

Trainer Helicopter, Design Number 73 (TH-73) Systems Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

- 1. What is the primary characteristic of a wet sump oil system?**
 - A. Oil is stored externally**
 - B. Oil is stored within the transmission case**
 - C. Oil requires frequent changes**
 - D. Oil pressure is independently regulated**
- 2. What is the maximum gross weight of the TH-73?**
 - A. 6,283 lbs**
 - B. 6,500 lbs**
 - C. 5,500 lbs**
 - D. 7,000 lbs**
- 3. What type of fire detection system is used in the helicopter?**
 - A. Electrical**
 - B. Pneumatic; uses helium gas**
 - C. Optical sensor**
 - D. Thermal imaging**
- 4. What does the emergency communications mode do?**
 - A. Allows only one radio to be operated at a time**
 - B. Maintains control of all radios for the pilot**
 - C. Splits control of radios between cockpit seats**
 - D. Disables all non-essential communications**
- 5. What is one key feature of the combustion chamber in the Trainer Helicopter?**
 - A. Cylindrical**
 - B. Annular**
 - C. Rectangular**
 - D. Spherical**

- 6. Which component of the transmission is responsible for connecting the rotor to the engine?**
- A. Upper case**
 - B. RGB**
 - C. AGB**
 - D. Bell housing**
- 7. What should a pilot do if the IBF light illuminates?**
- A. Ignore it until landing**
 - B. Reduce altitude immediately**
 - C. Push the IBF PBA**
 - D. Check the fuel status**
- 8. What is the primary purpose of the AC electrical system in the TH-73?**
- A. Powering auxiliary systems**
 - B. To operate the avionics**
 - C. To power the AFCS vertical gyros**
 - D. Charging the main batteries**
- 9. What material is primarily used for the airframe of the TH-73?**
- A. Carbon fiber**
 - B. Copper alloy**
 - C. Aluminum alloy**
 - D. Steel**
- 10. What type of combustion chamber does the Trainer Helicopter use?**
- A. Can annular**
 - B. Annular**
 - C. Forward mix**
 - D. Single pass**

Answers

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

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Explanations

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1. What is the primary characteristic of a wet sump oil system?

- A. Oil is stored externally**
- B. Oil is stored within the transmission case**
- C. Oil requires frequent changes**
- D. Oil pressure is independently regulated**

The primary characteristic of a wet sump oil system is that the oil is stored within the transmission case. In this type of system, the oil reservoir is integrated into the engine or transmission itself, meaning oil is contained in a sump area that is part of the equipment. This allows for a simpler overall design and can reduce the weight of the aircraft compared to systems that store oil externally. The wet sump system utilizes gravity to return oil to the sump after it has circulated through the engine or transmission components, making the lubrication process efficient. This design typically requires less maintenance in terms of oil storage considerations compared to external systems, which need additional hardware to manage the oil supply. Understanding the configuration of wet sump systems is essential for those working with helicopter systems, as it impacts overall performance and maintenance practices.

2. What is the maximum gross weight of the TH-73?

- A. 6,283 lbs**
- B. 6,500 lbs**
- C. 5,500 lbs**
- D. 7,000 lbs**

The maximum gross weight of the TH-73 is 6,283 pounds. This specification is important as it establishes the aircraft's operational limits, including the maximum amount of weight it can safely carry during flight. Adhering to the maximum gross weight ensures optimal performance, stability, and safety, particularly when considering factors such as fuel load, passenger count, and additional cargo. Understanding these weight limitations is crucial for pilots and operations personnel to ensure compliance with safety regulations and to maintain the aircraft within its design parameters. This knowledge also helps in flight planning and performance assessments, ensuring that the helicopter can operate effectively under varying conditions.

3. What type of fire detection system is used in the helicopter?

- A. Electrical**
- B. Pneumatic; uses helium gas**
- C. Optical sensor**
- D. Thermal imaging**

The correct answer is that the fire detection system used in the Trainer Helicopter, Design Number 73 (TH-73), is pneumatic and utilizes helium gas. This type of system functions by detecting temperature changes that may indicate the presence of a fire. In a pneumatic system, the helium gas is responsive to heat; as the temperature rises, the gas expands or moves, triggering a signal that alerts the crew to a potential fire. Helium is chosen due to its inert nature, reducing the risk of any additional reactions that could exacerbate a fire situation. Using a pneumatic system allows for a lightweight and reliable method of fire detection that is suitable for the helicopter's operational requirements, providing critical information to the crew quickly. Other surface choices may involve different methodologies in fire detection, such as electrical systems that rely on wiring or sensors, optical sensors that detect flame signatures based on light, or thermal imaging systems that visually capture temperature variations. While these may have their own advantages in various contexts, the TH-73 specifically incorporates a pneumatic fire detection system utilizing helium, which aligns with its design and operational safety protocols.

4. What does the emergency communications mode do?

- A. Allows only one radio to be operated at a time**
- B. Maintains control of all radios for the pilot**
- C. Splits control of radios between cockpit seats**
- D. Disables all non-essential communications**

The emergency communications mode primarily serves to ensure that the pilot maintains effective communication during critical situations. By splitting control of radios between cockpit seats, this mode allows for more efficient communication management. In situations where one pilot may be tasked with navigating or handling emergencies, the other pilot can focus on communication, thereby enhancing safety and coordination. This mode is particularly useful in emergency scenarios where clear and immediate communication is vital for effective decision-making and response. It enables a streamlined approach, reducing the chance of miscommunication during operations where time is of the essence.

