

# Work Processes Schedule

## AIRFRAME & POWERPLANT MECHANIC

**RAPIDS: 0005C**

O\*NET/SOC: 49-3011.00

REVISION DATE: 12/2014

Services, repairs, and overhauls aircraft and aircraft engines to ensure airworthiness: Repairs, replaces, and rebuilds aircraft structures, such as wings and fuselage, and functional components including, rigging, surface controls, and plumbing and hydraulic units, using hand tools, power tools, machines, and equipment such as sheet metal brakes, welding equipment, rivet gun, and drills. Reads and interprets manufacturers' and airline's maintenance manuals, service bulletins, and other specifications to determine feasibility and method of repairing or replacing malfunctioning or damaged components. Examines engines for cracked cylinders and oil leaks, and listens to operating engine to detect and diagnose malfunctions. Inspects turbine blades to detect cracks or breaks. Tests engine operation, using testing equipment such as ignition analyzer, compression checker, distributor timer, and ammeter, to locate source of malfunction. Replaces or repairs worn or damaged components, using hand tools, gauges, and testing equipment. Removes engine from aircraft. Disassembles and inspects parts for wear, warping, or other defects. Repairs or replaces defective engine parts and reassembles and installs engine in aircraft. Adjusts, repairs, or replaces electrical wiring system and aircraft accessories. Performs miscellaneous duties to service aircraft, including flushing crankcase, cleaning screens, greasing moving parts, and checking brakes.

### Applicable Ratings/MOS

USMC MOS None

USCG AMT

USN None

### Related Instruction

Any trade related schools/courses totaling 360 hours.

### Additional Requirement

This trade is specific to USCG AMT rating only

Total Hours: **5000**

Skill	Description	Hours
	<p><b>GENERAL TASKS</b></p> <p>Demonstrate knowledge in all of the following areas.</p> <ol style="list-style-type: none"> <li>1. BASIC ELECTRICITY - 100 hrs Calculate and measure capacitance and inductance; calculate and measure electrical power; measure voltage, current, resistance, and continuity; determine the relationship of voltage, current, and resistance in electrical circuits; read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions; inspect and service batteries.</li> <li>2. AIRCRAFT DRAWINGS - 100 hrs Use aircraft drawings, symbols, and system schematics; draw sketches of repairs and alterations; use blueprint information; use graphs and charts.</li> <li>3. WEIGHT AND BALANCE - 20 hrs Weigh aircraft; perform complete weight-and-balance check and record data.</li> <li>4. FLUID LINES AND FITTINGS - 25 hrs Fabricate and install rigid and flexible fluid lines and fittings.</li> <li>5. MATERIALS AND PROCESSES - 50 hrs Identify and select appropriate non-destructive testing methods; perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections; perform basic heat-treating processes; identify and select aircraft hardware and materials; inspect and check welds; perform precision measurements.</li> <li>6. GROUND OPERATION AND SERVICING - 150 hrs Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards; identify and select fuels.</li> <li>7. CLEANING AND CORROSION CONTROL - 145 hrs</li> </ol>	

