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Training Center for Green Cars

PCC out front in hybrid, electric car technology

A service repair on an internal combustible engine vehicle can cost hundreds of dollars. The replacement of a battery for a hybrid or electric car will cost thousands.

Portland Community College's Automotive Service Technology Program at its Sylvania Campus in southwest Portland is developing curriculum out of hybrid and electric car battery research to create a template for industry techs on how to service them more affordably.

According to PCC auto service instructors, they see the need because the industry is reporting more battery wear-and-tear stemming from the original hybrids that are more than a decade old. When trouble strikes, technicians typically just replace the battery pack, which costs the consumer roughly \$2,000, rather than trouble-shooting the cause.

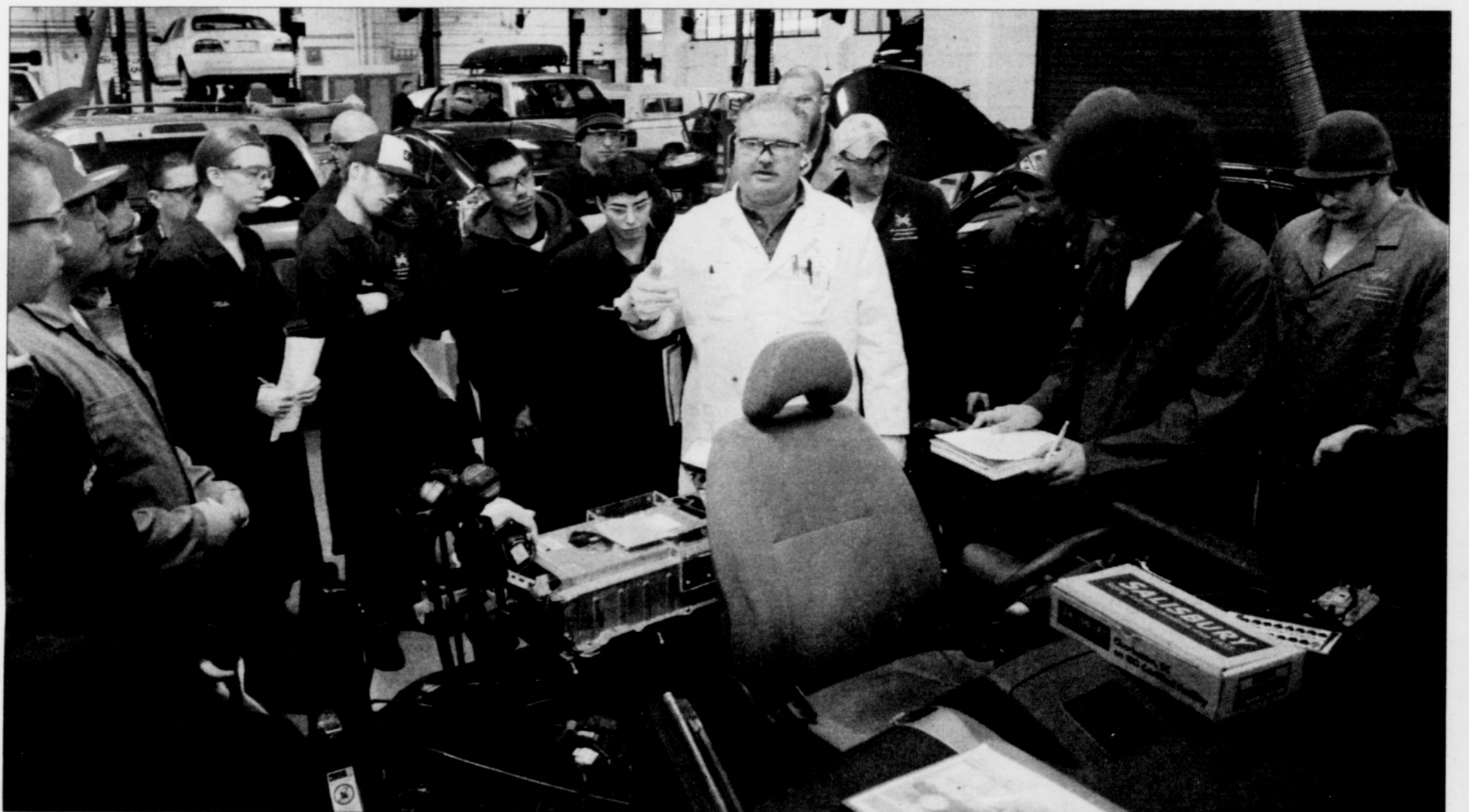
"The reality is that these vehicles are starting to get to the point where they are having component failure in the battery packs, the inverters and electric machines," said Russ Jones, PCC Automotive Service Technology instructor and the lead on the program's hybrid training.

"The industry has not been very good at training technicians on how to deal with these cars safely as well as make diagnostic repairs. We've recognized the need to provide training for working technicians," Jones said.

