JAPAN INCHES TOWARD RECYCLING

Tokyo—Corporate Japan is in a scramble to at least create the appearance of being environmentally friendly. Everybody has a recycling gimmick of some sort, especially in older, more established industries. Recycled paper is everywhere.

New growth industries, however, are creating problems as fast as the old ones can be solved, observers say. Office automation, for example, generates huge amounts of noncombustible waste.

And then there’s the challenge of getting manufacturers to practice what they preach. Makers of disposable cameras say 70-80% of the parts can be recycled, but nobody knows the extent to which this actually happens.

New legislation addresses this problem and is becoming the main motivating force behind environmentally responsible manufacturing. Japanese manufacturers are now obliged by law to label the recyclable parts of their products. In 1991, the government passed the Law for Promotion of Utilization of Recyclable Resources. In 1992, this was backed up by a new Waste Disposal and Public Cleansing Law.

Compliance is off to a good start, but it is only a start. Design-for-disassembly remains largely a matter of academic discussion and a gleam in management’s eye.

The automotive and white goods sectors are the most familiar with DFD, but applications are few and far between and there seems to be no leadership. The Japan Automobile Manufacturers Association sponsors recycled products conferences, but the association refuses inquiries about DFD back to individual manufacturers.

Toyota Motor Corp., Nissan Motor Co., and Mazda Motors Corp. are collecting used bumpers for recycling, mainly to make pallets for the distribution industry. A spokesman for Toyota said they are making progress toward a more disciplined use of DFD ideas.

“The engineers have the concept in mind,” he said, but pointed out that Toyota also depends on “a tremendous number of parts suppliers.”

More than 80% of each car, basically the metal parts, is already recycled. The problem occurs with the rubbers and resins that make up the remainder.

What happens to old instrument panels illustrates part of the problem. During recycling, various parts of different materials must be separated from each other. “Of course we are thinking about how to make it easier to separate these parts, but it is too expensive, so interior parts are labeled but not actually recycled,” the spokesman said.

Bumpers are large enough to make separation and recovery worth doing, and remain the only plastic part being recycled, he noted. Most dealers collect bumpers and send them to a Toyota subsidiary for reuse.

The Mark II Toyota’s recession-defying success of 1992, has such recyclable bumpers. Most of the rubber parts in the car are also marked for recycling, though the recycling process itself is not in place. “Design is for the future. There are a lot of difficult problems,” the spokesman said. “The more difficult a thing is to separate, the tougher it is. The easier it is to separate, the less safe it is likely to be,” he said. The compromise might be skirted by using as many of the same materials as possible. “It is not such a complicated thing,” he said. “But at this moment, because price consciousness is so strong, we are forced to use many different kinds of resins. This makes it more difficult to recycle.”

All Japanese auto makers are trying to find ways of recycling more of the car. The Toyota spokesman said he expects progress to be incremental, with a couple of improvements incorporated into each new model.

The household appliances sector has a few outstanding examples that might make DFD an industry buzzword. Hitachi Ltd. replaced the plastic in a washing machine with more readily recyclable stainless steel. But beyond that, little else has been done. “We’ve just begun to think about DFD,” a Hitachi spokesman said.

Mr. Tetsuro Fukushima, general manager of the company’s Global Environment Protection Center, leads a growing drive to change design ideas within the organization. The seeds he has planted so far are germinating at the Hitachi Production Engineering Research Laboratory.

Matsushita Electric Industrial Co. is regarded as the boldest pioneer in the DFD field. A Matsushita washing machine under development can be taken apart with nothing but a screwdriver. Each plastic part larger than 100 grams is labeled precisely according to what materials are in it, in accordance with the new laws.

Some of Matsushita’s small TV sets have been similarly labeled and made simpler to take apart. A spokesman said recycling priorities would eventually be incorporated into every product Matsushita makes.

The Association for Electric Home Appliances (EHA) collected $8 million from members a year ago to establish a recycling system for TV sets and refrigerators. Shinwa Unyu Co., a Tokyo waste-collection firm, runs the growing EHA system.

Makers of plastic and plastic products are having to bite the bullet on recycling, but they are biting down hard in the belief that the industry’s survivors will all be on the environmental bandwagon. Leading PVC producer Kaneka Corp. provides recycling facilities for PVC, polypropylene, and engineering plastics.

The Japan EPS Recycling Association aims to set up 30 polystyrene foam recycling plants across Japan by 1995, increasing the proportion of the recycled material from 10% to 25%. That percentage is the crucial measurement, and it cannot be increased satisfactorily with the current piecemeal approach.

Consider the simplest disassembly process of all — removing spent batteries from an appliance. An engineer at one of Japan’s largest heavy equipment makers said the company has the technology to economically recycle the materials in regular dry cell batteries. A high percentage of offices and households make a point of collecting their batteries and turning them in at retailers, who pass them on to central collection points. There they are loaded into trucks and carted to...landfills.

Progress in DFD is inevitable in Japan, the engineer observed, but it is liable to be patchy. For instance, in the electronics sector, home of such giants as Sony Corp. and Sharp Corp., DFD experts are not to be found. —David C. Hulme
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