

Delivering Opportunity

*How Electric Buses and Trucks Can Create Jobs
and Improve Public Health in California*

www.ucsusa.org/ElectricTrucks

www.greenlining.org/issues/2016/delivering-opportunity-electric-trucks

Appendix A: Job Profiles

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[JOB PROFILES]

These job profiles are a resource for understanding what assembler, electrician, and automotive technician jobs look like in terms of experience and education levels, wages, day-to-day tasks, and skills.

TABLE A-1. ASSEMBLER JOB PROFILE

Alternate Titles	Assembler, assembly worker, assembly line worker, assembly associate, assembly line machine operator, assembly line worker, assembly operator, certified composites technician (CCT), fabricator, machine operator, operator technician, production associate assembler, electrical assembler, electronics assembler, electromechanical assembler, electromechanical equipment assembler, electronic technician, mechanical assembler, wiring technician, group leader, factory assembler, factory worker, manufacturing assembler, production worker, transformer assembler
Typical Entry-level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
Training	Moderate-term, on-the-job training A few months to one year of working with experienced employees to attain competency in the skills needed in this occupation May be associated with a recognized apprenticeship program
Brief Job Description	Assemble or modify both finished products and the parts that go into them Use tools, machines, and hands to make batteries, generators, computers, electronic devices, towers and blades, and other parts Team assemblers: Work as part of a team responsible for assembling an entire product or component; can perform all tasks conducted by the team in the assembly process and rotate through all or most of them; may participate in making management decisions affecting the work; includes team leaders who work as part of the team
Median Pay in California	\$26,200-\$29,900 per year \$12.60-\$14.37 per hour
Job Profile	The job of an assembler ranges from very simple to very complicated, requiring a range of knowledge and skills. The job typically requires workers to: <ul style="list-style-type: none"> • Read and understand detailed schematics and blueprints • Use hand tools or machines to assemble wind turbine components • Conduct quality-control checks • Work closely with designers and engineers in product development • Explain assembly procedures or techniques to other workers

	Assemblers are responsible for putting components together for a larger product (e.g., a bus or truck). After determining how parts connect, assemblers use hand or power tools to trim, shim, cut, and make other adjustments to align and fit the components. After the parts are properly aligned, they connect them with bolts and screws or by welding or soldering pieces together.
Job Skills	<ul style="list-style-type: none"> • Reading comprehension • Judgment and decision making • Monitoring • Operation monitoring • Active listening

SOURCES: USDOL/BLS N.D.; USDOE N.D.; USDOL/ETA 2016A.

TABLE A-2. **ELECTRICIAN JOB PROFILE**

Alternate Titles	Chief electrician, control electrician, electrician, industrial electrician, inside wireman, journeyman electrician, journeyman wireman, maintenance electrician, mechanical trades specialist (electrician), qualified craft worker (electrician)
Typical Entry-level Education	<p>Requires high school diploma or equivalent May start out by attending a technical school</p> <p>Programs related to circuitry, safety practices, and basic electrical information offered by many technical schools; graduates usually receive credit toward apprenticeship</p> <p>After completing initial training, may be required to take continuing education courses usually related to safety practices, changes to the electrical code, and training from manufacturers in specific products</p>
Work Experience in a Related Occupation	None
Training	<p>Usually learn through a four- or five-year apprenticeship; may start by attending a technical school</p> <p>For apprenticeship, must complete at least 144 hours of technical training and 2,000 hours of paid on-the-job training Classroom training includes electrical theory, blueprint reading, mathematics, electrical code requirements, and safety and first-aid practices; may also include specialized training related to soldering, communications, fire alarm systems, and elevators Apprenticeship programs sponsored by several groups, including unions and contractor associations</p> <p>Basic qualifications to enter an apprenticeship program are a minimum age of 18, high school education or equivalent, one year of algebra, qualifying score on an aptitude test, and pass substance-abuse screening</p>
Brief Job Description	<p>Install, maintain, and repair electrical wiring, equipment, and fixtures</p> <p>Ensure that work is in accordance with relevant codes</p> <p>May install or service street lights, intercom systems, or electrical control systems</p>
Median Pay in California	<p>\$61,400 per year</p> <p>\$29.52 per hour</p>

