

**MICHIGAN CIVIL SERVICE COMMISSION  
JOB SPECIFICATION**

**HEAVY EQUIPMENT MECHANIC**

**JOB DESCRIPTION**

Employees in this job perform a variety of activities designed to service, repair and maintain pieces of state-owned heavy equipment. The work is performed through the application of a body of knowledge and specific certifications that denote expertise in heavy equipment maintenance.

There are three classifications in this job.

**Position Code Title – Heavy Equipment Mechanic-E**

Heavy Equipment Mechanic 9

This is the intermediate level. The employee performs a range of maintenance, repair and service activities on heavy equipment in a developing capacity, with minimal technical assistance from experienced-level mechanics.

Heavy Equipment Mechanic E10

This is the experienced level. The employee performs a full range of maintenance, repair and service activities on heavy equipment. The employee uses considerable independent judgment in making decisions without the availability of supervision.

**Position Code Title – Heavy Equipment Mechanic-A**

Heavy Equipment Mechanic 11

This is the advanced level. The employee serves as a lead worker overseeing two or more lower-level Heavy Equipment Mechanics or as an advanced-level worker performing the most complex assignments. The lead worker provides technical assistance in diagnosis and repair of heavy equipment, working closely with lower-level mechanics. Under guidance of supervision, the lead worker schedules work, monitors quality control for work performed, and customer relations. The advanced-level worker performs assignments that go beyond those typically expected at the experienced level.

**NOTE:** Employees generally progress through this series to the experienced level based on satisfactory performance and possession of the required experience.

**JOB DUTIES**

**NOTE:** The job duties listed are typical examples of the work performed by positions in this job classification. Not all duties assigned to every position are included, nor is it expected that all positions will be assigned every duty.

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Performs maintenance and repair activities on various pieces of heavy equipment including but not limited to heavy-duty truck and semi-tractors, material spreader, 6-wheel drive military type vehicles, excavators, skidders, high pressure pumps, 25 ton and smaller bulldozers, graders, cranes, snowmobile groomers, underbody blades, dump bodies, snow plows, crawler tractors and trailers, backhoes, trailers, electronic message boards and signs, street sweepers, aerial towers and man lifts.

Diagnoses, services and repairs various systems that are found on pieces of heavy equipment such as mechanical and computer electronic controls, air brake systems, transmissions, computer controlled automatic and 13 speed manual transmissions, high voltage generators, propane powered equipment, and pneumatic systems.

Troubleshoots malfunctions in the equipment and repair.

Repairs and services track drive sprockets, rails, idler wheels, hard bars, track adjusters, hydraulic reversers, final drives, brake bands, steering clutches and hydrostatic transmissions.

Fabricates, modifies, and installs special equipment or replacement parts using mills, lathes, welders, torch sets, plasma cutter and metal cutting saws.

Performs routine maintenance checks and adjustments on such things as fluid levels, hoses, belts, brakes, tires, and clutches; changes filters and oil, and lubricates vehicles and motor driven equipment.

Services, diagnoses, repairs and maintains speed tandem drive axles with air or electric shift, hydrostatic driven, heavy duty multi-axle suspensions, both conventional steel or air springs.

Tunes gas and diesel engines, services valves, fuel filters and turbo chargers, and pressure checks fuel filters, adjust injector heights, fuel racks, governors, etc.

Diagnoses problems, disassembles units, repairs or replaces parts, and reassembles units in the following systems:

**Brakes:** Repairs or replaces shoes, pads, drums, hoses, calipers, cylinders, any heavy-duty air brakes.

**Cooling:** Flushes radiator, replaces hoses and thermostat, repairs or replaces radiator and water pump, fan drives, DCA treatment filters, air intercoolers and oil coolers.

**Drive:** Repairs and replaces drive shaft, differential, axle, manual, automatic and sophisticated computer-controlled transmissions, clutches, transfer cases, power take-off systems, transmission reversers, all wheel drive steering axles and final drives.

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**Electrical:** Repairs or replaces fuses, batteries, lights, instruments, warning devices, controls and switches, computer controls, modules, alternators, starters, and defective cables and wiring. This will include 12 and 24-volt systems found on military equipment.

**Exhaust and Emissions Control:** Replaces mufflers, manifolds, catalytic converters, turbochargers, blowers, and pipes.

**Heating and Air Conditioning:** Repairs or replaces heater cores, condensers, compressors, hoses, and controls; recharges air conditioning systems.

