye drops
- C. 15 minutes of continuous hands-free flushing at tepid water temperature

D. 60 minutes of flushing with periodic breaks for the eyes

4. A container displays the WHMIS pictogram of a flame over a circle. This pictogram identifies the product as:

A. An oxidizer — a substance that can intensify fire by releasing oxygen

B. A flammable gas stored under high pressure

C. A combustible solid material requiring careful handling

D. A toxic substance with skin sensitization potential

5. During a brake system repair, the correct lockout/tagout sequence is:

A. Disconnect the battery, tag the steering wheel, and document the work order

B. Apply a personal lock to the air supply only, then proceed with the brake work

C. Identify all energy sources, isolate each, lock and tag the isolation points, verify zero energy

D. Notify the shop supervisor and begin the brake work with extra caution applied

6. A customer arrives with a no-start vehicle. Before any diagnostic work begins, the technician's FIRST step is to:

A. Document the customer complaint and vehicle information, then obtain documented authorization for diagnostic time and cost

B. Begin diagnostic testing immediately to save the customer time and money

C. Quote a standard diagnostic flat rate without discussing the scope of work

D. Perform a complete visual inspection of the vehicle before any documentation

7. A technician's forearm contacts a hot exhaust manifold and develops a small first-degree burn. The correct first aid is to:

- A. Apply ice directly to the burn area for at least 20 minutes
- B. Cool the burn under cool running water for 10–20 minutes, then cover with a clean dry dressing
- C. Apply butter or cooking oil to seal the burn from air exposure
- D. Wrap the burn tightly in plastic to limit air exposure to the wound

8. During hammer inspection, the technician should NEVER:

- A. Check the handle for cracks or splinters in the wood
- B. Verify the head is securely attached to the handle
- C. Inspect the striking face for mushrooming or chips at the edges
- D. Continue using a hammer with a mushroomed striking face that could release metal chips during use

9. Before operating an air-powered impact wrench, the technician should:

- A. Verify the air pressure regulator is set within the tool's specified range and inspect the air hose for damage
- B. Disconnect the tool from the air supply and operate it by hand
- C. Run the tool at maximum line pressure to ensure adequate torque output
- D. Bypass the regulator to deliver maximum airflow directly to the tool

10. When performing a wet/dry compression test on an engine, the correct procedure sequence is:

- A. Add oil first to seal the rings, then perform the compression test on each cylinder
- B. Perform the compression test, then remove all spark plugs and add oil
- C. Disable fuel and ignition, remove all spark plugs, perform dry test on each cylinder, then add oil to suspect cylinders and retest
- D. Perform the compression test on a cold engine only, with no need to disable fuel or ignition

11. A cylinder leakage test on cylinder 3 shows 35% leakage with air audible at the intake manifold. The NEXT step is to:

- A. Confirm the cylinder is at TDC of the compression stroke, then inspect the intake valve seat and plan valve service
- B. Replace the head gasket without further testing of the leak path
- C. Replace the cylinder head with a remanufactured unit immediately
- D. Disassemble the engine for full internal inspection before any other testing

12. A vehicle has a low oil pressure warning. After confirming oil level is correct, the FIRST diagnostic step is to:

- A. Replace the oil pump as the most common cause of low pressure
- B. Install a mechanical pressure gauge at the oil pressure sender port and verify actual pressure against specification at idle and operating temperature
- C. Replace the oil pressure sender as the source of the warning signal
- D. Replace the engine bearings due to suspected internal wear from neglect

13. The proper sequence for a cooling system pressure test is:

- A. Remove the radiator cap on a hot engine, attach pressure tester, and pump to maximum pressure
- B. Pump to twice the system rated pressure to expose any leaks more quickly
- C. Test only the radiator cap; engine pressure testing is not necessary on modern vehicles
- D. With the engine cool, install the pressure tester at the filler neck, pump to rated pressure (13–18 psi), and observe for pressure drop or visible leaks

14. During timing belt replacement, after the new belt is installed and all components are torqued, the LAST step before starting the engine is to:

- A. Run the engine at 3000 RPM for 5 minutes to seat the new belt properly
- B. Bleed the cooling system through the bleed valves at the highest points
- C. Replace the engine oil due to potential contamination during the service
- D. Rotate the engine by hand through two complete revolutions and verify camshaft-crankshaft timing marks realign correctly, confirming no valve-piston interference

15. All of the following are functions of the PCV system EXCEPT:

- A. Removing blow-by gases from the engine crankcase
- B. Reducing emissions of unburned hydrocarbons from blow-by
- C. Generating additional engine power by recirculating fuel vapor as combustion air
- D. Maintaining slight negative pressure in the crankcase to prevent gasket and seal leaks

16. A vehicle has no fuel pressure at the rail. After confirming the fuel pump fuse is good and the fuel pump relay clicks when commanded, the NEXT step is to:

- A. Replace the fuel pump immediately based on the no-pressure symptom
- B. Verify battery voltage is reaching the fuel pump connector with the key on and the pump commanded
- C. Replace the fuel filter as the most common cause of no fuel pressure
- D. Drop the fuel tank to inspect the in-tank pump assembly

17. Before installing new spark plugs in an aluminum cylinder head, the FIRST step is to:

- A. Verify the plug gap matches specification (factory pre-gap is not always correct), then apply anti-seize sparingly only if the manufacturer's procedure calls for it
- B. Apply heavy anti-seize compound to all threads before installation in the head
- C. Use an impact wrench to install plugs for consistent torque application
- D. Cross-thread the plug initially to ensure a tight fit in the aluminum head

18. When performing a coolant flush, the technician should NEVER:

- A. Capture old coolant for proper disposal as a regulated waste
- B. Use the manufacturer-specified coolant type for refill of the system
- C. Mix incompatible coolant types (e.g., OAT and IAT) in the same system, which can cause gelling, sediment, and corrosion
- D. Bleed air from the cooling system after refilling at the highest points

19. A vehicle has DTC P0300 (random misfire detected) with no cylinder-specific codes. After clearing and verifying the misfire persists, the NEXT step is to:

- A. Replace all spark plugs and ignition coils as preventive maintenance
- B. Replace the PCM as the root cause of the random misfire pattern
- C. Replace the fuel injectors as the underlying cause of the misfire
- D. Check fuel pressure, fuel trim values, and inspect for vacuum leaks, since random misfire across multiple cylinders indicates a system-wide fault

20. When adjusting solid-lifter valve clearances on a 4-cylinder engine, the correct sequence is:

- A. Adjust all valves with the engine in any position; the lifters self-adjust to fit
- B. Rotate the crankshaft to bring each cylinder's piston to TDC compression for that cylinder, then adjust intake and exhaust valves for that cylinder
- C. Adjust the valves with the engine running at idle for greater accuracy
- D. Adjust all valves while the engine is hot regardless of crankshaft position

21. A vehicle has clogged port fuel injectors causing lean misfires. The MOST cost-effective service approach is to:

- A. Replace all fuel injectors immediately with new units from the dealer
- B. Add an over-the-counter fuel system cleaner to the fuel tank
- C. Disconnect the fuel return line and force-feed cleaner backwards through the system
- D. Use a professional injector cleaning machine to pressurize a cleaning solution through the rail and injectors while the engine runs

22. After installing a new oil pump during an engine rebuild, before the first start, the technician should:

- A. Start the engine immediately and allow the pump to self-prime during normal operation
- B. Add extra oil to the crankcase to provide additional priming flow on initial start
- C. Prime the oil pump using a pre-luber tool or by rotating the pump drive externally to build pressure throughout the oil galleries before the first crank
- D. Crank the engine repeatedly with no ignition disable to allow the bearings to break in dry

23. When tightening a knock sensor to the engine block, the technician should NEVER:

- A. Use the manufacturer's specified torque value for installation
- B. Apply thread sealant or anti-seize to a knock sensor's mounting threads, because the sensor depends on direct metal-to-metal contact with the block to sense vibration
- C. Clean the mounting surface before installation of the sensor
- D. Verify the knock sensor is fully seated against the block surface

24. During a turbocharger inspection, the proper sequence to evaluate condition is to:

- A. Replace the turbocharger immediately regardless of any inspection findings
- B. Check only the oil supply line for restriction as the sole inspection step
- C. Listen for unusual noises with the engine running, then disconnect components randomly
- D. Check shaft play (radial and axial), inspect compressor and turbine wheels for damage, check oil supply and return lines, verify wastegate operation, and look for oil residue indicating seal failure

25. A vehicle has DTC P0401 (EGR flow insufficient). The FIRST diagnostic step is to:

- A. Replace the EGR valve immediately based on the active DTC
- B. Replace the EGR pressure or position sensor as the primary cause
- C. Remove the intake manifold to inspect EGR passages for carbon buildup
- D. Verify the EGR valve actuates mechanically when commanded by the PCM, then inspect EGR passages for carbon restriction

26. A vehicle has a small vacuum leak causing a lean condition at idle but normal operation at cruise. After spraying carburetor cleaner around the intake manifold gasket and observing a brief RPM rise, the NEXT step is to:

- A. Replace the throttle body assembly as the most likely source
- B. Clean the MAF sensor and recheck the lean condition codes
- C. Inspect the intake manifold gasket area further, then plan gasket and sealing surface replacement
- D. Replace the PCM as the source of the lean condition codes

27. To test catalytic converter efficiency on a vehicle, the technician should:

- A. Use a scan tool to read upstream and downstream O<sub>2</sub> sensor activity at operating temperature; a healthy catalyst causes the downstream sensor to read relatively steady while the upstream sensor switches rapidly
- B. Tap the catalyst body with a hammer to listen for rattling internal material
- C. Remove the catalyst from the vehicle and weigh it against a new unit
- D. Apply heat to the catalyst body and measure surface temperature with an infrared

28. A vehicle has lean codes on both banks. After verifying no vacuum leaks and confirming the MAF reads correctly, the NEXT step is to:

