T-6B Systems 2 Practice Test (Sample)

Study Guide

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Questions

1. **Is the AIR COND switch available in both cockpits to activate the air conditioner compressor?**

   A. True

   B. False

2. **What component draws warm cockpit air through the evaporator coils to absorb heat?**

   A. Evaporator blower

   B. Compressor

   C. High-pressure pump

   D. Condenser

3. **The propeller converts engine power into ______.**

   A. torque

   B. shaft horsepower

   C. thrust

   D. vertical lift

4. **Is the aircraft equipped with a fire warning system designed to monitor internal temperatures of the engine for possible overtemp warnings?**

   A. True

   B. False

5. **Is electrical power required for the activation of the canopy fracturing system (CFS)?**

   A. True

   B. False

6. **What is an indication of an inoperative canopy fracturing system?**

   A. A green light on the EICAS display

   B. A blue light on the EICAS display

   C. A red CANOPY warning advisory light

   D. A yellow caution advisory light

7. When the generator control switch is moved to ON in one cockpit, what happens in the other cockpit if it was already ON?

   A. Remains in the ON position

   B. Is locked in its current position

   C. Is tripped to the OFF position

   D. Trips the GEN SW circuit breaker

8. Which system component utilizes a knob labeled INST for control?

   A. Cabin lights

   B. Avionics displays

   C. Instrument panel lights

   D. Navigation systems

9. Which two units control the propeller speed to maintain a constant 2000 RPM?

   A. Feathering spring and regulator unit

   B. Torque probe and scavenge unit

   C. Fuel flow regulator and fly weights

   D. PMU and propeller interface unit

10. Are the controls for the defogging system located in both the front and rear cockpit environmental control panels?

   A. True

   B. False

Answers

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

Explanations

1. Is the AIR COND switch available in both cockpits to activate the air conditioner compressor?

A. True

B. False

The AIR COND switch is designed to control the air conditioning compressor in the T-6B aircraft. However, this switch is specifically located in the front cockpit only, making it unavailable in the rear cockpit. This design choice is made for operational efficiency and safety, as the front cockpit is primarily where the pilot operates essential flight controls and systems. Since the rear cockpit does not have access to the AIR COND switch, the correct answer to the question is that the AIR COND switch is not available in both cockpits. Understanding this distinction is essential for pilots and crew members to ensure they are familiar with the cockpit layout and the functioning of the aircraft systems.

2. What component draws warm cockpit air through the evaporator coils to absorb heat?

A. Evaporator blower

B. Compressor

C. High-pressure pump

D. Condenser

The component that draws warm cockpit air through the evaporator coils to absorb heat is the evaporator blower. This device plays a crucial role in the air conditioning system by circulating the air inside the cockpit. When warm air from the cockpit is drawn through the evaporator coils, the refrigerant inside the coils absorbs the heat from the air. As a result, the air that is then circulated back into the cockpit is cooler, providing a comfortable environment for the occupants. The compressor, high-pressure pump, and condenser are involved in other aspects of the air conditioning cycle. The compressor moves refrigerant through the system and increases its pressure. The high-pressure pump typically refers to components in hydraulic systems rather than HVAC systems. The condenser is responsible for releasing heat from the refrigerant into the external environment after the refrigerant has been compressed, allowing it to turn back into a liquid state. In summary, the correct answer focuses on the specific function of circulating and cooling the air within the cockpit, which is performed by the evaporator blower.

3. The propeller converts engine power into _____.

A. torque

B. shaft horsepower

C. thrust

D. vertical lift

The propeller converts engine power into thrust. This process is fundamental to the operation of any aircraft, as thrust is the force that propels the aircraft forward through the air. When the engine produces power, it is transmitted to the propeller, causing it to spin. The design of the propeller harnesses this rotational energy and generates a pressure differential, which results in thrust. The effectiveness of this power-to-thrust conversion is critical for overcoming drag and achieving flight. Thrust is essential for moving the aircraft forward and is measured in pounds of force. Understanding this conversion helps in grasping how propulsion works in aviation, particularly in terms of performance metrics and efficiency. While torque, shaft horsepower, and vertical lift are all important concepts in aviation and engineering, they do not accurately describe the specific output of the propeller in converting engine power in the context of propulsion. Torque refers to the rotational force produced by the engine, shaft horsepower measures the engine's power output, and vertical lift pertains to the forces that allow an aircraft to ascend. Thus, thrust is the direct and specific output of the propeller in converting engine power.

4. Is the aircraft equipped with a fire warning system designed to monitor internal temperatures of the engine for possible overtemp warnings?

A. True

B. False

The fire warning system in the T-6B aircraft is primarily designed to detect the presence of fire, rather than monitor internal temperatures of the engine for possible overtemp warnings. While the system includes sensors that respond to extreme heat, it does not continuously measure engine temperatures to provide an over-temperature alert. Instead, it triggers warnings based on rapid temperature increases or the detection of combustion, indicating a fire rather than simply an over-temp situation. Therefore, the implication that the system is specifically for monitoring internal temperatures for overtemp warnings is inaccurate, leading to the conclusion that the correct response to the question is that the statement is false.

