310T Truck and Coach Technician Certification Practice Exam (Sample)

Study Guide

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Questions

1. What should be done before removing an injection nozzle for testing or repair?

A. Check the injection pump timing.

B. Change the primary fuel filter.

C. Clean the area around the injector thoroughly.

D. Bend the injection line slightly for clearance.

2. Which procedure should be used to repair a broken fuel tank mounting strap?

A. Weld the strap

B. Replace the strap

C. Fish plated by certified welder

D. Replace the tank isolation gaskets

3. What would cause water leakage around the front windshield?

A. Cracked visor

B. GPS mounting

C. Clearance light gaskets

D. Cracked air deflector gaskets

4. What is the minimum clearance that should be set on a bench grinder for safety?

A. 1 mm

B. 2 mm

C. 3 mm

D. 4 mm

5. What must be ensured when replacing S-cams on an air brake equipped vehicle?

A. Replace the automatic slack adjusters.

B. Ensure that S-cams have the correct rotation designation.

C. Inspect or replace the service brake chamber diaphragms.

D. Turn the S-cam bushings 180º to promote even wear.

6. What would cause the sliding bogies to bind?

A. Bent slider rails.

B. Bent slider pins.

C. A leaking air cylinder.

D. Mismatched tire sizes.

7. What is a common symptom of a faulty starter relay?

A. Engine cranks but will not start.

B. No sounds when turning the key.

C. Starter engages but won't crank.

D. Electrical components operate intermittently.

8. What is the first step when evacuating refrigerant from an air conditioning system?

A. Check the refrigerant oil level.

B. Identify the type of refrigerant.

C. Measure the weight of the refrigerant.

D. Check the high side and low side pressures.

9. Using an ohmmeter, what test results would indicate an inoperable block heater?

A. Continuity between both heater terminals.

B. Infinite resistance between both heater terminals.

C. No continuity between either heater terminal and ground.

D. Infinite resistance between either heater terminal and ground.

10. What is indicated by excessive air reservoir build up time?

A. A plugged air drier.

B. Air governor set too low.

C. A leaking service relay valve.

D. A restricted compressor air inlet.

Answers

1. C
2. B
3. C
4. C
5. B
6. A
7. B
8. B
9. B
10. D

Explanations

1. What should be done before removing an injection nozzle for testing or repair?

A. Check the injection pump timing.

B. Change the primary fuel filter.

C. Clean the area around the injector thoroughly.

D. Bend the injection line slightly for clearance.

Before removing an injection nozzle for testing or repair, it is essential to clean the area around the injector thoroughly. This practice is crucial because any debris or contaminants present near the injector can fall into the engine when the nozzle is removed. Keeping the area clean helps prevent damage to the engine components and ensures that no foreign objects cause clogging or further issues. By maintaining a clean work environment, you also promote a better seal when reinstalling the injector and reduce the potential for leaks. This precaution is a vital step in maintaining engine integrity and providing reliable performance after repairs. The other options, while they may be relevant in specific contexts, do not address the immediate concern of preventing contamination at the injector site during removal.

2. Which procedure should be used to repair a broken fuel tank mounting strap?

A. Weld the strap

B. Replace the strap

C. Fish plated by certified welder

D. Replace the tank isolation gaskets

Replacing the strap is the most reliable procedure for repairing a broken fuel tank mounting strap. Fuel tank mounting straps are critical components that securely hold the fuel tank in place, ensuring that it does not shift during vehicle operation. A welded repair may not restore the integrity of the strap, as welding can weaken the metal and potentially create stress points that could lead to failure. Additionally, welding on a strap exposed to fuel or any residue can present safety risks, such as fire hazards. While using fish plates might be a solution in some structural applications, it requires specialized welding skills and does not guarantee a permanent fix for the strap's specific function and load-bearing requirements. Certified welders may provide more robust solutions for different structural components, but this is not the most straightforward or safest choice for a broken fuel tank mounting strap. Replacing the tank isolation gaskets is unrelated to the strap itself. Those gaskets help to prevent fuel leaks and isolate the tank from vibrations and noise, but they do not address the structural integrity of a broken mounting strap. For the safety and reliability of the vehicle, the most effective method is to replace the broken strap, ensuring a secure and safe mounting of the fuel tank.