- A. Replace both fuel injectors as a matched pair on the affected banks
- B. Connect a fuel pressure gauge to the rail and measure pressure at idle and during a snap throttle, comparing to specification
- C. Replace the fuel filter as the most common cause of lean conditions
- D. Drop the fuel tank to inspect the in-tank pump assembly directly

29. Which of the following is NOT an acceptable practice during a compression test?

- A. Disabling the ignition system before cranking the engine
- B. Ensuring the throttle is held wide open throughout the test
- C. Cranking with all but the tested cylinder's spark plug in place to maintain compression seal
- D. Recording readings from each cylinder for direct comparison across the engine

30. During a cylinder leakage test on cylinder 1, the FIRST step is to:

- A. Apply air pressure to the cylinder immediately to measure leakage
- B. Disconnect only the spark plug wire to that cylinder
- C. Disable the fuel system to prevent injector damage during testing
- D. Rotate the engine until cylinder 1 is at TDC of the compression stroke with both valves fully closed, and lock the crankshaft to prevent rotation

31. When diagnosing a vacuum leak with a smoke machine, the proper sequence is:

A. Block any unwanted openings on the intake, connect the smoke machine to a port, fill the intake at low pressure (typically 0.5–2 psi), and inspect for visible smoke escaping around gaskets, hoses, and seals

B. Apply smoke at maximum pressure to find leaks quickly and efficiently

C. Connect the smoke machine to the exhaust system for backflow leak testing

D. Disconnect the battery before applying any smoke to the intake system

32. A vehicle has multiple U-codes (lost communication with several modules). The FIRST diagnostic step is to:

A. Replace each module showing lost communication individually

B. With a DMM, measure CAN-H to CAN-L resistance with the system off; a healthy bus reads about 60  $\Omega$  (two parallel 120  $\Omega$  terminators)

C. Disconnect each module on the bus one at a time to isolate the fault

D. Replace the gateway module as the most likely cause of cascading codes

33. When reading DTCs from multiple modules, the proper priority sequence is:

A. Address only the module showing the oldest stored code first

B. Replace all modules that have any active code present

C. Read all modules, document all DTCs, identify any U-codes (communication faults) that may be causing other codes, and address U-codes first

D. Clear all codes immediately to see which ones return after a drive cycle

34. After replacing a Body Control Module (BCM), the NEXT step before returning the vehicle to service is to:

- A. Program the new BCM with the VIN, vehicle option configuration, then perform required learn procedures (key, theft system, calibrations) per the manufacturer
- B. Drive the vehicle for 100 km to allow the BCM to self-learn options
- C. Disconnect the battery for 30 minutes to allow the BCM to fully reset
- D. Replace the PCM as well to ensure module compatibility with the new BCM

35. During a J2534 reprogramming session, the technician should NEVER:

- A. Maintain stable battery voltage using a battery support charger throughout
- B. Verify the calibration file matches the vehicle's VIN before flashing
- C. Wait for the flash process to complete before disturbing any connections
- D. Interrupt the reprogramming process by disconnecting the cable, turning the ignition off, or removing the battery support charger during the flash

36. After replacing a TPMS sensor on a vehicle without auto-relearn capability, the technician must:

- A. Drive the vehicle until the new sensor is automatically learned by the BCM
- B. Use a TPMS activation tool to wake each sensor in sequence (typically starting at left front, then right front, right rear, left rear), allowing the BCM to learn each ID
- C. Disconnect the battery for 30 minutes to clear old sensor IDs from memory
- D. Inflate all tires to maximum pressure before initiating the relearn process

37. Which of the following is NOT a characteristic of a LIN (Local Interconnect Network) bus?

- A. Single-wire signal referenced to chassis ground for communication

- B. Master-slave communication architecture between modules
- C. Differential signaling at 500 kbit/s with twisted-pair wiring, similar to HS-CAN
- D. Used for low-bandwidth body subsystems such as switches and door modules

38. A specific module is not communicating on the bus. Before suspecting the module itself or the bus wiring, the FIRST step is to:

- A. Verify the module has proper power and ground at its connector, since a module without power cannot communicate regardless of bus condition
- B. Replace the module as the most likely cause of the no-communication
- C. Disconnect every other module on the bus to isolate the single fault
- D. Reprogram the suspect module with the latest available calibration

39. OBD-II Mode 06 data is most useful for:

- A. Reading active and historical DTCs from the PCM only
- B. Clearing emission monitor readiness before a vehicle inspection
- C. Displaying real-time sensor PIDs for live data analysis during operation
- D. Reviewing actual numerical test results, manufacturer limits, and pass/fail status of non-continuous monitors (catalyst, EVAP, O2 sensors) for early detection of marginal conditions

40. A vehicle has intermittent communication faults across multiple modules. The technician suspects a poor ground. The diagnostic test is to:

- A. Replace all module ground straps and wires preventively

B. Perform a voltage drop test from each module's ground terminal to the battery negative post during operation; readings exceeding 0.2 V indicate excessive resistance

C. Measure resistance of the ground wires with the modules powered up to operating

D. Increase the gauge of the ground wires by adding parallel cables to the chassis

41. Which of the following is NOT a function of the gateway module?

A. Routing messages between buses with different speeds or protocols

B. Managing bandwidth by forwarding only required traffic between networks

C. Storing and displaying the vehicle's complete repair history including parts replaced

D. Authenticating diagnostic access for secure operations such as reprogramming

42. A scope on CAN-L shows the line shorted to ground (held at 0 V) while CAN-H is functioning normally. The proper diagnostic sequence is to:

A. Replace the gateway module first as the most likely cause

B. Replace each CAN-connected module one at a time until the fault clears

C. Disconnect modules one at a time from the bus while monitoring the scope; when the short clears, the most recently disconnected module or its harness contains the fault

D. Replace the CAN-L wire entirely between every module on the bus

43. During module reprogramming, a battery support charger is required to maintain stable voltage because:

A. Voltage drops during the flash can corrupt the memory write process and leave the module in an unrecoverable state, requiring replacement or specialized recovery

- B. The vehicle's alternator cannot supply enough current during reprogramming
- C. The battery support charger transmits the calibration file directly to the module
- D. The charger prevents the engine from accidentally starting during the flash

44. When servicing a hydraulic clutch system, the technician should NEVER:

- A. Use only the manufacturer-specified DOT brake fluid type
- B. Bleed the system per the manufacturer's specified procedure
- C. Inspect the master and slave cylinders for external leaks
- D. Use mineral-based lubricants or oils in a DOT brake fluid clutch hydraulic system, because mineral oils swell and destroy the rubber seals designed for glycol-based DOT fluid

45. When replacing a universal joint on a driveshaft, the proper sequence is to:

- A. Heat the yokes to red-hot before attempting to remove the U-joint
- B. Mark the relationship of the driveshaft to the yokes (to maintain balance), remove the snap rings, press out the bearing cups, install the new U-joint with new cups and snap rings, then verify free movement
- C. Replace only the bearing cups; the cross can be reused if it still rotates
- D. Use a hammer to drive the U-joint out without supporting the yoke at all

46. During front CV axle removal on a FWD vehicle, after the wheel and axle nut are removed, the NEXT step is to:

- A. Disconnect the lower ball joint (or upper, depending on design) and tie-rod end as required to swing the steering knuckle outward, providing clearance to extract the axle

- B. Pull the axle out of the transmission with a slide hammer first to free it
- C. Remove the brake caliper and rotor to access the axle assembly more easily
- D. Cut the axle in the middle for easier extraction from the housing

47. When setting up a new ring and pinion gear set, the LAST adjustment to verify before completing the assembly is:

- A. Pinion depth set using a depth gauge or shim stack measurement
- B. Pinion bearing preload measured using a torque wrench reading
- C. Carrier bearing preload using side shims or threaded adjusters
- D. Backlash and contact pattern, confirming both are within specification using marking compound and a dial indicator

48. Before checking automatic transmission fluid level, the FIRST step is to:

- A. Add a quart of fresh ATF to the transmission preventively
- B. Disconnect the transmission cooler line to verify return flow
- C. Bring the transmission to operating temperature per the manufacturer's specification (typically 70–95°C), with the vehicle on a level surface and the engine running in Park or Neutral
- D. Drive the vehicle for 100 km before checking the fluid level

49. A manual transmission grinds during 3rd gear shifts. The NEXT diagnostic step is to:

- A. Replace the entire transmission immediately as the most efficient repair

B. Verify clutch operation is correct (full disengagement, no drag), since a dragging clutch produces gear grind even with healthy synchronizers

C. Change transmission fluid as the most likely cause of the grinding

D. Replace the shift cables as the typical cause of synchronizer wear

50. A driveshaft vibration is reported at highway speed only. The FIRST step is to:

A. Visually inspect the driveshaft for missing balance weights, dents, undercoating buildup, or damage; clean and inspect U-joints before any balancing

B. Replace the driveshaft assembly as the most cost-effective solution available

C. Apply additional balance weights without inspection of the shaft

D. Replace the U-joints regardless of their current condition

51. To test an AWD system's torque transfer to the rear wheels, the proper sequence is:

A. Drive the vehicle on dry pavement at highway speed and observe AWD behavior

B. Disconnect the front axles before performing any testing

C. Place all wheels on a dynamometer simultaneously for testing

D. With the vehicle on a hoist that allows free wheel rotation (or on rollers), spin the front wheels and observe whether the rear wheels rotate, then reverse the test; scan tool data confirms coupling current

52. Which of the following indicates CVT belt slip rather than normal ratio change?

A. Smooth engine RPM increase matching vehicle acceleration through the ratio range

B. Brief RPM rise during ratio adjustment between the pulleys

C. Engine RPM climbing significantly without corresponding vehicle acceleration, with input-output speed difference climbing, indicating the belt is not maintaining grip

