Promoting Environmental Innovation

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In line with the formulation of the medium-term management plan "CITIZEN Global Plan 2018," the CITIZEN Group developed the CITIZEN Group Medium-Term Environmental Plan¹ in 2013 and is working on environmental initiatives as the entire Group.

The underlying idea of watchmaking at the CITIZEN Group is that the reduction of environmental impact can be realized if customers care for their watch and use it for a long time. As such, we pursue long-term usability of watches in terms of both long operating life and durability. In April 1996, we launched "Eco-Drive," a wristwatch not requiring any battery replacement and the first wristwatch to be awarded an Eco Mark, while the "CITIZEN L²" is a brand of watch that makes five ethical commitments announced including disclosure of carbon footprint. Creation of products with long usability is also realized through the application of allergy resistance titanium in exterior parts, scratch-resistant surface finishing and use of lubricants that do not alter with age, eliminating the need for maintenance.

Today, we are under pressure of facing competition with non-specialist watchmakers, as smart watches and other unconventional products are distributed. We are responding to these changes by harnessing our experience and know-how in energy-efficiency and miniaturization from a century of watchmaking, while strengthening cooperation within the Group and partnering with external organizations. For example, the Group is promoting the development of solar panels and rechargeable batteries that work with indoor lighting through engaging in open innovation with universities and other companies to improve energy conversion efficiency and to develop new electricity storage technology. In the field of mechanical watches, we are promoting the collaboration with our Swiss affiliate, Manufacture La Joux-Perret S.A., and Frederique Constant SA, and working to improve the mainspring, a power source, in order to increase the duration of

power from the existing 42 hours to 60 hours. It is expected that this technology be applied to products.

In terms of reducing the environmental load of our development department itself, it has been working on the reduction of the number of prototypes using simulation, verification using stereolithographic prototype dummies, and improved efficiency of inspection using 3D digitizers. In 2017, the department met all of its reduction targets under its environmental management plan.

Meanwhile, initiatives are also under way in our production process. We are aggressively deploying digital technologies, in addition to environmental consideration at procurement stage in which the selected chemicals, materials and polishing agents required in production have less impact on the human body and environment. A future challenge is to increase our use of the IoT. Considering that we will need collaboration with external organizations more than before, we are engaged in joint development with parts manufacturers and robot manufacturers.

"Eco-Drive," the light-power technology that revolutionized the wristwatch, was based on energy-saving technology, titanium materials, and titanium surface-hardening process technology that were the results of 40-50 years of steady work. We believe that this kind of mindset that aims for manufacturing enables innovation. The CITIZEN Group will continue to strive for product development that continues to enhance the corporate value through people-friendly and eco-friendly manufacturing.

Related information

1. Citizen Group Environmental Policy and Medium-Term Plan

http://www.citizen.co.jp/global/csr/approach/ environment/vision.html

2. "CITIZEN L" information disclosure

http://www.citizenwatch-global.com/l/special/ disclosure/index.html