5. What is one key feature of the combustion chamber in the Trainer Helicopter?

- A. Cylindrical**
- B. Annular**
- C. Rectangular**
- D. Spherical**

The combustion chamber in the Trainer Helicopter is designed in an annular shape, which is a crucial feature for achieving optimal combustion efficiency. The annular design allows for a more uniform distribution of airflow and fuel, facilitating better mixing, which enhances the combustion process. This shape also aids in reducing the overall size and weight of the engine, contributing to improved performance and efficiency in flight operations. The annular combustion chamber effectively supports high-performance demands while maintaining structural integrity and heat resistance, which is essential for the operational requirements of the Trainer Helicopter.

6. Which component of the transmission is responsible for connecting the rotor to the engine?

- A. Upper case**
- B. RGB**
- C. AGB**
- D. Bell housing**

The correct answer identifies the upper case as the component responsible for connecting the rotor to the engine. In helicopter transmission systems, the upper case plays a critical role as it houses the main gears and interfaces directly with the rotor system, transmitting power from the engine to the rotor blades. This connection is essential for the helicopter to achieve flight, as it allows the engine's rotational force to be effectively transferred and utilized by the rotor. While other components like the RGB (rotor gearbox) and AGB (accessory gearbox) are vital for specific functionalities within the transmission system, such as providing the necessary gear reduction for rotor speed or driving accessories, they do not perform the primary task of directly linking the rotor to the engine. The bell housing typically serves as a protective casing for the assembly but does not facilitate the direct mechanical connection necessary for rotor engagement. Understanding the role of these components is crucial for grasping how the transmission system operates within the helicopter's overall performance framework.

7. What should a pilot do if the IBF light illuminates?

- A. Ignore it until landing**
- B. Reduce altitude immediately**
- C. Push the IBF PBA**
- D. Check the fuel status**

When the IBF (Inlet Barrier Filter) light illuminates, it indicates that there may be a restriction in airflow due to debris accumulation in the filter. The appropriate response is to push the IBF PBA (Power Boost Activator) to initiate a system reset or engage the alternate filtering option, which can help ensure proper airflow and engine performance. This action is essential for maintaining engine efficiency and preventing potential engine damage or failure caused by reduced airflow. Ignoring the warning or waiting until landing to address it could jeopardize safety, as the restriction may lead to engine performance issues. Reducing altitude may not directly resolve the problem related to the IBF light and is not an effective response in this situation. Checking the fuel status, while important for overall flight operations, does not address the specific issue indicated by the illumination of the IBF light.

8. What is the primary purpose of the AC electrical system in the TH-73?

- A. Powering auxiliary systems**
- B. To operate the avionics**
- C. To power the AFCS vertical gyros**
- D. Charging the main batteries**

The primary purpose of the AC electrical system in the TH-73 is to power the AFCS (Automatic Flight Control System) vertical gyros. The AFCS is critical for providing stability, control, and precision in flight operations, and the vertical gyros are essential for sensing and maintaining the helicopter's orientation and altitude. By ensuring that these gyros receive reliable and consistent power from the AC electrical system, the aircraft can effectively manage its flight dynamics and enhance overall safety and performance. While the AC electrical system does play a role in various other functions, including powering auxiliary systems and supporting avionics, it is specifically designed with the AFCS vertical gyros as a primary focus. Charging the main batteries relates more to the DC electrical system in many helicopters, which primarily addresses battery management and auxiliary power needs rather than the specialized requirements of the AFCS.

9. What material is primarily used for the airframe of the TH-73?

- A. Carbon fiber**
- B. Copper alloy**
- C. Aluminum alloy**
- D. Steel**

The airframe of the TH-73 is primarily made from aluminum alloy due to its favorable strength-to-weight ratio, which is crucial in aviation for optimizing performance and fuel efficiency. Aluminum alloys are also resistant to corrosion, lightweight, and can be machined easily, making them suitable for the structural requirements of helicopters. This choice supports the operational needs of the helicopter, allowing for both durability and agility in the air. The selection of aluminum alloy reflects a common trend in aerospace design, where minimizing weight while maintaining structural integrity is a key consideration.

10. What type of combustion chamber does the Trainer Helicopter use?

- A. Can annular**
- B. Annular**
- C. Forward mix**
- D. Single pass**

The Trainer Helicopter, Design Number 73 (TH-73), uses an annular combustion chamber. An annular combustion chamber is characterized by a ring-shaped design that surrounds the core of the engine. This design allows for improved combustion efficiency and better mixing of the fuel-air mixture, leading to more complete combustion. The result is a more stable flame and reduced emissions, which are critical in ensuring optimal performance and environmental compliance. In addition to enhancing efficiency, the annular design can also contribute to improved engine response and performance characteristics, which is important for a trainer helicopter where handling and responsiveness are critical for flight training purposes.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://th73systems.examzify.com>

We wish you the very best on your exam journey. You've got this!