**Hydraulic:** Repairs or replaces pumps, hoses, valves, winches and cylinders.

**Air:** Repairs or replaces compressors, air dryers, brake valves, air tanks and hoses.

**Steering and Suspension System:** Aligns and balances wheels, repairs or replaces tie rods, ball joints, gear boxes, shock absorbers, springs, steering linkage, kingpins, power steering, hoses, pumps, walking beam suspensions and air suspensions.

**Coupling Devices:** Adjusts, repairs, inspects and replaces fifth wheel hitches and pintle hitches.

Overhauls engines, replaces engines, and rebuilds components.

Maintains service logs and records of maintenance on vehicles and motorized equipment, using fleet maintenance and management software.

Prepares work orders and cost materials estimates.

Keeps tools, equipment, and work area clean, organized, and in good working condition.

May assist in training lower-level workers in mechanical repair techniques.

Road tests vehicles.

Performs related work as assigned.

### **Additional Job Duties**

#### **Heavy Equipment Mechanic 11**

Provides instruction and training in the proper methods and processes necessary to perform equipment repair, inspection and preventive maintenance.

Performs inspections on a variety of heavy equipment in the field offices for the Departments of Natural Resources and Transportation throughout the state.

Makes emergency field repairs to a variety of specialized wildfire suppression vehicles.

Assigns work to lower-level mechanics.

Maintains inventory and orders fuel, parts, tools, equipment, and supplies.

Assists other mechanics with the more difficult assignments.

Performs layout work for fabrication of parts and equipment.

**JOB QUALIFICATIONS**

**Knowledge, Skills, and Abilities**

**NOTE:** Developing knowledge is required at the intermediate level, considerable knowledge is required at the experienced level, and thorough knowledge is required at the advanced level.

Knowledge of the standard practices, materials, tools, and equipment used in the repair and maintenance of motor vehicles and engines.

Knowledge of safety issues in the use of tools, equipment, and supplies used in repair of motorized vehicles and equipment.

Knowledge of body and frame construction.

Skill in the use of a variety of hand tools.

Skill in the use of gas and electric welding equipment.

Skill in the use of mechanized tools, jacks, and hoists.

Skill in the use of a variety of diagnostic testing and tuning equipment.

Ability to diagnose mechanical, electrical and hydraulic malfunctions.

Ability to read manuals and schematics.

Ability to rebuild engines and major driveline components.

Ability to communicate with other mechanics about repair work needed.

Ability to enter repair information in fleet maintenance management software.

**Additional Knowledge, Skills, and Abilities**

**Heavy Equipment Mechanic 11**

Ability to provide training and explain instructions and guidelines to others effectively.

Ability to organize and coordinate the work of the unit.

Ability to determine work priorities and assign work to employees.

**Working Conditions**

Some jobs require an employee to be exposed to inclement weather conditions.

Some jobs require an employee to be exposed to hazardous work environments.

**Physical Requirements**

The job duties require an employee to move heavy objects.

The job duties require an employee to traverse rough terrain.

**Education**

Educational level typically acquired through the completion of high school.

**Experience**

**Heavy Equipment Mechanic 9**

Two years of experience assisting skilled trades people in the repair and maintenance of heavy equipment.

**Heavy Equipment Mechanic E10**

Four years of experience assisting skilled trades people in the repair and maintenance of heavy equipment, including two years equivalent to a Heavy Equipment Mechanic 9.

**Heavy Equipment Mechanic 11**

Five years of experience assisting skilled trades people in the repair and maintenance of heavy equipment, including one year equivalent to a Heavy Equipment Mechanic E10.

**Alternate Education and Experience**

Possession of an associate's degree in Heavy Duty Truck/Heavy Equipment Repair may be substituted for two years of experience assisting skilled trades people in the repair and maintenance of heavy equipment.

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**Special Requirements, Licenses, and Certifications**

**Heavy Equipment Mechanic 9**

Continuing employment will require possession of the Commercial Driver's License (CDL) issued by the Secretary of State as required by Public Act 346 of 1988 to operate a designated state vehicle. This license must be obtained within six months from the date of the appointment.

**Heavy Equipment Mechanic E10 and Heavy Equipment Mechanic 11**

Positions require possession of the Commercial Driver's License (CDL) issued by the Secretary of State as required by Public Act 346 of 1988 to operate a designated state vehicle.

**NOTE:** Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

**JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION**

**Job Code**

HVYEQTMCH

**Job Code Description**

Heavy Equipment Mechanic

**Position Title**

Heavy Equipment Mechanic-E

Heavy Equipment Mechanic-A

**Position Code**

HYEQMCHE

HYEQMCHA

**Pay Schedule**

A31-022

A31-018

ECP Group 1  
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