3. What would cause water leakage around the front windshield?

A. Cracked visor

B. GPS mounting

C. Clearance light gaskets

D. Cracked air deflector gaskets

Water leakage around the front windshield can often be attributed to issues with the gaskets that seal the windshield in place. In this case, clearance light gaskets are specifically designed to help seal the area around the lights mounted on the truck's roof or cab. If these gaskets are worn out, damaged, or improperly installed, they can fail to provide an effective barrier against water intrusion. When rain or moisture accumulates, it can find its way into the cabin area, leading to water leakage around the front windshield. The other choices focus on different components that are less directly related to the windshield's sealing system. A cracked visor can create other issues, but it does not typically interact with the windshield seal itself. GPS mounts, while they can be located near the windshield, do not contribute to the integrity of the windshield seal. Similarly, cracked air deflector gaskets have a role in airflow management and aerodynamics but do not directly affect water sealing at the windshield. Ultimately, the integrity of gaskets directly associated with the windshield, such as those around clearance lights, plays a crucial role in preventing leaks and maintaining a dry cabin environment.

4. What is the minimum clearance that should be set on a bench grinder for safety?

A. 1 mm

B. 2 mm

C. 3 mm

D. 4 mm

The minimum clearance that should be set on a bench grinder for safety is 3 mm. This clearance is critical as it ensures that the grinding wheel does not come into contact with the workpiece without an appropriate amount of space. A gap of 3 mm minimizes the risk of the grinder wheel binding or catching on the workpiece, which could lead to dangerous situations, including injury or damage to the equipment. Ensuring proper clearance also allows for the effective removal of material while maintaining control and stability during operation. Furthermore, this distance helps to reduce the likelihood of overheating the workpiece and minimizes the generation of sparks, which can pose fire hazards. In professional settings, such standards are important for ensuring both user safety and the quality of the work performed.

5. What must be ensured when replacing S-cams on an air brake equipped vehicle?

A. Replace the automatic slack adjusters.

B. Ensure that S-cams have the correct rotation designation.

C. Inspect or replace the service brake chamber diaphragms.

D. Turn the S-cam bushings 180º to promote even wear.

When replacing S-cams on an air brake equipped vehicle, it is essential to ensure that the S-cams have the correct rotation designation. S-cams are a critical component of air brake systems in heavy vehicles; their design and orientation dictate how the brake shoes engage with the brake drum. If the S-cams are installed with the incorrect rotation designation, it can lead to uneven braking, reduced braking efficiency, and potential safety hazards. Correctly identifying the direction in which the S-cams are supposed to rotate is crucial for the proper function of the brake system. Proper orientation helps ensure that the brake shoes apply pressure evenly, providing effective braking performance and maintaining the integrity of the braking system. Therefore, ensuring the correct rotation designation is fundamental to the safe operation of the vehicle after the S-cams have been replaced.

6. What would cause the sliding bogies to bind?

A. Bent slider rails.

B. Bent slider pins.

C. A leaking air cylinder.

D. Mismatched tire sizes.

Binding of the sliding bogies typically occurs when there is a physical obstruction or misalignment that prevents smooth movement. Bent slider rails create an uneven or obstructed pathway for the bogies to slide along, leading to difficulty in movement and binding. When the rails are bent, they can create friction or a point of contact that restricts the natural sliding action, resulting in binding. The integrity of the slider rails is crucial for the proper functionality of the bogie system. When they are straight and aligned, they allow for smooth transitions and movement. In contrast, bent rails compromise this system by introducing irregularities in the tracks the bogies are designed to move along. In comparison, while bent slider pins and issues with air cylinders can affect the overall performance of the suspension system, it is primarily the alignment and condition of the slider rails that would directly cause binding in this context. Mismatched tire sizes can lead to imbalances and handling issues, but they do not directly relate to binding of the bogies themselves. Therefore, the condition of the slider rails is the most significant factor leading to binding.

