Airframe & Powerplant (A&P) Inspection Authorization (IA) Practice Test (Sample)

Study Guide

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Questions

1. What type of inspection may be conducted by an IA on an aircraft if it is overdue for its annual?

A. A one-time inspection

B. Can perform an annual inspection

C. Must perform a condition inspection

D. Cannot conduct any inspection

2. Which of the following is a requirement for an inspection authorization holder performing major repairs?

A. To have a minimum of two years of experience

B. Must hold a valid mechanic's certificate

C. Must notify the FAA for each repair made

D. Must have supervised all repairs

3. Which of the following Piper PA-32 aircraft is not authorized for Club Seat Installation?

A. PA-32-300

B. PA-32R-300

C. PA-32S-300

D. PA-32-301

4. What is a required part of the documentation process when performing alterations on an aircraft?

A. Local regulatory approval unofficially

B. Field approval if major alterations are made

C. Assurance from co-workers of compliance

D. Temporary approvals until formal documentation is received

5. A technician has put a swaged end on a 1/8th cable, and has brought it to you for inspection. The shank diameter should be:

A. .250

B. .141

C. .219

D. .187

6. What can be approved for export and return to service using an 8130-3 form?

A. Engine

B. Propeller

C. Landing gear

D. All of the above

7. What is the minimum bend radius for a MIL-H-8788-10 hydraulic hose operating at 1,200 psi and 210º centigrade through 60º travel?

A. 3-1/4 inches

B. 5-1/2 inches

C. 7-1/2 inches

D. 10 inches

8. To whom must discrepancies and unairworthy items be reported after an annual inspection finds the aircraft unairworthy?

A. The Flight Standards District Office (FSDO)

B. The owner or operator

C. Both the owner/operator and the FSDO

D. The manufacturer

9. What is the result of an insufficiently applied oxide film on aluminum?

A. The aluminum remains unreactive.

B. Corrosion is accelerated.

C. The aluminum becomes more conductive.

D. It has no impact on the aluminum surface.

10. Who is responsible for returning an aircraft to service after a major alteration?

A. The holder of an inspection authorization

B. The original manufacturer of the aircraft

C. The aviation safety board

D. The aircraft owner

Answers

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

Explanations

1. What type of inspection may be conducted by an IA on an aircraft if it is overdue for its annual?

A. A one-time inspection

B. Can perform an annual inspection

C. Must perform a condition inspection

D. Cannot conduct any inspection

The correct choice reflects that an Inspection Authorization (IA) holder is permitted to conduct an annual inspection on an aircraft that is overdue for its annual. An annual inspection is a comprehensive examination of the aircraft that evaluates its overall condition and airworthiness. When an aircraft is overdue for its annual inspection, it is still crucial for maintaining safety and compliance with aviation regulations. The IA has the authority to perform the annual inspection, which ensures adherence to Federal Aviation Administration (FAA) standards and regulations. This authority is especially important as it allows the IA to identify any issues or potential maintenance needs before the aircraft can continue safe operation. Other options present misunderstandings of the IA's capabilities. A one-time inspection usually refers to a specific sort of inspection that might not satisfy the comprehensive requirements of an annual inspection. A condition inspection typically involves assessing the aircraft under specific circumstances but doesn't replace the requirement for an annual. The choice stating that an IA cannot conduct any inspection is incorrect because the IA has the authority to perform necessary inspections, including an overdue annual.

2. Which of the following is a requirement for an inspection authorization holder performing major repairs?

A. To have a minimum of two years of experience

B. Must hold a valid mechanic’s certificate

C. Must notify the FAA for each repair made

D. Must have supervised all repairs

The requirement for an inspection authorization holder performing major repairs to hold a valid mechanic’s certificate is crucial because the certificate ensures that the individual has met the necessary training and certification standards established by the FAA. This ensures that the mechanic possesses adequate knowledge of airframe and powerplant systems, as well as the relevant regulations that govern maintenance practices. Holding a valid mechanic’s certificate is not just an administrative detail; it signifies that the individual has demonstrated competency in their field and is thereby qualified to make decisions regarding major repairs which can impact the safety and airworthiness of aircraft. This requirement is in place to ensure that only qualified and trained professionals perform significant work on aircraft systems, thereby helping to maintain safety standards in aviation. The other options, while relevant to the broader context of maintenance practices, do not specifically pertain to the essential criteria required to conduct major repairs under an inspection authorization.