D. Quiet transmission operation under all loads and acceleration rates

53. Before pressing a new pinion seal into the differential, the technician should:

A. Apply gear oil to the seal lip only before installation

B. Mark the pinion nut position relative to the yoke and count rotations during nut removal, so the original pinion preload can be restored exactly during reassembly

C. Use a hammer to seat the new seal into the housing bore

D. Replace the pinion bearing while the seal is out as a precaution

54. When refilling a manual transmission, the technician should NEVER:

A. Substitute automatic transmission fluid (ATF) in a manual transmission that calls for gear oil, since additive packages and viscosity differ completely and cause premature wear of gears, bearings, and synchronizers

B. Use the manufacturer-specified viscosity and fluid type

C. Fill to the manufacturer-specified level (typically the bottom of the fill plug)

D. Drain old fluid completely before refilling with new lubricant

55. Before disassembling a transfer case for chain replacement, the FIRST step is to:

A. Drain only the differential, not the transfer case itself

B. Remove the front driveshaft only and leave the rear connected

C. Disconnect the battery and clear all stored diagnostic trouble codes

D. Drain the transfer case fluid, inspect the drained fluid for water contamination or metal particles, and document the fluid condition before disassembly

56. To check a ring and pinion gear pattern, the proper sequence is:

A. Apply gear oil to the teeth and observe contact while rotating the unit

B. Apply marking compound to both sides of several ring gear teeth, rotate the ring gear through several revolutions under light brake load on the pinion, then inspect the drive and coast patterns

C. Use a feeler gauge between gear teeth at multiple positions around the gear

D. Disassemble the differential and visually inspect tooth contact without compound

57. A scan tool shows torque converter clutch slip of 25% at cruise with TCC commanded on (spec less than 5%). The NEXT diagnostic step is to:

A. Replace the transmission valve body immediately based on the slip percentage

B. Replace the PCM as the source of the incorrect TCC commands

C. Verify transmission line pressure with a mechanical gauge, then check TCC solenoid operation with a scan tool bidirectional command to confirm whether the TCC is being applied with adequate pressure

D. Drain and refill the transmission fluid as a first attempt at resolution

58. When bleeding a hydraulic clutch slave cylinder, the proper sequence is:

A. Keep the master cylinder reservoir full, depress the clutch pedal slowly, open the bleeder, close the bleeder before pedal release, and repeat until clear fluid flows with no air bubbles

B. Pump the clutch pedal rapidly while the bleeder is held open

- C. Disconnect the slave cylinder hose and fill it from the slave cylinder end
- D. Use compressed air to force fluid through the entire system quickly

59. When refilling a limited-slip differential, the technician should NEVER:

- A. Use the manufacturer-specified gear oil viscosity for the application
- B. Refill without adding the manufacturer-specified limited-slip friction modifier additive (or use a gear oil without "LS" rating), since omitting the additive causes clutch packs to chatter during slow tight turns
- C. Drain the old fluid completely before refilling with new gear oil
- D. Verify the fill plug torque after refilling the differential to capacity

60. To measure driveline angles, the proper sequence is:

- A. Measure with the engine running in Drive while the vehicle is on the hoist
- B. Estimate the angles by visual inspection alone for a rough verification
- C. Measure with the vehicle on jack stands placed under the frame
- D. Place the vehicle at curb weight on a level surface, then use a magnetic-base inclinometer to measure the angle of each yoke face (transmission output, driveshaft, pinion) and calculate the operating angle at each U-joint

61. Before performing any battery testing, the FIRST step is to:

- A. Visually inspect the battery for swelling, cracks, or electrolyte leakage, then clean the terminals and dissipate the surface charge (turning headlights on for 30 seconds or letting the battery rest overnight)
- B. Replace the battery immediately if cranking is sluggish on the first start

- C. Apply a load test for 15 seconds without any preparation steps
- D. Disconnect the alternator before proceeding with any battery testing

62. After confirming a battery is fully charged, to test alternator output the NEXT step is to:

- A. Disconnect the battery and start the engine on alternator power alone
- B. Run the engine at idle with no electrical loads and read voltage at the battery
- C. Run the engine at 1500–2000 RPM with significant electrical load (headlights, blower, rear defroster on), measure voltage at the battery posts (13.8–14.6 V), then measure current with a clamp meter
- D. Apply a large electrical load to drain the battery before any testing

63. The proper sequence for a parasitic draw test is:

- A. Connect an ammeter immediately after key off and read the current draw
- B. Connect a current clamp around the negative battery cable (or a DMM in series after a short jumper), close all doors, lock the vehicle, allow 30–60 minutes for modules to enter sleep mode, then read steady-state draw
- C. Disconnect the alternator before measuring parasitic draw on the battery
- D. Measure parasitic draw with the engine running at idle

64. A vehicle has slow cranking. The FIRST diagnostic step is to:

- A. Replace the starter motor immediately as the most common cause
- B. Replace the battery immediately based on the cranking symptom alone
- C. Replace the starter solenoid as the source of the slow cranking

D. Perform a battery load test to verify capacity, then if the battery is good, perform voltage drop tests on the positive and negative cables during cranking

65. When aiming headlamps after replacement, the proper sequence is:

A. Ensure the vehicle is at curb weight on a level surface with proper tire inflation, position at the manufacturer-specified distance (typically 7.6 m / 25 ft) from a vertical aiming target, then adjust the vertical and horizontal aim screws to align the beam with the target marks

B. Aim with the vehicle loaded with passengers and cargo for real-world conditions

C. Aim on any surface without measuring distance from the wall or target

D. Replace the entire headlamp assembly to ensure correct factory aim alignment

66. A vehicle's HVAC delivers cool air on MAX HEAT command. The diagnostic sequence is:

A. Replace the heater core immediately as the most common cause of cool air

B. Replace the HVAC control module first to restore correct heat commands

C. Verify engine coolant level and operating temperature, command the blend door full hot via scan tool and observe actual position feedback, then verify hot coolant flow through both heater core hoses

D. Replace the blend door actuator regardless of any test results

67. When recovering refrigerant from an A/C system before service, the proper sequence is:

A. Disconnect the high pressure line and let refrigerant escape to atmosphere

B. Open the low side service port and vent the refrigerant outdoors safely

C. Recover refrigerant only when ambient temperature exceeds 30°C for proper recovery

D. Connect a recovery/recharge machine to both service ports, run the recovery cycle until the machine indicates evacuation, weigh recovered refrigerant against system capacity, and document the result

68. After replacing a power window motor, the auto-up function reverses immediately upon use. The NEXT step is to:

A. Replace the BCM as the cause of the reversal behavior

B. Perform the window initialization/calibration procedure (typically window fully down with switch held, then fully up with switch held, then ignition cycle) to teach the BCM the new motor's normal current and travel

C. Replace the motor again with a different brand of replacement

D. Disconnect the battery for 30 minutes to allow the BCM to reset memory

69. A heated seat does not produce heat. The proper diagnostic sequence is:

A. Verify voltage at the seat element connector during command (rules out wiring/BCM), then measure element resistance (typical 1–5  $\Omega$ ; open reading indicates broken element), then check ground integrity

B. Replace the heating element regardless of test results to save diagnostic time

C. Disconnect the battery for 30 minutes and retest the heated seat operation

D. Replace the heat control switch as the most likely cause of the failure

70. All of the following indicate a need for TPMS sensor replacement EXCEPT:

A. The sensor's internal battery has reached the typical 5–10 year service life

B. The sensor reports erratic or no data on the scan tool during a relearn

C. The vehicle's tire pressure placard has been replaced with a different value

D. The sensor's metal valve stem is corroded and leaking air around the base

71. When inspecting an alternator output cable, the technician should NEVER:

A. Verify the terminal connections are clean and tight at both ends of the cable

B. Increase the cable's gauge by adding parallel wires without proper crimping and protection, since improperly added cables can create high-resistance points that heat up under load

C. Inspect the cable for chafing against engine or chassis components

D. Verify proper routing keeps the cable away from heat sources and moving parts

72. Before replacing a halogen headlight bulb, the FIRST step is to:

A. Allow the bulb to cool completely (operating temperature can exceed 300°C and cause burns), then put on clean nitrile or cotton gloves to handle the new bulb — skin oils on the glass cause hot spots and premature failure

B. Replace the entire headlamp assembly to ensure proper fit and alignment

C. Apply silicone grease to the new bulb's glass before installation

D. Use bare hands to ensure a firm grip on the new replacement bulb

73. When servicing an A/C system that originally used R-134a refrigerant, which of the following is NOT acceptable?

A. Recovering existing refrigerant from the system before service

B. Replacing the accumulator/receiver-drier when the system has been open

C. Using the manufacturer-specified PAG oil viscosity for refill

D. Substituting mineral oil for the PAG oil specified for R-134a systems, since mineral oil is incompatible with the refrigerant and elastomeric seals

74. When replacing a cabin air filter, the proper procedure is:

- A. Force the new filter into place regardless of orientation marking
- B. Cut the new filter to fit if the size does not match the housing
- C. Note the airflow direction arrow on the filter, remove the housing cover behind the glove box, slide the old filter out, vacuum debris from the housing, and install the new filter with the arrow in the correct direction
- D. Wash and reuse the old filter to save the customer service cost

75. After identifying a break in the rear defroster grid line, the NEXT step is to:

- A. Replace the rear window glass entirely to restore defroster function
- B. Clean the break area thoroughly (alcohol or glass cleaner), mask off surrounding grid lines, apply conductive paint across the break, and allow it to cure per the manufacturer's specification
- C. Apply regular spray paint to bridge the gap in the grid line
- D. Disable the affected grid line in the BCM and inform the customer

76. When charging a sealed AGM battery, the technician should NEVER:

- A. Use a charger with an AGM-specific charging mode setting
- B. Verify the charging voltage matches AGM-specific specifications
- C. Monitor the battery temperature during the charging process

D. Use a high-rate (boost) charge at flooded-battery voltage settings, since the AGM cannot vent gases produced by overcharging and can rupture from internal pressure

77. A vehicle's headlamp has condensation visible inside the housing. The FIRST step is to:

A. Inspect the housing for damaged or missing vents, cracks, or compromised seals; minor condensation that clears with operation is normal, but persistent condensation indicates housing damage

B. Replace the headlight bulb as the cause of the condensation

C. Drill a drain hole in the bottom of the headlamp housing

D. Run the headlamp at high beam for several hours to evaporate the moisture

78. A vehicle has weak airflow from all dashboard vents. The diagnostic sequence is:

A. Replace the blower motor immediately as the most common cause

B. Replace the HVAC control module first to restore proper airflow

C. Verify blower operation at all speeds (rules out motor/control), inspect the cabin air filter for restriction, then check for obstructions in the HVAC case

D. Disconnect the battery for 30 minutes and recheck the airflow

79. A vehicle's trunk release does not respond to the keyfob, the dash button, or the trunk-mounted manual release. Which is NOT a likely cause?

