

JOB DESCRIPTION
Senior Industrial Engine Technician
Code Number: 50008

GENERAL PURPOSE

Under direction, provides technical supervision and performs a wide variety of skilled duties in the installation, modification, maintenance, repair and servicing of large industrial stationary engines (natural gas and diesel), gearboxes, and aeration blowers; used in the production, treatment, transmission and distribution of potable, recycled, and wastewater; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS

This is the lead or advanced-journey level in the Industrial Engine Technician series. In the lead assignments, incumbents provide direction to lower level staff including assigning, directing, and reviewing the work of staff. In the advanced-journey assignment, incumbents perform the more difficult and complex tasks and assignments. Positions at this level are distinguished from those in the lower level classification of Industrial Engine Technician II by the independence with which they perform their duties of handling the most difficult and complex work or by performing lead work.

ESSENTIAL 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 the class.

Leads and instructs assigned staff to perform a full range of skilled and semi-skilled industrial engine work; identifies the skill development needs of lower-level Industrial Engine Technicians and provides training and quality control inspections as needed.

Assists and trains subordinates utilizing the District's computerized maintenance management work order system.

Analyzes, develops and evaluates emission control technologies and testing components for permit compliance; recommends new technology to meet AQMD / EPA permit conditions.

Performs a variety of skilled duties involved in the inspection, diagnosis, troubleshooting, maintenance, repair and servicing of large industrial stationary natural gas and diesel engines, ranging in size up to 2000 horsepower.

Assists in the development and implementation of objectives, procedures, and work standards for the section.

Ensures that section activities are carried out in a safe manner and that established policies, procedures, and safety measures are followed.

Assists in planning and implementing a predictive and preventative maintenance program for industrial engines and related appurtenances.

Assists in the development of plans and specifications for projected maintenance and construction projects.

Designs and builds engine powered drive systems from initial concept to start-up including; plumbing, low/high pressure gas, fuel, oil, air exhaust systems, electrical conduits/wiring, engine speed controls, and air to fuel ratio controls and emissions systems.

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, aeration blowers, fuel metering systems, air pollution control systems, solid state ignition systems and lube oil cleaning systems.

Rebuilds diesel and natural gas engines, pumps, valves and other mechanical equipment, including valve reconditioning, cam bearing installation and piston pin fitting, using grinders, lathes, drill presses, MIG welders and other hand and power tools.

Performs a wide variety of semi-skilled and skilled tasks associated with tune-ups, preventive maintenance and servicing of large stationary industrial engines and related equipment and machinery; troubleshoots electrical systems for engine panels and emission controls, including 24 VDC and 110 volt alternating current.

Installs, wires, programs, troubleshoots, diagnoses, repairs and maintains analog, digital, and micro-processor based engine controllers, speed controller, engine monitoring systems, and many other types of Proportional Integral Derivative (PID) loop controllers.

Installs, programs (utilizing computer software), services, develops and maintains air/fuel ratio controllers, digital speed controllers and other engine monitoring systems per manufacturer specifications; operates mobile exhaust emissions testing laboratory; tunes, services and adjusts engines and catalytic converters to ensure compliance with emissions standards, regulations, laws and District policy; installs exhaust systems with catalytic converters.

Researches and analyzes emission control and testing components for new systems development to meet regulations implemented by South Coast Air Quality Management District (SCAQMD).

Services, maintains, repairs and overhauls engine turbocharger.

Rebuilds electric and pneumatic starters for industrial engines.

Plans and lays out work from equipment manuals, instructions and/or work orders, using blueprints, sketches and drawings.

Millwrights engines and components on existing and new installations using dial indicators, laser alignment equipment, and other precision instruments.

Operates overhead cranes, forklifts, compressors, pneumatic, hydraulic and electric tools, steam cleaners and related tools and equipment.

Operates mobile truck hydraulic (telescopic) cranes up to 15 tons, utilizing lifting/load-handling devices (e.g slings, cables, spreader bars).

