

WAGE GRADE CAREER PATH

WG 8255

Pneudraulic Systems Mechanic

This standard covers nonsupervisory work involved in the repair, modification, test, and maintenance of hydraulic and pneumatic systems and components that actuate mechanisms or produce, control, and regulate fluid flow. The work requires knowledge of the physical principles governing the behavior of fluids (liquids and gases) as they pertain to hydraulic and pneumatic systems and components; knowledge of basic electrical and mechanical principles; knowledge of repair procedures, methods, and trade practices; the ability to test for and isolate malfunctions in hydraulic and pneumatic systems or components; and the skill to disassemble, repair, and reassemble such devices. Mechanics work on many different work units at various times and may rotate from modifying, repairing, and rebuilding to testing and troubleshooting assignments.

**WG02 - Step
WG05**

Part 1

Apprentice/Helper/Trainee; Trade/Less than Journeyman

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| | 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

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| | 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 7 pneudraulic systems workers follow detailed maintenance and repair procedures in performing bench work involving the inspection, repair, and maintenance of parts and subassemblies of hydraulic and pneumatic components. The work is usually repetitive and includes visually inspecting for obvious defects such as scratches, corrosion, or bent or broken parts of subassemblies and less complex assemblies such as oil pumps, coolers, heaters, and simple valves; replacing or removing damaged parts; and performing bench tests for leakage and operability of moving parts. Grade 7 pneudraulic systems workers may assist higher grade pneudraulic systems mechanics on assignments involving hydraulic and pneumatic assemblies and components of greater complexity by disassembling and assembling the simpler items, erecting jigs and fixtures for the final test, and installing safety wires and seals. |
| | 5 Maintain successful to above average performance ratings |

Part 3

Journeyman

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| | 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 9 pneudraulic systems mechanics disassemble, repair, reassemble, test, troubleshoot, and maintain complex hydraulic and pneumatic components, subsystems, and systems such as pressure regulating and unloading valves; jet engine compressor bleed governors and anti-icing valves; transfer pumps and other hydraulic pumps and motors; actuating, servo, and hydropneumatic cylinders, oil and fuel filters, and manifold valves; landing gear control valves; gas turbine engine oil pumps; and similar items on ground, marine, aircraft, or missile systems. components assigned to grade 9 level mechanics are complex because they are designed to respond to proportional input of variable forces or conditions, control rates of change, and have multiple stage functions and automatic reset or adjustment circuits. |
| | 5 Master common to complex work tasks. Grade 10 pneudraulic systems mechanics disassemble, repair, rebuild, modify, test, troubleshoot, and install more complex hydraulic and pneumatic systems with more extensive repairing, testing, and troubleshooting sequences. Systems assigned to grade 10 level mechanics are more complex in that they are designed to adjust automatically to factors such as temperature, humidity, pressure, or rate of change of velocity, or have sensing devices that feed back into the system information on the systems' performance. Such systems may include hydromechanical fuel control systems for afterburners, jet engines, and turbine powered systems; heating-refrigeration and aircraft compressors; servo hydraulic systems used to control and position equipment in rapid response to several variables; and hydraulic constant speed transmissions. Interdependent adjustments and settings are required so that these systems will automatically adjust to their own performance and consistently meet specified operating requirements. These more complex systems are more difficult to adjust and troubleshoot because the impact of their performance requires adjustments and settings to be made over a range of performance levels and as each is made, preceding settings may be affected. Alignment and troubleshooting can be done during the overhaul process (repair, reassemble) as well as for the completed end item. Grade 10 mechanics may be required to install the system in the area where it is to be used and to perform the final operational test to check the automatic adjustments of the system and to assure that all specifications are met. |
| | 6 Master common to complex work tasks. Grade 11 pneudraulic systems mechanics perform a variety of maintenance, repair, test, installation, and related activities on unusually complex hydraulic and pneumatic systems such as the pitch and roll channel assembly, the unified fuel control, and other systems and equipment of similar complexity and sophistication. Mechanics at this level work on systems that contain thousands of parts. Because of the great degree of complex interaction among the various devices, components, and subsystems, particular indications or symptoms of defects in one device or subsystem may result from any of a large number of possible malfunctions in other devices or subsystems, or from the cumulative effect of a number of discrepancies in other areas. For example, the unified fuel control consists of three principal subunits: the distribution body, the augments, and the gas generator that are combined into an integrated hydraulic-electrical-mechanical system which adjusts automatically to its own performance and external demands. The mechanics must make hundreds of internal independent adjustments during overhaul and test. In addition, the mechanic must make hundreds of critical dimensional checks during the qualitative evaluation of the system. The number of internal independent adjustments requiring interdependent adjustments during the test is less than a hundred. Thus, the difficulty in isolating and correcting defects in the unified fuel control at grade 11 is much greater than it is in fuel controls and other systems such as those described at the grade 10 level. |
| | 7 Provide production support services |
| | 8 Maintain successful to above average performance ratings |

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