<p><b>A</b></p>	<p>Identify and select cleaning materials, inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning.</p> <p>8. MATHEMATICS - 75 hrs Extract roots and raise numbers to a given power; determine areas and volumes of various geometrical shapes; solve ratio, proportion, and percentage problems; perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.</p> <p>9. MAINTENANCE FORMS AND RECORDS - 125 hrs Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records; complete required maintenance forms, records, and inspection reports.</p> <p>10. BASIC PHYSICS - 70 hrs Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.</p> <p>11. MAINTENANCE PUBLICATIONS - 70 hrs Demonstrate ability to read, comprehend, and apply information contained in FAA and manufacturer's aircraft maintenance specifications, data sheets, manuals, publications, and related Federal Aviation Regulations, Airworthiness Directives, and Advisory materials, read technical data.</p> <p>12. MECHANIC PRIVILEGES AND LIMITATIONS - 70 hrs Exercise mechanic privileges within the limitations prescribed by FAR 65.</p> <p>13. AVIATION SAFETY - 100 hrs Fuels, lubricants, or hydraulic fluids; flammable cements, rosins, sealants, paints and thinners; fluids under pressure; compressed gasses, including oxygen; batteries; aviation ordnance and pyrotechnics; electrical and electronic circuits; operating radio transmitters and radar systems; hazardous noise sources.</p>	<p>1100</p>
<p><b>B</b></p>	<p><b>AIRFRAME STRUCTURES</b></p> <p>1. AIRCRAFT FINISHES - 100 hrs Apply trim, letters, and touchup paint; identify and select aircraft finishing materials; apply finishing materials; inspect finishes and identify defects.</p> <p>2. SHEET METAL AND NON-METALLIC STRUCTURES - 250 hrs Select, install, and remove special fasteners for metallic, bonded, and composite structures; inspect bonded structures; inspect, test, and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures; inspect, check, service, and repair windows, doors, and interior furnishings; inspect and repair sheet-metal structures; install conventional rivets, form, lay out, and bend sheet metal.</p> <p>3. WELDING - 150 hrs Weld magnesium and titanium; solder stainless steel; fabricate tubular structures; solder, braze, gas and arc-weld steel, weld aluminum and stainless steel.</p> <p>4. ASSEMBLY AND RIGGING - 150 hrs Rig rotary-wing aircraft; rig fixed-wing aircraft; check alignment of structures; assemble aircraft components, including flight control surfaces; balance, rig and inspect movable primary and secondary flight control surfaces; jack aircraft.</p> <p>5. AIRFRAME INSPECTION - 150 hrs Perform airframe conformity and airworthiness inspections.</p>	<p>800</p>
	<p><b>AIRFRAME SYSTEMS AND COMPONENTS</b></p> <p>Demonstrate knowledge in all of the following areas.</p> <p>1. AIRCRAFT LANDING GEAR SYSTEMS - 100 hrs Inspect, check, service and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems.</p> <p>2. HYDRAULIC AND PNEUMATIC POWER SYSTEMS - 100 hrs Identify and select hydraulic fluids; inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems.</p>	

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D	<p><b>POWERPLANT THEORY AND MAINTENANCE</b></p> <p>1. RECIPROCATING ENGINES - 100 hrs Troubleshoot, service, and repair reciprocating engines and engine installations; install, and remove reciprocating engines.</p> <p>2. TURBINE ENGINES - 300 hrs Troubleshoot, service, and repair turbine engines and turbine engine installations; install and remove turbine engines.</p> <p>3. ENGINE INSPECTION - 250 hrs Perform powerplant conformity and airworthiness inspections.</p>	650
	<p><b>POWERPLANT SYSTEMS AND COMPONENTS</b></p> <p>1. ENGINE INSTRUMENT SYSTEMS - 100 hrs Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems; inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature,</p>	

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- pressure, and R.P.M indicating systems.
2. ENGINE FIRE PROTECTION SYSTEMS - 100 hrs  
Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems.
  3. ENGINE ELECTRICAL SYSTEMS - 100 hrs  
Repair engine electrical system components; install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices.
  4. LUBRICATING SYSTEMS - 100 hrs  
Identify and select lubricants; repair engine lubrication system components; inspect, check, service, troubleshoot, and repair engine lubrication systems.
  5. IGNITION AND STARTING SYSTEMS - 100 hrs  
Overhaul magneto and ignition harness; inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems; inspect, service, and troubleshoot turbine engine pneumatic starting systems.
  6. FUEL METERING SYSTEM - 100 hrs  
Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls; inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.
  7. ENGINE FUEL SYSTEMS - 100 hrs  
Inspect, check, service, troubleshoot, and repair engine fuel systems.
  8. INDUCTION AND ENGINE AIRFLOW SYSTEMS - 100 hrs  
Inspect, check, troubleshoot, service, and repair engine ice and rain control systems; inspect, check, troubleshoot, service, and repair heat exchangers, supercharger and turbine engine airflow and temperature control systems; inspect, check, service, and repair carburetor air intake and induction manifolds.
  9. ENGINE COOLING SYSTEMS - 100 hrs  
Inspect, check, troubleshoot, service, and repair engine-cooling systems.
  10. ENGINE EXHAUST SYSTEM COMPONENTS - 100 hrs  
Inspect, check, troubleshoot, service, and repair engine exhaust systems; troubleshoot and repair engine thrust reverser systems and related components.
  11. PROPELLERS/ROTORS - 150 hrs  
Inspect, check, service, and repair propeller/rotor synchronizing and ice control systems; identify and select propeller/rotor lubricants; balance propellers/rotors; repair propeller/rotor control systems components; inspect, check, service, and repair propellers/rotors and propeller/rotor governing systems; install, troubleshoot, and remove propellers/rotors; repair aluminum alloy propeller blades.
  12. AUXILIARY POWER UNITS - 100 hrs  
Inspect, check, service and troubleshoot turbine-driven auxiliary power units.

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