

# PRACTICE EXAM 11: ASE A2 SIMULATION

## (50 QUESTIONS)

---

1. A vehicle with a six-speed automatic transmission has the following road test findings: all forward shifts are smooth and correctly timed, Reverse engages normally, the TCC locks and releases correctly, but the transmission produces a low-frequency drone or moan that is present only in 3rd gear during steady-state cruising between 30 and 40 mph. The drone disappears during the 3-4 upshift and does not return in any other gear. Which of the following is the MOST LIKELY cause?

- A. A failing torque converter bearing that loads specifically at the RPM range produced during 3rd gear cruising
- B. A worn output shaft bearing that resonates at the specific output shaft speed produced between 30-40 mph
- C. A planetary gear set component in the 3rd gear power flow path that produces gear noise under the specific loading of that ratio
- D. A damaged driveshaft center support bearing that vibrates at the rotational speed corresponding to 30-40 mph

2. A technician is performing a comprehensive diagnostic evaluation on a vehicle with a customer complaint of "the transmission feels different." The technician road-tests the vehicle and finds no obvious symptoms — all shifts occur at the correct speeds, shift quality is acceptable, TCC operates normally, and fluid level and condition are good. However, the scan tool reveals that multiple clutch apply pressure adaptation values have increased by 15-20% over factory baseline across all circuits. What does this uniform adaptation increase MOST LIKELY indicate?

- A. Normal progressive wear of all clutch packs over the vehicle's mileage, with the adaptive system successfully compensating
- B. A system-wide pressure loss from a worn pump that the adaptive system is masking by increasing all commanded pressures
- C. A single degraded sensor — likely the TFT — that is causing the module to command elevated pressure in all circuits simultaneously

D. A control module hardware fault that is incrementally drifting all adaptive values upward regardless of actual clutch condition

3. A vehicle equipped with a torque converter automatic transmission is brought in for a vibration concern. The vibration occurs only between 1,800 and 2,100 RPM and is present in Drive, Reverse, Park, and Neutral. It is not speed-dependent — it occurs at 1,800-2,100 RPM whether the vehicle is moving or stationary. Changing gear ranges does not change the vibration character. Which of the following diagnostic conclusions is MOST accurate?

A. The vibration is from a transmission internal component because it occurs in all gear ranges during driving

B. The vibration is from the driveshaft because it occurs in both Drive and Reverse under load conditions

C. The vibration originates from a planetary gear set that meshes differently in specific RPM ranges

D. The vibration is engine-related or from a component spinning at engine speed, not transmission-related

4. A technician performs a pressure test on a transmission and records the following results: Drive at idle = 62 psi (spec 55-75), Drive at stall = 170 psi (spec 150-180), Reverse at idle = 98 psi (spec 85-110), Reverse at stall = 155 psi (spec 220-260). The Reverse stall pressure is significantly below specification while all other readings are normal. What does this specific pattern indicate?

A. A worn oil pump that cannot produce adequate pressure under the high-demand condition of Reverse stall

B. An internal leak in the reverse clutch circuit that worsens under the high-pressure demand of the stall condition

C. A pressure regulator valve that sticks only when Reverse is selected, limiting maximum pressure to the reverse circuit

D. A faulty EPC solenoid that reduces its output specifically when the module detects that Reverse and stall conditions exist

5. A vehicle with a four-speed automatic transmission has no Reverse and no 1st gear, but 2nd, 3rd, and 4th gears function normally. Drive engagement feels weak but the transmission does move in 2nd through 4th. Using diagnostic logic and the component application chart, the technician determines that 1st gear and Reverse share a common holding device — the low-reverse clutch. What is the MOST LIKELY diagnosis?

A. The low-reverse clutch has failed, eliminating the holding function needed for both 1st gear and Reverse

B. The forward clutch has partially failed, allowing 2nd through 4th gear engagement but preventing 1st and Reverse

C. The oil pump has a directional flow issue that prevents pressure from reaching the low-reverse circuit in both ranges

D. The manual valve linkage is misadjusted, preventing the valve from routing fluid to the low-reverse circuit detent

6. Technician A says that when a one-way clutch in a transmission fails by freewheeling in both directions, the affected gear will have no engine braking but may still allow forward acceleration in Drive. Technician B says that when a one-way clutch fails by locking in both directions, the transmission will likely bind or produce a harsh engagement in the affected gear range. Who is correct?

A. Technician A only

B. Technician B only

C. Neither Technician A nor Technician B

D. Both Technician A and Technician B

7. A customer reports that the automatic transmission "takes off hard" from every stop — the initial acceleration feels jerky and aggressive even with light throttle application. The condition has been present since the customer purchased the used vehicle one month ago. There are no DTCs stored and the fluid level is correct. The technician performs a line pressure test and finds pressure at 145 psi at idle in Drive (specification: 55-75 psi). What is the MOST LIKELY root cause?

- A. A worn oil pump with damaged gears that is generating uncontrolled maximum pressure at all engine speeds
- B. A failed transmission control module that has lost its pressure regulation capability and defaults to minimum control
- C. A failed pressure control solenoid or its circuit that has caused the system to default to maximum unregulated pressure
- D. A stuck-closed pressure regulator valve that was damaged during a previous repair and cannot exhaust excess fluid

8. A vehicle equipped with a rear-wheel-drive automatic transmission produces a clicking noise at low speed during tight parking-lot turns. The clicking is present during both left and right turns, occurs only when the vehicle is moving, and is not present during straight-line driving. There are no DTCs. Which component should the technician investigate FIRST?

- A. The torque converter for a damaged internal thrust bearing that loads up under the lateral force of turning
- B. The differential or rear axle components for a worn spider gear, side gear, or clutch pack that produces noise during differential action
- C. The transmission output shaft bearing for excessive play that allows the shaft to orbit during cornering forces
- D. The driveshaft U-joints for binding that manifests as a click when the driveshaft angle changes during turns

9. A technician is road-testing a vehicle and applies the brakes moderately while cruising at 50 mph in 4th gear. During the braking event, the engine RPM drops 150 RPM and then recovers. The scan tool shows the TCC was commanded ON before braking and switched to OFF during the brake application. What does the RPM drop during brake application indicate?

- A. Normal TCC release behavior — the engine RPM drops momentarily as the TCC disengages and the converter transitions from lockup to fluid coupling

B. A faulty brake switch that delays the TCC release command, causing the converter to pull the engine RPM down before releasing

C. A worn TCC clutch that grabs momentarily during the release event instead of releasing smoothly under brake application

D. An engine idle control issue that drops RPM in response to the reduced power demand when the brake is applied at cruising speed

10. A vehicle's automatic transmission has been diagnosed with a worn 2nd gear band based on the following evidence: slipping occurs only in 2nd gear, all other gears hold correctly, and the 2nd gear apply circuit pressure tests within specification. Before recommending transmission removal for band replacement, what additional check should the technician perform?

