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Behind the Success of the CVCC Engine



Honda's Electro Gyrocomator-the world's first navigation system for use in a car

The automobile, according to a well-known joke in Japan, is "a third-class machine." But the logic of such a statement is not without some truth, however, since the car is utterly dependent on human control. A car cannot move unless the driver tells it to do so. Moreover, people must undergo twenty to thirty hours of training before they are able to operate a car safely. Therefore, in essence the joke is saying that no other machine demands such a degree of human attention. However, it also infers that there is some other potential direction in automotive technology, which is in a way quite true. The world had finally come to believe, and indeed expect, that the car could function in a more intuitive, intelligent manner.

The automotive industry experienced rapid progress during the 1970s, especially in terms of electronics technology. A major factor in that progress were the emission-control regulations, which were getting more stringent with each passing year. Many car makers were busy attempting to use electronics to resolve the issues that were keeping them out of conformance with the requirements. Ultimately, though, the industry's electronics control technologies were applied to a broad range of automotive components, including transmissions and meters, thus creating a new field of endeavor known as "car electronics."

Throughout this period, Honda was actively engaged in the development of its newest engine concept, the CVCC. The reason for this was simple: Honda knew its CVCC engine would meet the requirements of the Clean Air Act of 1970, a bill enacted by the U.S. Congress. Indeed, the new powerplant was a surprise to the entire auto industry, demonstrating the high standard of refinement that Honda's engine development technologies had achieved.

The field of car electronics was moving forward, however, leaving Honda behind. While Honda had successfully developed a very efficient, clean-running engine that short detour had distracted Honda R&D from other pressing needs for the immediate future. Therefore, in 1976, Katsutoshi Tagami, who was in charge of portable generator developments for power products, was called by Honda R&D Center's Senior Managing Director Tadashi Kume, who said, "I want you to take charge of electrical equipment for automobiles."

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Tagami was given the order to run the Eighth Research Block, more commonly known as the Electrical Equipment Research Group. Tagami, who had never before considered having any involvement in cars, was thoroughly surprised.

"Your role," Kume explained, "is to bring us up to the level of other manufacturers and eventually get a step ahead of them."

Kume, having seen the astounding progress the industry had made with regard to electronics technologies, was seriously concerned about the company's ability to compete in that regard. He knew electronics technology was becoming an integral part of engine development.

The development of electrical equipment at Honda had always been left to outside specialists who could manufacture and supply the required parts. Accordingly, the outside development of such engine systems would require that all of Honda's engine specifications be disclosed to the suppliers. This was clearly unacceptable to Honda, whose business was founded on engine technology. Kume's wish to "get one step ahead of them" reflected his determination to resolve the matter.

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