



Job Description

Please note this job description is not designed to cover or contain a comprehensive listing of activities, duties or responsibilities that are required of the employee for this job.

Job title	Industrial Engine Technician I/II
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GENERAL PURPOSE

Under immediate (Industrial Engine Technician I) to general (Industrial Engine Technician II) supervision, performs a wide variety of skilled duties in the inspection, diagnosis, troubleshooting, overhaul, redesign, maintenance, repair and servicing of large industrial stationary engines (natural gas and diesel) powered drive systems; troubleshoots a diverse range of controllers and sensors; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

Industrial Engine Technician I: This is the entry-level classification in the Industrial Engine Technician series. Initially under close supervision, incumbents learn and perform routine duties in the operation, maintenance, and repair of large industrial stationary engines. As experience is gained, assignments become more varied, complex, and difficult; close supervision and frequent review of work lessen as an incumbent demonstrates skill to perform the work independently. Positions at this level usually perform most of the duties required of the positions at the Industrial Engine Technician II level but are not expected to function at the same skill level and usually exercise less independent discretion and judgment in matters related to work procedures and methods. Work is usually supervised while in progress and fits an established structure or pattern. Exceptions or changes in procedures are explained in detail as they arise.

Industrial Engine Technician II: This is the fully qualified, journey-level classification in the Industrial Engine Technician series. Positions at this level are distinguished from the Industrial Engine Technician I by the performance of the full range of duties as assigned, working independently, and exercising judgment and initiative. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit.

This class is distinguished from the Senior Industrial Engine Technician in that the latter performs the more complex work assigned to the series and/or provides technical and functional direction over lower level staff.

Employees in this classification are subject to on-call, which may include rotating duty schedule, weekends and 24-hour emergency call out with little or no notice.

SUPERVISION RECEIVED AND EXERCISED

Receives immediate (Industrial Engine Technician I) to general (Industrial Engine Technician II) supervision from the Industrial Engine Supervisor.

TYPICAL DUTIES AND RESPONSIBILITIES

The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this position.

Positions at the Industrial Engine Technician I level may perform some of these duties and responsibilities in a learning capacity.

- Performs a variety of skilled, journey-level duties involved in the inspection, diagnosis, troubleshooting, maintenance, repair, and servicing of large industrial stationary natural gas and diesel engines.
- Designs, installs, wires, programs, troubleshoots, diagnoses, repairs, and maintains micro-processor based engine controllers, speed controllers, engine monitoring systems and many other types of Proportional Integral Derivative (PID) loop controllers; calibrates and replaces a variety of sensors and input devices found in state of the art engine management controls.
- Operates, tests, and repairs stationary and portable generators, with the use of plant electrical load and load bank load while insuring the proper operation of all related equipment including switches, pumps, and terminals.
- Diagnoses malfunctions and performs minor and major repairs and overhauls on large industrial stationary engines and related appurtenances, such as pumps, gear heads, gear boxes, and fuel metering, air pollution control, and lube oil cleaning systems.
- Troubleshoots direct current (DC) electrical systems for engine and emission controls up to 50 volts.
- Plans and lays out work from equipment manuals, instructions and/or work orders, using blueprints, sketches and drawings; maintains records in the form of blueprints, plans, specifications, and records.
- Researches, analyzes, engineers, and designs emission control and testing components for existing and new systems development to meet mandated regulations.

- Inspects, diagnoses, repairs, calibrates, and maintains a large variety of emissions test equipment; operates mobile exhaust emissions testing laboratory; installs, tunes, services and adjusts engines and catalytic converters and complete exhaust systems to ensure compliance with emissions standards, regulations, laws, and District policy.
- Installs, programs, services, develops and maintains air/fuel ratio controllers, digital speed controllers and other engine monitoring systems per manufacturer specifications.
- Designs and builds engine powered drive systems from initial concept to start-up including: plumbing, low/high pressure gas, fuel, oil, air exhaust systems, cooling system and heat exchanger piping, electrical conduits/wiring, engine speed controls, and air to fuel ratio controls and emissions systems.
- Researches and develops new operational methods, integrates field engineering techniques and equipment and recommends their application.
- Millwrights and performs precision alignments on engines and components on existing and new installations using laser fixture and other precision instruments.
- Diagnoses malfunctions and performs minor and major repairs and overhauls on diesel, natural gas and propane generators, and portable pumps.
- Works with and provides training to other department personnel on the proper operation and inspection of industrial equipment used in the water and wastewater industry.
- Ensures the timely and accurate completion and documentation of preventive and predictive maintenance activities; schedules and coordinates activities with other sections and divisions.
- Operates overhead cranes, man lifts, forklifts, compressors, pneumatic, hydraulic and electric tools, steam cleaners, and related tools and equipment.
- Cleans, maintains, and repairs tools and shop equipment; requisitions necessary tools, equipment, and supplies.
- Responds to emergency situations as necessary.
- Observes and complies with all District and mandated safety, rules, regulations, and protocols.
- Performs related duties as assigned.

REQUIRED QUALIFICATIONS

Positions at the Industrial Engine Technician I level may exercise some of these knowledge and abilities statements in a learning capacity.

