Job Specification

MECHANIC

DEFINITION

Under direction, performs skilled mechanical work involving the maintenance, repair and servicing of various types of motor vehicles and/or motorized construction equipment; does other related work as required.

NOTE: The examples of work for this title are for illustrative purposes only. A particular position using this title may not perform all duties listed in this job specification. Conversely, all duties performed on the job may not be listed.

EXAMPLES OF WORK:

Repairs engines and components, power trains, suspension systems, and other mechanical units of such motor vehicles as automobiles, vans, and/or such construction equipment as trucks, buses, bulldozers, tractors, cranes, road graders, power shovels, or similar equipment.

Obtains description of mechanical problems from driver of vehicle and/or test drives the vehicle or uses testing equipment such as motor analyzers, spark plug testers, or compression gauges to locate and identify the problem.

Locates worn, dirty, or poorly adjusted parts through visual check of vehicle or through the use of testing devices such as timing lights and dwell meters or other diagnostic equipment.

Removes, cleans, or replaces defective parts such as spark plugs, wheel cylinders, mufflers, tail pipes, or brake shoes.

Makes settings and adjustments such as setting distributors and voltage regulators, points, gapping spark plugs, setting engine idle and timing, and adjusting brakes.

Removes units such as engine, transmission, or differential using wrenches and hoist.

Disassembles unit and inspect parts for wear using micrometers, calipers, and thickness gauges.

Repairs or replaces parts such as pistons, rods, gears, valves, and bearings using mechanic's hand tools.

Overhauls or replaces carburetors, blowers, generators, distributors, starters, and pumps.

Rebuilds parts such as crankshafts and cylinder blocks using lathes, shapers, drill presses, and welding equipment.

Rewires ignition system, lights, and instrument panel.

Relines and adjusts brakes, aligns front end, repairs or replaces shock absorbers, and solders leaks in radiator.

Mends damaged body and fenders by hammering out or filling in dents and welding broken parts.

Replaces and adjusts headlights and installs and repairs accessories such as radios, heaters, mirrors, and windshield wipers.

Disassembles and rebuilds components by fitting and installing needed parts such as rings, pistons, bearings, and gears.

Aligns, meshes, and connects repaired units to related mechanisms and makes adjustments to assure proper operation of units.

Adjusts ignition timing and valves and adjusts or replaces spark plugs and other parts to ensure efficient engine performance.

Installs air conditioners and service components such as compressors and condensers.

Aligns and balances wheels and repairs steering and suspension systems.

Adjusts brakes, replaces brake linings and pads, repairs hydraulic cylinders, and makes other repairs to the brake system.

Cleans radiators, locates and solders leaks, and installs new radiator cores in vehicles.

Overhauls and repairs electrical systems and components.

Replaces defective wiring and electrical units in vehicles such as starters and generators.

Repairs and replaces gear trains, couplings, hydraulic pumps, and other components of automatic transmission systems.

In making repairs, uses a variety of tools, equipment, and testing devices such as pneumatic wrenches to remove bolts; lathes and grinding machines to rebuild brakes and other parts; welding and flame cutting equipment to repair exhaust systems; ammeters, ohmmeters, and voltmeters to locate electrical system malfunction; motor analyzers, spark plug testers, or compression gauges to locate mechanical problems; wheel balancing equipment to balance wheels; scientific testing equipment to help adjust and locate malfunctions in fuel, ignition, and emission control systems; and common hand tools such as screwdrivers, pliers, and wrenches to work on small parts and get to hard to reach places.

Consults manufacturer or other manuals or charts to identify replacement parts or ascertain specified dimensions and tolerances of components.

Welds broken parts and structural members.

May direct workers engaged in cleaning parts and assisting with assembly and disassembly of equipment.

Traces and locates defects and causes of mechanical problems to determine type and extent of repairs.

Overhauls, rebuilds, repairs, and services diesel, gasoline, and other types of combustion engines, automatic and non-automatic transmissions, heavy duty drive line systems, hydraulic utility systems, and controls.

Selects and makes repairs in accord with appropriate repair specifications, manuals, and procedures.

Fits and installs parts such as pistons, valves, bearings, gears, and cylinders to appropriate tolerances and makes appropriate adjustments in accord with specifications and guidelines.

Connects, aligns, and adjusts mechanical components to assure proper operation of the vehicle.

Repairs cross driver or similar multisystem transmissions.

Repairs large and powerful 12-cylinder engines with pistons which directly power multiple hydraulic and pneumatic systems and large multiple, interconnected engine systems.

Overhauls a variety of intricate fuel injection systems.

Overhauls and rebuilds transmissions such as those which have braking, steering, and differential systems mechanically integrated with the transmission.

Drives a vehicle such as a pickup truck, tow truck and so forth to various locations to service disabled motor vehicles.

Examines and discusses with operator the nature of the malfunctions, manipulates gears, examines battery, checks fan belt, raises and lowers attachment on equipment, and diagnoses problems and makes needed adjustments and repairs.

May provide guidance and instruction to those assigned as mechanic helpers.

Maintains essential records and files.

Will be required to learn to utilize various types of electronic and/or manual recording information systems used by the agency, office or related unit.

REQUIREMENTS:

TRAINING

Successful completion of one (1) year of training in automotive technology at an accredited community college or vocational school.

EXPERIENCE:

Two (2) years of experience in the maintenance and repair of various types of motor vehicles and/or construction equipment such as bulldozers, tractors, cranes, road graders, power shovels, or similar equipment.

NOTE: Applicants who do not possess the required year of formal training may substitute one (1) additional year of experience as outlined above.

