

# Federal Wage System Job Grading Standard For Automotive Mechanic, 5823

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## WORK COVERED

This standard is used to grade all nonsupervisory jobs involved in the maintenance, repair, and overhaul of combustion-powered automotive vehicles, over-the-road trucks, and comparable vehicles, such as passenger cars, pickup trucks, buses, semitrailer truck tractors, warehouse tractors, farm tractors, forklifts, motorcycles, light combat vehicles such as jeeps and trucks, and other vehicles with similar characteristics, including their gasoline and diesel engines and other mechanical, hydraulic, electrical, and electronically controlled systems.

## WORK NOT COVERED

This standard does not cover work which primarily involves:

- Maintaining and repairing heavy duty vehicles and heavy mobile equipment such as bulldozers, road graders, crawler tractors, power shovels, locomotives, combat tanks, cranes, large missile transporters, and fire trucks, which have utility systems or special hydraulic, pneumatic, or mechanical systems and controls which are designed for construction, combat, earth moving, ship loading, firefighting, and other comparable heavy duty or industrial applications. (See [Job Grading Standard for Heavy Mobile Equipment Mechanic, 5803.](#))
- Servicing automotive and mobile equipment, such as automobiles, trucks, buses, ambulances, forklifts, and bulldozers, including dispensing gasoline, checking fluid levels and tire pressures, inflating tires, washing cars, lubricating vehicles, installing simple accessory items, and changing and repairing tires and tubes. (See [Job Grading Standard for Mobile Equipment Servicing, 5806.](#))
- Overhauling and repairing electric-powered material handling and other self-propelled mobile equipment such as electric-powered forklifts, cranes, platform lifts, and electric tugs. (See [Electromotive Equipment Mechanic Series, 5876.](#))
- Repairing and replacing upholstery, including fabrics, springs, webbing, filling, and padding on items such as seats and structural frameworks in automobiles, trucks, buses, and other vehicles or equipment. (See [Job Grading Standard for Upholstering, 3106.](#))
- Maintaining and repairing mobile equipment bodies and mainframe groups. (See [Job Grading Standard for Mobile Equipment Metal Mechanic, 3809.](#))
- Troubleshooting, repairing, modifying, and testing automotive radiators, air coolers, and oil temperature regulators including locating and repairing leaks, removing defective parts, and installing new parts. (See [Metal Tank and Radiator Repairing, 3858.](#))
- Operating gasoline, diesel, or electric powered vehicles, some of which may be equipped with special-purpose powered equipment. (See [Job Grading Standard for Motor Vehicle Operating, 5703.](#))

## TITLES

Jobs covered by this standard below grade 10 are to be titled *Automotive Worker*.

Jobs covered by this standard at the grade 10 level and above are to be titled *Automotive Mechanic*.

## GRADE LEVELS

The standard does not describe all possible grade levels for this occupation. If jobs differ substantially from the skill, knowledge, and other work requirements described in the grade levels of the standard, they may be graded either above or below these grades based on the application of sound job grading principles.

## HELPER AND INTERMEDIATE JOBS

Helper jobs are graded by the U.S. Office of Personnel Management [Job Grading Standard for Trades Helper Jobs](#).

The grade 8 level described in this standard does not apply to jobs that are part of a planned program of training and development of skills for advancement to a higher grade. Such trainee jobs are covered by the U.S. Office of Personnel Management [Job Grading Standard for Intermediate Jobs](#).

Grade 10 in this standard is to be used as the Journey level in applying the Intermediate Job Grading Table.

## AUTOMOTIVE WORKER, GRADE 8

*General:* The work at this grade involves making repairs that can be accomplished by removing, replacing, adjusting, or cleaning defective parts or components. For example, grade 8 automotive workers replace sensors, water pumps, spark plugs, brakes, mufflers, radiator caps, condensers, engine gaskets, a variety of belts and hoses, and complete assemblies such as removing old engines and replacing them with new engines. They adjust brakes, transmission linkages, engine idle, voltage and current control valves, sensing valves, expansion valves, and pressure regulator valves. They clean or replace filters, screens, battery cables and clamps, engine components, and heating and cooling devices. In addition, they service and check air conditioning systems including purging and recharging systems, flush radiators and replace anti-freeze solutions, and align front ends of cars and trucks by adjusting caster, camber, and setting toe-in.