Knowledge of:

- Principles, methods, techniques, tools and equipment used in the installation, maintenance, repair and overhaul of large industrial stationary engines (natural gas and diesel) gear boxes, gear heads, and related equipment and machinery.
- Principles, methods, techniques, tools and equipment used in the design, installation, testing, calibration, maintenance and repair of electrical and electronic equipment and devices common to large industrial engines including generators, and a diverse range of controllers.
- Principles, methods, techniques, tools, and equipment used to calibrate and replace a variety of sensors including devices used for automated controls.
- Operating characteristics of electronic components, including programmable controllers, feedback devices, and operator interface programs.
- Stoichiometric and lean burn combustion theory.
- Principles and practices of power generation both stationary and portable.
- Internal combustion engine emissions control theory and analysis.
- Gas analysis theory and practices as they relate to natural gas engines.
- Machine shop practices and procedures.
- Shop mathematics.
- Use and operation of oxyacetylene and electric arc welding equipment and materials.
- Federal, state, and local laws, codes, and regulations relevant to assigned areas of responsibility.
- District and mandated safety rules, regulations, and protocols.
- Techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and District staff.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Modern equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.

Ability to:

- Diagnose, troubleshoot, inspect, overhaul, service, and repair a wide variety of large industrial stationary engines and related equipment and machinery.
- Use precision, electronic, laser, and diagnostic instruments to measure required tolerances of mechanical parts.

- Operate overhead cranes, forklifts, compressors, and pneumatic, hydraulic and electrical tools.
- Identify and implement effective courses of action to complete assigned work.
- Read and interpret plans, specifications and manuals.
- Coordinate work assignments with other sections, divisions, departments or outside contractors.
- Design, build and introduce new forms of air fuel ratio controls to keep the District compliant with mandated regulations.
- Understand, interpret, and apply all pertinent laws, codes, regulations, policies, and procedures, and standards relevant to work performed.
- Independently organize work, set priorities, meet critical deadlines, and follow-up on assignments.
- Use tact, initiative, prudence, and independent judgment within general policy and procedural guidelines.
- Effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Experience:

Any combination of experience and education that provides the required knowledge and abilities is qualifying, along with the specific licenses/certifications as outlined below:

- Industrial Engine Technician I: Two (2) years of skilled experience in the diagnosis, troubleshooting, maintenance, overhauling and repair of large industrial stationary engines (natural gas and diesel).
- Industrial Engine Technician II: Four (4) years of progressively responsible skilled experience in the diagnosis, troubleshooting, maintenance, overhauling and repair of large industrial stationary engines (natural gas and diesel); or two (2) years as equivalent to an Industrial Engine Technician I with the District.

Education:

- Industrial Engine Technician I/II: Equivalent to completion of the twelfth (12th) grade.

Licenses/Certifications:

- A valid California driver's license, Class A with hazmat and tank endorsements, or the ability to obtain one within twelve months of date of hire, and the ability to maintain insurability under the District's Vehicle Insurance Policy. All District employees required to possess a valid Class A driver's license for the performance of their duties shall be subject to random drug and alcohol testing pursuant to District policy and federal law.

PHYSICAL DEMANDS

The physical demands described here are representative of those that must be met by employees to successfully perform the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Must possess mobility to work in standard water and/or wastewater treatment plant and related facilities; strength, stamina, and mobility to perform medium to heavy physical work, to work in confining spaces, around machines and to climb and descend ladders, and to operate varied hand and power tools and equipment; vision to read printed materials, a computer screen and operate a motor vehicle; color vision to read gauges and identify colored wiring; and hearing and speech to communicate in person and over the telephone or radio. The job involves frequent walking in operational areas to identify problems or hazards which includes working on live electrical wires. Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate above-mentioned tools and equipment. Positions in this classification bend, stoop, kneel, reach, and climb to perform work and inspect work sites. Employees must possess the ability to lift, carry, push, and pull materials and objects up to 50 pounds and heavier weights with the use of proper equipment and/or assistance from other staff.

WORK ENVIRONMENT

The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Employees work partially indoors and partially outdoors and are exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, vibration, confining workspace, chemicals, mechanical and/or electrical hazards, and hazardous physical substances, odors, and fumes. Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.

FLEX REQUIREMENTS

Positions in the Industrial Engine Technician I/II class series are flexibly staffed; positions at the Industrial Engine Technician II level are normally filled by advancement from the Industrial Engine Technician I level; progression to the Industrial Engine Technician II level is dependent on (i) management affirmation that the position is performing the full range of duties assigned to the classification; (ii) satisfactory work performance; (iii) the incumbent meeting the minimum qualifications for the classification including any licenses and certifications; and (iv) management approval for progression to the Industrial Engine Technician II level.

Eastern Municipal Water District
Job Title: Industrial Engine Technician I/II
Last Update: March 2020

This job description has been reviewed and approved by all levels of management in cooperation with the union (if applicable):

Approved by:	<i>Board of Directors</i>
Date adopted:	<i>March 29, 2020</i>
Date modified:	
FLSA determination:	<i>Non-Exempt</i>

Job Description Acknowledgment

I have received, reviewed and fully understand the job description for Industrial Engine Technician I/II. I further understand that I am responsible for the satisfactory execution of the essential functions described therein, under any and all conditions as described.

Employee Name (print): _____ *Date:* _____

Employee Number: _____

Employee Signature: _____