# Jeppesen Powerplant Orals Practice Test (Sample)

## Study Guide


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# Questions

**1. What is the primary benefit of using a dispersant in engine oil?**

**A. It reduces engine noise**

**B. It increases engine RPM**

**C. It keeps deposits in suspension until filtered out**

**D. It enhances oil cooling properties**

**2. What device keeps water, sediment, and foreign matter out of the carburetor?**

**A. Main fuel filter**

**B. Fuel separator**

**C. Main fuel strainer**

**D. Air filter**

**3. Why are hot section inspections performed on turbine engines?**

**A. To assess the fuel efficiency of the engine**

**B. To determine the integrity and wear of hot section components**

**C. To inspect the overall performance of the aircraft**

**D. To evaluate the control systems of the engine**

**4. What important aspect should be monitored in the starter-generator to ensure proper operation?**

**A. Voltage thresholds**

**B. Wear on commutator and brushes**

**C. Fuel efficiency**

**D. Temperature regulation**

**5. Which of the following is NOT an engine variable detected by the fuel control unit?**

**A. Power lever position**

**B. Compressor intake temperature**

**C. Fuel composition**

**D. Engine r.p.m.**

**6. How can repair file marks be removed from an aluminum propeller?**

**A. Using a power sander**

**B. With fine sandpaper**

**C. By applying chemical fillers**

**D. Utilizing a buffing machine**

**7. What are two criteria for cold bending repairs on aluminum propellers?**

**A. Weight and length of the blade**

**B. Extent of the bend and blade station location**

**C. Type of aluminum and age of the propeller**

**D. Manufacturer specifications and propeller size**

**8. In a carbureted reciprocating engine, where is the fuel flow indicating system primarily connected?**

**A. Between the carburetor and the choke**

**B. Between the engine fuel pump and the indicator**

**C. After the fuel filter**

**D. Before the engine bay**

**9. Why is an exhaust system failure particularly hazardous?**

**A. Fuel leaks**

**B. Fire and carbon monoxide poisoning**

**C. Electrical failure**

**D. Overheating**

**10. What happens to engine cooling when using a carburetor economizer system at cruise settings?**

**A. It decreases engine cooling**

**B. It aids in engine cooling**

**C. It has no effect on engine cooling**

**D. It increases temperature fluctuations**

# Answers

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

# Explanations

## 1. What is the primary benefit of using a dispersant in engine oil?

**A. It reduces engine noise**

**B. It increases engine RPM**

**C. It keeps deposits in suspension until filtered out**

**D. It enhances oil cooling properties**

**The primary benefit of using a dispersant in engine oil is that it keeps deposits in suspension until they can be filtered out. Dispersants are additives that help to prevent the formation of sludge and varnish by breaking down and dispersing contaminants that may accumulate in the oil. This is crucial because, as an engine operates, it generates dirt, soot from combustion, and other impurities. If these contaminants were to settle out of the oil and form deposits on engine components, it could lead to reduced performance, increased wear, and eventually severe engine damage. By keeping these particles suspended, dispersants allow the engine oil to carry them to the oil filter, where they can be trapped and removed from circulation. This process helps maintain cleanliness within the engine, contributing to more efficient operation and prolonging the engine's lifespan. The use of dispersants thus plays a vital role in enhancing the overall effectiveness of engine oil in maintaining engine health.**

## 2. What device keeps water, sediment, and foreign matter out of the carburetor?

**A. Main fuel filter**

**B. Fuel separator**

**C. Main fuel strainer**

**D. Air filter**

**The main fuel strainer is specifically designed to keep water, sediment, and foreign contaminants from entering the carburetor. It performs a critical function by filtering the fuel supply before it reaches the carburetor. The presence of these impurities can lead to performance issues, engine roughness, or even engine failure; therefore, the integrity of the fuel strainer is vital for maintaining engine health and efficiency. In contrast, although other options may relate to fuel management or quality control, their functions differ from that of a main fuel strainer. For instance, a main fuel filter primarily focuses on capturing particulates from the fuel to prevent clogging in the fuel system, while a fuel separator might deal more specifically with the separation of water from fuel, which is an important function but not as direct in addressing all three contaminants combined (water, sediment, and foreign matter). The air filter, on the other hand, is intended to keep dirt and debris out of the air intake system, thus serving a different purpose altogether.**

