Improving Our Products  
Energy Conservation and Prevention of Global Warming

Development of User-Friendly and Energy-Saving Technologies

● Concept
Products that are not easy to use will not be chosen by customers, even if their energy-saving performance is good. Such products can neither contribute to energy conservation nor help prevent global warming. Ricoh further develops its unique energy-saving QSU technology**, which enables quick recovery from energy-saving mode, allowing users to make copies whenever they need to. It is also expanding the product line of QSU-equipped machines. Meanwhile, reducing unnecessary paper consumption is important since paper production consumes a lot of energy (indirect energy saving). Ricoh helps decrease the environmental impact caused by customers’ paper consumption by offering user-friendly duplex copying functions, digitization, and promoting sales of recycled paper.

* Ricoh’s original energy-saving technology that enables quick recovery from energy-saving standby mode.

● Targets for Fiscal 2004
○ Achieve Ricoh’s energy-saving goals.
○ Develop practical application technologies for alternative paper and rewritable paper.

● Review of Fiscal 2004
Ricoh was the first in the world to market high-speed monochrome digital copiers possessing productivities of 65 and 75 copies/min. and a quick recovery function that enables them to recover from energy-saving mode in 10 seconds or less (these copiers are marketed only in Japan). Ricoh thus completed a lineup of office-use monochrome quick-recovery technology was introduced and are currently in use outside of Japan increased. As a result, the amount of CO2 reduced reached approximately 29,000 tons in fiscal 2004, twice that reduced in the previous year (see graph ).

* The time it takes for copiers with a productivity of 45 copies/min. to recover from energy-saving mode is 15 seconds or less.

● Future Activities
Ricoh will strive to improve its QSU technology to widely promote the use of the energy-saving function. Ricoh will also promote the introduction of user-friendly (reduction in time required to recover from energy-saving mode), energy-saving technologies to color copiers.

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Ricoh Achieves the World’s First 10-Second Recovery Time High-Speed Digital Multifunctional copier: imagio Neo 752ec/602ec

In fiscal 2003, Ricoh introduced the HYBRID QSU, an integration of quick start-up (QSU) technology and capacitors (electric storage devices), to the imagio Neo 752 series of high-speed digital multifunctional copiers. This enabled a 30-second recovery time from energy-saving mode. In fiscal 2004, by improving the HYBRID QSU, Ricoh launched the imagio Neo 752ec/602ec, which achieves a 10-second recovery time from energy-saving mode. The capacitors have a quick charge and discharge capability. In the past, capacitors were used to supply heat to the fusing roller. This is because although the ultra-shin fusing roller, one of the QSU technologies, shortens the temperature rise time, papers tend to absorb heat easily from the fusing roller during high-speed printing, such as at 75 pages/min., which resulted in a failure to maintain copy quality and productivity. In the new series, capacitors are used both for printing and to help the restart. Using capacitors in this way, Ricoh succeeded in achieving a 10-second recovery time (about 1/30 that of existing machines*) from energy-saving mode without lowering productivity. This is the first time in the world that a ten-second recovery time has been achieved in the field of high-speed digital copiers.

* Comparison with imagio Neo 750 model 75

* Capacitors are incorporated only in the 100V machines marketed in Japan.
Enrichment of Energy-Saving Product Lines
In fiscal 2000, Ricoh marketed user-friendly and energy-saving products, the Aficio 1035/1045 (imagio Neo 350/450), which use Ricoh’s original QSU energy-saving technology. Since then, Ricoh has actively incorporated this technology into its copiers and printers. In fiscal 2003, Ricoh developed the HYBRID QSU, an improved QSU technology designed for high-speed machines. Also in fiscal 2004, Ricoh developed the imagio Neo 752 ec series with a copying productivity of 75 pages/min., and a 10-second recovery time from energy-saving mode. This completes our extensive energy-saving product line, with machines with productivities ranging from 13 pages/min. to 75 pages/min in Japan.

30-Second Recovery Time for Color Printers
Ricoh launched color printer Aficio CL4000DN (IPSiO CX400) with a copying productivity of 25 pages/min. in February 2005. This machine, which has a 30-second recovery time from energy-saving mode and consumes less than 6W of energy in standby mode, combines user friendliness with energy-saving.

Indirect Energy Saving through Reduced Paper Consumption

Development of User-Friendly Duplex Copying Function with High Productivity
To provide more customers with user-friendly duplex and n-up copying functions (copying multiple pages on one sheet of paper) and to reduce paper consumption by users, Ricoh has developed higher-speed duplex and n-up copying technologies that are more user-friendly. The Aficio 2075/2060 (imagio Neo 753/603) series, in which a single-path system is used, simultaneously reads both sides of a two-sided document with a single scan by two scanning sections, and realizes higher-speed duplex copying of two-sided documents at the same speed as single-sided document copying. The series also achieves 100% duplex copying productivity* while in continuous operation. Many of our multifunctional digital copiers also achieve 100% duplex copying productivity while in continuous operation.

* Duplex copying productivity (%) = (Time spent on simplex + duplex copying)/(Time spent on simplex + simplex copying) X 100. The time is measured from the moment the desired number of copies is entered and the “Copy” button is pressed to the moment the copier is ready for the next batch of copying.
Solutions to Reduce Paper Consumption for Users
Ricoh provides its customers with printing solutions to realize an ideal printing environment that meets each customer’s business needs. In addition, document solutions are available to scan and digitize paper documents, and confirm/share the data on networked PC screens. With these solutions, Ricoh contributes to a reduction in paper consumption for its customers.

RECO-View® IC Tag Series that Visualizes Rewritable IC Tag Information
Rewritable IC tags that record the latest inventory, production capacity, etc. are now used extensively to manage information in many different areas such as production and distribution. However, these IC tags have a drawback that the recorded data is invisible. Using thermal rewritable technology that is used for loyalty cards, etc., Ricoh has developed the RECO-View® IC Tag series that makes it possible to display and rewrite data recorded on IC tags. This technology enables simultaneous rewriting of information on IC tags and printed images on sheets and tags. These IC tags were tested at the Ricoh Numazu Plant and marketed in December 2003. Today, printers, readers and writers that respond to the RECO-View® IC Tag series have been launched by different makers, and RECO-View® IC Tags are used by more than 30 companies, mainly in the manufacturing sector.

The introduction of an integrated print management system brought paper consumption down approximately 50%.

Improvement of printing environment a big concern
Among other things, Keio University was concerned about the need for better printing environment to deal with its growing technological and administrative requirements. At the Mita and Hiyoshi campuses, every two PCs were locally connected to one printer. This setup necessitated a considerable number of printers and was causing immense problems in terms of cost and machine maintenance.

Improvement in user convenience for students
Keio University introduced Ricoh’s integrated print management system to its Mita, Hiyoshi, Yagami, and Shinanomachi campuses at about the same time. The on-demand pay printing system is connected to 57 printers in total. The network connection saves maintenance work and cost, and the optimal system allocation improves convenience for students. Under this system, users pay ¥5 per copy for black-and-white printing and ¥30 per copy for color printing. This made students more aware of the cost of printing, and some campuses succeeded in cutting down the number of copies to about 50% that in the previous year.