

Heavy Duty Equipment Technician Red Seal practice test

Independent practice questions, not official exam questions

25 original multiple-choice questions, with answers and short explanations at the end. In Ontario this trade is code 421A. The real Red Seal exam has 135 questions in four hours with a 70% pass mark. These questions do not come from the official exam and do not predict a result.

Online version with scoring:

<https://redsealreadycanada.com/heavy-duty-equipment-technician-red-seal-practice-test>

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Questions

Question 1 · Common occupational skills

A technician observes that the repaired function works, but a disconnected warning lamp and a small fluid leak remain. Which test best distinguishes among the plausible causes?

- A. The procedure specifies this action: confirm the applicable publication through the manufacturer's current service-information system
- B. The procedure specifies this action: verify the required thread condition and inspect the fasteners and joint surfaces for damage
- C. The procedure specifies this action: stop the release process and complete the safety, leak and warning-system checks
- D. The procedure specifies this action: inspect the races for installation marks and check runout and smoothness before operation

Question 2 · Engines and supporting systems

After work on crankshaft thrust control, which observation confirms that the repair was successful?

- A. The repair is verified by this result: end play remains within specification through repeated clutch or converter operation
- B. The repair is verified by this result: cranking effort and compression return to the engine specification and the mechanism fully releases in the run position
- C. The repair is verified by this result: blow-by and oil consumption stabilize within specification after the prescribed break-in
- D. The repair is verified by this result: compression balance returns and the intake no longer shows leakage from that cylinder

Question 3 • Steering, suspension, brakes and running gear

Given the following evidence — joystick position changes correctly in live data, but valve command remains zero because the seat interlock is reported open — which test should be performed next?

- A. The task requires the technician to load the joint alternately in both directions while measuring relative frame movement, with the result compared against current service specifications
- B. The task requires the technician to compare pin-to-pin length and available stroke of both cylinders at centred and full-lock positions, after confirming the applicable procedure revision, machine configuration and all required protective measures
- C. The task requires the technician to measure steering-inlet flow and load-signal pressure while operating the competing function, after the original symptom has been verified and documented
- D. The task requires the technician to test the seat-switch circuit under load and compare its state with the physical switch position, after basic power, fluid, connection and mechanical checks are complete

Question 4 • Electrical and electronic systems

Given the following evidence — the relay clicks and coil voltage is correct, but the load receives only 4 V because the contact path is burnt — which test should be performed next?

- A. Use this sequence: measure voltage directly across each closed connection while the lamp remains energized
- B. Use this sequence: compare actual branch current with the breaker and load ratings, then test the load for mechanical drag before choosing the failed part
- C. Use this sequence: compare coil resistance, polarity and turn-off waveform with the approved component before replacing another controller
- D. Use this sequence: measure voltage across the closed load contacts while the device is operating

Question 5 • Electrical and electronic systems

Which statement correctly describes commanded versus actual actuator position?

- A. The system characteristic is: distinguishes controller intent from the mechanical or hydraulic response reported by feedback
- B. The system characteristic is: records operating conditions that help reproduce and isolate an intermittent fault instead of treating the code as a parts order
- C. The system characteristic is: supplies several sensors from a regulated source that can be pulled down by one shorted branch
- D. The system characteristic is: requires dividing the network because one conductor pulled to ground can disrupt communication for many nodes

Question 6 • Drivetrain systems

After work on shift-rail detent system, which observation confirms that the repair was successful?

- A. The return-to-service result is: range position feedback agrees with full mechanical engagement and the range holds under rated load
- B. The return-to-service result is: the selected gear remains engaged during drive and coast loading and other rails remain interlocked
- C. The return-to-service result is: levels remain stable in both housings and bearing temperature and noise remain normal
- D. The return-to-service result is: the affected ratio engages quietly at the specified shift conditions without jumping out

Question 7 · Environmental control systems

Which statement best describes the function of metering-device restriction?

- A. The relevant description is: controls refrigerant flow into the evaporator according to the system design and operating condition
- B. The relevant description is: rejects refrigerant heat to ambient air so vapour can condense at a controlled pressure
- C. The relevant description is: requires sufficient airflow and temperature control to prevent the coil from freezing and blocking ventilation
- D. The relevant description is: varies compressor pumping capacity on systems designed for modulation so evaporator load can be controlled without constant clutch cycling

Question 8 · Hydraulic, hydrostatic and pneumatic systems

A technician observes that the bypass indicator appears only on cold startup and clears as oil warms; the installed fluid is more viscous than specified. Which test best distinguishes among the plausible causes?