A. A stall test in Drive to verify overall converter and clutch holding capacity under maximum engine torque loading

B. A complete fluid exchange to determine if fresh fluid's friction properties can restore the band's holding capacity

C. An adaptive value review to determine if the module has compensated for the band wear to its maximum correction limit

D. A servo inspection by removing the servo cover in-vehicle to check the apply pin length, piston seals, and servo bore condition

11. Technician A says that the purpose of the transmission vent is to allow air to escape from the case as fluid heats and expands during normal operation. Technician B says that the vent also allows air to enter the case as fluid cools and contracts, preventing a vacuum from forming inside the sealed case. Who is correct?

A. Technician A only

B. Both Technician A and Technician B

C. Technician B only

D. Neither Technician A nor Technician B

12. A vehicle has DTC P0730 — Incorrect Gear Ratio stored as a current code. The scan tool live data shows the commanded gear as 4th, with the calculated ratio fluctuating between 1.00:1 and 1.15:1 during steady-state cruising. The manufacturer's specification for 4th gear is 1.00:1 (direct drive). The fluctuation occurs rhythmically every 2-3 seconds. What does this rhythmic ratio fluctuation MOST LIKELY indicate?

- A. A faulty output speed sensor producing a cyclically varying signal that creates an artificial ratio calculation error
- B. A worn 4th gear one-way clutch that alternately engages and releases under the steady-state load of cruising
- C. A 4th gear clutch pack with marginal friction material that alternately slips and grips under the sustained cruising torque load
- D. An EPC solenoid with an intermittent fault that drops pressure every 2-3 seconds and allows the clutch to slip momentarily

13. A technician scans a vehicle and finds the following DTCs stored in the TCM: P0750 (Shift Solenoid A Malfunction), P0944 (Hydraulic Pressure Unit Loss of Pressure), and P0868 (Transmission Fluid Pressure Low). The technician knows these three codes are interrelated. What is the MOST LIKELY single root cause that triggered all three codes?

- A. A failed oil pump or severely clogged filter that caused system-wide pressure loss, which in turn affected solenoid operation and triggered the solenoid code
- B. Shift Solenoid A failed first, causing the valve body to misroute fluid, which then produced the pressure loss codes as secondary effects
- C. The transmission control module experienced a power supply brownout that caused all three monitoring circuits to set codes simultaneously
- D. Three separate simultaneous failures — a bad solenoid, a worn pump, and a leaking seal — that coincidentally occurred at the same time

14. A vehicle equipped with an electronically controlled automatic transmission has the following symptom: the transmission shifts from 1st to 2nd normally, but the 2-3 upshift is significantly delayed

— it occurs at 4,800 RPM instead of the expected 3,200 RPM at moderate throttle. All other shifts occur at normal RPM. There are no DTCs. What should the technician investigate FIRST?

- A. The 3rd gear clutch pack for wear that prevents the module from completing the shift at the normal RPM threshold
- B. The scan tool live data during the delayed 2-3 shift to determine if the module is commanding the shift on time but the hardware is responding late
- C. The throttle position sensor for a calibration drift that makes the module think moderate throttle is actually heavy throttle
- D. The governor valve for a stuck condition that prevents adequate pressure from reaching the 2-3 shift valve at the correct speed

15. A technician monitors scan tool live data during a road test and observes the following: at 60 mph in 5th gear, Engine RPM = 2,000 and Input Shaft Speed = 2,000 (TCC locked, zero slip). The technician then presses the brake pedal lightly. The scan tool shows TCC commanded OFF, and within 0.3 seconds, the Input Shaft Speed drops to 1,850 RPM while Engine RPM remains at 2,000. What does the 150 RPM difference after TCC release represent?

- A. The input speed sensor has a delayed response to the TCC release event that creates a brief reading lag
- B. A partial TCC release where the clutch is not fully disengaging despite the module commanding it OFF
- C. An engine speed calculation error caused by the brake switch signal momentarily interrupting the RPM data feed
- D. Normal torque converter slip that occurs when the TCC transitions from mechanical lockup to fluid coupling mode

16. A vehicle has DTC P2761 — Torque Converter Clutch Pressure Control Solenoid Control Circuit Low. The technician performs a voltage drop test on the TCC pressure control solenoid circuit. The power-side voltage drop is 0.1 volts (specification: less than 0.5V). The ground-side voltage drop is 3.2 volts (specification: less than 0.5V). What does the excessive ground-side voltage drop indicate?

- A. The TCC solenoid coil has developed excessive internal resistance that is appearing as a voltage drop on the ground side
- B. The power supply circuit is providing insufficient voltage to drive current through the solenoid coil at full capacity
- C. A high-resistance ground connection — corroded ground bolt, damaged wire, or poor terminal contact — is preventing adequate current flow
- D. The transmission control module's internal ground bus has failed and needs module replacement to restore ground integrity

17. A vehicle equipped with a CVT has a DTC P0845 — Transmission Fluid Pressure Sensor/Switch B Circuit Range/Performance. The scan tool shows Pressure Sensor B reading 850 psi, while the module's calculated expected pressure for the current operating condition is 500 psi. The sensor reading does not change regardless of operating condition. Which of the following is the MOST LIKELY cause?

- A. The pressure sensor has failed internally and is producing a fixed high output voltage regardless of actual fluid pressure
- B. The CVT system pressure is genuinely at 850 psi due to a stuck-closed pressure regulator that is producing excessive pressure
- C. The sensor wiring has a short to the 5-volt reference circuit that is forcing the sensor output to a fixed high voltage
- D. The CVT control module has a software fault that is misinterpreting the sensor's normal output as an out-of-range value

18. A technician is diagnosing a vehicle where the transmission shifts normally in fully automatic mode but produces a harsh engagement when the driver manually selects a lower gear using the console-mounted "+/-" buttons during highway driving. All automatic downshifts at the same speeds are smooth. What is the MOST LIKELY cause?

- A. The shift solenoids respond differently to manual commands than to automatic commands, producing more aggressive valve movement

- B. The module's manual downshift calibration commands a faster, more aggressive clutch apply rate than the automatic downshift calibration
- C. A faulty paddle shifter module that sends an incorrect signal voltage, causing the TCM to command excessive apply pressure
- D. The valve body has a separate manual downshift circuit with a failed accumulator that does not cushion manual shift events

19. A vehicle has DTC P0711 — Transmission Fluid Temperature Sensor Range/Performance — stored intermittently. The code sets during highway driving on hot days but never during city driving or in cooler weather. The TFT sensor resistance tests within specification at room temperature. What diagnostic approach would MOST LIKELY reveal the fault?