Automotive workers at grade 8 receive work orders or oral instructions that indicate the nature of the repair or installation to be made. They locate worn or poorly adjusted parts through visual

and auditory checks, and through the use of a small variety of test equipment such as test lamps, timing lights, multimeters, tachometers, and dwell meters. They also use vehicle on-board computers to help diagnose problems, and electronic analyzers to test automotive computer control systems and emission systems.

*Skill and Knowledge:* At this grade, automotive workers must have a knowledge of various techniques for removing, replacing, cleaning, and installing a variety of parts, components, and accessories such as filters, radiators, engine thermostats, wheel cylinders, universal joints, wheel bearings, springs, shock absorbers, mufflers, components of heating and air conditioning systems, brake components, catalytic converters, clutch assemblies, carburetors, and suspension components such as lower control arms, struts, constant velocity joints (CV Joints), and stabilizer arms. They must have the ability to determine when parts should be cleaned and reinstalled or replaced with standard parts. They must have a basic understanding of electricity and hydraulics, and the skill needed to make adjustments and settings, such as performing engine tune-ups, setting engine timing according to specifications, and adjusting brakes and power steering mechanisms. They must have a basic understanding of on-board computer diagnostic systems and other test equipment, and the ability to test automotive computer control systems and emission systems. They must be skilled in using basic tools common to the occupation (e.g., wrenches, sockets, ratchets, impact wrenches, torque wrenches, pliers, brake tools, and screwdrivers); in operating equipment common to the trade (e.g., front-end alignment and wheel balancing equipment, turning and grinding equipment for servicing brake drums and discs or rotor assemblies, and drilling and pressure bleeding devices); and in operating a small variety of test equipment (e.g., engine analyzers, capacity testers to determine if batteries are discharging or need replacement, hand-held computer diagnostic equipment, circuit testers, micrometers and dial indicators, tachometers, dwell meters, and battery hydrometers). They must have a basic understanding of the makeup and operation of the various individual systems and their interrelationships to analyze test results in order to locate improperly functioning parts for repair or replacement. They must have the ability to read and interpret parts manuals and manufacturers' repair manuals.

*Responsibility:* A higher grade worker or supervisor assigns work orally or through work orders, indicating the nature of the problem. Automotive workers at this level select tools, decide on the techniques to use, and carry out assignments with minimal check during progress. They obtain standard parts, such as water pumps, wheel bearings, fan clutches, brake linings, tailpipes, thermostats, master cylinders, windshield wiper motors, starters, alternators, batteries, drive line components, and other components of similar complexity by looking up replacement information in parts manuals or by making comparison with samples. They make adjustments and settings in accordance with specifications in manufacturers' manuals and test the completed product. Routine repair and maintenance duties are accomplished independently. A supervisor or higher graded worker provides assistance when standard procedures fail to correct the problem or when the automotive worker is assigned more complex repairs involving major assemblies or systems, such as engines, transmissions, differentials, or electronically controlled components. Completed work is checked for compliance with instructions, specifications, and standard shop practices.

*Physical Effort:* Automotive workers at this level make repairs which often require them to work in tiring, awkward, and uncomfortable positions. They frequently stand for long periods of time, bend, stoop, crawl under vehicles, and make repairs in other tight spaces. They frequently lift, handle, and carry parts and equipment weighing up to 18 kilograms (40 pounds). Occasionally, they move moderately heavy items with assistance or with mechanical devices, including objects weighing up to or over 23 kilograms (50 pounds).

*Working Conditions:* The work is usually performed inside on concrete surfaces where there is exposure to drafts, noise, and fumes from vehicles. Automotive workers occasionally perform work outside under adverse weather conditions. They are continually exposed to dirt, dust, and grease, and to the potential for burns, chemical irritations, shocks, bruises, cuts, and strains. To reduce dangers and irritations from these conditions, they follow prescribed safety practices and use safety equipment such as safety shoes and glasses, and respirators.

