



EQUIPMENT ENGINEER

Exam Code: 8TRB9

Department: State of California

Exam Type: Servicewide, Open

Final Filing Date: Continuous

CLASSIFICATION DETAILS

EQUIPMENT ENGINEER – \$5,849.00 - \$10,956.00 per month

[View the Equipment Engineer classification specification](#)

APPLICATION INSTRUCTIONS

Final Filing Date: Continuous

Who Should Apply:

Applicants who meet the minimum qualifications as stated on this bulletin may apply for and take this examination.

Once you have taken this examination, you may not retake it for twelve (12) months.

Candidates that are unsuccessful in the examination must wait six (6) months from the testing date before reapplying to take the examination.

How To Apply:

This examination consists of a Training and Experience evaluation. Additional information is located farther down on this bulletin in the “Taking the Exam” section.

Special Testing Arrangements:

If you require special testing arrangements due to a verified disability or medical condition, please contact:

Department of Transportation (Caltrans)

Examinations Unit – MS86

P.O. Box 168036

Sacramento, CA 95816-8036

Phone: (916) 227-7858

Email: AskExams@DOT.CA.GOV

California Relay Service: 7-1-1 (TTY and voice)

TTY is a Telecommunications Device for the Deaf, and is reachable only from phones equipped with a TTY Device

MINIMUM QUALIFICATIONS

All applicants must meet the education and/or experience requirements as stated on this exam bulletin to be accepted into the examination. Part-time or full-time jobs, regardless of whether paid or volunteer positions, and inside or outside California state service will count toward experience.

EQUIPMENT ENGINEER**Either I**

Graduation from a four-year curriculum in a field related to equipment engineering accredited by the Accreditation Board for Engineering and Technology (ABET).

(Registration as a Senior in such a curriculum will admit applicants to the examination,

but they must produce evidence of graduation before they will be considered eligible for appointment.)

Or II

Possession of certification as an engineer-in-training issued by any United States board of registration offering the National Council of Examiners for Engineering and Surveying (NCEES) exam. Qualifying college/university education or work experience must be in a field related to equipment engineering.

POSITION DESCRIPTION

EQUIPMENT ENGINEER

This is the entry, first working, and journey level of equipment engineering work in the Department of Transportation. Incumbents are assigned duties commensurate with their background, training, and experience. Under direction, incumbents perform a wide variety of shop and field equipment engineering in connection with mobile equipment design, fabrication, drafting specifications, and inspection work; may function as a lead person over the activities of other engineering and technician personnel; and do other related work.

EXAMINATION SCOPE

This examination consists of the following components:

Training and Experience Evaluation – Weighted 100% of the final score.

The examination will consist solely of a **Training and Experience Evaluation**. To obtain a position on the eligible list, a minimum score of 70% must be received.

Applicants will receive their score 4 – 6 weeks after the monthly cut-off date.

In addition to evaluating applicants' relative knowledge, skills, and ability, as demonstrated by quality and breadth of education and/or experience, emphasis in each exam component will be measuring competitively, relative job demands, each applicant's:

Knowledge of:

1. Engineering fundamentals and mathematics
2. Hydraulic systems
3. Pneumatic systems
4. AC and DC electrical systems
5. Power transmissions systems on mobile equipment
6. Computer Aided Design & Drafting (CADD)
7. Microsoft applications (i.e., Word, Access, Project, Excel, Powerpoint)
8. Static load analysis
9. Dynamic load analysis
10. Vibration/ natural frequency load analysis
11. General suspension for vehicles and mobile equipment
12. FEA Finite Element Analysis (load analysis)
13. Manufacturing processes
14. Emission control systems for vehicles
15. Vehicle design, layout, operation, and application
16. Standards and regulations of local, state, federal law as it pertains to vehicles and mobile equipment
17. Welding and AWS (American Welding Society) standards
18. Materials, material properties, and fabrication methods (i.e., steel, aluminum, plastics, stainless steel, etc.)
19. Paints and coatings for corrosion protection of vehicles and mobile equipment

Ability to:

1. Prepare plans, specifications, and estimates for mobile equipment systems
2. Do mechanical design work
3. Make correct computations
4. Create neat and accurate Computer Aided Design & Drafting and technical drawings
5. Specify proper equipment materials and components
6. Accurately interpret drawings and specifications
7. Determine required sizes for various vehicle components
8. Direct or inspect field fabrications by outside vendors or make field inspections and tests of mechanical installations
9. Check drawings and specifications
10. Establish and maintain cooperative relations with those contacted in the course of the work
11. Analyze equipment failures and/or issues accurately in order to provide effective solutions
12. Prepare written, verbal, visual and/or email correspondence
13. Make effective oral and written reports
14. Effectively operate computers and relevant applications
15. Perform product research and comparisons of mobile equipment and components
16. Determine how codes, safety orders, and governing regulations apply to mobile equipment
17. Properly use a tape measure
18. To recognize conventional shop and manufacturing tools
19. Prioritize concurrent assignments with multiple deadlines
20. Climb in and around a vehicle

21. Conduct literature research

22. Prepare hand sketches for communicating part design features

ELIGIBLE LIST INFORMATION

A servicewide, open eligible list for the Equipment Engineer classification will be established for the State of California (all State of California departments, statewide).

The names of successful competitors will be merged onto the eligible list in order of final score regardless of exam date. Eligibility expires **24 months** after it is established. Applicants must then retake the examination to reestablish eligibility.

