



Career Fact Sheet

Hybrid Vehicles: Maintenance & Repair Occupations *in Alameda, Contra Costa and Solano counties*

Tools for the Career Counselor

This data was prepared for California Community Colleges and pertains to community college-level coursework as a resource for counselors to share with students.

The Bottom Line

Rising gas prices and heightened environmental awareness has led to a surge of interest in alternative fuel vehicles throughout the United States. This interest has translated into robust sales and greater market penetration of alternative fuel vehicles, particularly in California and the San Francisco Bay region.

Gasoline based hybrid engines can significantly increase the fuel efficiency of automobiles by using two separate sources of energy — typically gasoline and electricity. Hybrid engine design leverages the power and storage capacity of gasoline with the efficiency of electricity, producing a vehicle capable of greater fuel economy. Particularly in times of high gasoline prices and concern with global warming, consumers have embraced these fuel-efficient alternatives. The rising number of hybrid vehicles on the road has led to a corresponding increase in the need for automotive services for these vehicles. These services are performed at a wide range of repair facilities, including dealership service departments, independent maintenance/repair shops, and automotive repair chain service centers.

For this study, the data is focused on the most popular alternative fuel vehicles — hybrid-electric vehicles, more commonly referred to as “hybrids.” This report, conducted in partnership with Los Medanos College, Contra Costa College, and the Advanced Transportation Technology and Energy Initiative (ATTEi), provides real-time information on employment growth, skills preferences and deficiencies, educational requirements, and other pertinent labor market data for Alameda, Contra Costa, and Solano Counties.

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Regional Snapshot

During recessionary periods, consumers tend to put off new, big-ticket purchases, opting instead to make do with their current products. For automobiles, this means repairing older cars rather than buying new ones. Two critical occupations — Auto Body Repairers and Technicians, and Auto Mechanics and Service Technicians — are most likely to be affected by service increases for hybrid vehicles. The table below details these occupations and their growth potential in the three-county study area: Alameda, Contra Costa, and Solano. More detailed occupational information is available in the complete environmental scan at www.coeccc.net/transportation.

Hybrid Vehicles: Maintenance & Repair Occupations	2010 Employment	12-month Growth Rate	New Job Growth	12-month Replacement Rate	Replacement Jobs	New & Replacement Jobs
Automotive Body Repairers & Technicians (SOC 49-3021)	1,184	7.2%	85	5.5%	65	150
Repairers and Technicians who can service hybrid vehicles	778	6.1%	47	6.7%	52	100
Automotive Mechanics and Service Technicians (SOC 49-3023)	6,255	9.8%	615	4.9%	307	922
Mechanics and Service Technicians who can service hybrid vehicles	2,311	14.0%	324	3.7%	85	409
Total, All (SOC 49-3021, SOC 49-3023)	7,439		700		373	1,072
Total, All who can service hybrid vehicles	3,090		371		137	508

Student Tips

- **What Employers Say:** Employers indicated that workers should be trained to service and repair both gas-powered vehicles and alternative fuel vehicles.
- **Skills Employers Seek:** According to these employers, it is important for job seekers to have knowledge of safety principles specific to servicing hybrid vehicles, braking and charging systems, and hybrid electrical systems and motors.

Hybrid Technology

Today's market includes many types of gasoline-electric hybrid automobiles for the consumer market, which generally fall into one of two categories.

- Parallel hybrids include a gasoline engine and an electric motor. The parallel-hybrid system is the most common in today's market and includes makes such as the the Honda Civic and Insight.
- In contrast, series-hybrids, such as the Chevrolet Volt, have only electric motors. A gasoline-powered generator supplies the energy for the electric motor (and also charges the large battery array). Therefore, unlike with parallel hybrids, series hybrids do not have a gasoline engine that can power the transmission.

Regardless of the technology employed, hybrid vehicles are capable of achieving better fuel economy due to their ability to harness two energy sources. In addition, the vehicles typically have lighter components, smaller gasoline engines, energy recapture through regenerative braking, and the ability to shut-down rather than idle. Though there are other differences between the technologies employed by manufacturers, the distinct components of a hybrid gasoline-electric vehicle are drastically different from a pure gasoline-powered vehicle

More information on career pathways and educational programs is available in the environmental scan at www.coeccc.net/transportation.

Community College Automotive Programs

Alameda County

- Chabot College
Automotive Technology, specializing in drivetrain, engines and engine performance
- College of Alameda
Automotive Electronics Specialist; Engine Repair Specialist; Diesel & Truck Mechanic
- Las Positas College
Automotive Electronics Technology; Automotive Service Technician; Automotive Technician

Contra Costa County

- Los Medanos College
Smog Technician Specialist; Transmission Specialist; Engine Performance; and Engine Repair & Machining Specialist
- Contra Costa College
Automotive Electrical Technician; Engine Performance Technician

Solano County

- Solano College
Automotive Technician; Auto Body & Repair