5. Is electrical power required for the activation of the canopy fracturing system (CFS)?

A. True

B. False

The activation of the canopy fracturing system (CFS) does not require electrical power. The system is designed to function independently of the aircraft's electrical systems, ensuring that it can operate effectively in the event of an emergency, such as an ejection situation. The CFS uses mechanical means, typically pyrotechnic devices, to shatter the canopy, allowing for a quick and safe ejection of the pilot. This design aspect is crucial for enhancing pilot safety, as it provides a reliable method to exit the aircraft without being dependent on the electrical system, which could fail or become compromised. In contrast, reliance on electrical power for critical safety systems could lead to higher risks in emergency situations. By utilizing a self-contained system that operates independently, the CFS ensures its functionality is preserved under a variety of conditions, thereby promoting a higher degree of safety for the pilot.

6. What is an indication of an inoperative canopy fracturing system?

A. A green light on the EICAS display

B. A blue light on the EICAS display

C. A red CANOPY warning advisory light

D. A yellow caution advisory light

A red CANOPY warning advisory light on the EICAS (Engine Indication and Crew Alerting System) display indicates that the canopy fracturing system is inoperative. This warning light is designed to alert the pilot to critical safety issues that need immediate attention. When the canopy fracturing system is not functioning properly, it compromises the ability to safely bail out if necessary, thus making it crucial for the pilot to be aware of this situation. In general, the color coding used in EICAS displays follows a standard convention: red indicates an immediate and serious issue that requires prompt action, while other colors like blue, yellow, or green typically represent different levels of warnings or information, indicating either operational status or caution rather than an immediate threat to safety. The context provided by the light's color is essential for the pilot's awareness and reaction to the aircraft’s systems.

7. When the generator control switch is moved to ON in one cockpit, what happens in the other cockpit if it was already ON?

A. Remains in the ON position

B. Is locked in its current position

C. Is tripped to the OFF position

D. Trips the GEN SW circuit breaker

When the generator control switch is moved to the ON position in one cockpit, it does not simply allow that switch in the other cockpit to stay operational if it was already ON; instead, it activates a protection mechanism. This design ensures that if there is a switch in one cockpit that is turned ON and another switch is moved to ON, the system will interpret this as a potential conflict or redundancy situation, which activates a safety response. The generator control system is designed to prevent both cockpits from applying power simultaneously from two different sources because this could lead to an overload situation or even damage to the electrical system. Therefore, when the switch is moved to ON in one cockpit and there is another switch ON in the second cockpit, the system trips the generator control switch in that second cockpit to OFF. This ensures safe and efficient management of the electrical systems between both cockpits, eliminating the risk of malfunction due to conflicting commands.

8. Which system component utilizes a knob labeled INST for control?

A. Cabin lights

B. Avionics displays

C. Instrument panel lights

D. Navigation systems

The component that utilizes a knob labeled INST for control pertains to the instrument panel lights. This knob allows the pilot to adjust the brightness of the instrument lighting in the cockpit, which is crucial for visibility during nighttime or low-light conditions. Properly illuminating the instruments ensures that the pilot can effectively read gauges and displays without causing strain or distraction, thereby enhancing situational awareness. While other systems, such as avionics displays or navigation systems, might have their own brightness settings and controls, they are typically not labeled with "INST." Cabin lights do not directly relate to instrument illumination, as they are intended for general lighting in the cockpit area rather than specifically for the flight instruments. Therefore, the correct answer focuses on the systems involved in providing visibility to critical flight information.

9. Which two units control the propeller speed to maintain a constant 2000 RPM?

A. Feathering spring and regulator unit

B. Torque probe and scavenge unit

C. Fuel flow regulator and fly weights

D. PMU and propeller interface unit

The correct choice hinges on the function of the Propeller Control System in the T-6B, specifically how it regulates propeller speed. The PMU, or Power Management Unit, is responsible for managing engine and propeller performance. It ensures the propeller maintains a constant speed of 2000 RPM by adjusting fuel flow, which in turn affects the propeller's power and RPM. Complementing the PMU, the propeller interface unit serves to relay information and commands between the PMU and the propeller governor system. Together, they work in tandem to dynamically adjust the propeller's pitch and torque to achieve and maintain the desired RPM. In contrast, other options like the feathering spring and regulator unit or the torque probe and scavenge unit do not control the RPM directly. The fuel flow regulator and fly weights are involved in regulating fuel and responding to centrifugal forces, but they do not provide the comprehensive control that the PMU and propeller interface unit do. Thus, the PMU and propeller interface unit are integral for maintaining the constant propeller speed of 2000 RPM.

10. Are the controls for the defogging system located in both the front and rear cockpit environmental control panels?

A. True

B. False

The controls for the defogging system in the T-6B are not located in both the front and rear cockpit environmental control panels. The system is primarily controlled from the front cockpit only. The rear cockpit lacks specific controls for the defogging system, as the emphasis is on the front cockpit where the pilot has primary control over most systems, including environmental controls such as defogging. This design is intentional, reflecting the T-6B's configuration as a trainer aircraft where the front cockpit is designated for the instructor pilot or primary operator. Consequently, stating that the controls are located in both cockpits is incorrect, affirming that the answer is indeed false.