



United States
Office of Personnel Management

**FWS Job Grading Standard
for
Aircraft Ordnance Systems
Mechanic**

6652

TS-32, 8/74

Workforce Compensation and Performance Service
Classification Programs Division
June 1998, HRCD-5

WORK COVERED

This standard covers nonsupervisory work involved in trouble-shooting, repair, installation, modification, and operational and functional testing and adjustment of aircraft ordnance systems, equipment, and components. These systems and components involve electrical, mechanical, pneumatic, and hydraulic principles of operation, for example, ejection seats, decoys, canopies, module ejection equipment, pylons, and pressure regulators. The work requires a knowledge of aircraft ordnance systems, the ability to recognize and determine the best method to correct malfunctions, and the ability to use test equipment and measuring devices common to the occupation.

WORK NOT COVERED

The following kinds of work are not covered by this standard:

- Repair, overhaul, and modification of guns and cannons as a specialized entity apart from the total system. (See [Job Grading Standard for Smalls Arms Repairer, 6610.](#))
- Troubleshooting, repair, overhaul, and modification of ordnance systems and equipment such as missiles, torpedoes, mines, and associated handling, launching, transporting, mounting, erecting, and test systems. (See [Job Grading Standard for Ordnance Equipment Mechanic, 6641.](#))

TITLES

Jobs graded by this standard at the grade 10 level and above are to be titled *Aircraft Ordnance Systems Mechanic*. Jobs graded by this standard below the grade 10 level are to be titled *Aircraft Ordnance Systems Repairer*.

GRADE LEVELS

This standard does not describe all possible grade levels at which jobs might be established for this occupation. If jobs differ substantially from the skill, knowledge, or other work requirements described for the levels of work in this standard, they may warrant grading either above or below these grades based on the application of sound job grading methods.

HELPER AND INTERMEDIATE JOBS

Helper and intermediate jobs in this occupation are graded by the job grading standards for [Trades Helper](#) and [Intermediate Jobs](#). (grade 10 in this standard is to be used as the "journey level" in applying the Intermediate Job Grading Standard.)

NOTES TO USERS

This standard is not directly applicable to work on other than aircraft ordnance systems and components. The standard refers to the combination of electrical, hydraulic, pneumatic, and mechanical skills and knowledge, with no one skill being predominant for grading purposes. Incidental to this occupation is the ability to perform minor sheetmetal, and fiberglass work as needed. The term Aircraft as used in this occupation refers to fixed wing and non-fixed wing craft.

6652-8 AIRCRAFT ORDNANCE SYSTEMS REPAIRER, GRADE 8 6652-8

General: Grade 8 repairers disassemble, repair, modify, assemble, test, and adjust ordnance equipment and components such as ejection seats, pylons, ejection racks, bomb racks, range servos, firing mechanisms, release system locks, and ejection chutes. The equipment and components incorporate mechanical, electrical, hydraulic, and pneumatic principles of operation, and are normally repaired in a shop situation.

Skill and Knowledge: Grade 8 repairers use skill to test and repair malfunctions of ordnance equipment and components such as sonar launchers, antisubmarine warfare stores launchers, pylons, bomb racks, pneumatic valves, cylinders, actuators, and regulators. They have the skill required in using test equipment to make electrical checks for stray voltage, improper circuits, and bad connections; hydraulic checks for faulty valve connections, and lines; pneumatic checks for improperly seating doors and hatches, and defective or out of adjustment manual release mechanisms and linkages. Grade 8 repairers have the ability to make visual inspections for obvious defects such as torn shoulder and lap harnesses, and bent or damaged tubing. They have the knowledge required to insure that all wiring, tubing, and electrical circuits are operational, and check all components, parts, and cables for time compliance replacement. They are skilled in the use of test equipment in order to check the continuity of all electrical circuits, proper movement of all valves and cylinders under pressure, proper tension on all cables, and test the end item using dummy initiators or test equipment to insure all components operate within specified tolerances and in the proper sequence.

Grade 8 repairers, in accordance with technical orders and modification instructions, overhaul, repair, and modify equipment and components, for example, control columns, bomb shackles, pressure regulators, wiring harnesses, sequence valves, and ejector racks using test equipment such as multimeters, micrometers, calipers, manometers, flowmeters, and electrical circuitry test consoles. They have the ability to use sketches, electrical diagrams, technical specifications, and engineering drawings in conjunction with standard precalculated formulas and shop mathematics, in accomplishing their work.