- A. Replace the TFT sensor since intermittent codes that test within specification indicate an internally degrading sensor element
- B. Perform a voltage drop test on the sensor circuit to identify a high-resistance connection that worsens with engine compartment heat
- C. Monitor the TFT PID on the scan tool during a long drive in warm ambient conditions to observe the actual temperature behavior
- D. Test the TFT sensor's resistance at multiple controlled temperatures to verify it tracks the manufacturer's resistance-to-temperature curve accurately

20. A technician reviews scan tool data on a vehicle with an eight-speed automatic transmission. The data shows that the 6-7 upshift consistently takes 0.45 seconds to complete. The manufacturer's target is 0.25 seconds. All other upshifts complete within 0.02 seconds of their respective targets. There are no DTCs stored. What does this isolated slow shift event indicate?

- A. A system-wide adaptive learning drift that is progressively slowing all shift events but has only exceeded the threshold on the 6-7 shift so far
- B. A failing pressure control solenoid that cannot maintain adequate output during the specific pressure demand of the 6-7 transition

C. The 7th gear clutch apply circuit has a restriction or leak that delays pressure buildup to the clutch piston during the 6-7 shift

D. An engine torque management strategy that reduces engine torque too aggressively during the 6-7 shift, slowing the transition

21. A vehicle equipped with a hybrid powertrain and a power-split transmission has a DTC P0A1F — Hybrid Battery Pack Over-Temperature. The customer reports reduced acceleration and the engine running more frequently than expected during city driving. What is the relationship between this battery code and the transmission's operation?

A. The over-temperature battery forces the engine to run more to provide mechanical power directly, since the electric motor power is curtailed

B. The battery code has reduced the hybrid system's ability to provide regenerative braking, causing the transmission to downshift more aggressively

C. The over-temperature condition has shut down the auxiliary transmission pump, requiring the engine to run continuously to maintain hydraulic pressure

D. The battery condition is unrelated to the transmission, and the customer's perceived change in engine behavior is coincidental

22. A technician is diagnosing a vehicle with an automatic transmission that produces a brief chirping noise during the 3-4 upshift only. The chirp lasts approximately 0.5 seconds and occurs during the exact moment of the shift transition. No other shifts produce any noise. The noise is present at all throttle levels. What is the MOST LIKELY source of this chirping noise?

A. A clutch apply event where the friction disc and steel plate surfaces make brief, high-frequency contact during the initial clutch engagement

B. A shift solenoid that produces an audible electromagnetic buzz during the rapid on/off transition of the 3-4 shift command

C. A torque converter bearing that loads up specifically at the torsional transition that occurs during the 3-4 power flow change

D. A separator plate orifice that produces a whistling noise from turbulent fluid flow during the 3-4 clutch fill event

23. A vehicle has DTCs P0776 (Pressure Control Solenoid B Performance/Stuck Off) and P0796 (Pressure Control Solenoid C Performance/Stuck Off) stored simultaneously. Both solenoids are located inside the transmission. The technician measures resistance at the case connector: PCS-B reads 5.5 ohms (spec 4-7) and PCS-C reads 5.8 ohms (spec 4-7). Both are within specification. What should the technician investigate NEXT?

A. The transmission control module for a dual-channel driver circuit failure affecting both PCS outputs simultaneously

B. The valve body for stuck valves downstream of both solenoids that prevent them from producing their intended pressure effect

C. The internal wiring harness for a damaged section that could intermittently affect multiple adjacent solenoid circuits

D. The shared power supply or ground circuit for both solenoids, since a common circuit fault would affect both simultaneously

24. A vehicle equipped with a ten-speed automatic transmission has a customer complaint that the transmission "hunts" between 9th and 10th gear during highway cruising at exactly 70 mph with the cruise control set. The hunting produces a subtle RPM oscillation of approximately 100 RPM every 4-5 seconds. There are no DTCs. What MOST LIKELY explains this behavior?

A. The 10th gear clutch has marginal friction material that slips briefly at the sustained load of 70 mph, causing the module to downshift

B. The output speed sensor produces a signal variation at the specific frequency corresponding to 70 mph that confuses the shift logic

C. The vehicle's operating point at 70 mph sits precisely at the crossover threshold between 9th and 10th gear on the shift schedule map

D. A failing cruise control module that produces throttle oscillations that repeatedly cross the shift schedule threshold at 70 mph

25. A technician is diagnosing a vehicle where the automatic transmission produces a noticeable "bump" or "thud" approximately five seconds after every engine start — regardless of whether the transmission is in Park, Neutral, or Drive. The bump occurs once and does not repeat until the next engine start. There are no DTCs. What is the MOST LIKELY cause?

- A. The torque converter filling with fluid and loading against the flexplate as the pump builds initial pressure after startup
- B. The transmission's hydraulic system pressurizing and the clutch pack pistons seating against their return springs during initial pump pressurization
- C. A loose engine mount that shifts position as the engine settles from its startup RPM to its idle RPM within the first five seconds
- D. The parking pawl releasing from the parking gear as hydraulic pressure builds and lifts the manual valve off the Park detent

26. A technician is replacing the transmission filter on a vehicle. The old filter has a threaded metal insert in its center that threads onto a pickup tube extending from the valve body. The technician notices that the threaded insert from the old filter has remained stuck on the pickup tube and does not come off with the filter body. What must the technician do before installing the new filter?

- A. Remove the old threaded insert from the pickup tube to ensure the new filter seats properly and the intake is not obstructed
- B. Leave the old insert on the tube since the new filter will thread over it and create a double-sealed intake connection
- C. Cut the pickup tube flush with the insert and install the new filter at the reduced height to maintain proper pan clearance
- D. Replace the entire valve body since a stuck threaded insert indicates the pickup tube threads have been damaged

27. A customer's vehicle has a slow transmission fluid leak that the technician has traced to the manual shaft seal — the small seal where the shift linkage shaft passes through the transmission case. After replacing the seal, the technician should also perform which of the following?

- A. A stall test to verify that the new seal holds under maximum system pressure generated during the stall condition
- B. A fluid exchange to replace any fluid contaminated by dirt that entered through the old worn seal during driving
- C. A shift linkage adjustment and verification of all gear positions, since the manual shaft was disturbed during seal replacement
- D. An adaptive value reset since the manual shaft seal replacement may have introduced air into the forward clutch circuit

28. A technician discovers during a transmission pan inspection that the pan magnet has collected a significant amount of fine, bronze-colored powder — more than typically seen during a normal drain interval. The fluid is dark but not burnt. There are no shift quality complaints. What does this finding indicate, and what should the technician recommend?

- A. Normal wear from bronze thrust washers and bushings that does not require further investigation at this service interval
- B. Immediate transmission removal for overhaul because bronze powder always indicates catastrophic bushing failure
- C. A fluid and filter service with shortened drain interval monitoring to track whether the bronze material accumulation increases
- D. Further investigation is warranted because the excessive bronze material suggests accelerated bushing or thrust washer wear that may worsen

29. A vehicle's automatic transmission produces a brief hesitation during every cold-start Park-to-Drive engagement. The hesitation lasts approximately two seconds, after which Drive engages normally. All subsequent engagements during the same drive cycle are immediate. The technician checks the fluid level — it is at the low end of the acceptable range when hot. What should the technician do FIRST?

