



With the following changes, ASA's *Powerplant Mechanic Test Guide 2023* provides complete preparation for the FAA Powerplant Knowledge Exam. This test continues to reference the *Airman Knowledge Testing Supplement for Aviation Maintenance Technician* ([FAA-CT-8080-4G](#)).

About the Test Changes

The FAA exams are “closed tests,” which means the database of questions used on the exam is not available to the public. However, the FAA identifies subjects that have been removed or added to a test, as well as pertinent information to ensure training and testing remain correlated, which, in turn, promotes a reliable certification system.

The questions and answer choices in this book provide a comprehensive representation of FAA questions, derived from history and experience with the airman testing process. You might see similar, though not exactly the same, questions on your official FAA exam. On the test, answer choices may be rearranged from the A, B, C order you see in this book. Therefore, be careful to fully understand the intent of each question and corresponding answer while studying, rather than memorize the A, B, C answer. While you may be asked a question that has unfamiliar wording, studying and understanding the information in this book and the associated reference documents will give you the tools to answer all types of questions with confidence. We invite your feedback. After you take your official FAA exam, let us know how you did. Were you prepared? Did the ASA products meet your needs and exceed your expectations? We want to continue to improve these products to ensure applicants are prepared, and become safe aviation maintenance technicians. Send feedback to: cfi@asa2fly.com

Page Number	Question Number	Correct Answer	Explanation
Throughout			The Airman Knowledge Test Report (AKTR) now reflects Airman Certification Standard (ACS) codes; reference the Aviation Mechanic ACS (FAA-S-ACS-1) to know what subject corresponds to the ACS on your AKTR. The 2024 Powerplant Mechanic Test Guide includes the ACS codes with each question.
13	9007	B	A new question is added to read: 9007. During overhaul of an engine, a first step of inspection on a crankshaft should be to A—perform a magnaflux inspection for cracks. B—perform a runout check. C—inspect the bearing surfaces for pitting. <i>Any engine to be overhauled completely should receive a runout check of its crankshaft as a first step. Any question concerning crankshaft replacement is resolved at this time, because a shaft whose runout is beyond limits must be replaced.</i>
26	9010	C	A new question is added to read: 9010. What type of combustion chamber is used in a turbine engine when engine length is critical? A—Can-annular. B—Annular. C—Reverse-flow. <i>Reverse-flow combustors are used where engine length is critical.</i>
29	9009	A	A new question is added to read: 9009. In a turbine engine with a dual-spool, axial-flow compressor, the compressor and high-pressure turbine are A—each split into two sections. B—driven by a single shaft. C—driven by a single, high-pressure turbine.

(continued)

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			<i>The axial flow compressor is a combination of an engine compressor and a high-pressure turbine connected by a drive shaft. In a single-spool engine, the high-pressure turbine drives the entire compressor. In a dual-spool engine, both the compressor and high-pressure turbine are both split into two segments. Each compressor segment is driven by a corresponding turbine using two separate drive shafts, with one inside the other. The first stage turbine drives the N₂ compressor.</i>
38	9020	C	<p>A new question is added to read:</p> <p>9020. A Service Bulletin (SB) must be complied with</p> <p>A—within the required hours or days specified in the bulletin. B—at the next annual inspection. C—only when referred to in an Airworthiness Directive (AD).</p> <p><i>SBs are good information and should be strongly considered by the owner for implementation to the aircraft. However, SBs are not required unless they are referred to in an Airworthiness Directive (AD) note or if compliance is required as a part of the authorized inspection program.</i></p>
43	9021	A	<p>A new question is added to read:</p> <p>9021. What does the blue arc on a cylinder head temperature (CHT) gauge represent?</p> <p>A—The range within which operation is permitted in auto-lean. B—The desired operating range on a twin-engine aircraft when operating on one engine. C—The range within which operation must be in auto-rich.</p> <p><i>The blue arc on the CHT gauge indicates the range within which operation is permitted in auto-lean.</i></p>
48	9016	C	<p>A new question is added to read:</p> <p>9016. An electronic system that monitors engine and airframe parameters and does not utilize traditional engine gauges, is called</p> <p>A—an electronic flight instrument system (EFIS) display. B—a flight management system (FMS). C—an engine indicating and crew alerting system (EICAS).</p> <p><i>The objective of an engine indicating and crew alerting system (EICAS) is to monitor the aircraft systems for the pilot. All EICAS display engine, as well as airframe, parameters. Traditional gauges are not utilized, other than a standby combination engine gauge in case of total system failure.</i></p>
50	9019	B	<p>A new question is added to read:</p> <p>9019. The most common type of portable fire extinguisher available on the ramp to fight fires on the exterior of aircraft uses what type of extinguishing agent?</p> <p>A—Halon 1301. B—Carbon dioxide (CO₂). C—Foam.</p> <p><i>Carbon dioxide (CO₂) is an effective extinguishing agent. It is most often used in fire extinguishers that are available on the ramp to fight fires on the exterior of the aircraft, such as engine or APU fires. CO₂ has been used for many years to extinguish flammable fluid fires and fires involving electrical equipment.</i></p>
65	9017	B	<p>A new question is added to read:</p> <p>9017. When servicing a turbine engine oil system, the proper type of servicing equipment and procedures can be found in the</p> <p>A—Aircraft Information Manual (AIM). B—aircraft maintenance manual (MM). C—Type Certificate Data Sheet (TCDS).</p> <p><i>Before servicing any aircraft engine, consult the specific aircraft maintenance manual to determine the proper type of servicing equipment and procedures.</i></p>

