

COMPETENCY MODEL FOR EQUIPMENT MECHANIC (3711)

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **EQUIPMENT MECHANIC (3711)**. (Numbers refers to the order of the competencies in the Competency Bank.)

1. Reading Comprehension
6. Attention to Detail
8. Safety Focus
10. Physical Capability
20. Job Knowledge
23. Equipment Operation
26. Electrical Understanding
47. Written Communication

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized*, **bolded**, and underlined), examples of behavioral indicators, and satisfactory and superior performance levels.

1. READING COMPREHENSION – Comprehends and correctly applies information presented in written form. Makes correct inferences; draws accurate conclusions.

Level of Competency Required by Job:

- Level 1: Concrete, specific job-related information (work orders; instructions; material/equipment labels)
- Level 2: **General information related to field of work and assignments; (articles in trade publications; technical/instructional manuals; memos; letters; e-mails; reports)**
- Level 3: Abstract/complex information (highly technical articles/ reports in specialized area; legal or other regulatory material)

Examples of Behavioral Indicators:

- Follows written instructions correctly.
- Learns information presented in writing.
- Identifies relevant written information.
- Interprets written legal regulatory material accurately.

Performance Levels:

Satisfactory

Reads instructions correctly. Learns from manual and other printed material.

Superior

Learns from manual and may answer others' questions. Explains information presented in written form to others.

Reading Comprehension Area

1. Knowledge of how to read and interpret wiring diagrams, hydraulic diagrams, component diagrams, and/or diagnostic flow charts (e.g. trouble tree) and their uses, sufficient to identify and diagnose an issue in a system or piece of equipment.

6. ATTENTION TO DETAIL – Extremely careful in addressing all aspects of each work assignment in order to produce “completed staff work” and/or avoid any negative outcomes.

Level of Competency Required by Job:

Level 1: Ensure all aspects of work assignment are completed as directed.

Level 2: **Verify that each aspect of work assignment is properly completed; make logical inference regarding additional activities that may need to be performed to produce “completed staff work.”**

Level 3: Include evaluation of final work/work product in its accomplishment; make adjustments as possible to improve.

Examples of Behavioral Indicators:

- Carefully checks all aspects of work for completion and accuracy before submitting.
- Identifies errors (for example, typo’s, computations, measurements, application of laws/rules/policies) and corrects them prior to submitting.
- Cross-checks work against available resources.
- Sets up a means of checks and balances to ensure work accuracy.
- Considers changes in final work product to ensure usability by recipient.
- Completes all revisions upon request.

Performance Levels:

Satisfactory

Ensures that each task accomplished represents “completed staff work.” No remaining details/ inconsistencies for others to address.

Superior

All aspects of each task completed are verified to be correct. Identifies any foreseeable consequences of work that may need to be addressed and does so.

8. SAFETY FOCUS – Performs work in a way that minimizes risk of injury to self or others.

Level of Competency Required by Job:

- Level 1: Maintain awareness of unsafe conditions and actions to avoid injury.
- Level 2: Follow safety rules/procedures; avoid known hazards in the work environment.
- Level 3: **Carefully follow safety rules and procedures and consistently use all necessary safety equipment.**

Examples of Behavioral Indicators:

- Wears seat belt.
- Ensures safe physical work environment by taking actions such as eliminating unstable stacks of materials, closing drawers so filing cabinets will not tip over, and keeping pathways clear of tripping hazards.
- Reviews safety procedures before beginning each job with known hazards.
- Follows safety procedures while performing work even when it takes more time.
- Uses safety equipment such as goggles, gloves, and earplugs as required or warranted.
- Frequently checks safety equipment for proper condition and operation.

Performance Levels:

Satisfactory

Maintains awareness of personal safety to avoid injury or property damage during all work activities.

Superior

“Safety first.” Places avoidance of injury or property damage above all other job requirements. Mentions the need to follow safe work practices to co-workers. Actively seeks ways to avoid injury.