- A. Replace the forward clutch pack since the cold hesitation confirms the clutch seals are hardened and leaking when cold

B. Top off the fluid to the middle of the acceptable range and retest, since a marginally low level contributes to cold-start drain-back

C. Replace the oil pump because a marginal pump takes longer to build initial pressure after a cold soak period

D. Install an auxiliary electric pump to maintain clutch circuit pressure during extended parking periods overnight

30. A technician replaces a leaking front pump seal on a transmission. After the repair, the technician starts the engine and checks for leaks. No leak is visible. The technician then performs a road test, and after 15 minutes of driving, a fluid leak appears at the pump seal area. What is the MOST LIKELY explanation?

A. The leak only appears at operating temperature because hot fluid has lower viscosity and finds the leak path more easily than cold fluid

B. The converter hub has a wear groove that is positioned away from the seal lip when cold but shifts into contact as the metal expands with heat

C. The pump seal was installed with the lip facing the wrong direction, causing it to seal at cold idle but fail when pressure increases during driving

D. The pump housing bolts have not been torqued to specification, allowing the housing to flex under driving pressure and break the seal

31. A technician is replacing the transmission cooler on a vehicle. The old cooler is an integral radiator tank type, and the replacement is a standalone auxiliary air-to-fluid cooler that will be mounted in front of the radiator. What critical consideration must the technician address when converting from an integral cooler to a standalone cooler?

A. The standalone cooler cannot handle the same flow rate as the integral cooler and requires an inline flow restrictor

B. The standalone cooler provides air-to-fluid cooling only and cannot warm the fluid during cold starts like the integral coolant-based cooler

C. The ATF lines must be rerouted from the radiator connections to the new standalone cooler mounting location at the front of the vehicle

D. The standalone cooler must be installed with a fluid warmer circuit that uses engine coolant to prevent the fluid from cooling below ambient temperature in cold climates

32. A customer reports that the transmission gear indicator on the dashboard flickers rapidly between "D" and "3" while cruising in Drive at 45 mph. The transmission itself does not appear to shift or change behavior during the flickering. No DTCs are stored. What is the MOST LIKELY cause?

A. A shift solenoid that is oscillating between two states, causing the valve body to rapidly alternate between 3rd and 4th gear

B. A failing transmission control module that randomly sends incorrect gear position data to the instrument cluster display

C. A transmission range sensor with a worn or dirty contact at the boundary between the Drive and Manual 3 positions

D. An instrument cluster display fault that is generating random flicker on the gear indicator segment without any actual signal change

33. A vehicle equipped with an automatic transmission has a customer complaint of a single "pop" or "snap" noise from the transmission area when the vehicle first moves forward after sitting overnight. The noise never recurs during the drive cycle and is not present when reversing out of the parking space. No DTCs are stored. What is the MOST LIKELY source?

A. A cracked flexplate that pops under the initial forward torsional load but seats and holds during continued operation

B. A parking pawl disengaging from the parking gear with a snap as the vehicle begins to move forward out of the Park position

C. A loose torque converter bolt that shifts under the initial forward torque and then remains in its shifted position for the drive

D. An engine mount that snaps to a new position under the initial forward acceleration torque and holds for the remainder of the drive

34. A technician discovers that a vehicle's shift cable adjuster mechanism at the transmission lever has been secured with a zip tie instead of the proper self-adjusting lock tab. The cable appears to be in the approximately correct position. What is the correct action?

A. Remove the zip tie, install the proper self-adjusting lock tab or repair clip, and perform a complete cable adjustment and verification

B. Leave the zip tie in place since it is functionally equivalent to the lock tab and the cable position appears to be correct

C. Replace the entire shift cable assembly because the use of a zip tie indicates the cable's self-adjusting mechanism has failed

D. Tighten the zip tie further to ensure the cable cannot move from its current position during aggressive shifting maneuvers

35. A vehicle has an intermittent fluid leak from the transmission case connector area. The leak appears only during rainy weather or after the vehicle is washed. On dry days, no leak is present. What is the MOST LIKELY explanation?

A. The case connector seals are heat-cycled and only leak when cooled by the water from rain or washing

B. Moisture from rain or washing is entering the connector and being pushed out by internal case pressure, carrying ATF with it

C. The case connector bolts are loose and allow the connector housing to shift when water weight accumulates on the harness

D. The case connector seal has deteriorated, allowing water to enter during wet conditions, which mixes with ATF and weeps out as a combined fluid

36. A technician is performing an in-vehicle valve body replacement. The new valve body comes with pre-installed solenoids. The service information states that the new solenoids require calibration code entry. However, the technician notices that the calibration codes printed on the solenoid bodies are partially illegible due to a manufacturing label defect. What is the correct action?

- A. Install the valve body and perform an adaptive reset, which will automatically compensate for any calibration code differences
- B. Estimate the calibration codes based on the legible digits and enter the best approximation into the control module
- C. Contact the parts supplier to obtain the correct calibration codes using the valve body assembly serial number or return for replacement
- D. Install the valve body without entering calibration codes and monitor shift quality during a road test to determine if codes are needed

37. A technician replaces both the input speed sensor and the output speed sensor on a transmission during the same service visit. After clearing DTCs and road testing, the transmission shifts normally in all gears. However, the technician notices that the scan tool's calculated gear ratio in 3rd gear shows 1.38:1 instead of the expected 1.34:1 — a difference of approximately 3%. All other gear ratios match specification. What is the MOST LIKELY explanation?

- A. A minor calibration difference between the new sensors and the originals that produces a small but acceptable measurement variance
- B. The 3rd gear clutch is slipping slightly, producing a ratio that is 3% higher than the specification for that gear range
- C. One of the new sensors has a slightly different number of reluctor ring teeth engagement points than the original sensor design
- D. The scan tool is rounding the ratio calculation differently than the module does, creating an apparent but not actual discrepancy

38. A technician is removing an automatic transmission from a vehicle for an overhaul. After disconnecting all connections and supporting the transmission on a jack, the technician slides the unit rearward. The torque converter remains on the input shaft but begins to slide off as the transmission separates from the engine. The technician catches the converter before it falls. What critical step did the technician fail to perform before separation?

- A. Draining the torque converter through its drain plug to reduce its weight before attempting to separate the transmission

- B. Securing the torque converter to the transmission with a converter holding strap or tool before beginning the separation
- C. Removing the converter-to-flexplate bolts so the converter would stay with the engine instead of sliding off the transmission
- D. Disconnecting the converter from the input shaft splines before attempting separation to prevent it from sliding during movement

39. During a transmission overhaul, a technician finds that the direct clutch drum has a hairline crack on its outer circumference near the band contact area. The crack does not appear to penetrate through the drum wall. What is the correct action?