A. A failed trunk latch motor or actuator assembly inside the trunk

B. A failed taillight bulb on the same circuit, since taillights and trunk release share neither power nor control circuits

C. A wiring fault between the BCM and the trunk latch motor

D. A failed BCM driver output for the trunk release circuit

80. A stop/start system will not stop the engine at traffic lights. The technician has verified the system is enabled at the switch. The NEXT step is to:

A. Replace the BCM as the cause of the inhibit

B. Replace the alternator with a higher-output unit for the stop/start function

C. Replace the battery preventively as the most likely cause

D. Read the scan tool's stop/start "inhibit reasons" data — typical inhibits include low battery SoC, engine or A/C cooling demand, brake vacuum out of range, steering input, or ECT outside window

81. When detecting a small refrigerant leak in an A/C system, the FIRST step is to:

A. Visually inspect for oil residue around connections, valves, and components, since refrigerant carries lubricating oil that deposits at leak points

B. Disassemble all A/C components and rebuild the system entirely

C. Recharge the system and add UV dye, then immediately recheck for leaks

D. Replace the compressor as the most common refrigerant leak point

82. When servicing battery cables, which of the following is NOT acceptable?

A. Using factory-equivalent gauge wire for replacement sections of cable

B. Crimping and heat-shrink-sealing new terminals onto the cable ends

C. Soldering only and skipping the crimp, since solder alone in high-current applications can crack from vibration and cause an open circuit

D. Properly torquing the battery terminal nuts to the specified value

83. When troubleshooting a dim headlight, the proper voltage drop test sequence is:

A. Test only the bulb's resistance to determine the cause of the dim output

B. With the headlamp operating, measure voltage drop on the positive supply path (battery positive to bulb supply terminal, less than 0.2 V), then the ground path (bulb ground terminal to battery negative, less than 0.2 V); high drops identify the bad connection

C. Replace the bulb without testing the supply circuit at all

D. Disconnect the battery for 30 minutes before performing any testing

84. When bleeding a brake system with a diagonal-split (X-pattern) configuration, the proper sequence is typically:

A. Bleed only the front brakes; the rear brakes self-bleed with use

B. Bleed all four wheels simultaneously to save time on the procedure

C. Bleed in random order; the sequence does not affect the result

D. Bleed the wheel farthest from the master cylinder first on each circuit (right rear, left front, left rear, right front), keep the reservoir full, and verify clear fluid free of bubbles at each bleeder

85. Before flushing brake fluid, the FIRST step is to:

A. Verify the brake fluid type and DOT specification required for the vehicle (DOT 3, 4, 5.1, etc.), since incompatible fluids can damage seals and reduce performance; silicone DOT 5 must never be mixed with glycol-based fluids

B. Open all bleeders simultaneously to drain the system quickly

- C. Disconnect the master cylinder and gravity drain the system
- D. Refill the system with whatever brake fluid is currently in stock

86. When measuring a brake rotor, the proper sequence is:

- A. Measure only thickness at one point on the rotor surface
- B. Measure runout with the rotor removed from the hub assembly
- C. Measure thickness at multiple points around the rotor with a micrometer to assess thickness variation, measure lateral runout with a dial indicator on the installed rotor, and compare both to the minimum thickness and maximum runout specifications
- D. Visually inspect the rotor surface only for any obvious defects

87. When servicing rear brakes on a vehicle with an Electronic Parking Brake (EPB), the technician should NEVER:

- A. Activate EPB service mode through the scan tool before piston retraction
- B. Force the EPB piston back manually without retracting the spindle, because the EPB motor's internal spindle must rotate back through the scan tool service mode or the manufacturer's procedure
- C. Restore EPB to normal mode after pad installation is complete
- D. Verify EPB operation after the service is complete and pads bedded

88. To inspect a load-bearing lower ball joint on a typical SLA suspension where the spring is on the lower control arm, the FIRST step is to:

- A. Place a jack under the lower control arm to support the suspension at ride height (unloading the ball joint from the spring's compression force), then check for vertical play with a pry bar

- B. Lift the vehicle by the frame and inspect the joint with the suspension hanging
- C. Apply a torch to free the ball joint stud before any inspection
- D. Replace the ball joint preventively without any inspection of wear

89. When installing a press-fit wheel bearing, the technician should NEVER:

- A. Lubricate the bearing per the manufacturer's specification before pressing
- B. Press only on the outer race when installing into the knuckle housing
- C. Verify the bearing is fully seated against the shoulder before completing
- D. Press on the bearing's inner race while installing into the outer housing, since this transmits force through the ball/roller assembly and damages rolling surfaces

90. Which of the following is NOT an acceptable tire rotation pattern?

- A. Cross-pattern (X-pattern) on non-directional tires across all four positions
- B. Front-to-rear on the same side for directional tires (preserves rotation direction)
- C. Reversing rotation direction on directional tires by crossing sides during rotation, since the tread design only performs correctly in the marked direction
- D. Modified X-pattern with the longer cross applied to the drive wheels

91. After removing a MacPherson strut assembly from a vehicle, the NEXT step before disassembling the strut is to:

- A. Hammer the strut shaft to loosen the top retaining nut

B. Secure the strut in a vice (jaws clamped on the strut tube only, never on the spring), install a properly-sized coil spring compressor on the spring, compress the spring enough to relieve preload on the top mount before removing the top nut

C. Remove the top nut first with an impact wrench applied at high torque

D. Cut the spring with a saw to release the stored spring tension

92. When servicing a power steering system, the technician should NEVER:

A. Substitute automatic transmission fluid (ATF) for the manufacturer-specified power steering fluid, since different fluids have different friction modifiers and seal compatibility, and improper fluid causes pump failure

B. Use the manufacturer-specified fluid type for refill of the system

C. Inspect the high-pressure and return lines for leaks during service

D. Bleed the system after fluid replacement to remove trapped air

93. When bleeding the brake system on a vehicle with ABS, the proper sequence is:

A. Bleed only the four wheel cylinders; the ABS bleeds automatically with use

B. Disconnect the ABS pump module before bleeding any wheels

C. Use only gravity bleeding; pressure bleeders damage the ABS components

D. Bleed the four wheel cylinders first per the manufacturer's wheel sequence, then if air remains in the ABS modulator, use the scan tool to command ABS valve cycling during bleeding

94. To test shock absorber condition without removing it from the vehicle, the technician can:

A. Apply a torch to the shock body to check for fluid leakage from heat expansion

- B. Remove and disassemble the shock for bench inspection of the components
- C. Press down firmly on the corner of the vehicle and release; a healthy shock dampens motion to no more than 1.5 bounces before settling, while a worn shock allows multiple oscillations
- D. Pull on the wheel and feel for play in the suspension system

95. When tightening wheel lug nuts after a wheel installation, the FIRST step is to:

- A. Hand-thread each lug nut several turns to verify the threads engage cleanly without cross-threading, then tighten with a torque wrench in a star pattern to the manufacturer's specified torque
- B. Use an impact wrench at maximum torque to ensure tight installation
- C. Tighten each lug nut fully one at a time working around the wheel
- D. Apply anti-seize to the lug threads before installation to ease removal

96. When using a coil spring compressor to disassemble a strut, the technician should NEVER:

- A. Inspect the compressor's hooks and hardware for damage before each use
- B. Use a compressor with cracked or worn hooks, missing safety pins, or with hooks improperly seated against the spring coils, because spring failure under compression releases tremendous energy that can cause fatal injury
- C. Apply the compressor symmetrically on opposite sides of the coil spring
- D. Compress the spring just enough to relieve preload on the top mount nut

97. After a wheel alignment that included toe adjustment, the FIRST step before releasing the vehicle is to:

- A. Drive the vehicle for 100 km to allow self-calibration to occur

- B. Disconnect the battery for SAS (steering angle sensor) reset and recalibration
- C. Verify all four tires are at placard pressure before any further action
- D. With the wheels straight ahead, perform the Steering Angle Sensor (SAS) zero-point calibration using the scan tool, since toe adjustment changes the steering wheel-to-wheels relationship

98. When installing a new master cylinder, the proper sequence is:

- A. Install the new master cylinder dry and bleed only at the wheel cylinders
- B. Pour fresh fluid into the new master cylinder and immediately install on the vehicle
- C. Bench bleed the new master cylinder before installation by filling the reservoir, using short plastic lines to recirculate fluid back into the reservoir from each outlet, and stroking the pushrod until no air bubbles emerge
- D. Use compressed air to force fluid through the master cylinder before installation

99. Before performing a wheel alignment, the FIRST step is to:

- A. Inspect all steering and suspension components for wear or damage (ball joints, tie-rod ends, control arm bushings, struts, sway bar links, wheel bearings), verify tire pressures match placard, and confirm ride height is within specification
- B. Begin the alignment procedure immediately to save the customer time
- C. Drive the vehicle 50 km to settle the suspension before any measurement
- D. Loosen all alignment adjusters before starting any measurements