Safety Focus Areas

1. Knowledge of the appropriate personal protective equipment (PPE) and materials necessary when working on equipment, such as hardhats, respirators, ear protection, oil/slip-resistant and/or steel-toed shoes, safety glasses, gloves, and aprons, sufficient to ensure a safe work environment for self and others.
2. Knowledge of the laws governing vehicle emission standards, such as emission tolerance, necessary documentation, and certification of test equipment, sufficient to comply with Federal and State mandated laws when servicing equipment.

10. PHYSICAL CAPABILITY – Strength, endurance, flexibility, and/or coordination.

Level of Competency Required by Job:

- Level 1: Sitting and/or standing for extended periods of time.
- Level 2: **Awkward body position and/or precise motions required; and/or repeated lifting, carrying, and/or manipulation of objects; and/or walking for extended periods of time.**
- Level 3: Continuous or extreme exertion of physical effort.

Examples of Behavioral Indicators:

- Sits and may occasionally stand or walk for entire workday (except breaks).
- Walks for the duration of the workday.
- Repetitive motion required to perform task.
- Repeatedly lifts and carries heavy objects.
- Exerts maximal effort for extended periods of time.

Performance Levels:

Satisfactory

Performs tasks requiring physical capability satisfactorily and without undue physical stress or harm.

Superior

Performs tasks requiring physical capability correctly with relative ease. May be asked to perform the most physically demanding tasks or be sought by co-workers for assistance.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

- Level 1: **Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.**
- Level 2: Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.
- Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/ programs and/or give internal and/or external presentations related to work.

Job Knowledge Areas

1. Knowledge of tire, wheel, and steering principles and components, such as tire load capacity ratings, wheel mounting and balancing, tire pressure monitoring systems (TPMS), and tread wear and damage, sufficient to determine safe limits, proper alignment, and proper wear.
2. Knowledge of drive line principles and components, such as constant velocity joints, center support, time and phase of “U” joints, alignment, balance, slip yokes, flanges, and grease fittings, sufficient to determine the proper function of the drive line.
3. Knowledge of emission gases and devices, such as carbon monoxide, hydrocarbon, oxides of nitrogen, mufflers, pipes, catalytic converters, and diesel particulate filters, sufficient to determine proper and safe operation of the system.
4. Knowledge of the proper and safe use of hand and power tools, such as wrenches, torches, transmission stands and floor jacks, tire irons, hoists, jack stands, and pumps, sufficient to maintain, repair, and/or replace equipment components.
5. Knowledge of diagnostic tools and equipment, such as various meters, gauges, scan tools and analyzers, leak detectors, pressure testers, and dial indicators, sufficient to identify issues on equipment, repair and/or replace parts and components when necessary, and maintain the equipment in good working condition.
6. Knowledge of fuel system components, such as fuel pumps, filters, tank selector valves, fuel lines, fuel tanks, and fuel sensing units, sufficient to ensure proper fuel delivery to carburetors or fuel injectors.
7. Knowledge of final drive components, such as rings and pinions, spider gears, axle shafts, bearings, and limited slip carriers, sufficient to identify and repair issues, and provide a proper, smooth, and quiet operation of equipment.

23. EQUIPMENT OPERATION – Operates specialized equipment in performance of job duties.

Level of Competency Required by Job:

- Level 1: Operate equipment based on on-the-job training.
- Level 2: **Operate equipment based on attendance at a training program and practice.**
- Level 3: Operate equipment for which in-depth, complex training was required and which may require certification.

Examples of Behavioral Indicators:

- Operates equipment proficiently.
- Operates equipment with strict adherence to safety procedures.
- Understands the operation of equipment used on the job and correctly answers questions about it.
- Willingly participates in any training necessary to maintain up-to-date knowledge of equipment operation.

Performance Levels:

Satisfactory

Operates equipment safely and with a high degree of proficiency.

Superior

Operates equipment with extreme proficiency and correctly answers questions about its operation. Trains and/or coaches others in the operation of equipment.

