

JOB DESCRIPTION  
MECHANIC  
DENVER FIRE DEPARTMENT, JANUARY 1997  
REVISED: JANUARY 2002, SEPTEMBER 2006, JANUARY 2011,  
FEBRUARY 2015, OCTOBER 2016, JANUARY 2020

General Statement of Duties

Performs skilled work in the maintenance and repair of automotive equipment, fire apparatus, fire suppression/rescue equipment, and life safety gear.

Supervision Received

Works under the direct supervision of the Assistant Master Mechanic.

Interpersonal Relationships

Mechanics meet with fire department staff (colleagues, supervisor, firefighters, command staff, etc.) and the public during routine day-to-day operations.

Typical Working Conditions

Mechanics work in the fleet management shop. In this environment, Mechanics will perform routine day-to-day activities, such as maintaining and repairing automotive equipment, fire apparatus, fire suppression, and safety equipment. Outside of the fleet management shop, Mechanics perform essential job functions in all weather and potentially hazardous emergency scene conditions.

Primary Duties and Essential Functions

1. Maintain or repair all types of automobiles, vans, and light duty trucks of all types including two-wheel drive, four-wheel drive, and all-wheel drive.
2. Maintain or repair pumping fire apparatus.
3. Maintain or repair aerial ladder (and platform) fire apparatus.
4. Maintain or repair heavy rescue, hazmat, and other specialty fire apparatus.
5. Maintain or repair wild land fire apparatus.
6. Repair or overhaul fire pumps.
7. Repair or overhaul foam systems.
8. Conduct acceptance tests on all new fire pump-equipped vehicles.
9. Conduct acceptance tests on all new aerial ladder/tower apparatus.
10. Annually test pumps, aerial ladder/tower apparatus, brakes, etc.
11. Record results of all tests for Department records.
12. Operate as road call service mechanic as assigned.
13. Maintain or repair self-contained breathing appliances.
14. Maintain or repair power supply generators (stationary and portable).
15. Maintain or repair gasoline engine rescue saws and chain saws.
16. Repair or overhaul automatic transmissions.
17. Repair or overhaul manual transmissions.
18. Repair or overhaul drive train components.

19. Repair or overhaul suspension systems.
20. Repair or overhaul carburetor/fuel injection systems.
21. Repair or overhaul air/hydraulic brake systems.
22. Repair or overhaul electrical wiring systems.
23. Repair or overhaul air conditioning systems.
24. Repair or overhaul hydraulic systems.
25. Repair or overhaul cooling systems.
26. Operate mechanical, electronic and computerized diagnostic and testing equipment.
27. Diagnose mechanical problems using diagnostic equipment and own experience.
28. Perform sheet metal layout work for vehicle body rebuilding and general fabrication.
29. Design and construct vehicle and equipment parts from sheet metal, steel, brass, bronze, aluminum and fiberglass.
30. Perform body repairs for all types of vehicles.
31. Operate power sheet metal brake.
32. Operate power shear.
33. Operate hydraulic iron worker.
34. Operate electric arc welder.
35. Operate MIG and TIG welders.
36. Operate plasma cutter.
37. Operate oxygen/acetylene welding and cutting torch.
38. Operate propane torch.
39. Operate metal lathes.
40. Operate milling machines.
41. Operate drill press.
42. Operate hydraulic press.
43. Operate other tools as necessary.
44. Clean up own work area and store tools in designated places daily.
45. Become proficient at using a personal computer and current fleet management software to record all labor codes and hours spent on jobs, to record parts used on jobs, and to write detailed descriptions of actual work performed.

### Secondary Duties

- a. Maintain or repair man lifts.
- b. Maintain or repair vehicle lifts.
- c. Maintain or repair fire hose, hose coupling, and nozzles.
- d. Maintain or repair exhaust fans and power supply cords.
- e. Maintain or repair aluminum roof and extension ladders.
- f. Maintain or repair ladders.
- g. Maintain or repair extrication devices.
- h. Maintain or repair portable water pumps.
- i. Maintain or repair purified breathing air/high pressure air compressor.
- j. Maintain or repair small power and hand tools (lawnmowers, snowmobiles, cable and chain hosts, hydraulic jacks, etc.).
- k. Test and certify self-contained breathing appliances for proper operation.
- l. Respond to greater alarm fires or emergencies as directed to give technical, logistical, and physical support.
- m. Operate tow truck to tow disabled Department vehicles as necessary.