100. When adjusting a cable-operated rear drum parking brake, the proper sequence is:

- A. Tighten the cable adjuster until the rear wheels will not rotate at all

B. With the parking brake fully released, adjust the equalizer/cable adjuster so that the parking brake handle reaches its design travel within the specified number of clicks (typically 5–7), and rear wheels rotate freely with the brake released

C. Adjust until the parking brake handle reaches its maximum travel position

D. Disconnect the cable and inspect the drum brake shoes only for wear

101. Which of the following corrective actions would be LEAST helpful for a steering wheel shimmy at 100 km/h?

A. Dynamic balance of the front wheels on a modern wheel balancer

B. Inspection of front wheel bearings for play or roughness

C. Verification of correct tire mounting (concentric to the rim)

D. Replacement of the rear shocks, since rear-end damping does not directly cause front-wheel shimmy at highway speed

102. A lower control arm bushing is suspected of being worn. After visual inspection shows minor cracks, the NEXT step is to:

A. Replace the entire control arm assembly immediately based on the cracks

B. Apply lubricant to the bushing to extend its remaining service life

C. Apply a pry bar between the control arm and the frame while the suspension is at ride height to feel for excessive play or relative movement

D. Drive the vehicle harder to expose any hidden wear in the bushing

103. To inspect a flexible brake hose, the proper sequence is:

- A. With the wheels off and the brakes applied (helper at the pedal), inspect the hose for swelling, cracks, abrasion, or leaking; then with the brake released, twist and bend the hose to check for internal restriction
- B. Cut the hose open to inspect the internal lining of the rubber
- C. Replace all flexible brake hoses every 50,000 km regardless of condition
- D. Inspect only the metal brake lines, not the flexible rubber hoses

104. When replacing a TPMS sensor, the proper sequence is:

- A. Install the new sensor with the old valve core and stem retained
- B. Remove the tire from the rim, replace the sensor assembly with the manufacturer's specified components (sealing grommet, valve core, valve stem nut/cap), torque the sensor body to specification, remount and balance the tire, then register the new sensor's ID
- C. Install the new sensor through the inflation valve hole without removing the tire
- D. Replace only the sensor battery without disturbing the assembly housing

105. When bleeding a brake system, the technician should NEVER:

- A. Keep the master cylinder reservoir full throughout the bleeding procedure
- B. Use new brake fluid of the correct DOT specification for the vehicle
- C. Verify each wheel produces clear fluid free of air bubbles before stopping
- D. Allow the master cylinder reservoir to run dry during bleeding, since this draws air into the master cylinder and requires the master cylinder to be re-bled

106. After replacing a power steering pump, the proper sequence to put the system into service is:

- A. Fill the reservoir with the manufacturer-specified fluid, raise the front wheels off the ground, start the engine briefly, and turn the steering lock-to-lock several times while topping off the reservoir as it draws fluid, until the fluid level stabilizes and bubbles stop forming
- B. Start the engine and drive the vehicle immediately to bleed the system
- C. Fill the reservoir to maximum and disregard the system bleeding step
- D. Disconnect the high-pressure line and run the engine to flush the old fluid

107. Before working on the SRS (airbag) system, the FIRST step is to:

- A. Begin work immediately; modern SRS modules are designed to be safe under any service condition
- B. Drain the brake fluid before any SRS-related work begins
- C. Disconnect the negative battery cable and wait the manufacturer-specified time (typically 1–10 minutes) for the SRS module's reserve capacitor to discharge before disconnecting airbag harness connectors
- D. Run the engine for 5 minutes to discharge the SRS system before service

108. After a seat belt pretensioner has deployed, the technician should NEVER:

- A. Replace the pretensioner with a new manufacturer-specified unit
- B. Reuse a deployed pretensioner or attempt to reset it, since pretensioners are single-use pyrotechnic devices and reuse can result in failure to deploy in a subsequent crash or premature deployment during service
- C. Replace the entire seat belt assembly along with the pretensioner unit
- D. Reset the SRS module per the manufacturer's procedure after parts replacement

109. When using panel bonding adhesive for a body panel replacement, after preparing both mating surfaces, the NEXT step is to:

- A. Apply household construction adhesive in any thickness for the bond
- B. Bond the panel immediately to the vehicle without test fitting first
- C. Skip the adhesive step and use only mechanical fasteners for the panel
- D. Test-fit the panel to verify proper alignment, mark the position, mix the adhesive components per the manufacturer's ratio and pot life, apply the adhesive in the specified bead pattern, position the panel, and clamp for the full cure period

110. A vehicle has cabin water ingress from rain. The FIRST step to diagnose is to:

- A. Pour a controlled stream of water into the sunroof tracks (or the suspected ingress area), and observe whether water exits the drain tubes at the lower body outlets behind the front fenders; blocked tubes back up into the cabin
- B. Replace the sunroof seal regardless of inspection findings
- C. Apply silicone sealant to all visible seams on the body exterior
- D. Replace the headliner immediately to address the cosmetic damage

111. After replacing an integrated power mirror assembly with memory and blind spot monitoring, the NEXT step before customer delivery is to:

- A. Adjust the mirror manually with the rocker switch only and proceed
- B. Disconnect the battery for 30 minutes to allow BCM relearning of the new mirror
- C. Use the scan tool to perform the manufacturer's mirror configuration procedure — program memory positions, learn blind spot detection zones, enable tilt-down-on-reverse, and verify all integrated functions
- D. Test the mirror only by visual inspection and customer demonstration

112. Before installing a new clock spring (steering wheel rotary connector), the FIRST step is to:

- A. Disconnect the new clock spring's locking pin immediately to allow free rotation
- B. Verify the new clock spring is centered as shipped (typically with a locking pin or alignment mark), confirm the steering wheel is at straight-ahead position before installation, and remove the locking pin only after the clock spring is installed and the steering wheel is reattached
- C. Rotate the clock spring lock-to-lock several times before installation
- D. Apply lubricant to the clock spring's internal ribbon cable before installation

113. When replacing a structural body panel after a collision, which is NOT an acceptable practice?

- A. Following the manufacturer's published repair procedure for the panel
- B. Using OEM or OEM-equivalent body panels with proper specifications
- C. Verifying the repaired structure measures within the published control point specifications
- D. Substituting a non-structural adhesive for spot welds on a panel the manufacturer requires welded attachment, since each joining method is engineered for the panel's structural and crash-energy management role

114. When inspecting seat belt webbing, the technician should NEVER:

- A. Continue using a seat belt with cuts, burns, fraying, melted fibers, or visible damage to the webbing, since damaged webbing may fail under crash loads and seat belt assemblies cannot be repaired
- B. Verify the webbing retracts smoothly through the buckle and retractor
- C. Test the locking retractor function in normal and emergency conditions
- D. Inspect for previous accident damage to the buckle assembly or anchor

115. When replacing a power window regulator, the proper sequence after the new regulator is installed is to:

- A. Reconnect the battery and operate the window immediately to test function
- B. Disconnect the battery for 30 minutes to allow the BCM to reset memory
- C. Reconnect the battery, then perform the window initialization procedure (window fully down with switch held, then fully up with switch held, then ignition cycle) so the BCM learns the new regulator's travel and pinch protection thresholds
- D. Drive the vehicle 100 km before testing the window operation

116. After a frontal collision repair, the proper procedure for the front impact crash sensors is to:

- A. Reset the SRS codes and return the vehicle to service without sensor inspection
- B. Inspect each crash sensor for physical damage, verify the mounting bolts are torqued to specification (sensors are orientation-sensitive), confirm connectors are fully seated and the harness is undamaged, then clear codes only after the SRS module reports all sensors operational
- C. Replace all crash sensors regardless of inspection findings as standard practice
- D. Disconnect the sensor harness permanently to disable the warning light

117. When de-energizing a hybrid HV system before service, the technician should NEVER:

- A. Wear Class 0 (1000V) insulating gloves and inspect them before each use
- B. Remove the manual service disconnect (MSD) per the manufacturer's procedure
- C. Wait the manufacturer-specified time for inverter capacitors to discharge
- D. Assume the HV system is de-energized without verifying voltage at the specified test points using a Cat III/IV-rated multimeter, since DC bus capacitors can hold lethal voltage for several minutes after MSD removal

118. When working on or near HV (orange-jacketed) cables on a hybrid or EV, the FIRST step is to:

- A. De-energize the HV system per the manufacturer's procedure and verify voltage absence at the system's specified test points before any HV cable handling
- B. Trim cable length without any testing of insulation or voltage
- C. Replace the HV cables preventively at every service interval
- D. Apply electrical tape to any HV cable connector that appears worn

119. A scan tool reads HV battery data showing one cell module at 2.85 V while typical modules read 3.65 V. The NEXT step is to:

- A. Replace the entire HV battery pack as the most efficient repair option
- B. Reset the BMS through the scan tool to clear the cell imbalance reading
- C. Perform the manufacturer's HV battery diagnostic procedure to verify the low cell is genuinely imbalanced (not a sense wire fault); if confirmed, the affected module typically requires replacement or rebalancing through the OEM procedure
- D. Drive the vehicle to allow the BMS to naturally balance the cells over time

120. Which of the following is NOT a function of the J1772 Control Pilot (CP) signal during AC Level 2 charging?

- A. Communicating the maximum charging current available from the EVSE
- B. Transmitting high-voltage AC charging power to the EV's onboard charger
- C. Indicating proper physical connection between the EV and the EVSE
- D. Initiating start and stop of the charging session between vehicle and station

121. When the driver lifts off the accelerator in an EV during normal driving, the proper energy flow sequence is:

- A. The traction motor operates as a generator (regenerative braking), converting kinetic energy to electrical energy that flows back into the HV battery; friction brakes engage only if additional deceleration is needed
- B. The friction brakes engage immediately to slow the vehicle with no regen
- C. The HV battery discharges through the traction motor to slow the vehicle
- D. The engine starts and the alternator generates current to charge the battery

