

SUBARU XV HYBRID Invested with SUBARU Philosophy – Our answer to expectations from customers and society –

On June 24, 2013, SUBARU launched the SUBARU XV HYBRID equipped with the company's first hybrid system. Featuring original SUBARU technology, this eco-car, unlike the hybrid offerings of other automakers, is packed with the company's sincere resolve to help solve societal problems. What kind of car is this distinctly SUBARU hybrid? To find out, automobile journalist and mother of one, Yumi Kawabata, talked to Hideaki Fukui of Subaru Product & Portfolio Planning Division.

Distinctive SUBARU values, harmonizing functions and environmental performance

Kawabata : The SUBARU XV HYBRID is said to be SUBARU's first hybrid, and a late-to-market hybrid car at that. However, for that very reason, I think that this is an opportunity for SUBARU to present itself again as an automaker that is concerned with the environment. In what way is SUBARU's position represented at this time with the SUBARU XV HYBRID launch?

Fukui : For one thing, we would like to give a sense that this is a fun-to-drive hybrid vehicle. The other is the fact that the XV has equipment and performance fit for a top grade vehicle. We are making people aware of these two things. In Japan, a number of automakers have already introduced hybrid vehicles to the market, and SUBARU's hybrid initiative is seen as an essential theme that is part of what drives us as a member of society.

Kawabata : In an age when we cannot help but think about the environment whenever we buy a car, I think there must be many SUBARU customers who want and expect SUBARU to approach the environment with its own original technologies.

Fukui : The SUBARU XV HYBRID of course has good fuel economy, and the use of hybrid technology makes it even more fun to drive. That is our approach. By doing this, we think we will be able to raise the level of satisfaction for customers who are particular about driving.

Kawabata : In that sense, we get the impression that this is the kind of hybrid car that hasn't appeared until now. It's the kind of car that might quickly be accepted by customers who are downsizing or changing to a smaller vehicle.

Fukui : Even with the IMPREZA, it's not a case of the car being a grade above or grade below. From the start we had the idea of making a great car, and



Yumi Kawabata

After studying engineering, Ms. Kawabata took up employment as an engineer. Later, she worked on the editorial staff of an automotive magazine, and is now a freelance automotive journalist. Her primary interest is in environmental issues and new technologies of the automobile, on which she reports as an engineer, woman and journalist.

this time around we've added the new value of a hybrid. So I think in that respect, we've gone beyond class distinctions.

Kawabata : Among those who buy SUBARU, I think there are more who buy because they like SUBARU than those who simply buy a national brand because it's reasonably priced. When there is a certain variety to choose from, many people actively choose SUBARU. In the US, they have the expression "value choice" for times like these, when people feel the value of the thing they buy is more than the price they paid. For example, even if a car costs twenty million yen, if it's worth buying it has value.

Fukui : Among those who have bought SUBARU, I think there are many who feel there's value in the balance of functions and environmental performance. Of course, fuel economy is an important factor, but I think it is important to firmly hold values attributed to the car itself, other than simply economy.

Kawabata : Many users evaluate the level of usability, don't they?

Fukui : Yes, there are many who assess functionality, such as the ability to fold down seats to stow a bicycle or even a dog cage. There is ownership delight in excellent performance, and a feeling of satisfaction in driving such a car, and people are prepared to pay for this.



Hideaki Fukui

Program Manager, Subaru Product & Portfolio Planning Division
Entered the company in 1994, and was assigned to the 1st Power Unit Research and Experiment Department (Control Technology Group). Thereafter, he worked in the Electronics Engineering Department, 1st Power Unit Electronics Engineering Section, and as manager in the Engine Design Department. He has been in his current post since 2008.

■ We are committed to driving pleasure, precisely because it's a hybrid

Kawabata : It must have been quite a challenge to build a hybrid system with the horizontally-opposed engine. Did you have any particular problems during development?

Fukui : The first difficulty we had was the decision over where to locate the battery. In other words, we struggled with the packaging. A hybrid system necessitates the addition of extra weight for the battery, electric motor and so on, and this can exceed 100 kg. That kind of weight affects how the vehicle handles. It was especially difficult to introduce the extra weight without its effects being felt by the driver.

Kawabata : Seriously, I think the appeal of the boxer engine shines through. We could say this is the world's only example of realizing a hybrid system with boxer engine in a volume production vehicle.

Fukui : We also had issues with tire development. We introduced reinforcements in the suspension to suppress deformation among other tuning measures, to assure driving fun even in a hybrid car. It took time, not only in development of the hybrid system, but also in tuning, right through to the end, in order ensure the desired level of driving enjoyment.

Kawabata : The first thing I noticed when given the opportunity to drive the SUBARU XV HYBRID was how good the steering felt. The car exactly followed the turn I expected from the amount of steering wheel input. This is easy to say, but it must have been incredibly difficult to achieve. So far, with hybrids from other automakers, even with suspension tuning to accommodate the extra weight and benefit fuel economy, I got the



impression that the steering wheel feel had worsened. That's why I was surprised that this wasn't the case with the SUBARU XV HYBRID.