- n. Anticipate and carry out re-fueling and lubrication of emergency vehicles at scene of emergency when needed.
- o. Respond to accident scenes involving Department vehicles as necessary to perform repairs, offer assistance, tow damaged vehicles into shop, etc.
- p. Operate high pressure hydraulic hose coupling machine.
- q. Conduct classes for other Department members in maintenance and repair of self-contained breathing appliances.
- r. Conduct classes for other Department members in familiarization, application, and operation of new vehicles and equipment.
- s. Conduct classes for other Department members in fire hose maintenance and testing.
- t. Conduct classes for other Department members in minor repair of vehicles and equipment.
- u. Conduct classes for other Department members in set-up and operation of pumps, pumpers, aerial ladders, ladder towers, etc.
- v. Conduct classes for other Department members in causes and effects of improper vehicle and equipment usage.
- w. Fill in as shop supervisor for Assistant Master Mechanic as necessary.
- x. Accurately complete Department forms and miscellaneous paperwork as required.

#### Knowledge, Skills and Abilities Required to Perform Essential Job Functions

- Knowledge of a very broad scope of vehicle associated systems, including but not limited to: engine, fuel, exhaust, emission, suspension, electrical, computer, multiplex, drive train, body and paint, tires, wheels, brakes.
- Knowledge of and ability to safely use the appropriate tools in all aspects of vehicle repair.
- Knowledge of and willingness to adhere to appropriate safety procedures that may be associated with any particular make, model or style of vehicle.
- Knowledge of transfer cases, suspensions and axle systems associated with specialized drive systems. (Multi-axle drives, all wheel steering, etc.)
- Knowledge of G.V.W. (Gross Vehicle Weight) ratings with respect to operational safety of a vehicle.
- Knowledge of heavy-duty automatic transmissions and all associated principles of operation.
- Knowledge of manual transmissions and all associated principles of operation.
- Knowledge of drive train components (both light and heavy-duty) and understanding of dangers associated with using “substitute” parts or procedures to short cut repairs.
- Knowledge of different suspension systems (i.e., strut, coil spring, elliptic or semi-elliptic spring, air ride, walking beam, torsion bar, etc.).
- Knowledge of and experience with heavy-duty suspension systems and an appreciation for the potential of accident or serious injury to equipment user and the citizen at large in the event of a suspension failure or mechanic error.
- Knowledge of types of carburetor/fuel injection systems.
- Knowledge of ability to use safety procedures relating to fuels and fuel systems.
- Knowledge of and ability to repair both hydraulic and air brake systems.
- Knowledge of different types of air/hydraulic brake systems.
- Knowledge of and ability to use safety procedures related to repair or overhaul of air/hydraulic brake systems.

- Knowledge of and experience with heavy-duty brake systems and an appreciation for the potential of accident or serious injury to equipment user and the citizen at large in the event of a brake failure or mechanic error.
- Knowledge of complex automotive electrical systems and ability to troubleshoot and repair same.
- Knowledge of and ability to mount external (aftermarket) electrical components and properly integrate same with vehicle electrical systems.
- Knowledge of and ability to use safety procedures related to electrical systems.
- Knowledge of different types of hydraulic systems and ability to repair same.
- Knowledge of basic fluid hydraulics and familiarity with hydraulic system components.
- Knowledge of and ability to use safety procedures related to hydraulic systems.
- Knowledge of basic cooling systems and familiarity with cooling system components.
- Knowledge of different types of diagnostic and testing systems.
- Knowledge of types of sheet metal used for layout work for vehicle body rebuilding.
- Knowledge of equipment needed to perform metal layout work for vehicle body rebuilding.
- Knowledge of types of metals and materials used in the design and construction of vehicle and equipment parts from sheet metal, steel, brass, bronze, aluminum, and fiberglass.
- Knowledge of all aspects of machine shop work, tools, and equipment.
- Knowledge of and ability to use applicable machine shop safety procedures or precautions.
- Knowledge of basic operation and use of power sheet metal brake.
- Knowledge of basic operation and use of power shear.
- Knowledge of types of metals and rods to use when operating an electric arc welder.
- Knowledge of both AC and DC use in welding.
- Knowledge of types of metals and rods to use when operating inert gas welders.
- Knowledge of basic use of metal lathe.
- Knowledge of types of materials used with a metal lathe and appropriate methods of machining each.
- Knowledge of operation of hydraulic press.
- Knowledge of various tools and techniques for proper and safe use.
- Knowledge of reasons for cleaning up work areas and putting tools away properly.
- Knowledge of basic mathematics, such as addition, subtraction, division, and multiplication.
- Skill in using appropriate electronic and mechanical diagnostic equipment, interpreting results, and taking action necessary to make a proper repair.
- Skill in operation of multiple vehicle types including, light, medium, and heavy-duty as well as motorized shop equipment (forklift).
- Skill in carrying out necessary repairs on both heavy-duty and light-duty transmissions, and taking action necessary to affect repair.
- Skill in diagnosing malfunctions, using correct test equipment in an efficient, safe and timely manner.
- Skill in performing repair and overhaul of drive train components.
- Skill in repairing and overhauling all types of fuel systems.
- Skill in performing independent diagnosis of problems when specialized diagnostic equipment may not be available.
- Skill in repairing and overhauling external electrical components.