122. A hybrid HV battery has inlet and outlet coolant temperatures of 35°C under heavy discharge, but the BMS does not report any temperature DTC. The NEXT step is to:

- A. Conclude the cooling system is operating normally and return the vehicle to service
- B. Replace the HV battery as the cause of the unusual temperature readings
- C. Replace the BMS as the source of incorrect temperature data
- D. Verify the electric coolant pump operates per the manufacturer's specification, check the coolant flow path for restrictions or air, and verify both temperature sensors against an external reference

123. Before reconnecting an HV cable that has been replaced, the technician should:

- A. Skip the insulation testing if the cable looks new and undamaged
- B. Test the cable with a continuity tester on the lowest resistance scale
- C. Use a high-voltage insulation tester (megger) at the manufacturer-specified test voltage (typically 500 V or 1000 V DC) to measure insulation resistance between each conductor and ground, and between conductors, confirming the reading exceeds specification (typically >100 MΩ)
- D. Apply battery voltage to the HV cable and check for any current flow

124. Which of the following is NOT an acceptable practice when servicing an EV traction inverter cooling system?

- A. Using the manufacturer-specified low-conductivity coolant for refill
- B. Substituting standard automotive coolant for the specified low-conductivity coolant, since standard coolant's conductivity allows electrical leakage through the inverter's cooling passages and damages the power electronics
- C. Bleeding air from the cooling loop after refilling the system
- D. Inspecting the cooling pump and lines for leaks during service

125. When charging an EV at home using a Level 2 EVSE, the proper sequence to begin charging is:

- A. Verify the EVSE is properly installed and grounded, plug the charging connector firmly into the EV's charge port until the lock engages, observe the EVSE and vehicle status indicators confirm communication and charging initiation, and monitor the first few minutes for stable current
- B. Connect the EVSE to bare wires from the panel without certified installation
- C. Apply force to the charging connector if it does not seat easily into the port
- D. Disconnect the EVSE during active charging to test connector reconnection

## **Practice Exam 14: Answer Key and Explanations**

1. D — Hoist hydraulic gauge calibration is not part of pre-lift checks; rated capacity, lift point alignment, and clearance are. Gauge accuracy is maintained through scheduled equipment inspection, not before each lift, so any "NOT required" question about pre-lift verification rules this option out.
2. B — Rubber HV gloves provide the dielectric protection, leather protectors guard the rubber from cuts and punctures. Wearing leather inside or rubber alone defeats the system: the rubber must contact the skin to be inspected and the leather must shield it from mechanical damage.
3. C — ANSI Z358.1, adopted into provincial OHS regulations, specifies 15 minutes of continuous, hands-free flushing at tepid water temperature. Shorter durations or interrupted flushing fail to fully dilute the chemical from corneal tissue, where damage continues until the irritant is completely removed.

4. A — The WHMIS flame-over-circle pictogram is specifically the oxidizer symbol. Oxidizers release oxygen during decomposition and can dramatically intensify any fire they contact, so they must be stored away from combustibles and identified clearly during handling.
5. C — Proper LOTO is identify-isolate-lock-tag-verify, applied to every energy source. Brake systems can store hydraulic pressure even after the engine is off, so the verification step (relieving pressure, confirming zero energy) is what protects the technician from unexpected energy release during service.
6. A — Provincial consumer protection legislation requires the repair order with customer authorization to be in place before diagnostic time accumulates. Beginning work without documentation can make the charges legally non-collectible and exposes the shop to disputes the documentation would otherwise prevent.
7. B — Cool (not cold) water for 10–20 minutes draws heat from the burn without causing tissue damage from extreme cold. Ice can produce frostbite on already-damaged skin; butter, oils, or plastic wrap trap heat against the burn and increase tissue injury.
8. D — A mushroomed hammer face has metal that can chip and fly during use, causing serious eye and skin injuries. Continuing to use one is a removal-from-service hazard; the head must be reground or the hammer replaced before further use.
9. A — Air pressure regulation and hose integrity are the safety checks before every use. Over-pressurized impact wrenches can shatter sockets or fasteners; damaged hoses can rupture and whip under pressure, both potentially serious injuries.
10. C — The compression test sequence disables fuel and ignition, removes all spark plugs, performs the dry test, then adds oil only to suspect cylinders for the wet test. Removing all plugs minimizes cranking load on the battery and allows the engine to spin faster, producing accurate compression readings.
11. A — Air audible at the intake manifold during a leak-down test isolates the leak to the intake valve. Confirming TDC compression with both valves closed ensures the leakage measurement is valid; planning valve service (lapping, refacing, or seat work) addresses the mechanical fault.

12. B — A mechanical gauge at the sender port reports actual oil pressure independent of the electrical sender's accuracy. Verifying real pressure against specification before replacing pumps, bearings, or senders prevents misdiagnosis and unnecessary parts replacement.

13. D — Cool engine, rated pressure (13–18 psi typical), and 5–15 minute observation is the safe cooling system pressure test sequence. Testing a hot system risks scalding from escaping coolant; over-pressurization can damage hoses and the radiator.

14. D — Hand-rotating the engine through two revolutions and verifying timing marks confirms valve-to-piston clearance before applying starter or fuel pressure. Engines damaged by interference contact during the first start often suffer bent valves, damaged pistons, or both — preventable with this verification.

15. C — The PCV system removes blow-by, reduces hydrocarbon emissions, and maintains crankcase pressure balance. It does not generate engine power; the small amount of fuel vapor it returns is incidental, not a power-producing function.

16. B — With fuse and relay click confirmed, the next test is whether voltage reaches the pump connector. Power at the connector confirms the supply circuit is intact; absence isolates the fault to wiring between the relay and connector, narrowing the diagnostic path.

17. A — Spark plug pre-gaps from the factory are not always correct for the specific engine; checking and adjusting the gap before installation prevents misfire after service. Anti-seize is applied only when the manufacturer specifies it, and only sparingly, to avoid affecting torque or insulating the heat path.

18. C — Mixing OAT and IAT (or other chemistries) creates gelling reactions and sediment that block cooling passages, corrode components, and degrade pump seals. Always drain completely and refill with the manufacturer-specified type to preserve cooling system integrity.

19. D — A random misfire (P0300) without cylinder-specific codes points to a system-wide fault: fuel delivery, ignition, or unmetered air. Checking fuel pressure, fuel trim, and vacuum integrity addresses the most common systemic causes before any parts replacement.

20. B — Solid lifters require precise valve clearance; each cylinder's valves are adjusted at TDC compression for that cylinder, when both valves are closed and the lifters are off the cam lobes. Adjusting valves at any other position produces incorrect clearances and engine damage.
21. D — Professional injector cleaning machines deliver concentrated cleaner under pressure through the rail while the engine runs, dissolving deposits without disassembly. The procedure costs a fraction of replacement and resolves most port-injection clogging issues in 15–30 minutes.
22. C — Manual priming with a pre-luber tool builds oil pressure throughout the galleries before the first crank. Without priming, the engine runs unlubricated for several seconds during cranking — enough to damage new bearings, cam, and lifters on a freshly rebuilt engine.
23. B — Knock sensors depend on direct metal-to-metal contact with the engine block to sense vibration accurately. Thread sealant, anti-seize, or any insulating compound dampens the vibration transfer, causing false readings or no detection of actual knock events.
24. D — Comprehensive turbo inspection covers shaft play, wheel condition, oil supply/return, wastegate operation, and oil residue indicators. Each item addresses a specific failure mode (bearing wear, foreign object damage, lubrication issues, boost control, seal failure), and skipping any leaves common faults undetected.
25. D — Verifying EGR valve mechanical operation rules out a stuck valve before tearing into the intake manifold for passage inspection. A stuck or slow-actuating valve sets the flow-insufficient code with otherwise clean passages, while carbon restriction sets the code despite proper valve operation.
26. C — Brief RPM rise during carburetor cleaner spray confirms the leak is at the gasket surface tested. Replacing the gasket (and inspecting both mating surfaces for warpage, deposits, or damage) addresses the actual leak rather than chasing the symptom elsewhere.
27. A — O<sub>2</sub> sensor comparison is the standard catalyst efficiency test: upstream sensor switches rapidly while downstream sensor stabilizes if the catalyst is storing and releasing oxygen properly. A downstream sensor that mirrors the upstream activity indicates the catalyst has lost its oxygen storage capability.

28. B — Verifying fuel pressure at idle and during a snap throttle compares actual delivery against specification, isolating fuel-side faults from air-side faults. A failing pump or restricted filter often holds pressure at idle but drops under load, which the snap throttle test reveals.

29. C — All spark plugs must be removed for a compression test to allow the engine to spin freely at full cranking speed. Leaving plugs in place loads the engine and produces low readings on every cylinder, masking the relative differences that diagnose individual cylinder issues.

30. D — TDC compression with both valves closed is the only valid position for cylinder leakage testing; locking the crank prevents pressurized air from rotating the engine. Without locking, the applied air pressure spins the engine and the test reads unreliably.

31. A — Low-pressure smoke (0.5–2 psi) fills the intake without damaging seals or gaskets, and the visible smoke escape pinpoints leak locations precisely. High-pressure or exhaust-side smoke testing damages components and produces misleading results.

32. B — A DMM resistance check across CAN-H to CAN-L (system off) is the fastest first test: 60  $\Omega$  indicates two healthy terminators in parallel, other readings indicate missing terminators, broken bus wiring, or shorts. The test takes seconds and rules out the most common bus-wide faults.

33. C — U-codes (communication faults) often cause cascading codes in modules that depend on the missing data; fixing the root communication problem typically clears multiple downstream codes. Addressing symptom codes first wastes time on faults that resolve themselves once communication is restored.

34. A — A replacement BCM ships blank and must be programmed with the VIN and option configuration, then the required learn procedures (keys, theft system, calibrations) must be completed. Without programming, features remain disabled regardless of mechanical installation.

