Use

Activities reducing environmental impact with electric power and paper efficient machines

Office automation (OA) equipment, including copiers, printers, and facsimiles, require electric power, emitting CO_2 in the process of generation, which causes a major environmental impact. In order to prevent global warming, Ricoh strives to improve not only the energy conservation capabilities of its products, but also their usability so that more people will use them, thereby effectively reducing the total environmental impact of the CO_2 emission caused by electric power generation. Ricoh uses advanced energy-saving technologies in its core products to achieve this. Another important issue is the efficient use of paper. Ricoh is proposing a variety of systems that would reduce paper consumption by improving the quality of duplex copying and using computer technology applications.

■ Energy Conservation

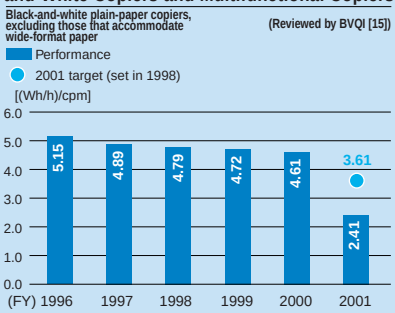
It is important for office equipment, including copiers, to use less energy while in standby mode. Copiers and printers are generally left on during office hours while facsimiles are left on 24 hours a day. Ricoh succeeded in significantly reducing the amount of electricity consumed by its digital multifunctional copiers, namely, the Aficio 1035/1045 and 1022/1027 series (imagio Neo 350/450 and 220/270 series, respectively). The series is even more user-friendly with its quick recovery from energy-saving mode.

Aficio1022/1027 series
(imagio Neo 220/270 series)

Changes in Energy Consumption of Black-and-White Copiers and Multifunctional Copiers

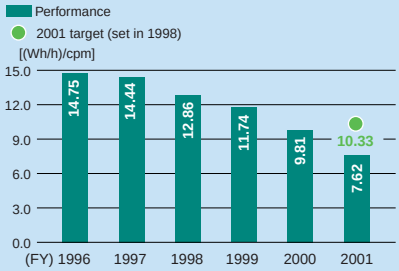
Black-and-white plain-paper copiers, excluding those that accommodate wide-format paper

(Reviewed by BVQI [15])



Changes in Energy Consumption of Color Copiers and Multifunctional Copiers

(Reviewed by BVQI [16])



*In fiscal 2001, the Aficio 1035/1045 and 1022/1027 series (imagio Neo 350/450 and 220/270 series, respectively), which incorporates quick start-up (QSU) technology (see page 48), significantly contributed to the achievement of our goal.

◎ Energy conservation values for copiers are calculated as follows:

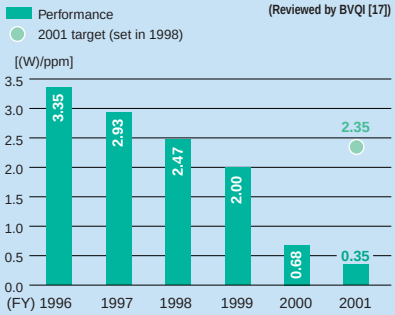
Σ [<Energy consumption efficiency (Wh/h)>[1]/<copying speed[2]> × the number of units marketed]/
Σ the number of units marketed

1. Energy consumption efficiency was measured in accordance with the Ministry of Economy, Trade and Industry's Law in Japan Concerning the Rational Use of Energy.
2. Copying speed = copies per minute (cpm)

Data for multifunctional black-and-white copiers, color copiers and multifunctional copiers are pursuant to the measurement standard for energy consumption efficiency of the Law Concerning the Rational Use of Energy.