## 3. Why are hot section inspections performed on turbine engines?

**A. To assess the fuel efficiency of the engine**

**B. To determine the integrity and wear of hot section components**

**C. To inspect the overall performance of the aircraft**

**D. To evaluate the control systems of the engine**

**Hot section inspections are conducted on turbine engines primarily to determine the integrity and wear of components that are exposed to high temperatures and stress during operation. The hot section of a turbine engine includes critical parts such as the combustion chamber, turbine blades, and vanes, all of which experience extreme conditions that can lead to material degradation, deformation, and fatigue over time. By performing these inspections, technicians can identify any signs of damage, such as cracks, corrosion, or thermal distortion, which could significantly impact the engine's performance and reliability. This proactive approach helps ensure that potential failures can be addressed before they lead to more severe issues, thereby enhancing safety and maintaining operational efficiency. The other choices do not specifically address the primary focus of hot section inspections. For instance, while assessing fuel efficiency or inspecting control systems may be relevant to engine management, these areas are not the main concern of a hot section inspection, which is specifically geared toward evaluating high-temperature components.**

## 4. What important aspect should be monitored in the starter-generator to ensure proper operation?

**A. Voltage thresholds**

**B. Wear on commutator and brushes**

**C. Fuel efficiency**

**D. Temperature regulation**

**Monitoring wear on the commutator and brushes is critical for the proper operation of a starter-generator because these components are essential for the electrical contact that allows the generator to produce electricity and for the motor to start the engine. The commutator has segments that come into contact with carbon brushes, and wear over time can lead to poor electrical contact, increased resistance, and potential failure of the starter or generator function. Proper maintenance and monitoring of these components can ensure reliable starting and efficient operation of the generator, ultimately contributing to the overall performance and longevity of the engine. While aspects like voltage thresholds, fuel efficiency, and temperature regulation are important in other contexts of engine operation and performance, they do not directly relate to the health and efficiency of the starter-generator in the same way that monitoring wear on the commutator and brushes does. Thus, focusing on the wear of these components is vital for maintaining functionality and preventing unexpected breakdowns.**

## 5. Which of the following is NOT an engine variable detected by the fuel control unit?

**A. Power lever position**

**B. Compressor intake temperature**

**C. Fuel composition**

**D. Engine r.p.m.**

**The correct answer is that fuel composition is not an engine variable detected by the fuel control unit. The fuel control unit's primary role is to manage the amount of fuel being delivered to the engine based on operational parameters that directly affect performance. The variables that it typically monitors, like power lever position, compressor intake temperature, and engine r.p.m., are all critical for determining the appropriate fuel flow to ensure optimal combustion and engine efficiency. Power lever position indicates the desired thrust level, while compressor intake temperature and engine r.p.m. influence the air-fuel mixture's requirements. In contrast, fuel composition, although important for understanding combustion characteristics and engine performance in a broader sense, is not monitored in real-time by the fuel control unit during engine operation. Instead, it is inferred based on the fuel type being used and does not change dynamically like the other variables. Thus, recognizing that fuel composition does not fall under the purview of real-time engine variable detection is essential for understanding how the fuel control unit operates.**

## 6. How can repair file marks be removed from an aluminum propeller?

**A. Using a power sander**

**B. With fine sandpaper**

**C. By applying chemical fillers**

**D. Utilizing a buffing machine**

**Removing repair file marks from an aluminum propeller is a delicate process that must prioritize the integrity of the propeller surface. Using fine sandpaper is effective because it allows for a controlled and gentle method of smoothing out the marks without significantly altering the thickness or structural integrity of the propeller. Fine sandpaper can help to gradually level the surface and blend in the repaired areas to create a uniform finish. It is important to use fine grit to minimize the risk of introducing new scratches or imperfections, which could affect performance or aerodynamics. Proper technique is essential to ensure that the sanding is even and does not create a rough surface that could harm the propeller's efficiency in flight. The other methods, while they might seem effective, could pose risks. A power sander could remove material too aggressively and lead to an uneven surface. Chemical fillers can obscure the area rather than truly repair or smooth it, and a buffing machine might not effectively address the depth of the filing marks and could potentially create heat that could warp the aluminum. Thus, using fine sandpaper strikes the right balance for effectively removing file marks while preserving the propeller’s structural and aerodynamic properties.**