35. D — Interrupting a reprogramming session — by cable disconnect, ignition cycle, or power loss — can corrupt the memory write process and leave the module in an unrecoverable state. Battery support and a stable connection are non-negotiable for the entire flash duration.

36. B — TPMS sensors are awakened by a 125 kHz LF activation tool; the BCM learns each sensor's ID in the position it is activated. Following the specified wheel sequence (typically LF, RF, RR, LR) ensures the BCM associates each ID with the correct corner.

37. C — LIN is single-wire, ground-referenced, and runs at up to 19.2 kbit/s — not differential and not at 500 kbit/s like HS-CAN. The single-wire architecture is the simplest way to identify a LIN bus on a wiring diagram or with a scope.

38. A — A module without proper power or ground cannot communicate regardless of bus condition. Verifying supply and ground at the module's connector is the first non-invasive test before suspecting the bus wiring or the module's internal electronics.

39. D — Mode 06 contains actual test results, manufacturer limits, and pass/fail status for non-continuous monitors. The data reveals borderline conditions before the DTC matures, making it a powerful diagnostic for intermittent emissions or driveability faults.

40. B — Voltage drop under operating load directly measures resistance in the return path; readings above 0.2 V indicate excessive ground resistance. Static resistance measurement (with the load off) often misses high-resistance faults that only appear when current flows.

41. C — Gateways route messages, manage bandwidth, and authenticate diagnostic access. They do not store repair history; that role belongs to OEM warranty/service systems, not to in-vehicle modules.

42. C — Sequential disconnection of modules from the bus while monitoring the shorted line isolates the faulty module or its harness. When the short clears, the most recently disconnected element contains the fault, providing definitive isolation without random parts replacement.

43. A — Module memory writes during reprogramming are sensitive to voltage instability; a brief drop can corrupt the data being written and brick the module. The battery support charger holds voltage stable through every phase of the flash, preventing this catastrophic failure mode.

44. D — DOT brake fluid systems use glycol-compatible elastomeric seals; mineral-based oils cause these seals to swell and disintegrate, leading to internal leaks and eventual hydraulic failure. Always use the specified DOT fluid type — never mineral oils or other lubricants.

45. B — Marking driveshaft-to-yoke relationship preserves balance, which is set at the factory and lost if components reassemble in a different orientation. Pressing new cups and snap rings into a clean, properly-marked yoke ensures the driveshaft will reinstall without vibration.

46. A — Disconnecting the lower ball joint (or upper, per design) and tie-rod end allows the steering knuckle to swing outward, providing the clearance needed to slide the axle out of the hub. Without this step, the inboard end of the axle cannot clear the transmission housing.

47. D — Backlash and contact pattern are the final verification because both depend on prior settings (pinion depth, pinion preload, carrier preload). When backlash is in spec and the pattern is centered on both flanks, all earlier adjustments are confirmed correct.

48. C — ATF expands with temperature; checking level cold or hot outside the manufacturer's window gives incorrect readings. Operating temperature on level ground with the engine running in Park or Neutral is the only valid procedure for accurate level verification.

49. B — A clutch that fails to fully disengage transmits residual rotation to the input shaft, producing grind during shifts that resembles synchronizer wear. Verifying clutch operation before transmission teardown saves unnecessary disassembly when the actual fault is hydraulic.

50. A — Visual inspection before any teardown or balancing catches missing weights, dents, foreign material, U-joint wear, or undercoating buildup at little cost. Many "balance" vibrations are simply lost weights or accumulated debris that resolves with cleaning and replacement.

51. D — Hoist with free wheel rotation (or rollers) lets the AWD system engage its rear coupling as the technician spins the front wheels. Scan tool monitoring of coupling current and front-rear speed differential confirms the coupling is responding correctly to commanded engagement.

52. C — A growing input-output speed difference under load is the diagnostic signature of belt slip. The pulleys are not maintaining grip; engine speed climbs while vehicle speed lags, and the CVT typically cannot be repaired economically when slip reaches this severity.

53. B — Marking the pinion nut and counting rotations preserves the bearing preload that crushed the collapsible spacer to its final dimension. Without these references, reassembly with the original nut position prevents accidental loss or change in preload during seal service.

54. A — Manual transmissions use gear oil with extreme-pressure additives matched to gear/synchronizer materials. ATF lacks the necessary additive package and viscosity, leading to premature wear of synchronizers, bearings, and gear teeth.

55. D — Inspecting drained fluid before disassembly reveals water contamination, abnormal metal particles, or burnt smell that can change the repair plan. Documentation of fluid condition provides evidence for warranty claims and informs the customer of underlying causes beyond the chain.

56. B — Marking compound shows actual tooth contact through observation: the pattern produced by rotating the ring under light braked load reveals whether pinion depth, backlash, and preload are correct. Visual inspection without compound cannot reliably assess mesh quality.

57. C — Mechanical pressure verification rules out a hydraulic supply problem (worn pump, internal leak) before the TCC system is investigated electrically. Scan tool bidirectional command of the TCC solenoid then confirms whether the lockup clutch is being applied with adequate pressure.

58. A — Keeping the master reservoir full and closing the bleeder before pedal release prevents air from re-entering the system. The slow, controlled stroke moves fluid downstream without aerating it, producing clean fluid free of bubbles at the slave cylinder.

59. B — Limited-slip differentials require friction modifier to enable smooth clutch-pack engagement/release during slow tight turns. Without modifier, the clutches stick-slip and chatter audibly, even with the correct gear oil viscosity.

60. D — Driveline angles are measured at curb weight on a level surface so the suspension is in its operating position. Measuring on jack stands or with the engine running changes the relationship between yokes and produces invalid angle data.

61. A — Visual inspection catches obvious failures (swelling, leaks, cracks) and surface charge removal ensures the test loads the actual stored capacity, not the surface artifact. Without these steps, testing produces inflated or misleading results.

62. C — Alternator output is verified under load at moderate engine speed; voltage at the battery posts confirms regulation, and a clamp meter on the output lead confirms rated amperage. Idle no-load testing does not reveal output deficits that appear under demand.

63. B — Modern parasitic draw testing requires modules to enter their sleep mode (often 30–60 minutes after key-off) before the steady-state draw can be measured. Immediate post-key-off readings include normal module wake activity and produce false high readings.

64. D — Battery load test verifies capacity; voltage drop testing on the positive and negative cables under cranking load isolates resistance issues. Both tests together address the most common slow-cranking causes (weak battery, bad cables/connections) before component replacement.

65. A — Curb weight on a level surface, proper tire inflation, and the specified distance to a vertical target are all required for accurate aim. Skipping any of these inputs produces a beam pattern that lights the road incorrectly, affecting both driver visibility and oncoming traffic.

66. C — A systematic diagnostic check verifies coolant level and temperature, blend door command/feedback, and hot coolant flow through the heater core. Each step narrows the cause from the simplest (low coolant) to the more complex (heater core or actuator), preventing unnecessary parts replacement.

67. D — A recovery/recharge machine with electronic scale evacuates the refrigerant cleanly to a recovery tank, weighs the recovered amount, and prepares the system for service. Venting refrigerant is illegal and environmentally damaging; proper recovery is mandatory before any A/C service.

68. B — Pinch protection compares actual motor current to a learned baseline; without recent initialization, the system may interpret normal closing resistance as an obstruction. The window initialization procedure teaches the BCM the new motor's normal current and travel range.

69. A — Verifying voltage at the connector rules out wiring and BCM issues, then element resistance checks the heating element directly (1–5  $\Omega$  typical, open indicates broken wire), and ground integrity completes the circuit verification. This systematic sequence isolates the specific failure with minimal time.

70. C — A placard change reflects a tire size or vehicle update; it does not require TPMS sensor replacement. Sensor replacement is driven by battery life expiration, erratic data, or physical damage — not by placard updates.

71. B — Improperly added parallel cables create high-resistance junctions that heat up under high-current operation and can cause fire. Any cable additions must use proper terminals, crimping, and routing; informal additions are a serious safety hazard in high-current circuits.

72. A — Halogen bulbs operate at very high glass temperatures; allowing cooling prevents burns and shattering during handling. Clean gloves prevent skin oils from creating hot spots on the glass envelope, which cause premature bulb failure.

73. D — R-134a systems use PAG oil (or POE for some applications); mineral oil is for R-12 only and is incompatible with R-134a's molecular structure and the system's elastomeric seals. Using mineral oil in R-134a produces lubrication failure, compressor damage, and seal degradation.

74. C — Cabin air filters have a specified airflow direction marked on the frame. Installing backwards reduces filter efficiency and can cause the filter media to collapse over time, defeating the filter's purpose and restricting HVAC airflow.

75. B — Conductive paint formulated for defroster repair restores the grid line's conductivity once cured. Proper surface preparation (alcohol, masking) and full cure time produce a permanent repair without replacing the rear window.

76. D — AGM batteries are sealed and cannot vent gases produced by overcharging at flooded-battery voltages. High-rate charging without AGM-mode control builds internal pressure that can rupture the case or damage the battery permanently.

77. A — Minor condensation that clears with operation is normal; persistent condensation indicates compromised seals, missing/damaged vents, or housing cracks that admit moisture. Diagnosing the cause is the first step before drilling drain holes or replacing parts unnecessarily.

78. C — Systematic diagnosis starts simple: blower operation across all speeds rules out blower/control issues, cabin filter inspection addresses the most common restriction, and HVAC case inspection finds physical obstructions. Each step is faster and cheaper than the next.

79. B — Taillights and trunk release operate on completely separate circuits with different BCM outputs and supply paths. A taillight failure cannot affect trunk release operation, making it the implausible cause among the listed options.

80. D — Scan tool data reveals the active stop/start inhibit reason, which can be any of several conditions (battery SoC, temperatures, vacuum, steering, A/C demand). Reading the inhibit data directly identifies the cause without replacing components based on guesses.