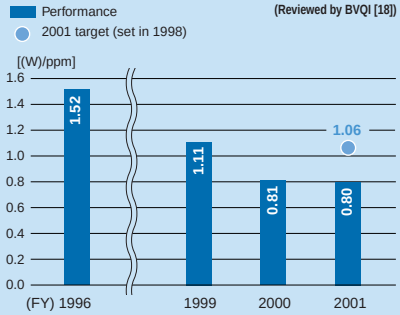
Changes in Energy Consumption of Facsimiles (including multifunctional copiers)

(Reviewed by BVQI [17])



Changes in Energy Consumption of Black-and-White and Color Printers

(Reviewed by BVQI [18])



◎ Energy conservation values for facsimiles are calculated as follows:

Σ [<Energy Star energy consumption in standby mode[1] (W)>/<printing speed[2]> × the number of units marketed]/Σ the number of units marketed

1. Energy Star energy consumption in standby mode = energy consumption in standby mode pursuant to the standards of the International Energy Star Program.
2. Printing speed = print per minute (ppm)

* Data for the four charts above are calculated based on the number of units marketed in Japan.

Energy-Saving, User-Friendly QSU Technology Used in the Aficio (imagio Neo)

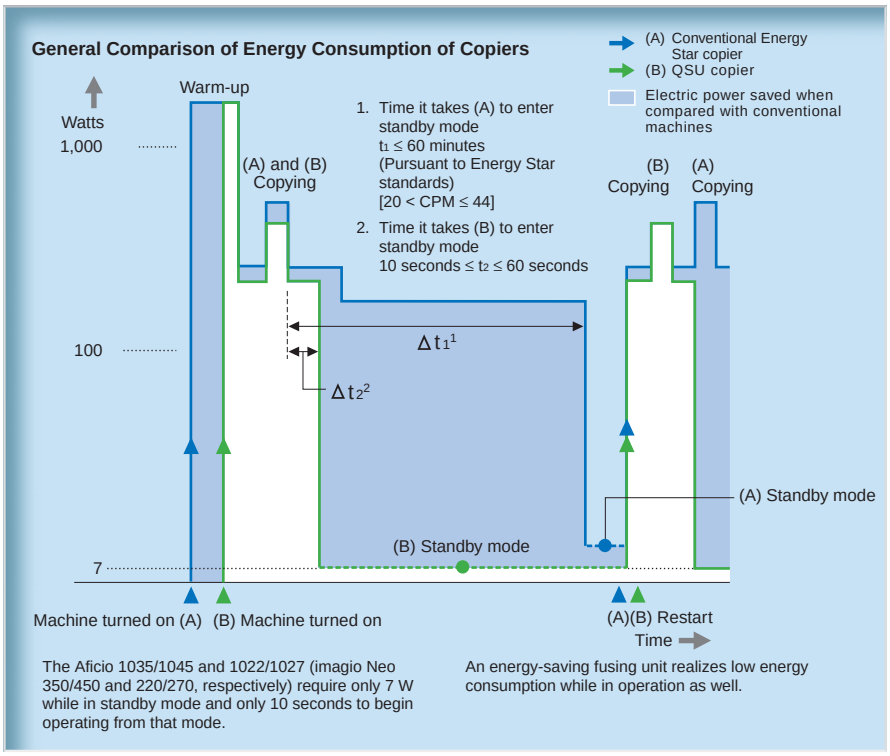
QSU technology is Ricoh's unique technology that enables machines to save energy and start up quickly when needed. The technology was first used in the Aficio 1035/1045 (imagio Neo 350/450) series digital multifunctional copier, which was marketed in fiscal 2000. The Aficio 1022/1027 (imagio Neo 220/270) series, marketed in fiscal 2001 with the energy consumption efficiency of 29 Wh, improved an approximately 40% energy consumption efficiency compared to the Aficio 220/270 (imagio MF2230/2730). The Aficio 1022/1027 (imagio Neo 220/270) needs only 10 seconds to begin operating from energy-saving (standby) mode.

Received the Energy-Saving Award for Two Consecutive Years

At the 12th Energy-Saving Award in fiscal 2001, the imagio Neo 220/270 (Aficio 1022/1027) series digital multifunctional copier was awarded the Energy Conservation Chairman's Prize in Japan. This was the second year in a row that Ricoh won an award. The previous year, the Company received the Minister of International Trade and Industry Prize for the imagio Neo 350 (Aficio 1035) series. Major factors that contributed to winning this year's award include 1) the extensive use of QSU technology in popular products to reduce the environmental impact of society as a whole, 2) reducing resource consumption by using recycled parts, and 3) significantly reducing chemical substances that influence the environment*.