Schedules and coordinates activities with other sections and divisions.

Ensures the timely and accurate completion of preventive and predictive maintenance activities.

Processes daily work orders, time sheets, source test results, etc. as necessary in support of the department Supervisor.

Cleans, maintains and repairs tools and shop equipment.

Requisitions necessary tools, equipment and supplies.

Researches and develops new operational methods, integrates field engineering techniques and equipment and recommends their application.

Plans and lays out work from equipment manuals, instructions and work orders using blueprints, sketches and drawings; maintains records in the form of blueprints, plans, specifications and records.

Works with and provides training to other departments' personnel on the proper operation and inspection of industrial equipment used in the water and wastewater industry.

Interacts regularly with vendors, contractors, engineers, inspectors, regulatory departments and agencies, and Integrated Operations Center.

Fabricates tools, parts, brackets, guards, and many other components needed to maintain the operation of obsolete equipment.

Ensures the timely and accurate completion of preventative maintenance activities utilizing a computer maintenance system.

Responds to emergency situations as necessary.

May assist in training or instructing others in the work.

May lead the work of others as a project leader.

May assume office duties in Supervisor's absence.

May assist workers from other trades sections as necessary in the maintenance and repair of pumping station equipment and machinery.

Performs related duties as assigned.

DESIRED MINIMUM QUALIFICATIONS

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 heads and related equipment and machinery; internal combustion engine emissions control theory and analysis; gas analysis; machine shop procedures and practices; safety practices, safe work methods and safety regulations pertaining to the work; shop mathematics; use and operation of oxyacetylene and electric arc welding equipment and materials; Safe Drinking Water Act and relevant EPA regulations; computer applications related to the work; codes, ordinances and regulations pertaining to the work.

Ability to:

Lead and train others to perform a full range of industrial engine work; diagnose, troubleshoot, overhaul, service and repair a wide variety of large industrial stationary engines (natural gas and diesel), gear heads and related equipment and machinery; use precision 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; exercise independent judgment and initiative within established guidelines; establish and maintain effective working relationships with those contacted in the course of

the work; coordinate work assignments with other sections, divisions or departments; follow and apply written and oral instructions.

Training and Experience:

A typical way of obtaining the knowledge, skills and abilities outlined above is five years of experience diagnosing, troubleshooting, overhauling, servicing and repairing a wide variety of large industrial stationary engines (natural gas and diesel), gear heads and related equipment and machinery, including at least two years of experience assisting lower-level staff in learning and performing a full-range of industrial engine and related work.

Licenses; Certificates; Special Requirements:

A valid California driver's license, Class A, with hazmat and tank endorsements, or the ability to obtain one within six 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. Fork lift operator's license and California State Crane Certification is required.

PHYSICAL AND MENTAL DEMANDS

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

Physical Demands

While performing the duties of this job, the employee is regularly required to use hands to finger, handle, feel or operate objects, tools or controls; and reach with hands and arms. The employee frequently is required to stand and talk or hear; walk or sit; climb and balance; stoop, kneel, crouch or crawl.

The employee must regularly lift and/or move up to 50 pounds and frequently lift and/or move over 100 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and the ability to adjust focus.

Mental Demands

While performing the duties of this class, the incumbent is regularly required to use written and oral communication skills; read and interpret data, information and documents; analyze and solve problems; use shop mathematics; observe and interpret situations; deal with changing, intensive deadlines; and interact with officials and the public.

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.

The employee occasionally works in extreme outside weather conditions; near moving mechanical parts; exposed to wet and/or humid conditions; and on slippery and uneven surfaces. The employee is frequently exposed to fumes or airborne particles, toxic or caustic chemicals, and risk of electrical shock. The noise level in the work environment is frequently loud.

Incumbents are subject to weekend work and 7-day/24-hour call out.

FLSA DETERMINATION: Non-exempt