## 7. What are two criteria for cold bending repairs on aluminum propellers?

**A. Weight and length of the blade**

**B. Extent of the bend and blade station location**

**C. Type of aluminum and age of the propeller**

**D. Manufacturer specifications and propeller size**

**The criteria for cold bending repairs on aluminum propellers focus on the extent of the bend and the blade station location, as these factors are critical in determining whether a repair is feasible and safe. The extent of the bend is essential because it directly impacts the structural integrity of the propeller. A minor bend might be acceptable for cold bending, as it allows for a restoration of the original blade shape without risking failure or introducing stress concentrations. However, if the bend is too severe, cold bending may not restore the propeller to a safe condition. The blade station location refers to the specific point along the propeller blade where the bend has occurred. Different sections of the blade can experience different loads and stresses during operation. Therefore, knowing the blade station helps evaluate the repair's potential impact and how much bending is allowable without compromising performance or safety. Other choices involve factors that might not directly pertain to the cold bending process itself. For example, weight and length are more general characteristics of the propeller rather than criteria necessary for bending repairs. Similarly, specifics about the type of aluminum and the age of the propeller may influence the overall assessment but do not define the cold bending criteria as directly as the extent of the bend and blade station location. Manufacturer**

## 8. In a carbureted reciprocating engine, where is the fuel flow indicating system primarily connected?

**A. Between the carburetor and the choke**

**B. Between the engine fuel pump and the indicator**

**C. After the fuel filter**

**D. Before the engine bay**

**In a carbureted reciprocating engine, the fuel flow indicating system is primarily connected between the engine fuel pump and the indicator. This is essential because the fuel pump is responsible for delivering a consistent flow of fuel to the carburetor, which mixes it with air for combustion. By placing the fuel flow meter in this position, it can accurately measure the amount of fuel being sent to the carburetor, allowing for real-time monitoring of fuel flow rates. This information is crucial for controlling the mixture and ensuring the engine operates efficiently at various power settings. The choice to connect the indicator after the fuel filter, before the choke, or before the engine bay would not provide the necessary accuracy or reliability for monitoring during operation. These locations could be influenced by pressure drops or blockages, thus compromising the readings. Focusing the system between the fuel pump and the indicator ensures that measurements reflect the actual fuel delivery to the engine, aiding in performance and safety management.**

## 9. Why is an exhaust system failure particularly hazardous?

**A. Fuel leaks**

**B. Fire and carbon monoxide poisoning**

**C. Electrical failure**

**D. Overheating**

**An exhaust system failure is particularly hazardous primarily because it can lead to fire and carbon monoxide poisoning. When an exhaust system is compromised, exhaust gases that contain harmful substances, including carbon monoxide, can leak into the cabin of the aircraft instead of being expelled safely outside. Carbon monoxide is a colorless, odorless gas that can cause serious health issues, including loss of consciousness and even death, if inhaled in sufficient quantities. Additionally, a failure in the exhaust system creates the risk of excessive heat build-up, which can ignite flammable materials in proximity to the exhaust system, leading to a fire hazard. This combination of risks makes an exhaust system failure especially critical to address promptly in aviation safety to protect both the crew and passengers from potentially life-threatening situations.**

## 10. What happens to engine cooling when using a carburetor economizer system at cruise settings?

**A. It decreases engine cooling**

**B. It aids in engine cooling**

**C. It has no effect on engine cooling**

**D. It increases temperature fluctuations**

**When using a carburetor economizer system at cruise settings, it aids in engine cooling. The primary function of the economizer is to provide a richer fuel mixture during cruise conditions, which can help maintain engine temperature by enhancing the cooling effect of the fuel. This occurs because more fuel in the mixture results in greater fuel evaporation, which absorbs more heat from the engine components, thus improving the overall cooling effect. Additionally, a rich mixture helps in efficient combustion, preventing the engine from running too hot and ensuring it operates within optimal thermal limits. The other options suggest either a decrease or no effect on cooling, which does not align with the mechanics of how a carburetor economizer functions in maintaining engine temperature during steady-state operation.**