3. Which of the following Piper PA-32 aircraft is not authorized for Club Seat Installation?

A. PA-32-300

B. PA-32R-300

C. PA-32S-300

D. PA-32-301

The PA-32S-300 model is specifically not authorized for Club Seat Installation due to its design and structural considerations. Each aircraft model undergoes rigorous testing and certification processes that determine its capabilities and limitations. In the case of the PA-32S-300, the aircraft's design does not support the installation of club seating without compromising safety and structural integrity. Additionally, regulatory compliance and weight distribution factors play a significant role in what modifications can be performed on specific aircraft models. The models that are authorized for club seat installation, such as the PA-32-300, PA-32R-300, and PA-32-301, have been assessed and approved to handle the additional weight and potential changes to weight and balance that club seating introduces. In contrast, the PA-32S-300 lacks the necessary modifications or approvals.

4. What is a required part of the documentation process when performing alterations on an aircraft?

A. Local regulatory approval unofficially

B. Field approval if major alterations are made

C. Assurance from co-workers of compliance

D. Temporary approvals until formal documentation is received

When performing alterations on an aircraft, obtaining field approval is necessary if major alterations are made. This is a critical component of the documentation process as it ensures that the alterations comply with Federal Aviation Administration (FAA) regulations and safety standards. Major alterations are considered significant enough to affect the aircraft's performance, reliability, or safety, and thus require a more robust oversight and documentation process. Field approval involves submitting the relevant data and plans for the alteration to a qualified FAA representative or designated engineering representative (DER) for review. Once this review is complete and the approval is granted, it is documented properly. This step is vital in maintaining the aircraft's airworthiness and ensuring that all modifications are officially recognized by regulatory authorities. By obtaining field approval, the integrity and safety of the aircraft are safeguarded, making it a mandated part of the process when major alterations are involved. Addressing major alterations through this formal channel protects both the operator and the aircraft's future operation, aligning with the rigorous safety protocols established by aviation authorities.

5. A technician has put a swaged end on a 1/8th cable, and has brought it to you for inspection. The shank diameter should be:

A. .250

B. .141

C. .219

D. .187

In the context of inspecting a swaged end on a 1/8-inch cable, it is vital to understand the specifications that pertain to cable diameters and the corresponding shank diameters for fittings. For a 1/8-inch cable, the correct shank diameter that is compatible with this size is indeed 0.219 inches. This measurement is important because it ensures that the swaged fitting properly accommodates the cable and maintains structural integrity under load. When fittings and cables are mismatched in diameter, this can lead to failures during operation, as they may not bear loads effectively or could allow movement that damages the cable or fitting. The other diameter options provided do not align with standard practices for a 1/8-inch cable. Therefore, understanding the appropriate measurements for swaging and the relationship between cable size and shank diameter is critical for maintaining safety and reliability in aircraft systems.

6. What can be approved for export and return to service using an 8130-3 form?

A. Engine

B. Propeller

C. Landing gear

D. All of the above

The 8130-3 form, also known as the FAA Form 8130-3, is a document used to indicate that a component has been manufactured or repaired in accordance with FAA regulations and is in a condition for safe operation. Regarding export and return to service, all components, including engines, propellers, and landing gear, can be approved using this form given they meet the necessary criteria. Each of these components—engine, propeller, and landing gear—must undergo a proper inspection and have documentation that meets the standards set forth by the FAA to ensure their airworthiness before they can be exported. Engines and propellers are critical components that require meticulous compliance with safety standards, making them eligible for export when documented correctly. Similarly, landing gear systems are vital for the safety and performance of the aircraft, and they also fall under the same regulatory requirements as engines and propellers for export and return to service operations. Therefore, the correct understanding of the approvals that can be sanctioned using the 8130-3 form encompasses all these components, which supports the conclusion that all of them, rather than just landing gear alone, are eligible for export and return to service with the proper documentation.

7. What is the minimum bend radius for a MIL-H-8788-10 hydraulic hose operating at 1,200 psi and 210º centigrade through 60º travel?