81. A — Refrigerant carries lubricating oil; at any leak point, the oil deposits visibly while the refrigerant escapes as gas. Inspection for oil residue is the lowest-cost first step before electronic leak detection or UV dye procedures.

82. C — Solder alone in high-current applications cracks from vibration and thermal cycling, producing intermittent or open circuits. Proper repair requires a mechanical crimp connection, with solder optionally added for redundancy, and heat-shrink protection.

83. B — Voltage drop tests under load directly measure resistance on both sides of the load circuit. Less than 0.2 V on each side indicates clean, low-resistance connections; higher readings identify the specific connection causing the dim light.

84. D — Diagonal-split systems route each circuit to opposite corners; bleeding the corner farthest from the master cylinder on each circuit clears air efficiently from both. Right rear, left front, left rear, right front is the typical sequence following this principle.

85. A — DOT 3, 4, and 5.1 are glycol-based and compatible with each other; DOT 5 is silicone-based and must never be mixed with the glycol fluids, as the mixture causes pump damage and seal failure. Fluid type verification before any service prevents catastrophic system contamination.

86. C — Thickness at multiple points (rotor wear assessment), runout with dial indicator on the installed rotor (warping/runout), and comparison to minimum thickness and maximum runout specs all need verification. Each parameter affects pad wear and brake pulsation differently and all must be measured.

87. B — EPB calipers have an internal spindle driven by the EPB motor; forcing the piston back without retracting the spindle damages the mechanism. The scan tool service mode rotates the spindle back safely, allowing the piston to retract without damage.

88. A — Load-bearing ball joints must be unloaded before inspection to reveal wear; jacking the lower control arm relieves spring force on the joint. Inspecting under load masks vertical play because the spring's force holds the worn parts together.

89. D — Pressing on the inner race forces load through the rolling elements (balls or rollers), which were never designed to bear installation loads. The resulting indentations on the raceways cause vibration, noise, and early bearing failure.

90. C — Directional tires have tread patterns engineered for one direction of rotation, particularly for wet-weather grip. Crossing sides during rotation reverses the rotation direction and degrades wet performance significantly, defeating the tire's design.

91. B — Coil springs store significant energy at any compressed position; the compressor must be applied symmetrically and securely before disturbing the top nut. Releasing spring tension without proper compression can launch the spring with enough force to cause severe injury.

92. A — Power steering fluids contain specific friction modifiers and elastomer-compatible additives; substituting ATF or other fluids causes seal swelling, pump wear, and erratic assist. Each system has a specified fluid and substitution is never acceptable.

93. D — Manual or pressure bleeding of the four wheel cylinders typically removes most air, but air trapped in the ABS modulator requires scan tool valve cycling to dislodge. Without the scan tool step, the pedal may remain spongy because air remains in the ABS hydraulic block.

94. C — The bounce test loads each suspension corner and observes settling: 1.5 cycles or fewer indicates a healthy shock; more indicates worn damping. The test takes seconds, requires no tools, and provides reliable in-vehicle assessment.

95. A — Hand threading verifies the threads engage cleanly before any torque is applied; cross-threaded lugs damage both the stud and the lug nut and can compromise wheel retention. Torque wrench application in a star pattern then distributes clamping load evenly across the wheel.

96. B — Cracked hooks, missing safety pins, or improper hook seating against spring coils can fail under compression load and release the spring with potentially fatal energy. Pre-use inspection of the compressor itself is as important as the procedure.

97. D — Toe adjustment alters the relationship between the steering wheel and wheel direction; SAS zero-point calibration realigns this reference for ESC, ABS, EPS, and ADAS systems. Without recalibration, these systems operate on incorrect steering angle assumptions and may activate inappropriately.

98. C — Bench bleeding the master cylinder eliminates air from the bore and pressure chambers before installation. Installing dry forces the technician to bleed air through the entire downstream system, often unsuccessfully, leaving the brake pedal spongy regardless of further bleeding.

99. A — Worn steering or suspension components, incorrect tire pressures, or out-of-spec ride height all prevent a successful alignment. Beginning the alignment without pre-inspection wastes time and produces measurements that change as soon as the vehicle returns to normal load.

100. B — The parking brake handle reaches its design travel within a specified number of clicks when properly adjusted, and the rear wheels rotate freely with the brake released. Over-tightening drags the brakes; under-adjustment leaves the parking brake ineffective.

101. D — Rear shocks affect rear-end damping but not front-wheel shimmy at speed. Front wheel balance, bearing condition, and tire mounting concentricity are the diagnostic targets for front shimmy; rear shock replacement would not address the symptom.

102. C — A pry bar between the control arm and the frame at ride height reveals relative motion that confirms bushing wear. Visual cracks alone don't quantify functional looseness, and the pry test takes seconds while providing definitive evidence.

103. A — Brake hose inspection covers both static condition (with the system pressurized to reveal swelling or leakage) and dynamic condition (twist/bend test to detect internal restriction). Hidden internal failures (collapsed lining acting as a one-way valve) require manipulation to identify.

104. B — TPMS sensor replacement requires tire removal so the sensor assembly can be properly installed with new sealing components and torqued to spec. After installation, the sensor's ID must be registered with the BCM through the relearn procedure.

105. D — A dry reservoir draws air into the master cylinder, which then requires bench bleeding again before the system can be properly bled. Maintaining reservoir level throughout is a foundational practice that prevents adding work and avoids leaving the customer with a spongy pedal.

106. A — Filling the reservoir, raising the front wheels, briefly starting the engine, and turning lock-to-lock several times allows the system to draw fluid and self-purge air. Topping off as fluid drops prevents air re-entry; the procedure continues until level stabilizes and bubbles stop forming.

107. C — The SRS module's reserve capacitor holds enough energy to deploy airbags for 1–10 minutes after battery disconnect. Waiting the specified discharge time before any harness work prevents accidental deployment during service.

108. B — Pretensioners are single-use pyrotechnic devices: once fired, they cannot be reset or reused. Reuse can result in failure during a subsequent crash or premature deployment during service, both of which are serious safety failures.

109. D — Panel bonding requires test-fitting for alignment, mixing components per the ratio and pot life, applying the specified bead pattern, positioning, and clamping for the full cure. Each step is engineered for the adhesive's chemistry and the panel's structural role.

110. A — Controlled water testing into the suspected ingress area and observation of the drain outlets is the first diagnostic step. If water doesn't exit the drains, the drains are blocked and water backs up into the cabin — the actual cause becomes clear from the test.

111. C — Modern integrated mirrors with memory, blind spot, auto-dim, and tilt-down functions require scan tool configuration to activate each feature. Without configuration, the customer sees a working mirror but with degraded functionality the BCM hasn't been told to enable.

112. B — Clock springs ship centered with a locking pin to preserve the centered ribbon cable position; the pin is removed only after installation and steering wheel attachment. Installing an off-center clock spring kinks the ribbon cable and damages the assembly during the first steering input.

113. D — Each joining method (welding, panel bonding, mechanical fasteners) is engineered for the panel's specific structural and crash-energy management role. Substituting an unspecified method compromises both structural integrity and crashworthiness in a future collision.

114. A — Damaged seat belt webbing — cuts, burns, fraying, or melted fibers — may fail under crash loads, when occupant survival depends on the belt's full strength. Seat belt assemblies cannot be repaired; damage requires complete assembly replacement.

115. C — Window initialization teaches the BCM the new regulator's current draw and travel range, restoring auto-up and pinch protection. Without initialization, the window may not auto-up, may reverse immediately on closing, or may fail to detect obstructions properly.

116. B — Crash sensors are orientation-sensitive: damaged, loose, or improperly mounted sensors give incorrect inputs to the SRS module. Proper inspection covers physical damage, mounting torque, connector integrity, and harness condition before clearing SRS codes.

117. D — DC bus capacitors in the inverter can hold lethal voltage for several minutes after MSD removal. Verifying voltage absence at specified test points with a Cat III/IV-rated meter is the only

acceptable confirmation before HV contact; assumption based on procedure steps alone has caused fatalities.

118. A — De-energization and voltage verification are the prerequisite for any HV cable handling, regardless of the appearance of the cable or component. Every HV procedure begins with this safety sequence because the consequences of contact with energized HV are immediate and potentially fatal.

119. C — Manufacturer diagnostic procedures verify whether the low reading reflects an actual imbalanced module or a sense wire fault; assuming module failure before verification can lead to expensive misdirected replacement. Confirmed module failure typically requires module replacement or OEM rebalancing.

120. B — The Control Pilot is a PWM signaling line, not a power conductor; AC charging power flows on separate L1 (or L1/L2) and neutral wires within the connector. The CP signals current limit, charging start/stop, and connection state — not power.

121. A — Modern EVs use regenerative braking as the primary deceleration system when the driver lifts off the accelerator; friction brakes engage only if additional deceleration is needed. The brake-by-wire system blends regen and friction transparently so the driver perceives normal pedal response.

122. D — Inlet/outlet coolant temperatures should differ by several degrees under heavy load; identical temperatures suggest either no flow (failed pump) or sensor error. Investigation of pump operation, flow path, air, and sensor accuracy isolates the cause before more invasive battery service.

123. C — High-voltage insulation testing (megger) at the manufacturer-specified test voltage verifies the cable's insulation can withstand operating stress. Standard multimeters cannot apply sufficient voltage to detect insulation breakdown that only appears under HV conditions.

124. B — EV inverter cooling systems use low-conductivity coolant specifically because the coolant passages pass near or through HV electronics. Standard automotive coolant conducts electricity enough to leak current through the cooling path, damaging the inverter's power electronics.

125. A — Verified EVSE installation, firm connector seating with lock engagement, status indicator confirmation, and initial monitoring of stable current together ensure safe and successful Level 2

charging. Skipping verification or forcing connections can damage the connector, cause arcing, or trip the EVSE.