Job Profile	<p>Electricians typically:</p> <ul style="list-style-type: none"> • Read blueprints or technical diagrams • Install and maintain wiring, control, and lighting systems • Inspect electrical components, such as transformers and circuit breakers • Identify electrical problems using a variety of testing devices • Repair or replace wiring, equipment, or fixtures using hand tools and power tools • Follow state and local building regulations based on the National Electrical Code • Direct and train workers to install, maintain, or repair electrical wiring or equipment <p>Electricians combine a knowledge of building and construction with mechanics, mathematics, design, and knowledge of the public safety and security. An electrician’s daily tasks combine the use of analytical or scientific software with computer-aided design software, and tools like cable reels, stripping tools, voltage or current meters, a wire lug crimping tool, and a wire or cable cutter. Other commonly used hand and power tools include screwdrivers, wire strippers, drills, and saws. While troubleshooting, electricians also may use ammeters, voltmeters, thermal scanners, and cable testers to find problems and ensure that components are working properly. Many electricians work alone, but sometimes they collaborate with others. For example, experienced electricians may work with building engineers and architects to help design electrical systems for new construction. Some electricians may also consult with other construction specialists, such as elevator installers and heating and air conditioning workers, to help install or maintain electrical or power systems. At larger companies, electricians are more likely to work as part of a crew; they may direct helpers and apprentices to complete jobs.</p>
Job Skills	<ul style="list-style-type: none"> • Troubleshooting • Repairing • Active listening • Critical thinking • Judgment and decision making

SOURCE: USDOL/ETA 2016B.

TABLE A-3. AUTOMOTIVE MASTER TECHNICIAN JOB PROFILE

Alternate Title	Auto technician, automobile technician, automotive service technician, Certified Automotive Service Excellence Master Automotive Technician, master automotive technician, master technician, mechanic, shop foreman, truck technician
Typical Entry-level Education	Usually requires training in vocational schools, related on-the-job experience, or an associate’s degree
Training	Usually need one or two years of training involving both on-the-job experience and informal training with experienced workers May be associated with a recognized apprenticeship program
Brief Job Description	Repair automobiles, trucks, buses, and other vehicles Repair virtually any part on the vehicle or specialize in the transmission system
Estimated/Expected Salary	\$19.46 per hour
Job Profile	<ul style="list-style-type: none"> • Test drive vehicles and test components and systems using equipment such as infrared engine analyzers, compression gauges, and computerized diagnostic devices • Examine vehicles to determine extent of damage or malfunctions • Repair, reline, replace, and adjust brakes • Follow checklists to ensure all important parts are examined, including belts, hoses, steering systems, spark plugs, brake and fuel systems, wheel bearings, and other potentially troublesome areas • Confer with customers to obtain descriptions of vehicle problems and to discuss work to be performed and future repair requirements
Job Skills	<ul style="list-style-type: none"> • Troubleshooting • Repairing • Active listening • Critical thinking • Judgment and decision making
Distinguishing Conventional Automotive Maintenance from EV Maintenance	<ul style="list-style-type: none"> • The job of automotive service technicians and mechanics has evolved from simple mechanical repairs to high-level technology-related work like integrated electronic systems. • Fixing problems with these systems requires workers to use computerized shop equipment and work with electronic components as well as traditional hand tools. • Like any vehicle, electric trucks and buses need to be occasionally maintained and repaired. • Normal repair workers can do much of the routine maintenance and repair work. • Electrical systems and drivetrains will often need skilled workers familiar with electric vehicles. • Repairing or installing electric vehicle batteries requires workers who are trained to work with specific types of batteries. • Batteries need to be replaced every few years depending on usage and type of battery.

SOURCES: USDOL/ETA 2016C; HAMILTON 2011.

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