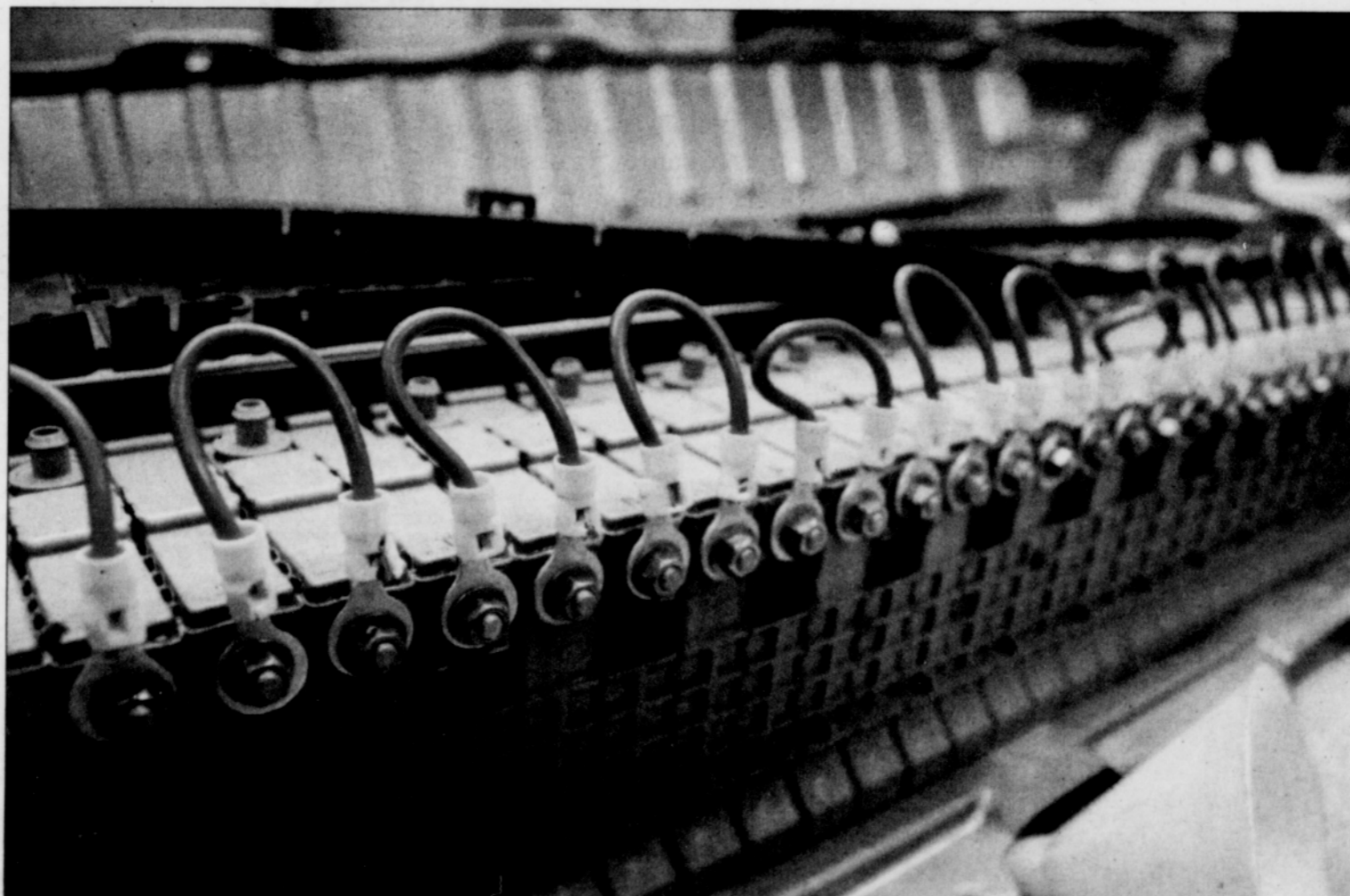
Through the program's own research, PCC technicians have re-conditioned batteries for two Honda Civic Hybrids, improving engine performance and fuel economy.

Kim Kittinger, Automotive Service Technology instructor, said she and her students break the battery packs down, taking out individual modules and test how strong they are. They do that by seeing how long the power supply goes for by dropping the power down to their dead cells and then bringing them back up and maxing them out with energy. They repeat the process over and over.

"It's like when we exercise and



Portland Community College Automotive Service Technology instructor Russ Jones shows students the Toyota Prius mock up, which is stripped of its body so PCC can use it for demonstrations.



A Toyota Prius battery pack contains many small batteries that each must be worked on during the re-conditioning process for electric cars.

push ourselves, we get stronger," Kittinger said. "Not all of them, but many of the batteries we can bring back to life. It's really cool. Then we put them into the packs and back into the cars. We end up buying

more time and more life for these packs. It's vehicle maintenance really; the new form of it."

The aim is to massage this research into PCC's curriculum to share with students, local techni-

cians, fellow community colleges and businesses across the Pacific Northwest and beyond.

The program, which is developing a 30-credit hybrid-training certificate, has partnered with two local

repair shops, Hawthorne Auto Clinic in Southeast Portland and Todd's Import Automotive in Lake Grove, to look at how they can provide better and more affordable repair work for hybrid and electric cars.

"It gives us more validity of what we are doing by seeing how this works on a real-world customer's car," Jones said of using the repair shops in their research.

Jim Houser, co-owner of Hawthorne, said his company has had a longstanding relationship with PCC.

"We had also decided to focus on hybrid repair, but there's a limited amount of information available to independent repair shops and even dealerships have just one or two people fully up to date on them," said Houser, whose shop has been repairing hybrids since 2002. "Mistakes can be costly. If you do something you shouldn't it will cost the shop owner a lot of money. For us it's been a really good partnership with PCC and has given us the skills and confidence to go deeper than we would

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