- A. Use the following procedure: measure filter differential pressure at controlled temperature and verify fluid grade before replacing components, using the specified test points, limits and safety precautions
- B. Use the following procedure: measure case pressure at the motor before replacing another shaft seal, with the result compared against current service specifications
- C. Use the following procedure: measure standby flow and compensator-control pressure before replacing the main valve, after the original symptom has been verified and documented
- D. Use the following procedure: confirm fluid identity and compare measured temperature-viscosity behaviour with the equipment and fluid specifications, after confirming the applicable procedure revision, machine configuration and all required protective measures

Question 9 · Structures, stations and attachments

A technician observes that a ROPS post is bent and someone proposes heating and straightening it without an approved repair procedure. Which test best distinguishes among the plausible causes?

- A. The service step is to indicate both bores from a common bar or alignment fixture and compare centreline position before removing more material
- B. The service step is to remove the machine from service and obtain the manufacturer's or a professional engineer's approved disposition
- C. The service step is to define the full crack extent and inspect aligned members before grinding or drilling any stop hole
- D. The service step is to map the crack ends and inspect the surrounding load path by the specified nondestructive method before repair planning

Question 10 · Hybrid and all-electric equipment

After work on hybrid high-voltage shutdown, which observation confirms that the repair was successful?

- A. The final check should produce this result: DC-link voltage rises according to the OEM profile and main contactors close without an inrush fault, under the original operating condition
- B. The final check should produce this result: the specified points pass the live-dead-live verification and all stored mechanical and hydraulic energy is controlled, across repeated controlled operating cycles
- C. The final check should produce this result: total deceleration remains controlled and regenerative contribution increases when battery conditions permit, using the specified acceptance criteria
- D. The final check should produce this result: the loop is valid, contactors follow the normal sequence and opening the cover again causes the designed safe response, with no new fault, leak, warning or safety concern introduced

Question 11 · Common occupational skills

After replacing the obsolete procedure in the job plan with the verified current procedure, which result best confirms that the original fault has been corrected?

- A. This observation provides the required confirmation: all recorded specifications and steps trace to the correct model, serial range and revision, under the original operating condition
- B. This observation provides the required confirmation: the original complaint is absent, no new faults or leaks are present and all safety features operate correctly, with all affected safety functions restored
- C. This observation provides the required confirmation: a representative post-fill sample meets the specified cleanliness and shows no cross-contamination, across repeated controlled operating cycles
- D. This observation provides the required confirmation: the hose remains clear, untwisted and unstretched throughout repeated full-range cycles, using the specified acceptance criteria

Question 12 · Engines and supporting systems

A technician observes that oil pressure fluctuates with engine speed and the oil appears foamy, but bearing clearance is acceptable. Which test best distinguishes among the plausible causes?

- A. The appropriate action is to verify oil identity and compare pressure at controlled cold and hot temperatures, with the result compared against current service specifications
- B. The appropriate action is to inspect for suction-side leaks and observe whether pressure stabilizes after correcting oil level and aeration sources, while changing only one controlled variable at a time
- C. The appropriate action is to use oil analysis and fuel-system/regeneration data to locate the fuel source before changing oil alone, with the readings recorded before any adjustment or parts replacement
- D. The appropriate action is to measure pressure differential across the filter under the stated operating condition, after the original symptom has been verified and documented

Question 13 · Engines and supporting systems

Which statement correctly describes turbocharger compressor inlet?

- A. The applicable statement is: prevents unfiltered dust from entering downstream of the air cleaner, within the stated system boundary
- B. The applicable statement is: carries compressed air to the engine while removing heat and preserving boost mass flow, under the applicable operating conditions
- C. The applicable statement is: must receive clean unrestricted air so compressor pressure ratio is produced without excessive shaft speed or surge, as applied to heavy-duty equipment service
- D. The applicable statement is: limits airflow when the element is loaded, producing increasing restriction under high demand, within the stated system boundary, operating conditions, safety assumptions and current service-information limits

Question 14 · Engines and supporting systems

After draining and cleaning the affected system as specified and refilling with verified correct DEF, which result best confirms that the original fault has been corrected?

- A. The expected post-repair result is: quality tests pass and dosing pressure, spray pattern and conversion remain stable
- B. The expected post-repair result is: commanded EGR movement produces the expected airflow and pressure response without recurring faults
- C. The expected post-repair result is: all sensors agree within the manufacturer's cold-soak tolerance and progress logically during a controlled heat cycle
- D. The expected post-repair result is: the sensor zeros correctly and differential pressure follows exhaust flow through the specified test

Question 15 · Steering, suspension, brakes and running gear

After work on suspension cylinder rod-gas leakage distinction, which observation confirms that the repair was successful?