- A. Weld the crack using aluminum TIG welding and machine the drum surface to restore the correct diameter for band contact
- B. Apply industrial epoxy to the crack, allow it to cure, and inspect the repair before reassembling the transmission
- C. Mark the crack endpoints with a scribe and reinstall the drum, planning to inspect for propagation at the next service
- D. Replace the drum because a crack under the cyclical stress of band application and release will propagate and eventually fail

40. A technician is assembling a clutch pack during a transmission rebuild. The rebuild kit includes five friction discs and four steel separator plates for this specific clutch. The technician accidentally installs five friction discs and five steel separator plates — one extra steel plate. What is the MOST LIKELY consequence of the extra plate?

- A. The clutch will apply with excessive force because the extra plate provides an additional friction surface for the piston
- B. The clutch will produce a harsh engagement because the extra plate reduces the accumulator's ability to cushion the apply event
- C. The clutch clearance will be reduced below specification, potentially causing the clutch to drag when it should be released

D. The clutch will not be affected because steel plates do not contribute to the friction coefficient of the clutch engagement

41. A technician measures endplay during transmission reassembly and reads 0.022 inches. The manufacturer's specification is 0.020 to 0.040 inches. The technician has selective thrust washers available in increments of 0.005 inches. Should the technician change the thrust washer?

A. No — the endplay of 0.022 inches is within specification and no change is necessary

B. Yes — install a washer 0.005 inches thicker to bring the endplay to 0.017 inches for tighter axial control

C. Yes — install a washer 0.005 inches thinner to bring the endplay to 0.027 inches, closer to the center of the range

D. No — but the technician should document the reading as being near the tight end and recommend early re-inspection

42. A technician is inspecting a transmission case during an overhaul and discovers that one of the servo bore walls has a deep gouge from a previous improper servo removal. The gouge runs parallel to the piston travel direction and is approximately 0.015 inches deep by 0.5 inches long. What is the consequence of reinstalling a servo in this damaged bore?

A. The servo piston will bind on the gouge and may not fully extend, preventing the band from applying completely

B. The servo return spring will catch on the gouge and prevent the piston from retracting, causing the band to drag

C. The servo will function normally because the piston seal bridges the gouge and the hydraulic pressure compensates

D. The new piston seal will be cut by the gouge, causing pressure to bypass the piston and the band to slip or not apply

43. A technician has completed a transmission rebuild and is preparing to install the valve body. The service manual's check ball diagram shows 9 check balls. During disassembly, the technician collected 9 balls and recorded their positions. However, the technician now realizes that two of the collected balls are different sizes — one is 3/16 inch and the other is 1/4 inch in diameter. How should the technician handle this?

A. Install both balls in any available seats since check ball size does not affect fluid routing as long as a ball is present in the seat

B. Install each ball in its correct position based on size, using the service manual diagram that specifies the size for each seat location

C. Replace both differently-sized balls with standard 1/4-inch balls since all check ball seats are designed for the same size

D. Discard the 3/16-inch ball and replace it with a standard-size ball since smaller balls are likely from a previous incorrect repair

44. A technician discovers during a transmission overhaul that the pump cover bolts are a mix of two different lengths — four bolts are 35mm and two bolts are 45mm. The service information indicates specific bolt locations for each length. If the longer bolts are installed in the shorter bolt locations, what is the potential consequence?

A. The longer bolts will protrude past the pump housing and interfere with the torque converter hub during rotation

B. The longer bolts will strip the threads in the pump housing because they engage too many threads for the bore depth

C. The longer bolts will bottom out in the bore before the bolt head clamps the cover, leaving the cover loose and the pump leaking

D. The longer bolts will compress the pump cover gasket excessively, causing the pump gears to bind against the cover surface

45. After installing a rebuilt transmission and performing the initial startup, the technician notices that the fluid level on the dipstick has dropped significantly — approximately two inches — within the first

60 seconds of engine operation. The technician checks under the vehicle and finds no external leaks. What is happening?

- A. The pump is circulating fluid to fill the empty torque converter, cooler, cooler lines, and internal passages — this is normal post-assembly behavior
- B. The pump has an internal leak that is allowing fluid to bypass from the outlet side to the inlet side without circulating through the system
- C. The transmission filter has collapsed internally, creating a void that absorbs fluid from the pan during the initial pump suction
- D. The front pump seal has failed and fluid is accumulating inside the bell housing where it is not visible from underneath the vehicle

46. A technician performs a cooler flow test after a transmission overhaul. The first flow test shows one quart in 30 seconds (specification minimum: one quart in 25 seconds). The technician performs two additional flush cycles and retests. The second test shows one quart in 28 seconds. The third test shows one quart in 27 seconds. The flow is improving but has not yet reached specification. What is the correct action?

- A. Accept the flow rate since the improvement trend indicates the cooler will reach specification during normal vehicle operation
- B. Perform one or two more flush cycles and retest, since the progressive improvement suggests the blockage is clearing
- C. Install the transmission with the current cooler and add an inline filter to capture any remaining debris during the break-in period
- D. Replace the cooler because despite improvement, the flow rate still does not meet specification and may not improve further with additional flushing

47. A technician is reassembling a transmission and installing the pump. The pump housing has two dowel pins that align it with the transmission case. One dowel pin is bent approximately 5 degrees from vertical. What is the correct action?

- A. Install the pump with the bent pin since the pin will flex enough during installation to seat in the case bore without issue
- B. Replace the bent dowel pin with a new straight pin to ensure the pump housing aligns correctly with the case and seats flush
- C. Install the pump using the remaining straight pin for alignment and leave the bent pin hole empty to avoid binding
- D. Bend the pin back to straight using pliers and reinstall it in the pump housing before proceeding with installation

48. A technician is installing a new valve body and notices that one of the spool valves in the new valve body is slightly harder to push through its bore than the others — it requires noticeable finger pressure to move but does slide when pressed. All other valves slide freely with minimal resistance. What should the technician do?

- A. Install the valve body as-is since slight resistance in one valve is acceptable for a new casting with tight manufacturing tolerances
- B. Apply ATF to the valve and work it back and forth until it moves freely, confirming there is no debris or burr causing binding
- C. Verify the valve moves freely when lubricated with ATF, and if it still requires noticeable pressure, investigate for a burr, debris, or a casting defect before installing
- D. Replace the entire valve body assembly because any valve that does not move freely indicates a manufacturing quality control failure

49. A technician has completed a transmission overhaul on a vehicle with 140,000 miles. The original flexplate has been inspected and shows no cracks, warping, or ring gear tooth damage. However, the converter mounting pad bolt holes show slight elongation — the holes are not perfectly round anymore. What is the correct action?

