



07/24/08

PORT ELECTRICAL MECHANIC, 3758

Summary of Duties: Performs skilled electrical, mechanical, electronic, welding and rigging maintenance and repair work on de-energized and energized high voltage electrical conductors, wharf-side high voltage electrical power connections, circuit protection devices and associated switchgear, ship based electrical power connections, barge mounted high voltage electrical equipment, container cranes, drawbridges, and other related marine terminal structures and equipment; and performs other related duties as a designated Qualified Electrical Worker.

Distinguishing Features: Port Electrical Mechanic is a journey-level employee whose work is not limited to one particular skilled field. An employee of this class performs all necessary maintenance and repairs involving skilled electrical, mechanical, electronic, welding and rigging work on marine terminal structures and equipment operated at the Port of Los Angeles. A Port Electrical Mechanic receives written and verbal instructions and may work with plans and diagrams to accomplish work assignments outdoors, at heights of up to 240 feet above the ground, often in hazardous situations. Employees of this class may work on de-energized and energized high voltage electrical circuits and equipment.

Examples of Duties:

- Diagnoses mechanical problems and makes field repairs and adjustments to dockside container cranes; fabricates, repairs, and modifies all parts of equipment found on dockside container cranes; performs visual inspections of crane structure;
- Checks, adjusts and lubricates motor couplings; disassembles, inspects, maintains, repairs, and reassembles gear boxes;
- Checks fit and tolerance of gear boxes; and does precision alignment;
- Lubricates open gears, checks meshes and wear patterns, and makes adjustments to provide proper fit and tolerance;
- Takes oil samples for spectrographic analysis;
- Performs troubleshooting and repairs to hydraulic systems using various instruments and reads hydraulic schematics;
- Machines parts, by utilizing all machine shop equipment and precision hand tools;
- Removes, repairs, and replaces electric motors;
- Replaces motor brushes, cleans motors (vacuums carbon dust and solvent washes armatures and fields), cleans and reconditions commutators, and lubricates and replaces bearings;
- Makes diagnostic checks of electrical components; performs insulation resistance tests on motor windings;
- Takes electrical readings and makes adjustments to potentiometers and adjustable resistors;
- Tests and repairs or replaces condensers, metal oxide varistors and thyristors;
- Cleans and replaces contacts;
- Replaces arc shields, cleans, services, and adjusts high voltage switchgear, transformers, fuses, and buses;
- Lubricates, adjusts, brazes, replaces, and reweaves wire rope;

- Inspects and repairs ropes and cables to ensure that they are safe for the loads to be carried;
- Repairs cracked welds on dockside container cranes using arc, mig (metal inert gas), and oxyacetylene welding processes. Completes forms and reports required of the work and keeps logs and records of maintenance performed and other crane-related matters.
- Installs, maintains, overhauls and repairs high voltage (4.16 KV – 34.5 KV) distribution switchgear, protective relays and control wiring, fiber optic cables and devices, pumping stations, and auxiliary equipment;
- Utilizes safe work practices for the de-energizing, lockout, testing, and grounding of electrical circuits and equipment in low and high voltage electrical distribution stations, motor control centers, and other electrical installations;
- Inspects, maintains, overhauls, tests, and repairs rotating and other electrical equipment and their associated electrical and electronic control devices including programmable logic controllers and microprocessor- based controls, components, devices and systems;
- Arranges for and participates in rigging and hoisting heavy electrical equipment in electrical installations;
- Installs and maintains power electrical systems, Port and facility lighting, switchboards and panel boards, electronic surveillance equipment, fire alarm and signaling systems, public address and inter-division communications, low voltage and line voltage lighting controls and systems;
- May act as a lead person to Port Electrical Mechanics and Port Electrical Mechanic Apprentices;
- Investigates trouble complaints from industrial and commercial Port installations; and
- Performs switching operations and inspects, tests, and maintains equipment at customer stations such as automatic throw over and trip mechanisms on circuit breakers, busses, insulators, and disconnect switches for AMP (Alternative Maritime Power).

May be assigned to other duties for training purposes or to meet technological changes or emergencies.

Qualifications:

Knowledge of:

- Electrical, mechanical, electronic, rigging and hydraulic components and systems;
- Major and minor malfunctions of container cranes and the methods of repairing them;
- Preventive maintenance measures for Port electrical equipment;
- Working of test instruments such as digital and analog volt-ohm meters, clamp-on meters, meggers, dial indicators and pressure test gauges;
- Operation of equipment used in the repair of container cranes and Port electrical equipment;
- Safety principles;
- Hazards involved and the applicable safety procedures for working on or in proximity to open energized conductors and equipment, including CPR, first aid and pertinent provisions of the California Electrical Safety Orders;
- Fundamentals of electricity and electronics as related to the installation, maintenance, and repair of electrical equipment in Port installations; and to the installation, maintenance, and repair of electronic solid state devices, circuits, wiring, and equipment in Port installations, including container cranes;

- Los Angeles City Electrical Code, Cal/OSHA Title 8 Electrical Safety Rules, California Electrical Code, National Electrical Code, and National Electric Safety Code; and
- Port Hazardous Energy Control Program, including lockout/tagout procedures and safety working practices on, or in proximity to, energized low- and high-voltage conductors and equipment.

Ability to:

- Read, interpret and work from electrical schematics, hydraulic diagrams and mechanical blueprints and drawings and verbal and written instructions;
- Write routine, timely reports and descriptions of work accomplished or problems encountered;
- Use tools and protective equipment for work on, in or proximity to, energized high voltage conductors and equipment (4.16 KV – 34.5 KV);
- Work at elevated heights during construction and maintenance activities (up to 240 feet);
- Deal tactfully and effectively with subordinates, other employees, tenants, and the public in handling their problems and complaints; and
- Drive a light truck between job locations and operate forklifts and hydraulic lifts.

Requirements:

1. Completion of a recognized apprenticeship or attainment of journey-level status in an electrical or mechanical trade and one (1) year of full time paid experience with the Port of Los Angeles performing inspections, maintenance, repair of high voltage electrical systems and container cranes; or
2. Seven years of full-time paid experience with the Port of Los Angeles as an Electrical Craft Helper or Mechanical Helper, assisting with inspections, maintenance, and repair of high voltage electrical systems and container cranes; or
3. Seven years of full-time paid experience as a container crane maintenance mechanic performing inspections, maintenance, and repair on high voltage electrical systems and container cranes, only.

License: A valid California driver's license may be required prior to appointment. Some positions may require a Class B commercial driver's license. Some positions may require a license to operate a forklift or a crane.

Physical Requirements: Persons in these classes must be able to lift at least thirty-five pounds and sometimes over seventy pounds. Some positions require frequent or extended standing or frequent bending, stooping, and reaching.

Persons with disabilities may be able to perform the essential duties of this class with reasonable accommodation. Reasonable accommodation will be evaluated on an individual basis and depend, in part, on the specific requirements for the job, the limitations related to the disability, and the ability of the hiring department to reasonably accommodate the limitations.

As provided in Civil Service Commission Rule 2.5 and Section 4.55 of the Administrative Code, this specification is descriptive, explanatory and not restrictive. It is not intended to declare what all of the duties, responsibilities, and required qualifications of any position shall be.