* See page 32.

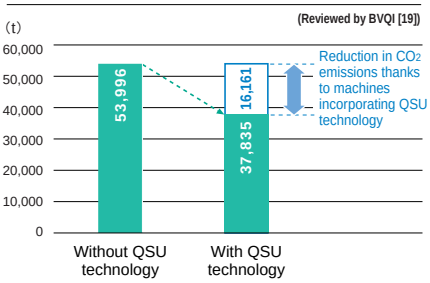
The12th Energy-Saving Award's Energy Conservation Chairman's Prize



Annual Reduction in CO_2 Emissions of Approximately 16,000 Tons Worldwide

In fiscal 2001, Ricoh estimated to reduce CO_2 emissions of products marketed by the Ricoh Group worldwide approximately 16,161 tons by incorporating QSU technology into its digital multifunctional copiers, namely, the Aficio 1035/1045 and 1022/1027 series (imagio Neo 350/450 and 220/270 series, respectively). The figure on the right shows a comparison of annual CO_2 emissions on the assumption that QSU technology not incorporated. The reduction is equal to ¥1,041 million in electricity bills for customers. It was discovered through segment environmental accounting that Ricoh's development of energy-saving products roughly corresponds to a cost reduction of ¥1,048 million.

Environmental Conservation Costs and Effects in the Development of Products Incorporating QSU Technology (FY 2001)



Environmental Conservation Costs and Effects in Developing QSU Products (Segment Environmental Accounting)

Costs			Effects			EI value (t/100 million yen)
			Economic benefit		Effect on environmental conservation	
Item	Main cost	Amount	Corporate effect	Customer effect		
Research and development	Development of energy-saving units	400 (millions of yen)	Effect on gross benefit 1,048 (millions of yen)	Reduced electricity expenses* 1,041 (millions of yen)	Reduced CO_2 emissions* 16,161 (t)	2,671.2
	Molds, jigs, and parts	205 (millions of yen)				

*Annual "Reduced electricity expenses" and annual "Reduced CO_2 emissions" are calculated on the assumption that the machine is used eight hours a day, twenty days a month.
Contribution amount to gross margin = gross margin amount × contribution rates to gross margin by environmental efficiency (See page 78.)

■ Efficient Paper Use

The manufacturing of paper consumes a lot of energy and generates a significant amount of CO_2. To do its part in preventing global warming, Ricoh implemented the more efficient use of paper to its energy conservation goals. Moreover, Ricoh engages in developing rewritable paper*, which can be erased and rewritten on repeatedly.

* See page 32.

Improved Duplex Copying

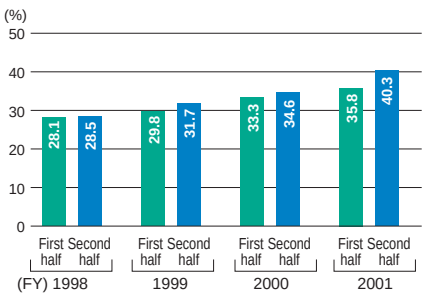
To encourage more customers to make use of duplex copying, Ricoh has developed a high-speed "switchback" system that speeds up processing by shortening the interval in which paper is fed into the copier. A paper-feeder simulator that eliminates nonfeasible feeding route designs had also been developed. The Aficio 850 (imagio MF 8570) digital copier, which was marketed in 1999, incorporates a "nonstuck interleaf" duplex design to achieve nearly 100% duplex productivity* while in continuous operation. Many of our other products have also achieved 100% duplex productivity.