- A. Replace the flexplate because elongated converter bolt holes allow the converter to shift position during operation, creating vibration and potential bolt fatigue

- B. Install the flexplate with slightly larger bolts that fill the elongated holes and prevent the converter from shifting position
- C. Ream the elongated holes to a uniform larger diameter and install bushing inserts to restore the original bolt hole size
- D. Reinstall the flexplate since slight bolt hole elongation is normal wear at 140,000 miles and does not affect converter mounting

50. A technician completes a major transmission overhaul and installation. During the post-installation road test, the technician verifies smooth shifts in all gears, correct TCC operation, proper fluid temperature, no leaks, and no DTCs. The technician returns the vehicle to the customer. Three days later, the customer calls reporting a "ticking noise" from the transmission area that was not present before the repair. What should the technician advise?

- A. The ticking will go away after the first 500 miles as the new components break in and the internal clearances normalize
- B. The noise is likely from the engine and not related to the transmission overhaul since all transmission functions were verified
- C. The customer should continue driving normally and return only if the noise worsens, since minor noises after a rebuild are cosmetic
- D. The vehicle should be brought back immediately for inspection, as any new noise after a major repair may indicate an assembly or installation error

## Practice Exam 11: Answer Key and Explanations

1. C — The drone is present only in 3rd gear during steady-state cruising and disappears completely in every other gear. This gear-specific noise points to a component in the 3rd gear power flow path — a planetary gear set element, bearing, or thrust surface that is loaded uniquely in 3rd gear. In other gears, different planetary elements carry the load, unloading the worn component and eliminating the noise. Output shaft bearings and driveshaft components would produce noise in all gears since they rotate at vehicle speed regardless of gear selection.

2. A — A uniform 15-20% increase across all clutch circuits — not just one — with no DTCs and acceptable shift quality indicates the adaptive system is successfully compensating for normal

progressive wear across all friction surfaces. This gradual, balanced increase over the vehicle's mileage is exactly how adaptive learning is designed to work. A pump issue or sensor fault would produce asymmetric adaptations or DTCs, and a module drift would typically set adaptation-limit codes.

3. D — The vibration occurs at a specific RPM range (1,800-2,100) and is present in every gear range including Park and Neutral — conditions where the transmission's internal components are unloaded or stationary. Since the vibration tracks engine RPM regardless of vehicle speed, gear selection, or transmission loading, it must originate from a component spinning at engine speed — the engine itself, the torque converter housing, the oil pump drive, or an engine accessory. Transmission-internal components would behave differently across gear ranges.

4. B — All pressure readings are within specification except Reverse at stall, which is significantly below spec (155 vs. 220-260 psi). Normal Drive stall confirms the pump can produce adequate pressure under high demand. The isolated low reading specifically in Reverse stall indicates an internal leak in the reverse clutch circuit that bleeds pressure under the combined conditions of reverse engagement and maximum stall-test loading. The leak worsens under the higher pressure of stall because the defective seal cannot contain the elevated force.

5. A — The component application chart identifies the low-reverse clutch as the common device applied in both 1st gear and Reverse but not applied in 2nd, 3rd, or 4th. When this single device fails, both 1st gear and Reverse are lost simultaneously because neither range has its required holding device. The remaining gears function normally because they use different apply devices that are unaffected by the low-reverse clutch failure.

6. D — Both technicians are correct. A one-way clutch that freewheels in both directions has lost its locking function — it cannot hold the planetary element in either direction. During forward acceleration in Drive, other apply devices still transmit torque, so the vehicle moves. But during deceleration in manual low, the one-way clutch should lock to provide engine braking, and a freewheeling clutch cannot provide this hold. A clutch locked in both directions cannot release when it should, causing a bind or harsh engagement because the element cannot freewheel during the normal release phase.

7. C — Line pressure of 145 psi at idle in Drive — nearly double the maximum specification of 75 psi — confirms that the pressure regulation system has failed. The most common cause of unregulated maximum pressure is a failed pressure control solenoid or its circuit, which causes the system to default to unregulated pump output. Without EPC solenoid control, the pressure regulator receives no electronic modulation signal and allows the pump to deliver raw, uncontrolled pressure to all circuits.

8. B — Clicking during tight turns in both directions that occurs only when moving points to a component that experiences differential action during turns. The rear differential allows the inside wheel to turn slower than the outside wheel during cornering. Worn spider gears, side gears, or differential clutch packs (in limited-slip applications) produce clicking as they rotate relative to each other during this speed differentiation. Straight-line driving produces no differential action and therefore no clicking.

9. A — When the brake pedal is pressed, the module commands TCC release. The momentary 150 RPM drop occurs because the engine transitions from driving the turbine through a solid mechanical lock (TCC engaged) to driving it through fluid coupling (TCC released). During this brief transition, the engine RPM dips slightly as it adjusts to the change in load coupling characteristic. This is normal behavior that occurs on every TCC release event.

10. D — Before committing to transmission removal for band replacement, the technician should check the most accessible component in the 2nd gear apply circuit — the servo. Many servo covers are accessible by removing a snap ring or cover from the outside of the transmission case. Inspecting the apply pin for correct length and straightness, the piston seals for leakage, and the servo bore for scoring can confirm or eliminate the servo as the cause without pulling the transmission. A worn servo seal could produce identical symptoms to a worn band.

11. B — Both technicians are correct. The transmission vent serves a bidirectional pressure equalization function. When the fluid heats up during operation, the air inside the sealed case expands, and the vent allows this expanding air to escape rather than building pressure that would force fluid past seals. When the fluid cools after shutdown, the air contracts, and the vent allows atmospheric air to enter, preventing a vacuum that could draw air past seals or collapse flexible components.

12. C — A rhythmic ratio fluctuation every 2-3 seconds between the correct 1.00:1 and 1.15:1 indicates the 4th gear clutch alternately holds and slips. When the clutch grips, the ratio reads the correct 1.00:1. When it slips, the input shaft spins slightly faster than the output, producing the elevated 1.15:1 reading. The regular 2-3 second cycle is characteristic of a grab-slip-grab pattern from marginal friction material that cannot maintain consistent grip under the sustained cruising torque load.

13. A — The three codes are logically connected in a cascade. A failed oil pump or severely clogged filter causes system-wide pressure loss (P0868 and P0944). When line pressure drops, the shift solenoids cannot produce adequate hydraulic force to move their shift valves, and the module detects the solenoid's inability to produce the expected result — setting P0750 as a secondary consequence. The root cause is the pressure source failure, and the solenoid code is a downstream effect.

14. B — Before assuming a mechanical failure or sensor drift, the technician should verify what the electronic control system is actually doing during the delayed shift. Monitoring scan tool data during the event reveals whether the module is commanding the 2-3 shift at the normal RPM (but the hardware responds late) or whether the module itself is delaying the command. This distinction determines whether the fault is electronic (sensor, module, or solenoid) or mechanical/hydraulic (clutch circuit, accumulator, or valve body).