- A. The specified verification result is: measured pivot movement is within specification and braking no longer produces axle steer, under the original operating condition
- B. The specified verification result is: lateral movement is within specification and tracking remains stable on the repeat route, using the specified acceptance criteria
- C. The specified verification result is: suspension travel is controlled, precharge remains stable and no external leakage is present, with the original complaint reproduced, all measured values documented and every affected safety function rechecked
- D. The specified verification result is: precharge and ride height remain stable through the specified settling period and controlled ride test, with no new fault, leak, warning or safety concern introduced

Question 16 · Steering, suspension, brakes and running gear

A technician observes that several rollers on one side show bright wear on the same flange while track tension is within specification. Which test best distinguishes among the plausible causes?

- A. The prescribed approach is to compare measured chain pitch and sprocket tooth profile with the wear limits for the undercarriage family
- B. The prescribed approach is to check track-frame alignment, roller position and chain guiding clearances along the complete run
- C. The prescribed approach is to measure the specified number of links in several chain locations and compare the average with the undercarriage wear chart
- D. The prescribed approach is to repeat the sag measurement under the specified setup and check for packed material before adjusting

Question 17 · Electrical and electronic systems

A 24 V work lamp draws 8.0 A. What electrical power does it consume?

- A. 192 W
- B. 32 W
- C. 3.0 W
- D. 576 W

Question 18 · Electrical and electronic systems

A technician observes that multiple unrelated sensor codes appear and the shared reference is low; voltage returns when the pressure sensor is disconnected. Which test best distinguishes among the plausible causes?

- A. Follow this method: repeat a monitored crank while recording battery voltage at the distribution point and module feeds
- B. Follow this method: test the sensor and its reference wire separately before replacing the controller
- C. Follow this method: disconnect the linkage as permitted and compare actuator movement with mechanical load movement
- D. Follow this method: load-test the missing feed and its fuse, relay and interlock path before testing network resistance

Question 19 · Electrical and electronic systems

After work on intermittent network connector fault, which observation confirms that the repair was successful?

- A. The required observation is: error counts remain stable and no communication loss occurs during the repeated vibration route
- B. The required observation is: all affected readings agree with independent references and remain stable as electrical loads change
- C. The required observation is: feedback tracks actual position smoothly in both directions and the controller reaches every commanded target without correlation faults
- D. The required observation is: the controller powers up, communicates and completes its self-test without returning communication codes

Question 20 · Drivetrain systems

During diagnosis, a twice-per-revolution vibration begins after a slip joint was assembled one spline out of phase. Which test would best discriminate the likely fault before parts are replaced?

- A. The required action is to measure runout at the shaft and flange while indexing the flange to distinguish mounting from shaft bend, with the result compared against current service specifications
- B. The required action is to rotate and articulate each joint by hand after safely supporting the shaft and compare cup movement, after confirming the applicable procedure revision, machine configuration and all required protective measures
- C. The required action is to measure installed length and available plunge at minimum and maximum driveline geometry, after the original symptom has been verified and documented
- D. The required action is to compare yoke-ear alignment along the shaft and calculate operating-angle relationship before balancing it, after basic power, fluid, connection and mechanical checks are complete

Question 21 · Drivetrain systems

A final drive has an overall 18: 1 reduction. If its input turns at 900 rpm, what is the theoretical output speed?

- A. 16.7 rpm
- B. 16,200 rpm
- C. 50 rpm
- D. 918 rpm

Question 22 · Environmental control systems

After work on evaporator icing from low airflow, which observation confirms that the repair was successful?

- A. The final observation should be: pressure separation and vent temperature respond correctly to capacity command through the approved performance test
- B. The final observation should be: pressures and vent temperature remain within equipment-specific targets at the repeated idle condition
- C. The final observation should be: evaporator feed and temperature stabilize and the system reaches the specified cooling performance
- D. The final observation should be: airflow remains stable and the evaporator does not ice during the repeated high-humidity test

Question 23 · Hydraulic, hydrostatic and pneumatic systems

After repairing the leaking suction seal or hose and deaerating the system with the specified procedure, which result best confirms that the original fault has been corrected?

- A. The strongest confirmation would be: cold-start noise and function time meet the equipment limits while hot leakage and pressure remain acceptable
- B. The strongest confirmation would be: available flow and actuator speed meet specification while relief pressure remains correct
- C. The strongest confirmation would be: oil remains clear, inlet conditions are normal and pump noise and erratic motion disappear
- D. The strongest confirmation would be: cooler flow increases at the expected condition and reservoir temperature stabilizes during the repeated duty cycle

Question 24 · Hydraulic, hydrostatic and pneumatic systems

Given the following evidence — forward and reverse are weak, charge pressure is acceptable and pump case-drain flow rises excessively with loop load — which test should be performed next?