## **AUTOMOTIVE MECHANIC, GRADE 10**

*General:* The work at this grade involves troubleshooting, repairing, and/or overhauling major components and systems such as engines, transmissions, differentials and transaxles, electronic fuel injection systems, emission control systems, and related electrical, electronic, hydraulic, fuel, and other assemblies. In comparison with grade 8 automotive workers who adjust or replace parts or complete assemblies in accordance with oral instructions or work orders, grade 10 mechanics must be able to tear down, adjust, repair, reassemble, and run operational checks on components of these systems following instructions contained in technical manuals. Some grade 10 level mechanics troubleshoot and repair the wide variety of major systems described above, while others specialize in tearing down, overhauling, and rebuilding one or a limited variety of major systems (e.g., engines and transmissions) for a variety of vehicles, such as automobiles, trucks, buses, and tractors. They must be able to use a wider variety of test procedures and equipment than grade 8 workers in tracing hard-to-locate defects or problems, and they complete repairs and installations with little or no technical advice.

Within the framework of inspection reports, diagnostic computer printouts, or instructions, grade 10 automotive mechanics isolate and repair malfunctions by a combination of visual and auditory examinations, and the use of a wide variety of test equipment such as computerized engine analyzers, compression testers, test benches, oscilloscopes, multimeters, and special feeler and dial gauges. They disassemble, repair, replace, recondition, and rebuild components of the various systems, and make independent judgments based on specifications in technical manuals and on accepted trade practices.

*Skill and Knowledge:* At this grade, the automotive mechanic must have a thorough knowledge of the makeup, operation, and installation of complex major systems and assemblies to troubleshoot and repair a variety of systems or to rebuild one or more systems such as the following: gasoline and diesel engines; automatic and manual transmissions and gear reduction systems; transaxles; drive line and rear axle assemblies including electrical, air, vacuum, or mechanically controlled differentials; electrical and electronic systems and accessories (e.g.,

conventional and transistorized ignition systems, charging and starting systems, and wiring and lighting systems); carbureted and electronic fuel injection systems; exhaust and emission control systems (e.g., continuous flow air injector or fuel vapor control); conventional and power steering mechanisms and hydraulic power-assist systems; and other systems of similar complexity. Additionally, grade 10 mechanics must be knowledgeable in the repair of hydraulic lifting, loading, turning, and positioning systems including their mechanical, hydraulic, electrical and electronic controls automotive worker, (e.g., hydraulic lift gates and electric wenchers). They must be able to troubleshoot and replace standard electronic components of systems, such as computer circuit boards and sensing and controlling units in engines, printed circuits in instrument and indicator panels, diodes in alternator regulators, armatures and control module transistors in electronic ignition systems, and sensors and relay units in emission control systems. Mechanics use this knowledge to test and troubleshoot components and systems to locate equipment defects.

They must have the ability to determine how far major components should be torn down, what parts and mechanisms can be reworked and refitted or should be replaced with new parts, and the type and extent of adjustment and alignment required. They must have the ability to interpret and apply manufacturers' repair manuals and technical specifications, schematics and engineering drawings, diagnostic codes, computer printouts, and safety manuals. Grade 10 mechanics must have skill in the use of hand and power tools common to the occupation (e.g., wrenches, screwdrivers, insulated pliers, electric drills, pneumatic wrenches, and soldering irons) and a wide variety of specialized tools and test equipment (e.g., bench lathes, grinding and seating equipment, clutch pilot and gear puller tools; precision measuring tools such as dial gauges, micrometers, dial indicators, and calipers; vacuum gauges, tachometers, compression testers, capacity testers, coil testers, and pressure bleeding devices). They must also be able to operate electronic test equipment such as computerized engine analyzers and scanners, exhaust analyzers, dynamometers, and oscilloscopes.

*Responsibility:* Unlike grade 8 automotive workers who receive assistance on more complicated repairs, grade 10 automotive mechanics make independent judgments and decisions within the framework of oral and written instructions and accepted trade practices. They work from oral assignments or work orders and determine the type and extent of repairs needed. They complete repairs with little or no check during their progress or upon completion. They complete repairs and adjustments in accordance with manufacturers' specification and service bulletins and ensure that vehicle systems (e.g., lighting systems, steering mechanisms, mechanical and hydraulic braking systems, and exhaust and related emission control systems) function in accordance with safety regulations set by various regulatory agencies. The supervisor assures that overall work meets accepted trade standards.

*Physical Effort:* Physical effort required at this grade is the same as that described at [grade 8](#).

*Working Conditions:* Working conditions at this grade are the same as those described at [grade 8](#).