15. D — When the TCC releases, the direct mechanical connection between the engine and turbine is broken, and the torque converter transitions to fluid coupling mode. In fluid coupling, there is always some slip — the turbine never quite matches engine speed because energy is lost in the fluid. The 150 RPM difference (2,000 engine RPM minus 1,850 input speed) represents the normal converter slip that exists whenever the TCC is not applied.

16. C — The power-side voltage drop is normal (0.1V), confirming the power feed circuit is delivering adequate voltage. The excessive ground-side voltage drop of 3.2 volts means 3.2 volts of the circuit's total voltage is being consumed by resistance in the ground path instead of being available to drive the solenoid. A corroded ground bolt, damaged ground wire, or poor terminal contact in the ground circuit is the cause. This resistance limits current flow through the solenoid, reducing its magnetic force output.

17. A — The pressure sensor reading is stuck at 850 psi regardless of operating condition — it never changes. A real pressure that is constantly at 850 psi would produce obvious symptoms (extreme harshness, potential mechanical damage), and the pressure would vary with RPM, gear, and throttle. A fixed reading that does not respond to any change in operating conditions indicates the sensor's internal transducer has failed and is producing a constant output voltage that the module interprets as a fixed pressure value.

18. B — The key distinction is that automatic downshifts at the same speeds are smooth while manual downshifts are harsh. Both use the same physical clutches and bands. The difference is in the module's calibration — many manufacturers program a faster, more aggressive clutch apply rate for manually commanded downshifts to provide the "sporty" feel that drivers expect when they manually request a lower gear. This aggressive calibration produces a noticeably firmer engagement than the cushioned automatic downshift.

19. D — The code sets intermittently, only during specific conditions (hot ambient, highway driving), and the sensor passes room-temperature testing. A sensor that reads correctly at room temperature but drifts or becomes erratic at elevated temperatures has a thermistor element that is degrading. Testing the sensor's resistance at multiple controlled temperatures across its operating range — using a temperature-

controlled fluid bath — reveals whether the resistance tracks the manufacturer's curve accurately or deviates at higher temperatures.

20. C — The 6-7 shift consistently takes 0.45 seconds versus the 0.25-second target, while all other shifts hit their targets. This isolated slow shift in a single transition points to a restriction or leak in the 7th gear clutch apply circuit that delays pressure buildup specifically to that clutch piston. A system-wide issue (EPC, pump, or adaptive drift) would affect multiple shifts, not just one. The 7th gear circuit has a unique orifice, accumulator, or passage that is partially blocked or leaking.

21. B — An over-temperature hybrid battery forces the hybrid control system to curtail electric motor output to protect the battery from further thermal damage. With reduced or no electric motor assist available, the engine must run more frequently and carry a greater share of the propulsion load — including situations where the vehicle would normally operate on electric power alone. The customer perceives this as the engine running more often than expected, which is the system's protective response to the battery condition.

22. A — A brief chirping noise that occurs at the exact moment of the 3-4 shift transition, lasting only 0.5 seconds, and present at all throttle levels points to the clutch engagement event itself. During the initial contact between the friction disc and steel plate surfaces, a brief high-frequency squeal or chirp can occur as the surfaces mate under pressure. This is analogous to a brake squeal on initial application — a friction-induced vibration at the contact surface during the initial engagement moment.

23. D — Both solenoids test within resistance specification at the case connector, but both set performance codes simultaneously. Before investigating individual valve body faults or module failures, check the simplest common element — the power supply or ground circuit shared by both solenoids. A single high-resistance connection in the shared power feed or common ground would reduce current to both solenoids equally, preventing both from producing adequate magnetic force despite having normal coil resistance.

24. C — Gear hunting between two adjacent gears at a specific speed with cruise control set and no DTCs is the classic shift schedule crossover condition. The vehicle's operating point at exactly 70 mph with the specific road load sits precisely at the boundary between the 9-10 upshift and 10-9 downshift thresholds. Minor fluctuations in road grade, wind, or cruise control throttle corrections push the operating point back and forth across this boundary, causing the repeated shift cycle.

25. B — A single "bump" five seconds after every engine start — regardless of gear range — that occurs once and does not repeat indicates a hydraulic pressurization event. When the engine starts and the

pump begins building pressure, the clutch pistons in the unloaded circuits are pushed against their return springs as fluid fills the apply passages. This initial pressurization produces a single mechanical thump as the pistons seat. Once pressurized, the event does not repeat until the next engine start allows the circuits to depressurize.

26. A — If the old filter's threaded insert remains stuck on the pickup tube, it will obstruct the intake path and prevent the new filter from seating properly. The new filter's own threaded insert cannot engage the pickup tube correctly with the old insert in the way, resulting in either a loose filter that leaks or a blocked intake that starves the pump. The old insert must be removed from the tube before the new filter can be installed correctly.

27. C — Replacing the manual shaft seal requires removing and reinstalling the seal on the shaft that connects the shift linkage to the manual valve. During this process, the manual shaft position may shift, and the relationship between the shift lever detent positions and the manual valve detent positions may change. A shift linkage adjustment and verification of all gear positions ensures the manual valve centers correctly in each range after the repair.

28. D — Excessive bronze-colored powder — more than the fine gray paste typically seen during normal drain intervals — suggests accelerated wear of bronze bushings or thrust washers. While not an emergency requiring immediate overhaul, the elevated material accumulation warrants further investigation to determine the source and rate of wear. A shortened drain interval with monitoring allows the technician to track whether the bronze material increases, stabilizes, or was a one-time event.

29. B — The fluid level is at the low end of the acceptable range when hot. A marginally low level means less total fluid volume is available to maintain clutch circuit charge during extended parking periods. With less fluid, the forward clutch circuit drains back more completely overnight, and the reduced volume takes slightly longer for the pump to refill on cold start. Topping off the fluid to the middle of the range provides additional volume that reduces drain-back severity and may resolve the hesitation.

30. A — The pump seal appeared to hold during the cold idle check but leaked after 15 minutes of driving. Hot transmission fluid at operating temperature (175-200°F) has significantly lower viscosity than cold fluid. The thinner hot fluid finds and flows through the marginal leak path at the seal lip more easily than the thicker cold fluid could. A seal that holds cold fluid at idle pressure may fail with hot, thin fluid under the higher pressures generated during driving.

31. B — The integral radiator cooler uses engine coolant as the heat exchange medium. During cold starts, the warm coolant actually heats the cold ATF, bringing it to operating temperature faster and improving cold-start shift quality. A standalone air-to-fluid cooler uses ambient air, which cannot warm the fluid in cold weather — it can only cool it. In cold climates, a standalone cooler without a supplemental warming circuit may cause the ATF to remain cold for extended periods, producing prolonged harsh cold shifts.

32. C — The transmission does not actually shift or change behavior — only the dashboard indicator flickers. This indicates the mechanical gear engagement is correct and stable, but the electrical signal reporting the gear position is unstable. A range sensor with a worn or dirty contact at the boundary between the Drive and Manual 3 position produces a fluctuating signal that the instrument cluster displays as rapid alternation between the two gear indicators, even though the manual valve has not moved.