- A. The task requires the technician to confirm the mechanical stop or commanded position and measure pressure drop across the bypass path during the approved loaded test, using the specified test points, limits and safety precautions
- B. The task requires the technician to disconnect external command linkage as permitted and compare internal null response before adjusting electronics, while changing only one controlled variable at a time
- C. The task requires the technician to perform the manufacturer's controlled limiter test rather than holding the drive against a stop longer than permitted, with the result compared against current service specifications
- D. The task requires the technician to compare pump and motor case-drain flows under the same load to identify the dominant leakage source, with the readings recorded before any adjustment or parts replacement

Question 25 · Hydraulic, hydrostatic and pneumatic systems

After work on pneumatic leak-rate test, which observation confirms that the repair was successful?

- A. The final check should produce this result: reservoir drainage returns to normal and pneumatic functions remain reliable at low temperature
- B. The final check should produce this result: the control signal responds normally through repeated cold operation and subsequent drains show no abnormal water accumulation
- C. The final check should produce this result: timed pressure decay remains within specification in both released and applied states
- D. The final check should produce this result: the cylinder holds load and completes both strokes without excessive opposite-port leakage

Answers and explanations

1. Answer C

The correct answer is “The procedure specifies this action: stop the release process and complete the safety, leak and warning-system checks”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

2. Answer A

The correct answer is “The repair is verified by this result: end play remains within specification through repeated clutch or converter operation”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

3. Answer D

The correct answer is “The task requires the technician to test the seat-switch circuit under load and compare its state with the physical switch position, after basic power, fluid, connection and mechanical checks are complete”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

4. Answer D

The correct answer is “Use this sequence: measure voltage across the closed load contacts while the device is operating”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

5. Answer A

The correct answer is “The system characteristic is: distinguishes controller intent from the mechanical or hydraulic response reported by feedback”. This is the function or condition that defines commanded versus actual actuator position.

6. Answer B

The correct answer is “The return-to-service result is: the selected gear remains engaged during drive and coast loading and other rails remain interlocked”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

7. Answer A

The correct answer is “The relevant description is: controls refrigerant flow into the evaporator according to the system design and operating condition”. This is the function or condition that defines metering-device restriction.

8. Answer A

The correct answer is “Use the following procedure: measure filter differential pressure at controlled temperature and verify fluid grade before replacing components, using the specified test points, limits and safety precautions”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

9. Answer B

The correct answer is “The service step is to remove the machine from service and obtain the manufacturer’s or a professional engineer’s approved disposition”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

10. Answer B

The correct answer is “The final check should produce this result: the specified points pass the live-dead-live verification and all stored mechanical and hydraulic energy is controlled, across repeated controlled operating cycles”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

11. Answer A

The correct answer is “This observation provides the required confirmation: all recorded specifications and steps trace to the correct model, serial range and revision, under the original operating condition”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

12. Answer B

The correct answer is “The appropriate action is to inspect for suction-side leaks and observe whether pressure stabilizes after correcting oil level and aeration sources, while changing only one controlled variable at a time”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

13. Answer C

The correct answer is “The applicable statement is: must receive clean unrestricted air so compressor pressure ratio is produced without excessive shaft speed or surge, as applied to heavy-duty equipment service”. This is the function or condition that defines turbocharger compressor inlet.

14. Answer A

The correct answer is “The expected post-repair result is: quality tests pass and dosing pressure, spray pattern and conversion remain stable”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

15. Answer D

The correct answer is “The specified verification result is: precharge and ride height remain stable through the specified settling period and controlled ride test, with no new fault, leak, warning or safety concern introduced”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

16. Answer B

The correct answer is “The prescribed approach is to check track-frame alignment, roller position and chain guiding clearances along the complete run”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

17. Answer A

Electrical power is $P = V \times I = 24 \times 8.0 = 192 \text{ W}$.

18. Answer B

The correct answer is “Follow this method: test the sensor and its reference wire separately before replacing the controller”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

19. Answer A

The correct answer is “The required observation is: error counts remain stable and no communication loss occurs during the repeated vibration route”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

20. Answer D

The correct answer is “The required action is to compare yoke-ear alignment along the shaft and calculate operating-angle relationship before balancing it, after basic power, fluid, connection and mechanical checks are complete”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

21. Answer C

For an 18: 1 reduction, output speed = input speed/18 = 900/18 = 50 rpm.

22. Answer D

The correct answer is “The final observation should be: airflow remains stable and the evaporator does not ice during the repeated high-humidity test”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

23. Answer C

The correct answer is “The strongest confirmation would be: oil remains clear, inlet conditions are normal and pump noise and erratic motion disappear”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.

24. Answer D

The correct answer is “The task requires the technician to compare pump and motor case-drain flows under the same load to identify the dominant leakage source, with the readings recorded before any adjustment or parts replacement”. This test directly addresses the evidence and best separates the plausible causes without speculative parts replacement.

25. Answer C

The correct answer is “The final check should produce this result: timed pressure decay remains within specification in both released and applied states”. This result recreates the original operating condition and confirms performance rather than merely showing that a component was installed.