NOTE: An Automotive Service Excellence (ASE) Certification in one of the following specialties from the National Institute for

Automotive Service Excellence may be substituted for the formal training: A-1 Engine Repair, A-6 Electrical/Electronic Systems, A-8 Engine Performance.

LICENSE:

Appointees will be required to possess a driver's license valid in New Jersey.

Appointees may be required to possess a valid Commercial Driver's License (CDL) and applicable endorsements for the class and type of vehicle being operated.

NOTE: The responsibility for ensuring that employees possess the required motor vehicle license, commensurate with the class and type of vehicles they operate, rests with the Appointing Authority.

In accordance with Federal regulation 82:40, appointees responsible for the repair or servicing of motor vehicle air conditioners will be required to obtain and maintain a valid Air Conditioning and Refrigeration Technician, commensurate with the type of equipment serviced, issued by the Federal Environmental Protection Agency.

In accordance with N.J.A.C. 13:20-46.8, appointees responsible for performing the emissions inspections on diesel-powered vehicles will be required to successfully complete a course of Instruction on Diesel Emission Inspection provided through the Appointing Authority. Appointees may be required to successfully complete re-training.

In accordance with the New Jersey Occupational Safety and Health Administration regulation 29 CFR 1910.178(l) (1), appointees responsible for the operation of industrial trucks (powered forklifts) will be required to obtain and maintain a current certification as a Powered Industrial Truck Operator issued by the New Jersey Occupational Safety and Health Administration. Appointees may be required to successfully complete re-training.

In accordance with N.J.A.C 13:20-45.16, appointees responsible for performing emissions repairs to gasoline-fueled vehicles will be required to successfully complete the Emissions Technical Educational Program, and maintain a current certification as an Emissions Repairer Technician.

In accordance with N.J.A.C. 13:20-43.17, appointees responsible for performing inspections to motor vehicles will be required to successfully complete the training and maintain a current certification as a Motor Vehicle Inspector.

Appointees responsible for repairing or servicing motor vehicles equipped for alternate fuel will be required to successfully complete training and obtain an Alternate Fuel Certification. Appointees who possess an ASE Certification in Alternate Fuel are considered to have met this requirement.

Appointees responsible for repair and servicing of suspension/steering systems are required to possess and maintain an Automobile Service Excellence (ASE) Certification in Suspension and Steering.

Appointees responsible for repair and servicing of brakes are required to obtain an Automotive Service Excellence (ASE) Certification in Brake Repairs.

Appointees may also be required to obtain ASE certifications in Engine Repair A-1 and Engine Performance A-8.

KNOWLEDGE AND ABILITIES:

Knowledge of where and how a variety of automotive systems, components, accessories, and parts of systems such as wheel cylinders, fuel lines, condensers, and mufflers are installed.

Knowledge of varied types of motors and equipment and their operation.

Knowledge of procedures for diagnosing the reasons for motor failure and the steps necessary to correct the condition.

Knowledge of makeup, operation, and installation procedures for all components and systems of vehicles such as engines, transmissions, front and rear-end assemblies, electrical, and hydraulic systems.

Knowledge of the mechanical makeup, operation, and working relationships of a variety of heavy duty systems, assemblies, and parts such as diesel, multifuel, and gasoline engines including supercharged and turbocharged engines, automatic and non-automatic transmissions, and gear reductions systems including those with torque converters, planetary gears, and more than one gear range, and driveline assemblies including differentials, power dividers, and dual speed axles, hydraulic lifting, loading, turning, and positioning systems including their mechanical, hydraulic, and pneumatic controls.

Ability to determine the mechanical defects which cause engines, transmissions, hydraulic systems, and other major systems and their components to fail to operate properly.

Ability to use a wide range of diagnostic and testing equipment including electrical, electronic, light, and pressure types to determine cause of mechanical problems such as engine analyzers dynamometers, exhaust analyzers, vacuum and fuel pump testers, injector testers, ignition timers, tachometers, ammeters, and ohmmeters.

Ability to use technical manuals, specifications, diagrams, schematics, and similar guides to make repairs and modifications to equipment.

Ability to improvise, substitute, and alter parts to fit and mesh in systems for which the parts were not designed or when technical manuals, diagrams, schematics, or similar guides do not apply.

Ability to disassemble, rebuild, adjust, reassemble, reinstall, and align various automotive components and assemblies.

Ability to manipulate small objects with the fingers such as bolts, ignition wiring, points, plugs, and measuring instruments.

Ability to determine when parts should be cleaned and reinstalled or removed and replaced with standard parts and the types and extent of adjustment and alignment required.

Ability to make tune-up adjustments and settings such as setting points and timing engines according to specifications.

Ability to obtain, store, record, safeguard, and properly use

equipment, materials, and supplies.

Ability to read diagrams, blue prints, and schematics.

Ability to use mechanic hand tools and small power tools such as pliers, screw drivers, pneumatic wrenches, and drills.

Ability to use a variety of test equipment such as feeler gauges, circuit testing, timing lights, dwell meters, dial gauges, oscilloscopes, exhaust analyzers, and engine and chassis dynamometers.

Ability to learn to utilize various types of electronic and/or manual recording information systems used by the agency, office or related units.

Ability to read, write, speak, understand, or communicate in English sufficiently to perform the duties of this position. American Sign Language or braille may also be considered as acceptable forms of communication.

Persons with mental or physical disabilities are eligible as long as they can perform essential functions of the job with or without reasonable accommodation. If the accommodation cannot be made because it would cause the employer undue hardship, such persons may not be eligible.