Responsibility: Grade 8 repairers, on standard or repetitive work, select their tools, decide which methods and techniques to use, and carry out the work with little check during its progress. Assignments of a non-repetitive nature are received from the immediate supervisor either orally or in writings are accompanied by the necessary technical information, and the work is spot checked during progress for adherence to instructions.

Physical Effort: Work at this level requires prolonged standing at work benches, bending, crawling, and squatting. The repairers lift and carry objects weighing up to 9 kilograms (20 pounds) and occasionally weighing up to 32 kilograms (75 pounds). The repairers also push and pull objects when maneuvering for easier access.

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Working Conditions: Grade 8 repairers normally work inside well lighted, ventilated shops and are subject to a moderate amount of noise and vibration from tools and machines. They are frequently exposed to the possibility of cuts and abrasions, and electrical shock when testing electrical circuits and components.

6652-10**AIRCRAFT ORDNANCE SYSTEMS
MECHANIC, GRADE 10****6652-10**

General: Grade 10 mechanics troubleshoot, install, modify, repair, and adjust a variety of ordnance systems such as missile and special weapons launching devices, decoys, egress and jettison systems, and rocket launching equipment. They repair malfunctions as a result of troubleshooting and adjust the installed ordnance system to conform to specifications. The systems and equipment utilize mechanical, hydraulic, pneumatic, and electrical principles of operation and require the use of schematics, blueprints, and technical-manuals in completing pairs. Mechanics at this level plan and lay out the repair sequence, and complete the modification, repair, and installation of any ordnance system in the inventory.

Skill and Knowledge: Grade 10 mechanics have the ability to de-arm the system and troubleshoot, repair, modify, or remove the equipment and components such as ejection seats, canopies, escape hatches, modular ejection units, pylons, and ejector racks. They have the ability to isolate the malfunction whether electrical, mechanical, hydraulic, or pneumatic using various types of test equipment such as electrical circuitry analyzers, leak detectors, and voltmeters in conjunction with prints, sketches, work orders, and technical orders and manuals. Grade 10 mechanics have the ability to repair or to replace parts and assemblies, make final operational and functional checks and adjust the system under simulated armed conditions.

Grade 10 mechanics have the skill needed to troubleshoot the total ordnance system for electrical, mechanical, hydraulic, and pneumatic defects using test equipment and measuring devices such as leak detectors, feeler gages, dial indicators, micrometers, bore sight tools, multimeters, voltmeters and ammeters. Defects may be caused by faulty cannon plugs or pins, bad relays, circuit breakers, switches, wiring, worn bearings, locking mechanisms, worn cables, etc. They have the ability to replace or repair components such as indicators, timers, intervalometers, valves, cylinders, solenoids, resistors, explosive shape charges, oxygen regulators, and actuators in order to avoid removing the equipment or components from the system and routing them to the shop.

Grade 10 mechanics have the skill to plan and lay out the repair sequence, determine which tools and test equipment to use, and the knowledge required to select the best methods and procedures to utilize in troubleshooting, making operational and functional checks, installing or modifying equipment, and adjusting the system to the required specifications.

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Responsibility: Grade 10 mechanics receive work assignments in the form of work orders or oral instructions accompanied by technical directives, blueprints, sketches, wiring diagrams, and manufacturer's specifications. They determine whether the equipment can be repaired in place or has to be removed, what parts or materials are required, and the methods and procedures to utilize. The supervisor insures that overall work meets accepted trade standards. The mechanics are responsible for the safe operation of systems and equipment, particularly in the dearming and arming phase of the repair cycle.

Physical Effort: Grade 10 mechanics are required to stand, bend, stoop, climb, stretch, work in tiring and uncomfortable positions and in hard to reach places. They frequently lift parts and equipment weighing up to 18 kilograms (40 pounds) and occasionally up to 32 kilograms (75 pounds).

Working Conditions: Grade 10 mechanics perform the work either inside or outside, and are subject to prevailing weather conditions, noise, slippery or uneven surfaces, and working in confined areas. They are exposed to the possibility of cuts, burns, grease, oil, dirt, electrical shock, and possible injury when de-arming and arming the system.