WAGE GRADE CAREER PATH

WG 2892	Aircraft Electrician

This occupation covers nonsupervisory work involved in installing, troubleshooting, adjusting, testing, modifying, calibrating, and repairing aircraft electrical systems and equipment on board conventional and non-conventional aircraft such as electrical power control and distribution systems, lighting systems, refueling and fuel quantity indicating systems, electrical warning, controlling, and actuating circuits, and tying-in power and control circuits for functional systems, such as hydraulics, armament, radar, engines, and fire suppression. The work is characterized by the need to understand the functional characteristics and relationships of various electrical systems and equipment on aircraft.

WG02 - WG05	Step	Part 1 Apprentice/Helper/Trainee; Trade/Less than Journeyman
	1	Complete New Hire Orientation
	2	Complete Civilian Training Plan requirements for current position
	3	Complete task qualifications for current position
	4	Complete task certifications for current position
	5	Master simple to common work tasks under supervision
	6	Maintain successful to above average performance ratings

WG05 - WG08		Part 2 Trade/Less than Journeyman
	1	Continue required on-the-job and formal classroom training required in Civilian Training Plan
	2	Complete task qualifications for current position
	3	Complete task certifications for current position
	4	Master common to complex work tasks. Grade 8 aircraft electrical workers require a working knowledge of electrical theory, principles, and circuitry and a general understanding of basic principles underlying electronics to perform work involved in the routine and repetitive repair, disassembly, modification, assembly, testing, installation, and maintenance of aircraft electrical systems, equipment, and accessories. They must have knowledge of AC and DC power supplies and a basic understanding of aircraft electrical systems and their interrelationships. They require a working knowledge of various types and sizes of wires, cables, and connectors and their application in numerous aircraft electrical systems. Workers at this level follow established work methods and procedures found in technical orders, manufacturers specifications, and engineering directives. They are able to read and interpret blueprints, wiring diagrams, and schematics. They are skilled in removing deleted and defective circuits and parts, installing new or replacement electrical components, instruments, accessories, and equipment in the electrical control, power, indicating, warning, actuating, lighting, utility, and related systems. They are skilled in repairing cable assemblies and connectors, and soldering and terminating wires. They are knowledgeable of procedures necessary to route, clamp, wrap, and the electrical, instrument, and electronic wiring. They exercise skill in removing and replacing electrical components following technical orders, manufacturers specifications, and standard trade methods. Grade 8 workers apply limited troubleshooting skills in analyzing basic malfunctions in wiring and associated components. They examine portions of aircraft electrical systems to visually check, test, and evaluate the condition of components, equipment, and circuits and to correct faulty or defective connections such as opens, shorts, and grounds, and to replace broken, discolored, or frayed wiring. They are skilled in performing operational checks on components of limited complexity such as heating elements, electric rudder control switches, and other components of similar complexity. They correct minor discrepancies by testing, adjusting, or replacing relays, fuel quantity amplifiers, solenoids, pressure switches, generators, control switches, circuit breakers, lights, transformer-rectifier units, inverters, instruments, servo units, and other components of similar complexity in aircraft electrical systems. They perform functional checks of electrical components installed or repaired to insure proper operation. Workers at this level are skilled in the operation of common electrical test devices such as multimeters, bridges, voltmeters, ammeters, wattmeters, meggers, and specially devised test sets to perform basic checks for continuity, resistance, voltage, opens, shorts, insulation breakdown, grounds, or malfunctioning switches and relays. They are skilled in the use of hand tools such as hand and automatic wire strippers, soldering equipment, wire cutters, heat guns, electric and pneumatic power tools, and other specialized tools of the trade.
	5	Maintain successful to above average performance ratings

		Part 3 Journeyman
	1	Continue required on-the-job and formal classroom training required in Civilian Training Plan
	2	Complete task qualifications for current position
	3	Complete task certifications for current position
	4	Grade 10 aircraft electricians apply a comprehensive knowledge of electrical theory, principles, and circuitry; a thorough knowledge of aircraft electrical systems and their interrelationships; and a working knowledge of electronic principles (e.g., knowledge of construction practices of electronic equipment in order to recognize types and sizes of resistors, capacitors, wiring, and transistors; knowledge to follow signal paths through printed circuit and wired circuitry, recognizing actual circuit configurations which are shown in schematics and diagrams; and knowledge of the electromagnetic basis of alternating current and inductive and capacitive reactance, series and parallel tuned circuits, impedance matching, and operation of transistors) in order to troubleshoot modify, repair, overhaul, and maintain complex electrical systems onboard aircraft such as antiskid, automatic flight control, and fuel indicating systems. They also apply a thorough knowledge of the interface of electrical systems with hydraulic, electronic armament, instrument, and mechanical systems and assemblies. They apply a comprehensive knowledge of testing and troubleshooting techniques and procedures utilizing a variety of test devices (e. g., meters, "breakout boxes," signal generators, oscilloscopes, phase indicators, and capacitance testers) to analyze, correct, and maintain essentially all electrical systems on fixed and rotary wing aircraft. Aircraft electricians at this level are skilled in testing, troubleshooting, analyzing, modifying, and repairing complex electrical systems and components. They are skilled in tracing hard to locate and intermittent electrical defects and problems using a variety of meters and test devices. They analyze fault indications obtained during testing and determine the type and location of malfunction and perform necessary repairs. They apply skill in repairing or replacing electrical equipment and components throughout the aircraft. They are skilled in installing, relocating, and repositioning conventional electrical and electronic components and wiring to facilitate installation of nonconventional equipment. They have the ability to lay-out connecting circuits and make connections in order to prevent equipment or circuit overload or malfunction by considering such factors as fuse and circuit breaker capacity, wire size and length, voltage drop, type of current, phasing and sequencing power tie-ins, and method of shielding. They are skilled in assembly of a variety of locally developed test devices (e.g., "breakout boxes and panels") utilizing switches, diodes, resistors, relays, terminal boards, wiring harnesses, and other similar components. They are skilled in calibrating and adjusting components such as amplifiers, proximity boxes, generators, and voltage regulators. Grade 10 aircraft electricians apply skill in performing initial and final functional and operational checks on the entire aircraft electrical system. They are skilled in installing, calibrating, and operational testing of fuel indicating, antiskid, autopilot, compass, and similar systems. They research aircraft modification history, technical orders, engineering change proposals, and manuals concerning wire codes, wiring configuration, and testing procedures. Aircraft electricians at this level must be able to assist engineering personnel in developing modifications and changes on electrical, electronic, instrument, and other integrated electrical systems. Grade 10 aircraft electricians are skilled in setup and operation of computerized multiple circuit analyzing equipment in manual, semiautomatic, or automatic mode to run existing and new (i.e., not fully "debugged") diagnostic programs to test and analyze aircraft electrical circuitry and interconnecting cabling of systems such as navigational computers, radar, and related equipment and to repair discrepancies. Electricians at this level must be able to work with or assist programming personnel in developing, debugging, or modifying diagnostic programs by recommending changes where necessary and identifying apparent contradictions between technical guides and test programs.
	5	Provide production support services
	6	Maintain successful to above average performance ratings

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OPM Classification Standards