Veterans' Preference will be granted for this examination. In accordance with Government Codes 18973.1 and 18973.5, whenever any veteran, or widow or widower of a veteran achieves a passing score on an open examination, he or she shall be ranked in the top rank of the resulting eligible list.

Veterans' status is verified by the California Department of Human Resources (CalHR). Information on this program and the [Veterans' Preference Application](#) (Std. form 1093) is available online. Additional information on veteran benefits is available at the Department of Veterans Affairs.

CAREER CREDITS

Career Credits will not be added to the final score of this examination.

EXAMINATION INFORMATION

Applications and Training & Experience Evaluations will be accepted on a continuous basis and will be processed monthly. Testing is considered continuous, as new test dates can be set at any time as the departmental needs warrant.

PREPARING FOR THE EXAMINATION

Here is a list of suggested resources to have available prior to taking the exam.

Employment History: Employment dates, job titles, organization names and addresses, names of supervisors or persons who can verify your job responsibilities, and phone numbers of persons listed above.

Education: School names and addresses, degrees earned, dates attended, courses taken (verifiable on a transcript), persons or office who can verify education, and phone numbers of persons or offices listed above.

Training: Class titles, certifications received, names of persons who can verify your training, and phone numbers of persons listed above.

TAKING THE EXAMINATION

FILING INSTRUCTIONS

Candidates are required to submit: 1) [Standard State Application \(STD.678\)](#)

2.) [Training and Experience Evaluation](#)

****Please include transcripts or degree from a four-year curriculum in a field related to equipment engineering accredited by the Accreditation Board for Engineering and Technology (ABET) OR your certification as an engineer-in-training issued by any United States state board of registration offering the National Council of Examiners for Engineering and Surveying (NCEES) exam****

Applications (STD 678) must be received or postmarked no later than the cut-off date. Dates printed on Mobile Bar Codes, such as the Quick Response (QR) Codes available at the USPS, are not considered Postmark dates for the purpose of determining timely filing of an application. Faxed or E-mailed applications will NOT be accepted. **THE EXAMINATION TITLE MUST BE INDICATED ON THE APPLICATION.**

Caltrans does not accept resumes in lieu of the STD.678 State Applications. Please send the required documents listed above in order for your examination to be processed in a timely manner, incomplete submissions may cause your examination to be delayed.

File by Mail

Department of Transportation (Caltrans)

Examinations Unit - MS 86

P.O. Box 168036

Sacramento, CA 95816-8036

File in Person

Department of Transportation (Caltrans)

Examinations Unit - MS 86

1727 30TH Street, 1st Floor Lobby

Sacramento, CA 95816-8036

***Any information submitted in your examination effort WILL NOT BE FORWARDED or be included in the determination of your qualifications for a position.**

****Candidates are responsible for obtaining proof of mailing or submission of their application to Exam Services.**

TESTING DEPARTMENTS

State of California (all State of California departments)

CONTACT INFORMATION

Department of Transportation (Caltrans)

Office of Selection Services

Examinations Unit

P.O. Box 168036

Sacramento, CA 95816-8036

Phone: (916) 227-7858

Bulletin Date: 3/16/2023

Email: AskExams@DOT.CA.GOV

California Relay Service: 7-1-1 (TTY and voice)

TTY is a Telecommunications Device for the Deaf and is reachable only from phones equipped with a TTY Device.

EQUAL OPPORTUNITY EMPLOYER

The State of California is an equal opportunity employer to all, regardless of age, ancestry, color, disability (mental and physical), exercising the right of family care and medical leave, gender, gender expression, gender identity, genetic information, marital status, medical condition, military or veteran status, national origin, political affiliation, race, religious creed, sex (includes pregnancy, childbirth, breastfeeding, and related medical conditions), and sexual orientation.

DRUG-FREE STATEMENT

It is an objective of the State of California to achieve a drug-free State work place. Any applicant for State employment will be expected to behave in accordance with this objective, because the use of illegal drugs is inconsistent with the law of the State, the rules governing civil service, and the special trust placed in public servants.

GENERAL INFORMATION

Examination and/or Employment Application (STD 678) forms are available at the California Department of Human Resources, local offices of the Employment Development Department, and through your [CalCareer Account](#).

If you meet the requirements stated on this examination bulletin, you may take this examination, which is competitive. Possession of the entrance requirements does not assure a place on the eligible list. Your performance in the examination described in this bulletin will be rated against a predetermined job-related rating, and all applicants who pass will be ranked according to their score.

The California Department of Human Resources (CalHR) reserves the right to revise the examination plan to better meet the needs of the service, if the circumstances under which this examination was planned change. Such revision will be in accordance with civil service laws and rules and all applicants will be notified.

General Qualifications: Applicants must possess essential personal qualifications including integrity, initiative, dependability, good judgement, the ability to work cooperatively with others, and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open examinations, investigation may be made of employment records and personal history and fingerprinting may be required.

Eligible Lists: Eligible lists established by competitive examination, regardless of date, must be used in the following order: 1) sub-divisional promotional, 2) departmental promotional, 3) multi-departmental promotional, 4) servicewide promotional, 5) departmental open, 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in one to four years unless otherwise stated on the bulletin.

High School Equivalence: Equivalence to completion of the 12th grade may be demonstrated in any one of the following ways: 1) passing the General Education Development (GED) Test; 2) completion of 12 semester units of college-level work; 3) certification from the State Department of Education, a local school board, or high school authorities that the competitor is considered to have education equivalent to graduation from high school; or 4) for clerical and accounting classes, substitution of business college work in place of high school on a year-for-year basis.