A. 3-1/4 inches

B. 5-1/2 inches

C. 7-1/2 inches

D. 10 inches

The determination of the minimum bend radius for hydraulic hoses is crucial to ensure that the hose performs effectively without suffering structural damage or affecting the hydraulic system's performance. For a MIL-H-8788-10 hydraulic hose operating at 1,200 psi and a high temperature of 210º centigrade, it is essential to consider the hose's specifications and the operational parameters. The correct choice of a minimum bend radius of 7-1/2 inches is based on established guidelines for hydraulic hose performance under specific pressure and temperature conditions. MIL-H-8788 hoses are designed to withstand significant operational stresses, but excessive bending can lead to kinking, cracking, or other forms of damage that compromise the integrity of the hose. In this case, the minimum bend radius is dictated not only by the internal pressure and temperature but also by the travel angle of 60º. The combination of these factors necessitates a relatively larger bend radius to maintain safety and functionality. Therefore, the specification of 7-1/2 inches aligns with the industry standards for hydraulic hoses under these conditions, ensuring that the hose can operate effectively without risk of damage. Understanding these parameters helps in maintaining system reliability and safety, which is why choosing the correct minimum bend radius is

8. To whom must discrepancies and unairworthy items be reported after an annual inspection finds the aircraft unairworthy?

A. The Flight Standards District Office (FSDO)

B. The owner or operator

C. Both the owner/operator and the FSDO

D. The manufacturer

The requirement to report discrepancies and unairworthy items primarily to the owner or operator stems from the regulatory responsibility imposed on maintenance personnel. According to FAA regulations, when an annual inspection is performed and an aircraft is found to be unairworthy, the maintenance technician must inform the owner or operator of the identified issues. This ensures that the responsible party, who has the authority and obligation to address the unairworthy condition, can take appropriate action. This reporting requirement emphasizes the importance of communication in aircraft maintenance and safety, as the owner or operator needs to be aware of any conditions that could impact the aircraft's safety and compliance with regulations. After being made aware, the owner or operator can then make decisions regarding repairs, modifications, or any necessary steps to return the aircraft to an airworthy status. While notifying the FSDO or other regulatory bodies can be necessary in certain circumstances, such as severe safety issues or when mandatory reporting is required, the immediate responsibility lies with making the owner or operator aware of the aircraft's condition first. Thus, the focus is on the direct obligation to the owner or operator in this scenario.

9. What is the result of an insufficiently applied oxide film on aluminum?

A. The aluminum remains unreactive.

B. Corrosion is accelerated.

C. The aluminum becomes more conductive.

D. It has no impact on the aluminum surface.

An insufficiently applied oxide film on aluminum leads to accelerated corrosion. This is because aluminum naturally forms a protective oxide layer when exposed to oxygen; however, if this layer is thin or improperly formed, it cannot effectively protect the underlying metal from environmental factors, such as moisture and salts. As a result, the aluminum is more susceptible to corrosion, leading to deterioration of its structural integrity and performance. The production of the oxide film occurs spontaneously when aluminum is exposed to oxygen, and its effectiveness is crucial in creating a barrier to moisture and other corrosive agents. Inadequate oxide formation results in exposure of the raw aluminum, hence allowing electrochemical reactions that contribute to corrosion. The other choices do not accurately reflect the impact of a weak oxide film. The aluminum does not remain unreactive—rather, it becomes more reactive to environmental conditions. It also does not become more conductive; in fact, an effective oxide layer enhances the material's properties by providing insulation against conductivity. Lastly, an insufficient oxide film does have an impact on the aluminum surface by making it more prone to corrosion rather than having no effect at all.

10. Who is responsible for returning an aircraft to service after a major alteration?

A. The holder of an inspection authorization

B. The original manufacturer of the aircraft

C. The aviation safety board

D. The aircraft owner

The responsibility for returning an aircraft to service after a major alteration falls to the holder of an inspection authorization. This individual is specifically trained and certified to assess whether the alterations comply with Federal Aviation Administration (FAA) regulations and airworthiness standards. The A&P technician with IA privileges has the necessary expertise to perform thorough inspections and ensure that any significant changes made to the aircraft are safe and acceptable for operation. The inspection authorization holder must verify that all required inspections have been conducted, confirm that the alterations comply with applicable technical data, and ensure that the aircraft remains in a condition for safe operation before signing it back into service. This reflects the importance of the IA holder's role in maintaining aviation safety and compliance within the regulatory framework.