Fukui : We thought that this was a direction we would be able to achieve for a SUBARU eco-car this time with the SUBARU XV HYBRID. First of all, there is the driving pleasure fundamental for a car, and then there is the effort to raise the environmental performance without sacrificing driving pleasure. This was the SUBARU approach we took to an eco-car that would be accepted by customers.

Kawabata : Among the host of vehicles that appeal to eco-minded users, I think it's a tremendous contribution to society to offer a vehicle that is also attractive to those who value driving pleasure.



Before the discussion, we had the participants test drive the SUBARU XV HYBRID to check their impressions of the ride quality, hybrid performance and other attributes.

Contributing to the solution of social issues through car functions

Kawabata : I think the automobile of the future will inevitably demonstrate environmental efficiency. We will no longer hear about products that have to sell environmental performance: rather, the products will have it as a matter of course.

Fukui : In the case of SUBARU, our work on environmental performance is a given. But besides that, we want to bring out the unique qualities that make our cars unmistakably SUBARU. In that sense, our theme encompasses not only the environment, but of course, safety, too.

Kawabata : As regards safety, I think one of SUBARU's major social contributions is the EyeSight driving assist system. For some years now, we've heard the opinion that safety systems do not make money in Japan, but since the EyeSight was launched the situation has changed.

Fukui : With the XV HYBRID, more than ninety percent* of vehicles will be equipped with the EyeSight driving assist system.

Kawabata : That's tremendous, isn't it? Until now, there have been a lot of things in the world that are just technologically excellent. But however superior the technology, it means nothing from a CSR standpoint if people are not using it. It means a great deal of sense socially, though, to fit ninety percent of cars costing around three million yen with an option that costs around 100,000 yen.

Fukui : One of our "Motion-V" CSR goals is, "To provide products and services that contribute to solving social issues." I think EyeSight is an embodiment of that goal. In addition, the company promotes safety technology designed to achieve our keyword objective of "all-round safety." According to this, our car occupants are safe and, furthermore, people in the vicinity of our cars are safe, too. That's SUBARU's fundamental approach to safety. And EyeSight technology, which is designed to achieve this, has functions that I feel ought to be promoted in future.

Kawabata : How are things going with Eco-Cruise Control?



EyeSight active driving assist system employing stereo camera.

*This figure refers to the market in Japan.

Fukui : Eco-Cruise Control was planned so that only customers of SUBARU's first hybrid vehicle in combination with SUBARU's original EyeSight driving assist system could experience its value. Eco-Cruise Control was evolved to adapt for hybrid use the cruise control for all speed ranges that is fundamental to the EyeSight system. It adds a range in which gasoline is not used by maximizing the hybrid's electric motor use in cruise control, thereby facilitating environmentally friendly driving.

Kawabata : Cruise control is a function that is not originally intended for use during active driving; rather, I think it aims for the obvious benefit of improving fuel economy without sacrificing driving enjoyment. When using normal cruise control, fuel economy may worsen on account of the car going all-out to follow the vehicle in front. I also think that if I use cruise control when I'm tired, fuel economy always gets worse. This is a problem.

■ For the next generation of children to enjoy automobiles

Fukui : The personality of cars is a theme automakers continue to think about, but how will this change in future, in terms of the basic values of a car?

Kawabata : In the past, there were the "premium" values, which were easy to understand. If one factor stood out, it was recognized as a premium value, but this concept of premium is not a uniform thing. For instance, people used to be proud of a car that did 100 km/h, but even today's compact cars are capable of that kind of speed. In future, if a car suits a person's lifestyle, it will be regarded as premium by that person, and the person will be satisfied. The hard part is that these values need to have an essential nature in common. We live in an age when good quality, reasonably-priced clothing and furniture is readily available, and customer satisfaction is commonplace. Customer delight is what's important.

Fukui : The automobile industry is already a mature industry in the developed nations, so the important themes for automakers include the kind of values they ought to provide next, and how to connect emotionally with the customers. In the case of SUBARU, I think the key to this area lies in how well we merge driving pleasure and functionality. Functions that are mindful or nifty might be the ones that get the attention of the customers. It's not that the customer is buying a motor or even a hybrid system. They want to buy the car itself. What's important to them is the car's value as a product. So I think we can approach this by effective use of technologies to elevate the fundamental values, in order to raise the level of customer satisfaction.

Kawabata : With independent automakers becoming fewer throughout the world, I think SUBARU stands out as a unique maker. The distinction of having all engines built in Gunma prefecture is an extremely valuable asset in the current era, and one I regard as a premium factor. If SUBARU continues to build cars like the XV HYBRID that capitalize on distinctive technology and uniqueness of approach encapsulated in the slogan, "We are SUBARU," I think more children will grow up liking automobiles. I would like to see a new era brought about by the continuing DNA of this distinctive brand.

Fukui : We are determined to take on future challenges. Thank you very much for an interesting discussion.