Equipment Operation Areas

1. Knowledge of vehicular cooling and heating systems and operation, such as coolant type, necessary pressure, and airflow, sufficient to determine system malfunction, make necessary repairs to the systems, and maintain the engine at proper operating temperature.
2. Knowledge of air, hydraulic, and electro-mechanical brake systems, components, and their operation, such as anti-lock brake systems (ABS) and magnetic components found in electro-mechanical brake systems, sufficient to troubleshoot and make repairs.
3. Knowledge of the basic design, construction, mechanical principles, and operation of internal combustion engines, such as the difference between gasoline and diesel engines, the reaction between the engine and gas, diesel, liquid petroleum gas (LPG), or methanol fuel systems, and how internal parts (e.g. pistons, cam shafts, crank shafts, piston rings, and wrist pins) function, sufficient to diagnose and determine engine serviceability.
4. Knowledge of the operation of automatic and manual transmission equipment, including maintenance requirements, electrical controls, and/or clutch operation, sufficient to diagnose failures and drivability concerns associated with the equipment.
5. Knowledge of vehicle or equipment accessories and their operation, such as power take-off (PTO), emergency lighting, air conditioning (AC), winches, power windows, and power door locks, sufficient to determine repair and proper component operation.

26. ELECTRICAL UNDERSTANDING – Comprehends the concept and the operation of flow of electrical current.

Level of Competency Required by Job:

- Level 1: Know the properties of electricity relevant to the work environment and work to be performed in order to correctly perform work and recognize hazards that will be created by the failure to do so.
- Level 2: **Sufficient understanding of electricity to recognize problems and determine repair needed to prevent disaster/restore operation.**
- Level 3: In-depth understanding of electrical principles and phenomena sufficient to design and/or oversee the installation of complex electrical systems.

Examples of Behavioral Indicators:

- Ensures safe physical work environment by taking actions such as eliminating exposed electrical wire, faulty connections, empty sockets, and overloaded circuits.
- Recognizes the danger of fire from faulty electrical installations.
- Uses tools, equipment, and instruments properly to accomplish electrical work correctly and safely.
- Systems designed and/or for which installation is overseen perform as intended upon completion.

Performance Levels:

Satisfactory

Understands the operation of electricity sufficient to readily learn and perform electrical work.

Superior

Displays exceptional insight into the operation of electrical systems, and makes correct inferences regarding them. Promptly and accurately troubleshoots problem.

Electrical Understanding Areas

1. Knowledge of basic electrical and/or electronic theory, such as resistance, voltage, and amperage, sufficient to diagnose, test, and repair vehicle electrical systems and accessories, such as starters, alternators, lighting systems, electrical wiring, relays, regulators, ignition cables, primary ignition systems, fuse blocks, switches, and gauges.
2. Knowledge of the basic principles and operation of the charging system, such as circuit operation, testing for faults and proper operation, and how the generator and alternator supplies electrical power to the battery, sufficient to identify and diagnose issues.

47. WRITTEN COMMUNICATION – Communicates effectively in writing.

Level of Competency Required by Job:

- Level 1: **Write notes/e-mails. Completes forms with some open-ended responses (sentences).**
- Level 2: Write letters, articles/reports, and/or detailed descriptions of activities/occurrences.
- Level 3: Write lengthy reports, instruction manuals, in-depth analyses/reviews of complex issues and/or articles for publication. Reviews the written work of others.

Examples of Behavioral Indicators:

- Writing includes the necessary information to convey the intended message.
- Sufficiently few errors in spelling, punctuation, grammar to not interfere with the intended message or distract the reader.
- Little editing or re-writing needed to produce a final product.
- Composes materials efficiently.
- Information is presented in a well organized manner.
- Tone and degree of formality are appropriate to the purpose and audience.

Performance Levels:

Satisfactory

Writes material that clearly communicates the necessary information; needs little editing.

Superior

Precisely uses words and organizes information in a way that enhances presentation of the message. Virtually no editing needed.