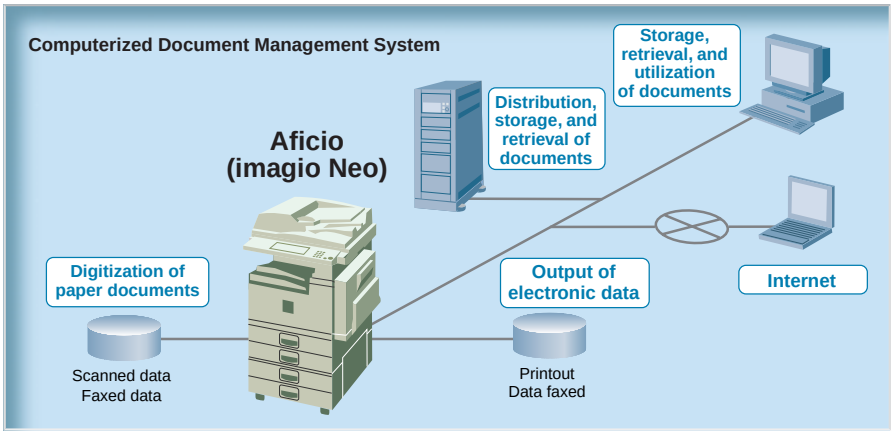
* Duplex copying productivity (%) = (Time spent on simplex → duplex copying)/(Time spent on simplex → simplex copying) × 100. Time is measured from the moment the desired number of copies is entered and the "Copy" button is pressed to the moment the copier is ready for the next batch of copying.

Marketing Recycled Paper

Ricoh conducts LCA studies on new and recycled paper to identify their environmental impact. Ricoh also markets recycled paper to reduce the amount of energy consumed in manufacturing paper.

Japanese Sales of Recycled Paper





Reduction in Paper Consumption by Computerization

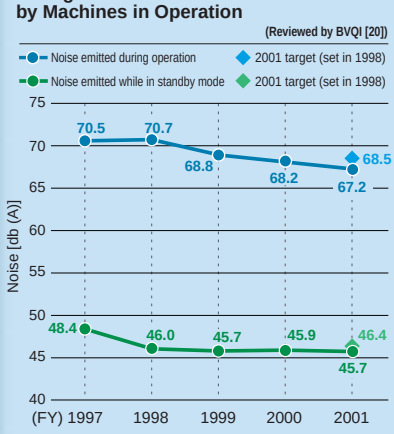
Ricoh provides customers with an ideal printing environment with its high-value-added products, including multifunctional printers (printers that can also be used as copiers and facsimiles), and an efficient computerized document management system. Such a system includes scanning documents and incorporating their data into a database and enabling users to browse and search such data on personal computers connected to the network as well as having a less-paper fax function that displays information on a computer screen. Ricoh makes the management of documents more efficient and reduces paper consumption.

■ Reduction in Noise and Emission of Chemical Substances

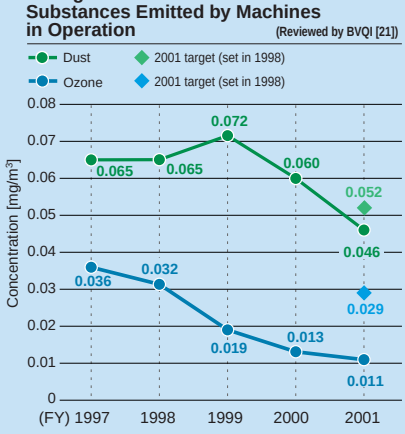
In order to make office equipment, including copiers, more acceptable, it is important to reduce the noise it emits. The emission of ozone and dust, even if very small in amount, is also to be eliminated.

Ricoh is making great efforts to improve its product design so that the noise, ozone, and dust emitted are reduced.

Changes in the Level of Noise Emitted by Machines in Operation



Changes in the Level of Chemical Substances Emitted by Machines in Operation



* Calculations are based on the weighted number of copiers, facsimiles, and printers sold and converted into a copying productivity of 50 sheets per minute for all machines.
* The figures above have been calculated using a formula set by the Japan Business Machine Makers Association's Standard (JBMS) in 1999.