Page Number	Question Number	Correct Answer	Explanation
89	8585	C	<p>The question and answer stems are revised to read:</p> <p>8585. A spark plug is fouled when</p> <p>A—its spark grounds by jumping electrodes. B—it causes preignition. C—its spark grounds without jumping electrodes.</p> <p><i>A spark plug is fouled when the high voltage current passes to ground without causing a spark to jump between the electrodes.</i></p>
90	8600	C	<p>The question is revised to read:</p> <p>8600. Advantages of dual ignition in aircraft engines are a more complete and quick combustion of the fuel, provides a backup magneto system, and</p>
112	9011	C	<p>A new question is added to read:</p> <p>9011. (1) A nonpositive-displacement pump produces a continuous flow, but due to lack of a positive internal seal against slippage, its output will drop as pressure increases.</p> <p>(2) In a positive displacement pump, slippage is negligible compared to the pump's volumetric output flow. If the output port were plugged, pressure would increase, and the pump pressure relief valve would open.</p> <p>Regarding the above statements,</p> <p>A—only 1 is true. B—only 2 is true. C—both 1 and 2 are true.</p> <p><i>Both statements are true.</i></p> <p><i>A nonpositive-displacement pump produces a continuous flow. However, because it does not provide a positive internal seal against slippage, its output varies considerably as pressure varies.</i></p> <p><i>In a positive displacement pump, slippage is negligible compared to the pump's volumetric output flow. If the output port were plugged, pressure would increase instantaneously to the point that the pump pressure relief valve opens.</i></p>
119	9008	C	<p>A new question is added to read:</p> <p>9008. Using compressor bleed air directed into a nozzle, a vortex dissipater's primary function is to</p> <p>A—reduce wingtip vortices. B—increase lift capability of aircraft flaps. C—destroy vortices that can suck debris from the ground into engines that are mounted in pods that are low to the ground.</p> <p><i>One function of compressor bleed air is for the operation of vortex dissipaters. The vortex dissipater supplies a high-velocity stream of compressor bleed air blown from a nozzle into an area where vortices are likely to form. Vortex dissipaters destroy the vortices that would otherwise suck debris from the ground into engines mounted in pods that are low to the ground.</i></p>
121	9012	C	<p>A new question is added to read:</p> <p>9012. If an engine air filter element is not routinely cleaned and becomes excessively dirty, it can cause</p> <p>A—the engine to not start. B—a loss of engine power. C—both A and B are true.</p> <p><i>Periodic removal and cleaning of the filter element is essential to satisfactory engine protection. If the induction system air filter becomes excessively dirty, it will cause a loss of power, or the engine will not start.</i></p>
121	9013	B	<p>A new question is added to read:</p> <p>9013. When a fireguard is standing by during an engine start, they should be watching for potential fires that could start</p> <p>A—close to the battery compartment or starter. B—in the induction system or the exhaust system. C—at the ground power receptacle (if connected to a ground power unit).</p>

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			<i>The fireguard must be familiar with the induction system of the engine so that in case of fire, they can direct the CO₂ into the air intake of the engine to extinguish it. A fire could also occur in the exhaust system of the engine from liquid fuel being ignited in the cylinder and expelled during the normal rotation of the engine.</i>
121	9014	A	<p>A new question is added to read:</p> <p>9014. If a turbocharger waste gate is not able to close fully,</p> <p>A—the aircraft will not be able to reach its critical altitude. B—the engine is more likely to over boost. C—none of the exhaust gases will flow through the turbine.</p> <p><i>If a turbocharger waste gate will not close fully, then the aircraft will not be able to reach its critical altitude.</i></p>
121	9015	B	<p>A new question is added to read:</p> <p>9015. A malfunction that causes the turbocharger waste gate or controller to fluctuate will</p> <p>A—have no effect on manifold pressure. B—cause engine surges due to an erratic manifold pressure. C—cause the oil pressure to the turbocharger to decrease.</p> <p><i>If a malfunction occurs causing the waste gate or controller to not be stable, it will cause the engine to surge due to an erratic manifold pressure.</i></p>
131	9018	C	<p>A new question is added to read:</p> <p>9018. On twin engine aircraft, the propeller autofeather system is activated when</p> <p>A—rudder forces increase beyond a set value during an engine-out condition. B—a propeller overspeed condition is detected. C—engine power loss results in a propeller thrust drop to a preset value.</p> <p><i>The autofeather system automatically energizes the holding coil (pulling in the feather button) when engine power loss results in a propeller thrust drop to a preset value. This system is switch-armed for use during takeoff and can function only when the power lever is near or in the “takeoff” position.</i></p>