7. What is a common symptom of a faulty starter relay?

A. Engine cranks but will not start.

B. No sounds when turning the key.

C. Starter engages but won't crank.

D. Electrical components operate intermittently.

A common symptom of a faulty starter relay is when there are no sounds at all when turning the key. This scenario typically indicates that the relay is not functioning properly and is not sending power to the starter motor. When the ignition key is turned to the "start" position, the starter relay should activate and allow electrical current to flow to the starter, which in turn should engage the engine cranking process. If there's complete silence, it often reveals that the relay isn't operating as it should, thus preventing the engine from cranking. In contrast, other symptoms such as the engine cranking but not starting or the starter engaging but not cranking suggest issues either with the starter itself or problems in the fuel system or ignition system. These scenarios typically indicate that at least some electrical function is occurring, distinguishing them from the situation where no sound is produced at all. Similarly, intermittent operation of electrical components points towards different electrical issues in the vehicle and doesn't specifically indicate a fault with the starter relay.

8. What is the first step when evacuating refrigerant from an air conditioning system?

A. Check the refrigerant oil level.

B. Identify the type of refrigerant.

C. Measure the weight of the refrigerant.

D. Check the high side and low side pressures.

Identifying the type of refrigerant is crucial before evacuating refrigerant from an air conditioning system because different refrigerants have distinct properties, safety protocols, and handling procedures. Knowing the type of refrigerant helps in determining the appropriate recovery methods, equipment, and techniques for proper evacuation. Using the correct equipment for the specific refrigerant ensures that the technician adheres to environmental regulations and safety standards, as certain refrigerants can be harmful or toxic. Additionally, different refrigerants require different types of recovery machines and processes; for example, some may require specific pressure considerations or recovery techniques that vary based on their composition. This foundational step lays the groundwork for conducting the procedure safely and effectively, which is essential for protecting both the technician and the environment.

9. Using an ohmmeter, what test results would indicate an inoperable block heater?

A. Continuity between both heater terminals.

B. Infinite resistance between both heater terminals.

C. No continuity between either heater terminal and ground.

D. Infinite resistance between either heater terminal and ground.

An inoperable block heater will typically show infinite resistance between both heater terminals when tested with an ohmmeter. This result indicates that there is an open circuit within the heater element, meaning that electrical current cannot flow through it. When the block heater is functioning properly, you would expect to see a low resistance value reflecting the continuity of the heating element, which allows current to pass through. Infinite resistance signifies that there is a break in the element or a complete malfunction, preventing it from heating the engine block. The other options represent different scenarios: continuity between both heater terminals would suggest the heater is operational; no continuity between either terminal and ground implies the heater is isolated from the chassis, typically a good condition; and infinite resistance between either terminal and ground suggests a good insulation but does not provide information on the operational state of the heater element itself. Therefore, infinite resistance directly between the heater terminals is indeed the indicator of failure.

10. What is indicated by excessive air reservoir build up time?

A. A plugged air drier.

B. Air governor set too low.

C. A leaking service relay valve.

D. A restricted compressor air inlet.

Excessive air reservoir build-up time typically indicates that there is a restriction preventing adequate airflow into the air system. This aligns with the idea of a restricted compressor air inlet, as such a restriction would impede the efficient operation of the compressor, causing it to take longer to build up the necessary air pressure in the reservoirs. When the air inlet to the compressor is restricted, the volume of air that the compressor can draw in is reduced, which directly impacts its ability to generate the required pressure quickly. This results in a longer than normal build-up time for the air reservoirs. Identifying and rectifying a restricted air inlet is crucial for restoring the proper functioning of the air brake system, ensuring that systems relying on compressed air operate efficiently and safely. The other answer choices point to different issues within the air system that would not specifically result in excessive build-up time: a plugged air dryer might affect air quality but not build-up speed directly; an air governor set too low would lead to premature cut-out, not longer build times; and a leaking service relay valve could cause loss of pressure but would not create a prolonged build-up scenario.