33. B — A single "pop" or "snap" that occurs on the first forward movement after overnight parking and never repeats is characteristic of the parking pawl disengaging from the parking gear. During overnight parking, the vehicle's weight settles the parking pawl deeply into the gear tooth notch. When the vehicle first moves forward, the pawl must release against this load, producing a distinct snap as the spring pulls the pawl out of the notch. This is a one-time event per parking cycle.

34. A — A zip tie is not an acceptable substitute for the properly engineered self-adjusting lock tab or repair clip. The zip tie may hold the cable in approximately the right position, but it cannot provide the precise, repeatable locking action of the original mechanism. The technician must remove the zip tie, install the proper clip or tab, and perform a complete cable adjustment with verification of all gear positions to ensure correct manual valve alignment.

35. D — The leak appears only during wet conditions and the case connector is the source location. The case connector seal has deteriorated enough that external water from rain or washing can enter the connector housing during wet conditions. Once inside, the water mixes with the ATF that may be present from minor internal harness fluid wicking, and the combined moisture weeps out through the degraded seal. On dry days, no external water enters and no visible leak occurs.

36. C — Solenoid calibration codes are unique identifiers tied to each solenoid's individual flow and response characteristics. Entering incorrect codes — even approximate ones — causes the module to apply wrong calibration values, producing shift quality problems. If the printed codes are illegible, the correct codes must be obtained from the parts supplier using the assembly's serial number or part tracking system. Installing without correct codes is not acceptable.

37. A — A 3% deviation in calculated gear ratio for a single gear — with all other gears matching specification exactly — is most likely due to a minor calibration difference between the new replacement sensors and the originals. Different sensor manufacturers or production lots may have very slight differences in reluctor ring tooth engagement geometry or signal characteristics that produce small measurement variances. If the shift quality is normal and no DTCs are set, this minor variance is within acceptable operating tolerance.

38. B — The torque converter sits on the input shaft, stator support shaft, and pump drive without any bolts holding it to the transmission after the converter-to-flexplate bolts are removed. If the converter is not secured to the transmission with a holding strap or tool before separation, it will slide off the input shaft splines as the transmission is pulled rearward. The technician should have secured the converter before beginning the separation process.

39. D — A hairline crack on a clutch drum, even if it does not currently penetrate through the wall, exists at a location subjected to repeated cyclic stress from band application and release. Each band apply event loads the drum circumferentially, and each release unloads it. This cyclic loading will propagate the crack through the drum wall over time, eventually causing a through-wall crack that results in hydraulic pressure loss, structural failure, or both.

40. C — An extra steel separator plate adds thickness to the clutch pack stack, reducing the clearance between the pressure plate and the snap ring. If the clearance drops below the minimum specification, the clutch may not fully release when the hydraulic pressure is exhausted — the return spring cannot push the piston back far enough to create adequate separation between the friction discs and steel plates. This residual contact causes the clutch to drag, generating heat and reducing efficiency.

41. A — The measured endplay of 0.022 inches falls within the manufacturer's specification of 0.020 to 0.040 inches. While it is near the lower end of the range, it is within the acceptable tolerance. Installing a thicker washer would push the endplay below the 0.020-inch minimum, causing the internal components to be too tight. No change is needed — the current measurement is acceptable and the technician should proceed with reassembly.

42. D — A deep gouge in the servo bore running parallel to piston travel provides a channel for pressurized fluid to leak past the piston seal. When the servo is pressurized to apply the band, fluid escapes through the gouge instead of building full pressure behind the piston. The new piston seal cannot bridge a 0.015-inch deep gouge — the seal lip rides over the depression and fluid bypasses it. The result is reduced servo apply force and potential band slippage.

43. B — Check balls are not all the same size. Different seats in the case and valve body are designed for specific ball diameters that control the flow characteristics of each passage. A ball that is too small for a seat will not seal properly, allowing unintended fluid flow. A ball that is too large for a seat will not seat fully, potentially blocking adjacent passages. Each ball must be installed in its correct mapped position based on the size specified in the service manual diagram.

44. C — If a longer bolt is installed in a shorter-depth bore, the bolt threads reach the bottom of the bore before the bolt head contacts the pump cover. The bolt bottoms out and cannot pull the cover tight against the pump housing. The resulting gap between the cover and housing allows pressurized fluid to leak from between the pump gears and the cover, and the loose cover may allow the gears to shift axially during operation.

45. A — After assembly, the torque converter, cooler, cooler lines, and all internal fluid passages are empty. When the engine starts and the pump begins circulating fluid, it draws from the pan to fill all of these empty spaces simultaneously. The two-inch drop in dipstick level represents the fluid volume redistributed from the pan to the converter, cooler, and passages. This is normal and expected — the technician must add additional fluid and recheck the level after the system is fully charged.

46. D — Despite progressive improvement from 30 to 28 to 27 seconds per quart, the flow rate still has not reached the minimum specification of 25 seconds per quart after multiple flush cycles. The diminishing rate of improvement suggests the blockage is deeply embedded and will not clear with additional flushing. The cooler must be replaced because operating with a restricted cooler will cause the rebuilt transmission to overheat during normal driving conditions.

47. B — A bent dowel pin cannot properly align the pump housing with the transmission case. The dowel pins provide precise positioning that ensures the pump bore, stator support shaft, and input shaft are all concentric with the crankshaft centerline. A bent pin will either prevent the pump from seating flush or will position it slightly off-center, causing misalignment, uneven pump gear loading, and potential converter hub-to-seal misalignment. The pin must be replaced with a straight one.

48. C — A new valve body spool valve that requires noticeable finger pressure to move may have a manufacturing burr, casting debris, or a dimensional variation that causes binding at a specific point in its travel. The technician should lubricate the valve with ATF and verify it moves freely. If it still requires pressure after lubrication, the bore and valve must be inspected for the source of resistance before installation, since a sticking valve will cause hydraulic routing faults during operation.

49. A — After an adaptive reset, the module begins with factory default baseline values and must learn the correct correction values for the rebuilt transmission's specific component characteristics. The initial harsh shifts occur because the default pressures may not precisely match the rebuilt unit's needs. Over the 20-minute drive, the module monitors each shift event, detects the deviation from target parameters, and progressively adjusts its commands. This progressive refinement from harsh to smooth is normal adaptive learning behavior.

50. D — Any new noise that appears after a major transmission repair — even if all shift functions tested correctly during the initial road test — warrants immediate investigation. The noise could indicate a loose component, a part installed in the wrong orientation, a bolt that is contacting a rotating element at a specific position, an incorrectly assembled bearing, or a converter seating issue that only manifests under certain operating conditions. Delaying investigation risks allowing a minor assembly error to cause progressive damage.