- Skill in using diagnostic test equipment to test, analyze, repair, overhaul, isolate or rule out a problem.
- Skill in using hand and power tools in an efficient and safe manner.
- Skill in repairing cooling systems.
- Skill in measuring and calculating needed material and laying out patterns when performing sheet metal layout work for vehicle body rebuilding or fabricating.
- Skill in building various parts, bushings, spacers, etc., from sheet metal, steel, brass, bronze, aluminum, and fiberglass.
- Skill in welding in all positions.
- Skill in setting up metal lathes, sharpening and selecting appropriate cutting tools, and selecting proper feeds and sequences.
- Skill in setting up and performing tasks on the drill press.
- Skill in ensuring that parts used are recorded immediately.
- Skill in attending to details of paperwork completion.
- Skill in the use of computers for data entry and retrieval.
- Skill in interpersonal relationships as applied to contact with colleagues, supervisors, other members of the fire department, and the public.
- Ability to obtain Colorado “C” driver’s license.
- Ability to perform assigned tasks in an efficient and timely manner.
- Ability to maintain and effect repairs on four-wheel drive vehicles.
- Ability to repair and maintain front and rear two-wheel drive systems.
- Ability to perform repair and overhaul of automatic transmissions.
- Ability to perform repair and overhaul on manual transmissions.
- Ability to perform diagnostic tests in an efficient, safe, and timely manner.
- Ability to use hand and power tools in an effective and safe manner.
- Ability to use a multi-gas analyzer and associated diagnostic equipment.
- Ability to recognize fuel contaminants and identify related problems in a usage situation.
- Ability to repair fuel contaminant problems.
- Ability to follow and willingness to adhere to rigid test and documentation procedures.
- Ability to use safety procedures and equipment effectively at all times.
- Ability to learn from past experience and/or mistakes.
- Ability to utilize own experience to diagnose mechanical problems when necessary.
- Ability to use metal cutting and shaping tools, body hand tools and body filling techniques.
- Ability to judge, using experience and training, whether to repair or replace body parts.
- Ability to recognize various metals and alloys and choose appropriate method of welding and appropriate filler rod.
- Ability to set up and perform tasks on the metal lathe.
- Ability to convert various aspects of machine to accommodate different product configurations.
- Ability to recognize and use related components when operating a hydraulic press.
- Ability to write legibly and to express oneself clearly and accurately in writing, using proper grammar, punctuation, and spelling.
- Ability to relate job type to repair code categories.
- Ability to tolerate redundant and sometimes complicated forms and records.
- Ability to maintain and portray a positive attitude toward performing tasks.

- Ability to maintain a mental focus on a task in a very distracting environment.
- Ability to maintain harmonious relations with co-workers.
- Ability to type at a functional level.
- Ability to convert data from U.S. standards to metric standards.
- Ability to work at elevated levels exceeding 100 feet.
- Ability to work in confined spaces.

### Physical Requirements

- Standing: remaining on one's feet in an upright position for extended periods of time on all types of surfaces.
- Lifting: raising or lowering an object from one level to another weighing up to 80 pounds.
- Carrying: transporting an object, usually by hand, arm or shoulder.
- Reaching: extending the hand(s) and arm(s) in any direction.
- Handling: seizing, holding, grasping or otherwise working with hand(s).
- Fingering: picking, pinching or otherwise working with fingers.
- Talking: expressing or exchanging ideas by means of spoken words.
- Hearing: perceiving the nature of sounds by the ear.
- Repetitive motions: making frequent movements with a part of the body.
- Eye/hand/foot coordination: performing work through using two or more.

### Mental Requirements

- Mathematical Reasoning
- Memorization
- Oral Comprehension
- Spatial Orientation
- Written Comprehension

### Experience/Education Requirements

#### Minimum Education

- As required by Civil Service Rules and Regulations

#### Minimum Experience

- As required by Civil Service Rules and Regulations.

#### Necessary Special Requirements

- As required by Civil Service Rules and Regulations.
- Willing to work overtime and be recalled for emergencies at all hours and weekends.